### Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	рН	Conductivity [µS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
	Oct 2003 - 1st Round (BASELINE EVENT)		5.2	6.7								-	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round		4.18	6.88									HDPE Bailer	Good yield. Recovered purged water observed to be clear. NVO.
BH2	Apr 2007 - Third Round		4.08	6.98	5.82	5.69		-					HDPE Bailer	Good yield. Recovered purged water observed to be clear with no streaks or odour. NVO.
	Sep 2012 - Fourth Round		4.4	6.84	1								HDPE Bailer	Dark brown for first 5L. Organic matter and orange colouring from 5L to 24L purge. Slight oil sheen noted.
	Sep 2015 - Fifth Round		4.121	6.764			1.569	-107.1	14.7	6.82	1609	0.374	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 3L. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)		5.5	6.5			-	-				-	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
·	Dec 2005 - 2nd Round		5.27	6.18				-					HDPE Bailer	Good yield. Water brown in colour. Some very fine, white possibly living organisms noted. NVO.
внз	Apr 2007 - Third Round		4.91	5.94	6.55	6.49		-				-	HDPE Bailer	Good yield. Initially slightly grey in colour with small amount of organic matter. Cleared after initial 20L to become brown in colour. No streaks or odour.
	Sep 2012 - Fourth Round		5.23	5.38									HDPE Bailer	Dark brown/black purge water, lots of organic material in water. NVO.
	Sep 2015 - Fifth Round		5.14	6.035			1.35	-81	15.1	6.88	1449	0.946	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 1L. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)		4.8	6.7			-						No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round		4.96	6.31									HDPE Bailer	Good yield to final purge volume of 40L. No odour. Slight oily sheen on water surface.
BH4	Apr 2007 - Third Round		4.72	6.23	6.21	6.18	-						HDPE Bailer	Good yield. NVO.
	Sep 2012 - Fourth Round		4.9	4.95										No sample obtainable - insufficient water volume.
	Sep 2015 - Fifth Round		4.83	6.169			1.35	32.8	15	6.6	522	5.61	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 0.5L. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)		5	7			-						No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round		4.94	6.47									HDPE Bailer	Good yield. NVO.
BH5	Apr 2007 - Third Round		4.57	6.23	6.185	6.085							HDPE Bailer	Good yield. NVO.
	Sep 2012 - Fourth Round		Dry	4.87										No sample obtainable - insufficient water volume.
	Sep 2015 - Fifth Round		4.755	6.07			1.33	25.5	16.1	6.73	775	1.518	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 0.5L. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)		5.3	6.7			-						No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round		5.07	6.84									HDPE Bailer	Good yield. Clear grey water. NVO.
BH7	Apr 2007 - Third Round		4.93	6.84	6.45	6.425	-						HDPE Bailer	Good yield.Clear grey water. NVO.
	Sep 2012 - Fourth Round		5.21	6.49									HDPE Bailer	No comments provided.
	Sep 2015 - Fifth Round		5.11	6.947			1.315	-98.6	16.8	7.09	1707	0.539	Peristaltic Pump	Well de-silted. Clear water NVO.

### Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	рН	Conductivity [uS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
	Oct 2003 - 1st Round		4.9	7.2		or their oading [in Abb]			[d0g 0] 				No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	(BASELINE EVENT) Dec 2005 - 2nd Round		4.86	6.34				-				-	HDPE Bailer	Good yield. Slight oil streak observed on the water surface of the firs 10L that were removed. No oil streaks were observed on the purge water removed thereafter.
BH8	Apr 2007 - Third Round		4.88	6.39	6.2	6.155							HDPE Bailer	Good yield. NVO.
ľ	Sep 2012 - Fourth Round		4.95	6.25									HDPE Bailer	No comments provided.
ľ	Sep 2015 - Fifth Round		4.815	6.822			1.34	4.4	15.2	6.74	1350	1.793	Peristaltic Pump	Well de-silted. Clear water. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)	-	1.9	2.2				-				-	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
ľ	Dec 2005 - 2nd Round											-	-	No information reported by CRA.
ľ	Apr 2007 - Third Round											-	-	No information reported by CRA.
BH9	Sep 2012 - Fourth Round				5.9	5.775								No information reported by CRA.
	Sep 2015 - Fifth Round		1.75	2.497			4.025	-138.7	24.5	7.45	1544	0.374	Peristaltic Pump	Well de-silted. Black water turning grey after approx. 1L purge. Black sediments noted with organic odour. No sheen noted. Well turned dry after approx. 2L purge. Sample collected after approx. 50mins recharge. Shallow groundwater well within the Perched Water.
	Oct 2003 - 1st Round (BASELINE EVENT)		5	7				-				-	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round		4.41	7.13									HDPE Bailer	Recovered purge water observed as grey and clear. NVO.
BH10	Apr 2007 - Third Round	-	4.39	7.17	5.94	5.835		-				-	HDPE Bailer	Good yield.Clear grey groundwater. NVO.
	Sep 2012 - Fourth Round	-	4.96	5.53				-				-	HDPE Bailer	Continuous slight orange colour during purge. NVO.
	Sep 2015 - Fifth Round	-	4.277	7.031			1.558	24.6	15.5	6.8	748	0.55	Peristaltic Pump	Well de-silted. Light brown water turning clear after approx. 3L purge. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)	-	4	6									No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	-	4.13	5.09				-				-	HDPE Bailer	Good yield. Brown in colour. Some oily streaks were initially observed on surface water but cleared after 20L.
BH104B	Apr 2007 - Third Round	-	4.12	5.89	5.81	5.715		-					HDPE Bailer	Good yield. Brown in colour. NVO.
	Sep 2012 - Fourth Round	-	4.39	5.92				-					HDPE Bailer	Light orange in the first 2L of purge, clear thereafter to 14L. NVO.
	Sep 2015 - Fifth Round	-	4.141	4.931			1.574	-88.6	15.7	6.84	1153	1.067	Peristaltic Pump	Well de-silted. Clear water NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)	-	4.500	6									No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	-						-				-	-	No information reported by CRA.
BH109	Apr 2007 - Third Round		4.400	6.18	6.28	6.14								No information reported by CRA.
ľ	Sep 2012 - Fourth Round													No information reported by CRA.
	Sep 2015 - Fifth Round	-	4.507	6.142			1.633	-68.9	12.5	7.1	6.8     748                           6.84     1153           6.84     1153 <t< td=""><td>Peristaltic Pump</td><td>Well de-silted. Light brown water turning clear after approx. 1.5L. NVO</td></t<>		Peristaltic Pump	Well de-silted. Light brown water turning clear after approx. 1.5L. NVO
	Oct 2003 - 1st Round (BASELINE EVENT)	-	4.600	5.6									No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	-	4.880	5.52									HDPE Bailer	Good yield. Some very fine white possible live organisms observed. Pipe installation too marrow to use standard baller. Sampled directly from HDPE pipe. No streaks or odour.
BH110	Apr 2007 - Third Round	-	4.650	5.49	6.3	6.24		-					HDPE Bailer	Good yield. Initially slightly grey in colour with small amount of organic matter. Cleared after initial 30L to become brown in colour. NVO.
ĺĺ	Sep 2012 - Fourth Round	-	4.960	5.53									HDPE Bailer	Dark brown colour, clearing up throughout purge. NVO.
ĺ	Sep 2015 - Fifth Round	-	4.805	5.516			1.435	-18.4	17.2	6.99	1183	1.991	Peristaltic Pump	Well de-silted. Clear water NVO.

### Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	рН	Conductivity [µS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
	Oct 2003 - 1st Round (BASELINE EVENT)	-	4.900	7.6 (*)									No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
BH111	Dec 2005 - 2nd Round	-	5.090	7.53	6.45	6.41		-	-				HDPE Bailer	Iniatial purged water recovered dark brown / black. Soon cleared on purging. Purged then left overnight before purging again. Total purged volume 150L. Some sand recovered from well during purging. NVO.
BIIII	Apr 2007 - Third Round		4.880	7.58	0.45	0.41							HDPE Bailer	Initial purged water recovered dark grey. Soon cleared on purging. NVO.
	Sep 2012 - Fourth Round		5.220	7.59				-					HDPE Bailer	Orange colour throghout purge. NVO.
	Sep 2015 - Fifth Round		5.097	7.653			1.313	-132.6	15.9	6.97	1486	0.44	Peristaltic Pump	Well de-silted. Clear water. NVO.
	Oct 2003 - 1st Round (BASELINE EVENT)	-	Dry	3				-				-	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round		1.19					-						No information reported by CRA.
BH112	Apr 2007 - Third Round		Dry	2.67	6.35	6.305		-						Well dry. Sample not collected.
	Sep 2012 - Fourth Round													Well not located.
	Sep 2015 - Fifth Round	-	Dry	2.766				-					-	Dry. NVO.
BH201A	Sep 2015	-	3.586	5.559	5.72	5.575	1.989	-52.7	15.7	7.14	900	0.638	Peristaltic Pump	Light brown water turning clear after approx. 2L purge. NVO.

### Table 4 - Metals and Inorganics

						Location	n ID BH20	D1A BH2	201A B	3H202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207	BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214	BH2A	BH2A	BH3A	BH4A	BH4A	BH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
						Sample De	pth 0.7	7 1.9	9-2	0.8		1.3	3.3	1	2.5	1.1		2.6-3.5	0.8	1.1	0.5	2.7-3.4	0.8	2.2-2.8	0.7	2.2	0.6	1.8-2.5	0.6	1.7-2	0.85	0.5	1.5		0.9	3.5-4	0.5		0.7	2.5-3	0.5	3-3.5		2.2-3.3
						Sample D	ate 25/08/2	2015 25/08	3/2015 25	/08/2015 2	20/08/2015	5 21/08/2015	5 21/08/201	5 21/08/2015	21/08/2015	21/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015 2	25/08/2015	25/08/2015	26/08/2015 2	6/08/2015	26/08/2015 2	26/08/2015	27/08/2015	27/08/2015 2	7/08/2015 2	27/08/2015	25/08/2015	25/08/2015	25/08/2015	28/08/2015	27/08/2015	27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015
Chemi	cal Gr Chemical	ai Name	Unit	GAC_I OM/IN ND_1 3.48%	HH_C GAC_H D_SA RES+PL .45- AND_1.4 TOC 3.48%T	IGAC_HH_I _S S- 5- PL_SAND_ 0C 5-3.48%TC	RE 1.4 DC																																					
Metals	Arsenic		mg/kg	0.6 640	#5 37#5	40#5	15	i 14	4.5	9.55	12.1	10.9	30	13.7	21.8	19.9	17.8	16.3	16.6	16.6	12.7	13.4	23.6	20.2	11.8	19.5	19.2	18.8	19.1	19.1	11.8	14.5	11.6	18.9	14.2	21.4	19.1	22.4	94	16.4	13.7	14.7	16.5	15.5
	Cadmium	m	mg/kg	0.02 190	#5 11#5	85#5	0.3	5 0.2	255	0.227	0.29	0.21	0.319	0.414	0.263	0.324	0.609	0.377	0.377	0.328	0.378	0.308	0.449	0.341	0.347	0.391	1.44	0.393	0.547	0.389	0.265	0.289	0.219	0.475	0.603	0.385	1.13	0.533	2.03	0.325	0.344	0.338	0.395	0.378
	Chromium	um (III+VI)	mg/kg	0.9			17.	2 15	5.4	10.4	31.2	17.4	15.2	20	20.6	21.9	15.9	16.8	18.5	18.8	20.4	17.6	25.9	16.6	17	24.1	6.94	16.9	17.1	20.2	18.5	16.7	25.8	19.5	16.9	21.5	25.4	21.6	28.7	16.5	13.9	19.1	18.9	21.1
	Copper		mg/kg	1.4 6800	0#5 2400#	7100#5	22.0	6 2.	.33	6.09	35.3	8.93	3.08	25.8	4.42	12.8	48	6.14	66.5	8.23	54.3	3.25	31.2	5.29	9.01	6.47	13.9	4.3	29.6	6.42	19.8	41	9.74	49.3	31.4	6.36	28	3.56	82.3	4.42	80.7	5.98	8.36	12
	Lead		mg/kg	0.7 230	)#4 200#4	310#4	151	1 5	.8	13.2	59.6	10.6	6.08	96.4	10.2	39.4	264	8.15	251	19.7	140	8.4	32.7	5.73	44.5	7.8	271	5.92	2910	6.91	38.9	191	16.9	178	309	8.03	85.7	9.05	468	5.77	41.4	6.89	12.4	23.7
	Mercury	(	mg/kg	0.14 110	0#5 40#5	56#5	0.28	39 <0	).14	< 0.14	< 0.14	< 0.14	< 0.14	0.162	< 0.14	< 0.14	0.487	< 0.14	0.608	< 0.14	< 0.14	< 0.14	<0.14	< 0.14	0.152	< 0.14	< 0.14	<0.14	<0.14	< 0.14	< 0.14	0.493	< 0.14	0.151	< 0.14	< 0.14	1.9	< 0.14	0.702	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
	Nickel		mg/kg	0.2 980		180#5	17.9	9 14	4.8	12.2	38.2	16.5	21.8	17.4	20	22.4	18	18.5	19.3	17.1	18.7	20.3	24.5	21.2	16.5	22.6	6.81	19.2	14.7	22	16.6	17.9	21.4	29.2	15.6	24.2	17.1	20.7	36	19.4	37.6	18.8	23.6	20.7
	Selenium	m	mg/kg	1 1200	0#5 250#5	430#5	<1	<	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Zinc		mg/kg	1.9 7300		40000#5	50	19	9.7	25.3	96.4	44.4	25.3	93	28.2	54.2	131	25.9	69.9	35.6	118	22.7	43.4	21.9	41.3	28.4	276	23.4	906	26.2	58.5	63.9	47.4	89.3	217	28.5	101	28.6	1640	20.8	24.4	25.5	34.5	62.4
	Chromium	um (hexavalent)	mg/kg	0.6 33	¥5 6#5	6#5	<0.	6 <0	0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Inorgan	nics Sulphate	e	mg/kg	48			<48	8 <	48	<48	8120	4280	2040	3750	883	573	<48	<48	<48	<48	<48	<48	481	<48	545	88.2	1090	49.6	7440	80.7	<48	<48	<48	579	841	63.9	356	95.9	601	74.7	775	80.9	212	1040
	Moisture	9	%				14	3	3.8	9.9	11	16	7.2	8.8	5.2	12	14	7.7	17	11	9.4	6	13	6.9	12	8.9	7	5.7	17	6.5	8	15	15	6.3	7.1	4.4	7	5.8	28	4.8	17	9.5	7.3	14
	Ammoniac	iacal Nitrogen as NH4	mg/kg	15			<15	5 <	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	45.6	<15	<15	<15	18.2	<15	<15	<15	<15	<15	<15	<15	23.8	<15	27.7	<15	35.3	15.8	18.4	18.4	<15	71.4
	Easily Libe	iberated Sulphide (Moisture (	(mg/kg	15			<15	5 <	15	<15	20	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	40.4	<15	<15	252
	pH (Lab)	)	pH_Units	1			9.3	2 8.	.74	11	11.7	9.55	8.43	11.3	9.88	8.95	9	8.36	8.77	8.17	12	10.9	9.67	8.35	10.3	8.66	8.95	7.72	8.04	7.84	12	10.6	8.45	8.22	7.92	8.01	7.86	7.86	7.67	8.01	8.38	7.66	10.2	11.2

Comments GAC: Generic Assessment Criteria (blank): No assessment criteria available

- : Not analysed

#3 Dutch Intervention 2009 #4 Defra C4SL 12/2014 #5 AECOM (modified LQM/CIEH S4ULs) #6 AECOM (modified EIC)

#2 Dutch Serious 2009

#1 USEPA RSL

 Key

 XXX
 Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%</td>

 XXX
 Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%</td>

 XXX
 Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%</td>

### Table 5 - TPH, BTEX, Oxygenates, Chlorinated Hydrocarbons, PAHs, PCBs, Hydrogenated Benzenes, Hydrogenated Hydrocarbons, Solvents, Organics, Other and Asbestos Concentrations in Soils

	Location Sample Dep Sample Dep	ID         BH201A         BH2           oth         0.7         1.1           ate         25/08/2015         25/08	201A         BH202A           9-2         0.8           8/2015         25/08/2015	BH203A BH204 0.5 1.3 20/08/2015 21/08/2015	BH204 BH2 3.3 1 21/08/2015 21/08	205 BH205 2.5 (2015 21/08/2015	BH206 E	H207 BH207 0.7 2.6-3.5 08/2015 25/08/201	BH208A 0.8	BH208A 1.1 25/08/2015 2	BH209 E	BH209 BH210 2.7-3.4 0.8 /08/2015 26/08/201	BH210 2.2-2.8 5 26/08/2015	BH211 BH21 0.7 2.2 26/08/2015 26/08/20	BH212 0.6	BH212 1.8-2.5	BH213 0.6	BH213 1.7-2 27/08/2015 2	BH214 0.85	BH2A 0.5	BH2A BH3A 1.5 0.5	BH4A 0.9	E
Chemical Gr Chemical Name Unit EQL GM/CL ND_1.	45- AND_1.45- PL_SAND_1	1.4																					
GRO >C5-C12         mg/kg         0.04           >C5-C6 Alphatics         mg/kg         0.01         3300           >C6-C6 Alphatics         mg/kg         0.01         9200           >C6-C6 Alphatics         mg/kg         0.01         9200	15         34#5         34#5           15         93#5         93#5           15         26#5         26#5	<0.044         <0.           <0.01	0.01 <0.01	<0.044 <0.044 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	<0.01 0.01 <0.01 0.02	01 <0.01 29 <0.01 259 <0.01	<0.01	0.044 <0.044 c0.01 <0.01 c0.01 <0.01 c0.01 <0.01 c0.01 <0.01	<0.01 0.0312 <0.01	<0.044 <0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.044         <0.044           <0.01	<0.01 <0.01 <0.01	<pre>&lt;0.01 &lt;0.01 0.0342 &lt;0.01 1.01 0.013</pre>	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.01 0.012 <0.01	<0.01 <0.01 <0.01	<0.044         <0.044           <0.01	<0.01 <0.01 <0.01	
>C10-C12 Aliphatics         mg/kg         0.01         12000           >C12-C16 Aliphatics         mg/kg         0.1         6600           >C16-C21 Aliphatics         mg/kg         0.1         616           >C16-C32 Aliphatics         mg/kg         0.1         616           >C21-G35 Aliphatics         mg/kg         0.1         1.6EE           >C23-C35 Aliphatics         mg/kg         0.1         1.6EE	#5 1000#5 1000#5 #5 64000#5 64000#5	<0.1 <0 <0.1 <0 <0.2 <0 <0.1 <0	0.01         <0.01           0.1         <0.1	<0.01         <0.01           2.5         0.48           9.99         <0.1	<0.01 0.09 0.808 5.1 <0.1 30 <0.2 15 <0.1 12 <0.1 39	15         0.466           0         <0.1	0.337 ( <0.1 1.71 1.66	<0.01         <0.01           0.682         <0.1	0.876	<0.01 <0.1 <0.2 <0.1 <0.2 <0.1 <0.1	5.72 29.7 128.6 98.9	<0.01 <0.01 <0.1 <0.1 <0.1 3.15 0.9 21.75 0.85 18.6 <0.1 1.92	<0.01 <0.1 <0.2 <0.1 <0.2 <0.1 <0.1	2.06         <0.01           15.1         <0.1	<0.1 <0.1 <0.2	<0.01 <0.1 <0.2 <0.1 <0.2 <0.1 <0.1	<0.01 <0.1 6.11 6.06 <0.1	<0.01 <0.1 <0.2 <0.1 <0.2 <0.1	4.97 20.7	<0.1 0.177 2.277	<0.01         <0.01           <0.1	<0.1 1.68 56.18	
>C12-C44 Aliphatics         mg/kg         0.1           >EC5-EC7 Aromatics         mg/kg         0.01         2300           >EC7-EC8 Aromatics         mg/kg         0.01         5800           >EC8-EC10 Aromatics         mg/kg         0.01         4300           >EC14-EC10 Aromatics         mg/kg         0.01         4300	#5         100#5         250#5           #5         230#5         690#5           #5         41#5         45#5           #5         140#5         240#5	<0.1         <0           <0.01	0.1 14.3 0.01 <0.01 0.01 <0.01 0.01 <0.01 0.01 <0.01 0.01 <0.01	180         0.48           <0.01	0.808         19           <0.01	5         0.466           01         <0.01	2 <0.01 <0.01 <0.01 <0.01	26.4         <0.1           <0.01	5.9 <0.01 <0.01 <0.01 <0.01	<0.1 <0.01 <0.01 <0.01 <0.01	173 <0.01 <0.01 <0.01 <0.01	0.85 23.7 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	<0.1 <0.01 <0.01 <0.01 <0.01	106         <0.1           <0.01	<0.1 <0.01 <0.01 <0.01 <0.01	<0.1 <0.01 <0.01 <0.01 <0.01	6.06 <0.01 <0.01 <0.01 <0.01	<0.1 <0.01 <0.01 <0.01 <0.01	154 <0.01 <0.01 <0.01 <0.01	2.28 <0.01 <0.01 <0.01 <0.01	<0.1         15.9           <0.01	88.5 <0.01 <0.01 <0.01 <0.01	  
L=C12-EC16 Aromatics mg/kg 0.1 37000     L=C16-EC21 Aromatics mg/kg 0.1 28000     S=C21-EC35 Aromatics mg/kg 0.1 28000     S=C34-EC34 Aromatics mg/kg 0.1 28000     S=C440-EC44 Aromatics mg/kg 0.1     S=C12-EC444 Aromatics mg/kg 0.1	#5 540#5 1900#5 #5 1500#5 1900#5	2.79 <0 8.85 <0 3.15 <0 1.14 <0	0.1 <0.1 0.1 <0.1 0.1 3.8 0.1 1.07 0.1 <0.1 0.1 4.86	1.61         0.486           6.76         <0.1	0.402         4.4           <0.1	.9 <0.1 .1 0.693 .1 <0.1	<0.1 3.46 <0.1 <0.1	0.705         <0.1           3.83         <0.1	3.99 1.48	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1	17.8 71 39.9 17.4	<0.1         <0.1           <0.1	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1	4.15         <0.1           10.5         <0.1	0.496 4.6 <0.1	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	2.15 10.6 31.1 10.9 3.97 54.8	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	10.6 50.3 33.3 14.8	1.86 9.32 4.61 1.93	1.7         0.714           1.41         4.78           6.2         24.7           4         12.7           1.7         5.16           13.3         42.9	1.61 17.1 74.7 37.3 14.2 131	+
>CS-C44 Alphatics & Aromatics         mg/kg         0.1           BTEX         Benzene         mg/kg         0.1         24#           Totuene         mg/kg         0         5800(         6800(         690(         600(         6200(         X/vene (m & p)         mg/kg         0.01         24#	#5 230#5 710#5 #5 55#5 70#5	<0.009         <0.           <0.002	0.1 19.1 0.09 <0.009 0.02 <0.002 0.03 <0.003 0.06 <0.006 0.09 <0.009	385         1.23           <0.009	1.68 35 <0.009 <0.0 <0.002 0.007 -	i2         1.68           009         <0.009	<0.009 < <0.002 < <0.003 < <0.006 <	67.5         <0.1	<0.01 <0.002 <0.003 <0.006	<0.002 <0.003 <0.006	<0.009 < <0.002 < <0.003 < <0.006 <	<pre>&lt;0.002 &lt;0.002 &lt;0.003 &lt;0.003 &lt;0.006 &lt;0.006</pre>	<0.003 <0.006	163         <0.1           <0.009	<0.009           <0.002	<0.002 <0.003 <0.006	60.9 <0.009 <0.002 <0.003 <0.006 <0.009	<0.002 <0.003 <0.006	<0.009 <0.002 <0.003 <0.006	<0.009 < <0.002 < <0.003 < <0.006 <	13.3         58.9           <0.009	<0.009 <0.002 005 <0.003 <0.006	~
Xytem of total         mg/kg         0.01         2500           Xytem of (0)         mg/kg         0.02         7200           Total BTEX         mg/kg         0.01         5740           Oxygenates         MTBE         mg/kg         0.01         5740           Choirnated Holtromentane         mg/kg         0.01         0.01         5730	45         64#5         74#5           #6         35.3#6         40.5#6	<0.003 <0. <0.024 <0.	.003 <0.003 .024 <0.024 .005 <0.005	<0.003 <0.003 <0.024 <0.024 <0.005 <0.005	<0.003 <0.0 <0.024 <0.0 <0.005 <0.0	003 <0.003 024 <0.024 005 <0.005	<0.003 < <0.024 < <0.005 <	0.009 <0.009 0.003 <0.003 0.024 <0.024 0.005 <0.005 0.01 <0.01 0.007 <0.007	<0.003 <0.024 <0.005	<0.003 <0.024 <0.005	<0.003 < <0.024 < <0.005 <	<0.003 <0.003 <0.024 <0.024 <0.005 <0.005	< 0.024	<0.005 <0.00	8 <0.003 4 <0.024 5 <0.005	<0.003 <0.024 <0.005	<0.003 <0.024	<0.003 <0.024 <0.005	<0.003 <0.024 <0.005	<0.003 < <0.024 < <0.005 <	<0.009	<0.003 <0.024 <0.005	<
Vinvi chloride         mg/kg         0.01         0.04           Chloroethane         mg/kg         0.01         640/           1.1-dichloroethene         mg/kg         0.01         22.6           Dichloromethane         mg/kg         0.01         162/           trans-1.2-dichloroethene         mg/kg         0.01         162/	15         0.00037#5         0.0004#5           6         4.22#6         5.12#6           16         0.153#6         0.184#6           6         0.608#6         1.16#6           16         0.126#6         0.127#6	<0.01 <0 <0.01 <0 <0.01 <0	006         <0.006           0.01         <0.01	<0.006         <0.006           <0.01	<0.01 <0. <0.01 <0. <0.01 <0.	01 <0.01 01 <0.01	<0.01 · · · · · · · · · · · · · · · · · · ·	0.006         <0.006           <0.01	<0.1 <0.1 <0.1	< 0.01	<0.01 <0.01 <0.01	<0.006         <0.006           <0.01	< 0.01	<0.006         <0.00           <0.01	<0.01 <0.01 <0.01	<0.01	<0.006 <0.01 <0.01 <0.01 <0.01	<0.01	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	0.006         <0.006           <0.01	<0.01 <0.01 <0.01	~
1,1-dichioroethane         mg/kg         0.01         206/k           Gis-1,2-dichioroethane         mg/kg         0.01         81/k           Chioroform         mg/kg         0.01         81/k           1,1-1richioroethane         mg/kg         0.01         84/k           Carbon tetrachloride         mg/kg         0.01         34/k           Trichioroethane         mg/kg         0.01         1.2k	0.0699#6         0.0854#6           0.68#5         0.75#5           5         6.6#5         6.7#5           0.021#5         0.021#5         0.021#5	<ul> <li>&lt;0.006</li> <li>&lt;0.008</li> <li>&lt;0.007</li> <li>&lt;0.01</li> <li>&lt;0</li> </ul>	.008         <0.008           .006         <0.006	<0.008	<0.008         <0.0           <0.006	006         <0.006           008         <0.008	<0.006 < <0.008 < <0.007 < <0.01 <	0.008         <0.008           0.006         <0.006	<0.06 <0.08 <0.07 <0.01	<0.006 <0.008 <0.007 <0.01	<0.006 < <0.008 < <0.007 < <0.01		<0.008 <0.006 <0.008 <0.007 <0.01 <0.009	<0.008         <0.00           <0.006	6 <0.006 8 <0.008 7 <0.007 <0.01	<0.006 <0.008 <0.007 <0.01	<0.008 <0.006 <0.008 <0.007 <0.01 <0.009	<0.006 <0.008 <0.007 <0.01	<0.006 <0.008 <0.007 <0.01	<0.006 < <0.008 < <0.007 < <0.01	<0.008	<0.006 <0.008 <0.007 <0.01	<
1,1.2-tinchloroethane         mg/kg         0.01         89.7           Tetrachloroethane         mg/kg         0.01         19#           Sum of PCE and TCE         mg/kg         17           TCE+DCE+VC         mg/kg         10         10           PCE+TCE+DCE+VC         mg/kg         10         10         10	5 0.14#5 0.14#5	<0.005         <0.           <0.014	0.01         <0.01           .005         <0.005	<0.01	<0.01	041 <0.041 046 <0.046	<0.005 < <0.014 < <0.041 < <0.046 <	0.01         <0.01	<0.05 0.279 0.414 0.439	0.0206 0.0341 0.0366	<0.01 <0.005 <0.014 <0.041 <0.046	<0.01		<0.041 <0.04 <0.046 <0.04	6 <0.005 4 <0.014 <0.041 6 <0.046	<0.005 <0.014 <0.041 <0.046	<0.01 <0.005 <0.014 <0.041 <0.046	<0.01 <0.005 <0.014 <0.041 <0.046	<0.01 <0.005 <0.014 <0.041 <0.046	<0.01 <0.005 <0.014 <0.041 <0.046	<0.01 <0.01 <0.005 <0.005 <0.014 <0.014 <0.041 <0.041 <0.046 <0.046	<0.01 <0.005 <0.014 <0.041 <0.046	< < <
Acenaphthene         mg/kg         0.01         90000           Fluorene         mg/kg         0.01         66000           Phenanthrene         mg/kg         0.02         22000	#5 400#5 <u>3300#5</u> #5 480#5 <u>3300#5</u>	0.0574 <0. <0.008 <0. 0.0183 <0 0.512 <0.	.009         <0.009           .012         <0.012	0.013 - 0.010 <0.009 <0.012 <0.012 <0.008 <0.008 <0.01 <0.01 0.16 <0.015 0.041 <0.016	<0.009 0.173 - <0.012 0.04 <0.012 0.07 <0.008 0.07 <0.01 0.07 <0.015 0.8 <0.016 0.1	IS3         <0.012           '32         <0.008	<0.012 0 <0.008 < <0.01 < 0.0284 0	13 - 0.04:         <0.009	<0.012 <0.008 <0.01 0.128	<0.012 <0.008	0.0566 < 0.0606 < 0.0479 1.3 <	<0.009         <0.009           <0.012		0.013 - 0.053         <0.00           0.0148         <0.01	2 0.0205 3 <0.008 <0.01 5 0.218	<0.012 <0.008 <0.01 <0.015	0.013 - 0.027 0.0278 0.0159 0.0121 0.329 0.0718	<0.012 <0.008	0.0171 0.0505 0.0387 1.01	<0.012 < <0.008 < <0.01 0.119 <	<0.009         0.013 - 0.0           <0.012	0.083 0.0418 0.0482	<
Fluoranthene         mp/kg         0.02         230000           Pyrene         mg/kg         0.02         54000           Benz(a)anthracene         mg/kg         0.01         1707           Chrysene         mg/kg         0.01         366           Benz(a) pyrene         mg/kg         0.02         366	#5         560#5         1600#5           #5         1200#5         3700#5           5         11#5         14#5           5         22#5         31#5           5         2.7#5         3.2#5	0.835 <0. 0.682 <0. 0.401 <0. 0.382 <0 0.357 <0.	.017         <0.017           .015         <0.015	0.429         <0.017           0.412         <0.015	<0.017         1.3           <0.015	31         <0.017           51         <0.015	0.0473 ( 0.0532 ( <0.014 ( 0.0163 ( 0.0382 (	0.592 <0.017 0.534 <0.015 0.419 <0.014 0.414 <0.01 0.632 <0.015	0.118 0.0873 0.0863 0.0594	<0.017 <0.015 <0.014 <0.01 <0.015	2.18 < 1.89 < 1.06 < 0.988 0.837 <	<0.017         0.047           <0.015	<0.017 <0.015 <0.014 <0.01 <0.015	0.174 <0.01 0.151 <0.01 0.147 <0.01	0.975 0.927 0.908 1.05	<0.014 <0.01 <0.015	0.82 0.729 0.449 0.414 0.485	< 0.015	1.26 0.66 0.608 0.545	0.0839 0.0909 0.103 0.0834	0.017         0.445           0.015         0.384           0.014         0.245           <0.01	1.32 1.06 1.47	< < <
Indeno(1,2,3-c,d)pyrene mg/kg 0.02 51/0 Dibenz(a,h)anthracene mg/kg 0.02 36/0 Benzo(g,h)perylene mg/kg 0.02 40/0 Benzo(b)fluoranthene mg/kg 0.02 45% Benzo(b)fluoranthene mg/kg 0.01 1200 Benzo(b)fluoranthene mg/kg 0.01 1200	5         0.28#5         0.32#5           15         340#5         360#5           5         3.3#5         4#5	0.0606 <0. 0.233 <0. 0.47 <0. 0.192 <0.	.018         <0.018           .023         <0.023	0.124         <0.018           0.0327         <0.023	<0.024 0.6 <0.015 1. <0.014 0.5	86 <0.023 76 <0.024 3 <0.015	<0.023 ( 0.0301 ( 0.0377 ( 0.0197 (	0.408 <0.018 0.124 0.521 <0.024 0.805 <0.015 0.281 <0.014 1.086 <0.029	<0.023 0.0442 0.0973 0.0345		0.151 < 0.556 < 1.25 < 0.434 <	<0.018	<0.018 <0.023 <0.024 <0.015 <0.014 <0.029	0.199 <0.01	0.195 0.755 1.46 0.503	<0.023 <0.024 <0.015 <0.014	0.27 0.0732 0.358 0.588 0.255 0.843	<0.023 <0.024 <0.015 <0.014	0.0882 0.385 0.715 0.287	<0.023 < 0.0682 < 0.135 < 0.0553 <	0.018         0.21           0.023         0.0634           0.024         0.245           0.015         0.459           0.014         0.134           0.029         0.593		
PAHs (sum of 4)         mg/kg           PAH 16 Total         mg/kg           Deal         mg/kg           Coal         mg/kg           Coal         mg/kg           Tetrachiorobiphenyl, 3.3,4.4 (PCB // mg/kg         0	1 0.037#1 0.037#1	1.087         <0.           4.53         <0.	.071         <0.071           .118         <0.118	0.575 <0.071 2.25 <0.118	<0.071 3.0 <0.118 10	65 <0.071 .4 <0.118 19 <0.042	0.1165 2 0.3 0.0591 0	2.015 <0.071 5.09 <0.118 0.929 <0.042 0.632 <0.015 	0.2066 0.861 0.0748 0.0594 <0.003	<0.071 <0.118 <0.042	2.787 < 11.6 < 1.103 <	<0.071 0.0945	<0.071 <0.118	0.4722 <0.07	3.386 9.03 1.423	<0.071 <0.118	1.471	<0.071 <0.118 <0.042	1.684 7.74 0.682	0.3066 0.905 0.1163	0.071         1.048           0.118         3.05           0.042         0.455           0.015         0.289	4.063	<
Tetrachtorobiphenyl, 3.4,4.5. (PCB 8/mg/kg 0 0.052) Pentachtorobiphenyl, 2.3,3.4.4. (PCG/mg/kg 0 0.533) Pentachtorobiphenyl, 2.3,3.4.4.5 (PCG/mg/kg 0 0.533) PCB 118 mg/kg 0 0.533 Pentachtorobiphenyl, 2.3,4.4.5. (PCG/mg/kg 0 0.053) Pentachtorobiphenyl, 3.3,4.5.5 (PCG/mg/kg 0 0.0000)	1         0.12#1         0.12#1           1         0.12#1         0.12#1           1         0.12#1         0.12#1           1         0.12#1         0.12#1		· · ·	· · · · · · · · · · · · · · · · · · ·	· · ·			· · · · · · · · · · · · · · · · · · ·	<0.003 <0.003 <0.003 <0.003 <0.003 <0.003		-	· · · · · · · · · · · · · · · · · · ·		· · ·			-			· · ·	· · · · · · · · · · · · · · · · · · ·		+
Hexachlorobiphenyl, 2.3, 3, 4, 5; (PC mg/kg         0         0.53;           Hexachlorobiphenyl, 2.3, 3, 4, 5; (PC mg/kg         0         0.53;           Hexachlorobiphenyl, 2.3, 4, 4, 5; (PC mg/kg         0         0.53;           Hexachlorobiphenyl, 2.3, 4, 4, 5; (PC mg/kg         0         0.53;           Hexachlorobiphenyl, 2.3, 4, 4, 5; (PC mg/kg         0         0.53;           Hexachlorobiphenyl, 2.3, 4, 4, 5;         (PC mg/kg         0         0.63;           Heptachlorobiphenyl, 2.3, 4, 4, 5;         (PC mg/kg         0         0.005;           Heptachlorobiphenyl, 2.3, 4, 4, 5;         (PC mg/kg         0         0.53;	1 0.12#1 0.12#1 1 0.12#1 0.12#1 3#1 0.00012#1 0.00012#1		· · ·	· · ·					<0.003 <0.003 <0.003 <0.003 <0.003		-	· · ·		· · ·	-		-		-	- - -	· · ·		
Total PCB WHO 12         marka         0.04           PCB 28         marka         0           PCB 52         marka         0           PCB 52         marka         0           PCB 53         marka         0           PCB 101         marka         0           PCB 138         marka         0           PCB 153         marka         0			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	<0.036 <0.003 <0.003 <0.003 <0.003 <0.003	-	-	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·					- - - -	• • •	· · · · · · · · · · · · · · · · · · ·		
PCB 180         mg/kg         0           Total PCB 7 Congeners         mg/kg         0.02           Halogenated         Chlorobenzene         mg/kg         0.01         599           Gromobenzene         mg/kg         0.01         1057         2-chlorobluene         mg/kg         0.01         2300           4-chlorobluene         mg/kg         0.01         2300         2300         12300	6 0.75#6 0.892#6 #1 1600#1 1600#1	<0.01 <0 <0.009 <0.	.01 <0.01		<0.01 <0. <0.009 <0.0	01 <0.01 009 <0.009	<0.01 <		<0.1	<0.01 <0.009	<0.01 <0.009 <	<0.01 <0.01 <0.009 <0.009	<0.01 <0.009	<pre></pre>	<0.01	<0.01 <0.009	<0.01 <0.009	<0.01 <0.009	<0.01	<0.01 <0.009		<0.01	<
1.3-dichlorobenzene         mg/kg         0.01         34#           1.4-dichlorobenzene         mg/kg         0.01         4800           1.2-dichlorobenzene         mg/kg         0.01         2200           1.2-dichlorobenzene         mg/kg         0.01         2200           1.2-dichlorobenzene         mg/kg         0.02         2401           1.2-3-trichlorobenzene         mg/kg         0.02         1401	0.37#5         0.38#5           45         52#5         52#5           45         20#5         20#5           5         2.3#5         2.3#5           5         1.3#5         1.3#5	<0.005	.005         <0.005           .0.01         <0.01	<0.02 <0.02	<0.005         <0.0           <0.01	005         <0.005           01         <0.01	<0.005 < <0.01 < <0.02 < <0.02	0.008 <0.008 0.005 <0.005 c0.01 <0.01 c0.02 <0.02 c0.02 <0.02	<0.05 <0.1 <0.2 <0.2	<0.005 <0.01 <0.02 <0.02	<0.005 < <0.01 < <0.02 <	<0.005         <0.005           <0.01	<0.005 <0.01 <0.02 <0.02	<0.02 <0.02	i <0.005 <0.01 <0.02 <0.02	<0.008 <0.005 <0.01 <0.02 <0.02	<0.008 <0.005 <0.01 <0.02 <0.02	<0.008 <0.005 <0.01 <0.02 <0.02	<0.008 <0.005 <0.01 <0.02 <0.02	<0.008 < <0.005 < <0.01 < <0.02	<0.008         <0.008           <0.005	<0.008 <0.005 <0.01 <0.02 <0.02	× • •
Halogenated         Dichicrodifucormethane         mg/kg         0.01         370'           Trichiordhuoromethane         mg/kg         0.01         300'           Trichiordhuoromethane         mg/kg         0.01         310'           L_2.dibromosthane         mg/kg         0.01         0.16'           Solvents         Carbon disultide         mg/kg         0.01         11'           Organics         TOC         %         0.2         2'	6.8#1         6.8#1           #1         730#1         730#1           #1         0.036#1         0.036#1	<0.01         <0           <0.006	0.01 <0.01 .006 <0.006	<0.006         <0.006           <0.01	<0.01         <0.           <0.006	01 <0.01 006 <0.006 01 <0.01 007 <0.007	<0.01	0.006         <0.006           <0.01	<0.1 <0.06 <0.01 <0.07	<0.01 <0.006 <0.01	<0.01 <0.006 <0.01 <0.007	<0.01 <0.01 <0.006 <0.006	<0.01 <0.006 <0.01 <0.007	<0.01 <0.01	<0.01 <0.006 <0.01 <0.007	<0.01 <0.006 <0.01 <0.007	<0.01 <0.006	<0.01 <0.006 <0.01 <0.007	<0.01 <0.006 <0.01 <0.007	<0.01 <0.006 <0.01	<0.01         <0.01           <0.006	<0.01 <0.006 <0.01 <0.007	<
Organics 10C 7% 0.2 Other Waste Limit, Total % 0.1 Asbestos Amosile Asbestos - Crocicolite Asbestos - Additional Asbestos Components (U-		- 1 0	0 0	0.396 0.266  0 0 1 0 0 0 1 -	<0.2 0.6 	- 0		1.96         0.785           <0.1	3.76 <0.1 0 1 0 1		0.615 <0.1 0 1 0 1	<0.2         0.358           -         -           0         1           0         0           0         0           -         1	-	<0.2 <0.2 		-		~U.2	0.216 - 0 0 0 - -		- 0 - 0 - 0 - 0	2.08 - 1 1 0 1	+
Floraux Activativa Substance Substan		0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0			0 0 0 0	0 - 0 - 0 - 0 - 0 -	0 0 0 0	-	0 0 0 0	0 0 0 0 0 0 0 0 0 0	-	0 - 0 - 0 - 1 -	0 0 0		0 0 0 0	-	0 0 0 0	0 0 0 0	- 0 - 0 - 0	0	Ŧ

Comments GAC: Generic Assessment Criteria (blank): No assessment criteria available - : Not analysed

# #1 USEPA RSL #2 Dutch Serious 2009 #3 Dutch Intervention 2009 #4 Defra C4SL 12/2014 #5 AECOM (modified LQM/CIEH S4ULs) #6 AECOM (modified EIC)

 Key

 XXX
 Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%</td>

 XXX
 Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%</td>

 XXX
 Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%</td>

BH4A	RH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
3.5-4	0.5	2.5-3	0.7	2.5-3	0.5	3-3.5	0.5	2.2-3.3
27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/201
<0.044 <0.01	<0.044 <0.01	<0.044 <0.01	<0.044 <0.01	<0.044 <0.01	<0.044 <0.01	<0.044 <0.01	0.178 <0.01	0.106
<0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0145	<0.01 <0.01	<0.01 0.0119	0.0197
< 0.01	<0.01 <0.01	<0.01	<0.01	<0.01	0.0109	< 0.01	0.0874	0.0255
<0.1	<0.1	<0.1	<0.1	<0.1	0.555	<0.1	<0.1	1.29
<0.2	6.894	<0.2	21.95	<0.2	7.06	<0.2	<0.2	9.75
<0.1	6.66 0.968	<0.1	21.9 5.13	<0.1	5.83 0.567	<0.1	<0.1	6.69 <0.1
<0.1 <0.01	7.86 <0.01	<0.1 <0.01	27 <0.01	<0.1 <0.01	8.18 <0.01	<0.1 <0.01	<0.1 <0.01	11 <0.01
<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
<0.01	<0.01 <0.01	<0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 0.0583	0.0151 0.0174
<0.1	0.358	<0.1	1.92	<0.1	<0.1	<0.1	<0.1	2.81
<0.1	2.62	<0.1 <0.1	8.47 70	<0.1 <0.1	<0.1	<0.1 <0.1	<0.1 <0.1	19.4 66.3
<0.1	8.05	<0.1	28.5 10.5	<0.1	<0.1	<0.1	<0.1	16.4 5.98
<0.1 <0.1	2.87 27.1	<0.1 <0.1	10.5	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	5.98
<0.1	35 <0.009	<0.1 <0.009	136 <0.01	<0.1	8.22 <0.01	<0.1	0.111	116 <0.009
<0.002	< 0.002	<0.002	< 0.002	< 0.002	0.07 - 0.0024	< 0.002	< 0.002	< 0.002
<0.003	<0.003	<0.003	<0.003 <0.006	<0.003 <0.006	<0.003 <0.006	<0.003	<0.003 <0.006	<0.003
<0.009	< 0.009	< 0.009	< 0.009	< 0.009	<0.009	< 0.009	< 0.009	< 0.009
<0.003	<0.003 <0.024	<0.003	<0.003 <0.024	<0.003	<0.003 <0.024	<0.003	<0.003	<0.003 <0.024
<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
<0.01 <0.007	<0.01 <0.007	<0.01 <0.007	<0.1 <0.07	<0.01 <0.007	<0.1 <0.07	<0.01 <0.007	<0.01 <0.007	<0.01 <0.007
<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.1 <0.1	<0.01	<0.1 <0.1	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01
<0.01	<0.01 <0.01	<0.01 <0.01	<0.1	<0.01 <0.01	<0.1 <0.1	<0.01 <0.01	<0.01 <0.01	<0.01
<0.008	<0.008	< 0.008	< 0.08	< 0.008	<0.08	<0.008	< 0.008	< 0.008
<0.006	<0.006	<0.006	<0.06	<0.006	<0.06	<0.006	<0.006	<0.006
< 0.007	< 0.007	< 0.007	< 0.07	< 0.007	< 0.07	<0.007	< 0.007	< 0.007
<0.009	<0.01	<0.01 <0.009	<0.01 <0.009	<0.01	<0.01 <0.009	<0.01	<0.01 <0.009	<0.01 <0.009
< 0.01	< 0.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.000	< 0.01
<0.005 <0.014	<0.005 <0.014	<0.005 <0.014	<0.05 <0.14	<0.005 <0.014	<0.14	<0.005 <0.014	< 0.014	<0.005 <0.014
<0.041 <0.046	<0.041 <0.046	<0.041 <0.046	<0.41 <0.46	<0.041 <0.046	<0.41 <0.46	<0.041 <0.046	<0.041 <0.046	<0.041 <0.046
<0.009	0.013 - 0.015	< 0.009	0.13 - 0.069	< 0.009	<0.13 - 0.111	< 0.009	<0.009	0.013 - 0.03
<0.012	0.0289 0.00932	<0.012	0.0843	<0.012	0.016	<0.012	<0.012 <0.008	0.015 0.011
<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	0.0546
<0.015 <0.016	0.147 0.0399	<0.015 <0.016	0.307	<0.015 <0.016	0.215 0.0332	<0.015 <0.016	<0.015 <0.016	0.36
<0.017	0.417	<0.017 0.0298	0.967	<0.017 <0.015	0.237 0.186	<0.017 <0.015	<0.017	0.4
< 0.014	0.227	< 0.014	0.63	< 0.014	0.128	< 0.014	0.0247	0.283
<0.01 <0.015	0.236	0.0245	0.684	<0.01 <0.015	0.137 0.122	<0.01 <0.015	<0.01 0.0182	0.218 0.259
<0.018	0.156	<0.018	0.975	<0.018	0.0766	< 0.018	<0.018	0.121
<0.023 <0.024	0.0468 0.196	<0.023	0.269	<0.023	<0.023 0.108	<0.023	<0.023	0.0404 0.144
<0.015	0.391	0.0235	1.93	<0.015	0.193	<0.015	0.0246	0.306
<0.014 <0.029	0.132 0.523	<0.014 0.0305	0.724 2.654	<0.014 <0.029	0.0599 0.2529	<0.014 <0.029	<0.014 0.0316	0.108 0.414
<0.071 <0.118	0.875	0.0515	4.789 9.95	<0.071 <0.118	0.4375	<0.071	0.0526	0.679
< 0.042	0.352	< 0.042	2.135	< 0.042	0.1846	< 0.042	< 0.042	0.265
<0.015	0.26	<0.015	1.05	<0.015	0.122	<0.015	0.0182	0.259
		-	-		-		-	
-		-	-		-		-	-
-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-			
	-	-	-	-	-			-
	-	-	-	-	-		-	-
		-	-	-	-	-	-	-
			-		-			
	-	-						
	< 0.005	<0.005	<0.05	0.0955	<0.05 <0.1	<0.005 <0.01	<0.005	<0.005 <0.01
<0.005	<0.01		<0.09	< 0.009	< 0.09	< 0.009	< 0.009	< 0.009
<0.01 <0.009	<0.01 <0.009	< 0.009		< 0.01	<0.1	<0.01 <0.008	<0.01 <0.008	<0.01 <0.008
<0.01		<0.009 <0.01 <0.008	<0.1 <0.08	<0.008				
<0.01 <0.009 <0.01 <0.008 <0.005	<0.009 <0.01 <0.008 <0.005	<0.01 <0.008 <0.005	<0.08 <0.05	<0.008 <0.005	<0.05	< 0.005	<0.005	< 0.005
<0.01 <0.009 <0.01 <0.008	<0.009 <0.01 <0.008	<0.01 <0.008	< 0.08	<0.008	<0.05 <0.1 <0.2	<0.005 <0.01 <0.02	<0.005 <0.01 <0.02	<0.005 <0.01 <0.02
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02	<0.08 <0.05 <0.1 <0.2 <0.2	<0.008 <0.005 <0.01 <0.02 <0.02	<0.1 <0.2 <0.2	<0.01 <0.02 <0.02	<0.01 <0.02 <0.02	<0.01 <0.02 <0.02
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02	<0.01 <0.008 <0.005 <0.01 <0.02	<0.08 <0.05 <0.1 <0.2	<0.008 <0.005 <0.01 <0.02	<0.1 <0.2	<0.01 <0.02	<0.01 <0.02 <0.02 <0.006 <0.01	<0.01 <0.02
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.02 <0.006 <0.01 <0.006	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006
<0.01	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.08 <0.05 <0.1 <0.2 <0.02 <0.06 <0.01 <0.006 <0.01 <0.07	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.07	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.01 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.01 <0.02 <0.02 <0.01 <0.01 <0.01 <0.007
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01	<0.01 <0.008 <0.005 <0.01 <0.02 <0.002 <0.006 <0.01 <0.006 <0.01	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01	<0.008 <0.005 <0.01 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.02 <0.02 <0.01 <0.006 <0.01 <0.007	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 1.33 0	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - 0	<0.08 <0.05 <0.1 <0.2 <0.02 <0.06 <0.01 <0.006 <0.01 <0.07 3.51 - 0	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.07 19.1 - 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - 0	<0.01 <0.02 <0.02 <0.01 <0.01 <0.01 <0.007
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.002 <0.006 <0.01 <0.006 <0.01 <0.007 1.33 - 0 0	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - 0 0	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.07 3.51 0 0	<0.008 <0.005 <0.01 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.1 <0.2 <0.0 <0.01 <0.006 <0.01 <0.006 <0.01 <0.07 19.1 - 0 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - 0 0 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 0.443
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 1.33 - 0 0 0 -	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 0 0 0 -	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.006 <0.01 <0.07 3.51 - 0 0 0 -	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 -	<0.1 <0.2 <0.06 <0.01 <0.006 <0.01 <0.006 <0.01 - - - 0 0 - - -	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - 0 0 0 - -	<0.01 <0.02 <0.02 <0.006 <0.01 <0.007 0.443
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.002 <0.006 <0.01 <0.006 <0.01 <0.007 1.33 - 0 0	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - 0 0	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.006 <0.01 <0.07 3.51 - 0 0 0	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - -	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.07 19.1 - 0 0 0 0	<0.01 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 0 0 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 0.443 - -
<0.01 <0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2	<0.009 <0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.006 -0.01 -0.00 -0.01 -0.00 -0.01 -0.000 -0.0000 -0.00000 -0.0000 -0.0000 -0.0000 -0.00000 -0.0000 -0.00000 -	<0.01 <0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - 0 0 0 0 0	<0.08 <0.05 <0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.01 - 0 0 0 - 0 0 0	<0.008 <0.005 <0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - - - -	<0.1 <0.2 <0.2 <0.06 <0.01 <0.006 <0.01 <0.07 19.1 - 0 0 0 0 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.007 <0.2 - - - - - -	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 <0.2 - - 0 0 0 0 0 0	<0.01 <0.02 <0.02 <0.006 <0.01 <0.006 <0.01 <0.007 0.443 - - -

### Table 6 - VOC Concentrations in Soils

					[	Location I	D BH201A	BH201A	BH202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207	BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214	BH2A E	I2A BH	BA BH	4A F	3H4A BI	H5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
						Sample Dept	h 0.7	1.9-2	0.8	0.5	1.3	3.3	1	2.5	1.1	0.7	2.6-3.5	0.8	1.1	0.5	2.7-3.4	0.8	2.2-2.8	0.7	2.2	0.6	1.8-2.5	0.6	1.7-2	0.85	0.5	.5 0.	5 0.	6 1	3.5-4 0	0.5	2.5-3	0.7	2.5-3	0.5	3-3.5	0.5 7	2.2-3.3
							05/00/00/	-									0.5/00/00/15	0.5 /0.0 /0.0 /		05/00/00/15	0.5 40 0 40 5 4 5																						
						Sample Dat	e 25/08/201	5 25/08/201	5 25/08/2015	20/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	25/08/201	25/08/2015	25/08/201	5 25/08/2015	25/08/2015	25/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015	27/08/2015	27/08/2015 2	//08/2015 2	//08/2015 2	5/08/2015 25	/08/2015 25/0	8/2015 28/08	2015 27/08/	2015 2//0	08/2015 28/08	8/2015 28/	108/2015 2	27/08/2015	27/08/2015	26/08/2015	26/08/2015 2	26/08/2015 26/0	08/2015
Chemical	Sr Chemical Name	Unit	EQL OM NI 3.4	C_HH_C /IND_SA F 0_1.45- 8%TOC	GAC_HH_ RES+PL_S AND_1.45- 3.48%TOC	GAC_HH_RE S- PL_SAND_1. 5-3.48%TOC	E 4																																				
VOC	2,2-dichloropropane		0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	< 0.01	<0.01	<0.01	<0.01	<0.01 <	.01 <0.	01 <0.	J1 <	<0.01 <0	0.01 •	< 0.01	< 0.01	< 0.01	< 0.01		<0.01 <	
	Bromochloromethane	mg/kg	0.01 6	30#1	150#1	150#1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	< 0.01	<0.01	<0.01	<0.01	<0.01 <	.01 <0.	01 <0.	J1 <	:0.01 <0	J.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	<0.01 <	< 0.01
	1,1-dichloropropene	mg/kg	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	J1 <	:0.01 <0	J.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	< 0.01
	1,2-dichloroethane	mg/kg	0.01 0		0.0041#5	0.0044#5	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	< 0.005	<0.005	<0.005	< 0.005 <	005 <0.0	05 <0.0	/05 <(	0.005 <0	.005 🛛 🤘	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005 <	<i>&lt;0.005</i>
	1,2-dichloropropane	mg/kg	0.01 2	.65#6	0.0146#6	0.0172#6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01
	Dibromomethane	mg/kg	0.01	98#1	23#1	23#1	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.09	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009 <	.009 <0.0	09 <0.0	-/ e0u	.0.009 <0	.009 <	< 0.009	< 0.09	< 0.009	< 0.09	< 0.009	< 0.009 <	< 0.009
	Bromodichloromethane	mg/kg	0.01	1.3#1	0.29#1	0.29#1	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.07	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007 <	.007 <0.0	07 <0.0	J07 < <sup>r</sup>	.0.007 <0	.007 .	< 0.007	< 0.07	< 0.007	< 0.07	< 0.007	<0.007 <	< 0.007
	cis-1,3-dichloropropene	mg/kg	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <c< td=""><td>J.01</td><td>&lt; 0.01</td><td>&lt;0.1</td><td>&lt; 0.01</td><td>&lt; 0.1</td><td>&lt; 0.01</td><td>&lt; 0.01</td><td>&lt; 0.01</td></c<>	J.01	< 0.01	<0.1	< 0.01	< 0.1	< 0.01	< 0.01	< 0.01
	trans-1,3-dichloropropene	mg/kg	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01	< 0.01
		mg/kg	0.01 23	8000#1	1600#1	1600#1	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.07	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007 <	.007 <0.0	07 <0.0	J07 <ſ	.0.007 <0	.007 <	< 0.007	< 0.07	< 0.007	<0.07	< 0.007	< 0.007 <	< 0.007
	Chlorodibromomethane	mg/kg	0.01	3.2#1	0.73#1	0.73#1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01	< 0.01
	1,1,1,2-tetrachloroethane	mg/kg	0.01	20#5	1.2#5	1.3#5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01	< 0.01
	Styrene	mg/kg	0.01 3	550#6	13.4#6	29.5#6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01 <	< 0.01
	Bromoform	mg/kg	0.01	30#6	3#6	4.55#6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <c< td=""><td>J.01</td><td>&lt; 0.01</td><td>&lt;0.1</td><td>&lt; 0.01</td><td>&lt; 0.1</td><td>&lt; 0.01</td><td>&lt; 0.01</td><td>&lt; 0.01</td></c<>	J.01	< 0.01	<0.1	< 0.01	< 0.1	< 0.01	< 0.01	< 0.01
	Isopropylbenzene	mg/kg	0.01 1	540#6	9.87#6	10.1#6	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005 <	.005 <0.0	05 <0.0	J05 < <sup>(</sup>	<0.005 <0.	0.005 <	< 0.005	< 0.05	< 0.005	< 0.05	< 0.005	< 0.005 <	< 0.005
	1,1,2,2-tetrachloroethane	mg/kg	0.01	260#5	1.9#5	2.9#5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <c< td=""><td>J.01</td><td>&lt; 0.01</td><td>&lt;0.1</td><td>&lt; 0.01</td><td>&lt; 0.1</td><td>&lt; 0.01</td><td>&lt; 0.01</td><td>&lt; 0.01</td></c<>	J.01	< 0.01	<0.1	< 0.01	< 0.1	< 0.01	< 0.01	< 0.01
	1,2,3-trichloropropane	mg/kg	0.02 0	.11#1	0.0051#1	0.0051#1	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	<0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	<0.016	< 0.016	< 0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016 <	016 <0.0	16 <0.0	J16 </td <td>.0.016 &lt;0</td> <td>.016 +</td> <td>&lt;0.016</td> <td>&lt;0.016</td> <td>&lt; 0.016</td> <td>&lt;0.016</td> <td>&lt; 0.016</td> <td>&lt;0.016 &lt;</td> <td>&lt;0.016</td>	.0.016 <0	.016 +	<0.016	<0.016	< 0.016	<0.016	< 0.016	<0.016 <	<0.016
	n-propylbenzene 1,3,5-trimethylbenzene	mg/kg	0.01 4	530#6	32.4#6	34.4#6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01 <	.01 <0.	01 <0.	.01 <	<0.01 <0	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01	< 0.01
	1,3,5-trimethylbenzene	mg/kg	0.01 12	2000#1	780#1	780#1	< 0.008	< 0.008	< 0.008	<0.008	<0.008	< 0.008	< 0.008	< 0.008	<0.008	< 0.008	<0.008	< 0.08		< 0.008	<0.008	< 0.008	<0.008	<0.008	<0.008	< 0.008	<0.008	<0.008	<0.008	< 0.008	< 0.008 <	.008 <0.0	08 <0.0	/>> 80t	.0.008 <0	· 800.u	< 0.008	< 0.08	<0.008	<0.08	<0.008	< 0.008 <	< 0.008
	tert-butylbenzene	mg/kg	0.01 12	0000#1	7800#1	7800#1	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.14	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014 <	.014 <0.0	14 <0.0	J14 < <sup>r</sup>	.0.014 <0	J.014 ·	< 0.014	<0.14	< 0.014	<0.14	< 0.014	<0.014 <	< 0.014
	1,2,4-trimethylbenzene	mg/kg	0.01 4	6.6#6	0.335#6	0.411#6	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.09	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009 <	.009 <0.0	09 <0.0	/>> 00	.0.009 <0	.009 •	< 0.009	< 0.09	< 0.009	< 0.09	< 0.009	<0.009 <	< 0.009
	sec-butylbenzene	mg/kg	0.01 12	0000#1	7800#1	7800#1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	<0.01 <	.01 <0.	)1 <0.	.01 <	<0.01 <	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01	<0.01	< 0.01
	p-isopropyltoluene	mg/kg	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	<0.01 <	.01 <0.	)1 <0.	.01 <	<0.01 <	J.01	< 0.01	<0.1	< 0.01	<0.1	< 0.01		< 0.01
	n-butylbenzene	mg/kg	0.01 58	3000#1	3900#1	3900#1	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.11	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011 <	.011 <0.0	11 <0.0	J11 <′	.0.011 <0	J.011	< 0.011	<0.11	< 0.011	<0.11	<0.011	<0.011 <	< 0.011
	1,2-dibromo-3-chloropropane	mg/kg	0.01 0	064#1	0.0053#1	0.0053#1	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	<0.014	< 0.014	< 0.014	<0.014	<0.014 <	014 <0.0	14 <0.0	J14 </td <td>.0.014 &lt;0</td> <td>.014 🦂</td> <td>&lt;0.014</td> <td>&lt;0.014</td> <td>&lt; 0.014</td> <td>&lt; 0.014</td> <td>&lt; 0.014</td> <td>&lt;0.014 &lt;</td> <td>&lt; 0.014</td>	.0.014 <0	.014 🦂	<0.014	<0.014	< 0.014	< 0.014	< 0.014	<0.014 <	< 0.014
	Hexachlorobutadiene	mg/kg	0.02	33#5	0.26#5	0.27#5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02 <	.02 <0.	)2 <0.	.02 <	<0.02 <	J.02	< 0.02	< 0.2	< 0.02	< 0.2	< 0.02	< 0.02	< 0.02
	1,2-Dichloroethene	mg/kg			0.2#3	0.2#3	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	<0.16	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016 <	.016 <0.0	16 <0.0	J16 < <sup>(</sup>	.0.016 <0	.016 ·	< 0.016	<0.16	< 0.016	<0.16	< 0.016	<0.016 <	< 0.016
	Trihalomethanes	mg/kg					< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.35	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035 <	.035 <0.0	35 <0.0	/35 </td <td>.0.035 &lt;0</td> <td>.035 &lt;</td> <td>&lt; 0.035</td> <td>&lt; 0.35</td> <td>&lt; 0.035</td> <td>&lt; 0.35</td> <td>&lt; 0.035</td> <td>&lt; 0.035 &lt;</td> <td>&lt; 0.035</td>	.0.035 <0	.035 <	< 0.035	< 0.35	< 0.035	< 0.35	< 0.035	< 0.035 <	< 0.035

Comments GAC: Generic Assessment Criteria (blank): No assessment criteria available - : Not analysed

#1 USEPA RSL #2 Dutch Serious 2009 #3 Dutch Intervention 2009 #4 Defra C4SL 12/2014 #5 AECCM (modified LQM/CIEH S4ULs) #6 AECCM (modified EIC)

 Key
 XXX
 Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%</th>
 XXX
 Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%</th>
 XXX
 Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%</th>

#### Table 7 - Metals and Inorganics Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
	Analyte	Units	EQL	DWS GAC	EQS Coastal GAC														
Metals	Antimony (Filtered)	µg/L	0.16	5#1		0.171	0.415	0.36	<0.16	0.681	0.726	2.06	0.27	0.172	0.64	0.464	0.199	0.306	0.816
	Arsenic (Filtered)	µg/L	0.12	10#1	25#4	39.4	7.32	5.08	5.12	45.4	15.7	14.4	3.79	17.3	32.6	14	22	6.51	4.8
	Barium (Filtered)	µg/L	0.03	700#3		116	64.2	22.1	47.9	73.4	83.4	39.9	15.4	66	18.2	40.7	104	79.1	21.4
	Beryllium (Filtered)	µg/L	0.07	25#5		<0.07	<0.07	< 0.07	< 0.07	< 0.07	< 0.07	<0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
	Boron (Filtered)	µg/L	9.4	1000#1	7000#7	133	152	52.7	99.2	138	130	27.8	82.3	140	107	137	65.1	106	52.2
		µg/L	0.1	5#1	0.2#4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.228	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		µg/L	0.22	50#1	0.6#4	2.23	3.62	1.53	2.26	5.24	3.98	7.52	1.21	1.71	3.56	3.44	3.75	2.27	1.22
	Cobalt (Filtered)	µg/L	0.06	6#5	3#7	0.3	2.33	0.594	3.15	3.29	2.77	9.27	0.337	1.25	9.39	4.36	1.79	11.8	0.262
	Copper (Filtered)	µg/L	0.85	2000#1	5#4	1.95	1.13	0.939	1.09	1.59	1.4	61.3	1.16	1.74	1.26	1.29	<0.85	1.08	1.13
	Lead (Filtered)	µg/L	0.02	25#1	7.2#4	0.059	0.034	0.066	0.057	0.072	0.033	22.8	< 0.02	0.057	0.085	0.04	< 0.02	0.098	0.028
	Manganese (Filtered)	µg/L	0.04	50#1		772	91.2	8.89	860	1200	169	983	23	665	1320	126	2270	1180	7.19
		µg/L	0.01	1#1	0.05#4	<0.01	<0.01	<0.01	< 0.01	<0.01	<0.01	0.0171	<0.01	<0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01
	Nickel (Filtered)	µg/L	0.15	20#1	20#4	6.63	6.92	1.77	5.5	8.43	7.03	12.3	2.26	8.43	11	6.1	3.85	18.4	1.81
	Selenium (Filtered)	µg/L	0.39	10#1		9.71	9.06	0.781	1.67	1.13	1.92	1.87	1.86	7.19	3	13.2	2.87	1.76	0.897
	Silver	µg/L	1.5	94#5	0.5#7	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
	Thallium (Filtered)	µg/L	0.96	0.2#5		<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
		µg/L	0.24	86#5	100#7	0.657	1.56	1.61	1.33	2.35	1.56	7.67	0.759	0.67	1.57	1.33	1.07	0.941	1.45
		µg/L	0.41	6000#5	40#4	15.7	8.79	12.6	5.59	11.2	9.92	280	1.27	11.9	27.4	4.62	6	17.5	5.01
Inorganics		mg/L	0.3	50#1		<0.3	5.18	21.5	6.42	0.926	4.42	<0.3	18.7	2.01	0.942	5.64	0.94	9.17	21.9
		mg/L	0.05			< 0.05	0.465	7.3	1.55	0.07	0.302	14.1	4.46	< 0.05	0.297	0.216	< 0.05	0.056	7.28
		mg/L	0.2	0.389#1		0.268	<0.2	<0.2	0.508	0.707	0.619	5.66	<0.2	<0.2	1.23	<0.2	4.74	<0.2	<0.2
	Ammonium as NH4 BRE	mg/L	0.3			0.345	<0.3	<0.3	0.653	0.909	0.796	7.28	<0.3	<0.3	1.58	<0.3	6.09	<0.3	<0.3
	Sulphate (soluble)	mg/l	2			457	57.4	43	79.9	74.5	61.6	<2	70.1	287	75	55.2	37.5	82.2	42.3
	COD	mg/L	7			<7	<7	8.09	21.2	10.1	10.5	3330	<7	7.65	190	<7	43.5	<7	<7
	pH (Lab)	pH_Units	1			7.59	7.45	7.1	7.39	7.9	7.38	7.55	7.56	7.22	7.49	7.52	7.32	8.09	7.14

Notes:

GAC Generic Assessment Criteria

DWS UK Drinking Water Standards

EQS Coastal Environmental Water Quality Standard - Coastal Waters

EQL Estimated Quantitation Limit

Laboratory Method Detection Limit is greater than GAC GAC Exceedance

#1 WS Regs 2010 (Eng/Wal)

#2 WHO Petroleum In DW 2008

#3 WHO DWG 2011

#4 WFD EQS 2010 Coastal (Eng/Wal)

#5 USEPA RSL (tapwater)

#6 SEPA WAT-SG-53 Marine EQS - MAC - 2013

#7 SEPA WAT-SG-53 Marine EQS - AA - 2013

#8 PNEC (EU REACH) - Coastal

#9 New Hampshire DES (2009)

#10 California Draft health protective concentration

#11 Calc WHO

#### Table 8 - TPH, BTEX, MTBE and TAME Concentrations in Groundwater

				Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
				Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
	Analyte	Units	EQL	DWS GAC														
	GRO >C5-C10	μg/L	10		<10	<10	<10	<10	<10	<10	281	<10	<10	<10	<10	<10	<10	<10
	EPH >C6-C10	µg/L	100		<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100
	EPH >C6-C40	µg/L	100		<100	<100	<100	<100	<100	<100	1430	<100	<100	159	<100	<100	<100	<100
	EPH >C10-C40	µg/L	46		<46	<46	<46	<46	<46	<46	1430	<46	<46	159	<46	65.8	<46	<46
	>C12-C16 Aliphatics	µg/L	10	300 <sup>#2</sup>	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C16-C21 Aliphatics	μg/L	10	300#2	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
трн	>C16-C35 Aliphatics	μg/L	-		-	<20	<20	<20	-	<20	-	-	-	<20	<20	<20	-	<20
IPH	>C21-C35 Aliphatics	µg/L	10	300 <sup>#2</sup>	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C12-C35 Aliphatics	μg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC12-EC16 Aromatics	µg/L	10	90 <sup>#2</sup>	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC16-EC21 Aromatics	µg/L	10	90 <sup>#2</sup>	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC21-EC35 Aromatics	µg/L	10	90 <sup>#2</sup>	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC12-EC35 Aromatics	µg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C5-C35 Aliphatics & Aromatics	µg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	Benzene	µg/L	1	1#1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	µg/L	1	700 <sup>#3</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	1	300 <sup>#3</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX	Xylene (m & p)	µg/L	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylene Total	µg/L	-	500 <sup>#3</sup>	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene (o)	µg/L	1	9.9900000000018E11 <sup>#1</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Total BTEX	µg/L	28		<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28
Overenetes	MTBE	µg/L	1	900 <sup>#11</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Oxygenates	Tert Amyl Methyl Ether	µg/L	1	140 <sup>#9</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

GAC Generic Assessment Criteria

UK Drinking Water Standards DWS

EQL Estimated Quantitation Limit

#1 WS Regs 2010 (Eng/Wal)#2 WHO Petroleum In DW 2008#3 WHO DWG 2011

#4 WFD EQS 2010 Coastal (Eng/Wal) #5 USEPA RSL (tapwater) #6 SEPA WAT-SG-53 Marine EQS - MAC - 2013

#7 SEPA WAT-SG-53 Marine EQS - MAC - 2013
#8 PNEC (EU REACH) - Coastal

#9 New Hampshire DES (2009)

#10 California Draft health protective concentration

#11 Calc WHO

#### Table 9 - PAH Concentrations in Groundwater

				Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
				Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte	Units	EQL	DWS GAC	EQS Coastal GAC														
Naphthalene	µg/L	1	6#11	1.2#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	1	18#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Acenaphthene	µg/L	1	18#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Fluorene	µg/L	1	12#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Phenanthrene	µg/L	1	4#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Anthracene	µg/L	1	90#11	0.1#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Fluoranthene	μg/L	1	4#11	0.1#4	<1	<1	<1	<1	<1	<1	6.12	<1	<1	<2	<1	<1	<1	-
Pyrene	μg/L	1	9#11		<1	<1	<1	<1	<1	<1	4.78	<1	<1	<2	<1	<1	<1	-
Benz(a)anthracene	μg/L	1	0.1#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Chrysene	µg/L	1	1#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Benzo(a) pyrene	μg/L	1	0.01#1	0.05#4	<1	<1	<1	<1	<1	<1	4.69	<1	<1	<2	<1	<1	<1	-
Indeno(1,2,3-c,d)pyrene	µg/L	1	9.9900000000029E11#1		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Dibenz(a,h)anthracene	µg/L	1	0.01#11		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Benzo(g,h,i)perylene	µg/L	1	9.9900000000029E11#1		<1	<1	<1	<1	<1	<1	4.05	<1	<1	<2	<1	<1	<1	-
Benzo(b)fluoranthene	µg/L	1	9.9900000000029E11#1		<1	<1	<1	<1	<1	<1	6.42	<1	<1	<2	<1	<1	<1	-
Benzo(k)fluoranthene	µg/L	1	9.9900000000029E11#1		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Benzo(b)&(k)fluoranthene	µg/L	-		0.03#4	<2	<2	<2	<2	<2	<2	8.42	<2	<2	<4	<2	~2	<2	-
PAHs (sum of 4)	µg/L	-	0.1#1		<4	<4	<4	<4	<4	<4	14.47	<4	<4	<8	<4	<4	<4	-
benzo(g,h,i)perylene + indeno(1,2,3-cd)pyrene	µg/L	-		0.002#4	<2	<2	<2	<2	<2	<2	6.05	<2	<2	<4	<2	<2	<2	-
Coal Tar (Bap as surrogate marker)	µg/L	-			<1	<1	<1	<1	<1	<1	4.69	<1	<1	<2	<1	<1	<1	-

#### Notes:

Generic Assessment Criteria GAC UK Drinking Water Standards Environmental Water Quality Standard - Coastal Waters DWS EQS Coastal Estimated Quantitation Limit EQL Laboratory Method Detection Limit is greater than GAC GAC Exceedance 

#1 WS Regs 2010 (Eng/Wal)#2 WHO Petroleum In DW 2008#3 WHO DWG 2011

#3 WHO DWG 2011 #4 WFD EQS 2010 Coastal (Eng/Wal) #5 USEPA RSL (tapwater) #6 SEPA WAT-SG-53 Marine EQS - MAC - 2013

#7 SEPA WAT-SG-53 Marine EQS - AA - 2013

#8 PNEC (EU REACH) - Coastal

#9 New Hampshire DES (2009)#10 California Draft health protective concentration

#11 Calc WHO

### Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	i 01/09/2015
Ai	nalyte	Units	EQL	DWS GAC	EQS Coastal GAC														
VOC	2,2-dichloropropane	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromochloromethane	µg/L	1	83#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloropropene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichloroethane	µg/L	1	3#1	10#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichloropropane	µg/L	1	0.1#1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Dibromomethane	µg/L	1	8#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromodichloromethane	μg/L	1	0.13#5		<1 <1	<1 <1	<1 <1	<1	<1	<1	<1	<1	<1	<1	<1 <1	<1 <1	<1 <1	<1 <1
	cis-1,3-dichloropropene trans-1,3-dichloropropene	µg/L µg/L	1			<1	<1	<1	<1 <1	<1	<1	<1	<1						
	1,3-dichloropropane	µg/L	1	0.1#1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chlorodibromomethane	µg/L	1	9.99000000000015E11 #1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1,2-tetrachloroethane	µg/L	1	0.57#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1	Styrene	µg/L	1	20#3	50#7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromoform	µg/L	1	9.9900000000015E11		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Isopropylbenzene	µg/L	1	450#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2,2-tetrachloroethane	μg/L μg/L	1	0.076#5 0.00075#5		<1 <1													
	1,2,3-trichloropropane n-propylbenzene	µg/L µg/L	1	660#5		<1 <1	<1	<1 <1	<1 <1	<1	<1	<1 <1	<1 <1	<1	<1	<1 <1	<1	<1	<1
	1,3,5-trimethylbenzene	µg/L	1	120#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	tert-butylbenzene	µg/L	1	690#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1.2.4-trimethylbenzene	µg/L	1	15#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	sec-butylbenzene	µg/L	1	2000#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	p-isopropyltoluene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	n-butylbenzene	µg/L	1	1000#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dibromo-3-chloropropane	µg/L	1	0.1#1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hexachlorobutadiene	µg/L	1	0.6#3	0.1#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloroethene	µg/L		50#3		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SVOC	Trihalomethanes	µg/L	4	100#1 24#3		<4	<4	3.07	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	2.91
SVOC	2-methylnaphthalene	µg/L	1	24#3		<1 <1	<1 <1	<1 <1	<1 <1	<1 <1	<1 <1	<4 <4	<1 <1	<1 <1	<2 <2	<1 <1	<1 <1	<1 <1	-
	4-bromophenyl phenyl ether	µg/L	1			<1													
	4-chlorophenyl phenyl ether	μg/L	1	0.12#5			<1	<1	<1	<1	<1	<4 <4	<1	<1	<2 <2	<1	<1	<1 <1	
	Azobenzene	µg/L	· ·			<1	<1	<1	<1	<1	<1		<1	<1		<1	<1		
	Bis(2-chloroethoxy) methane	µg/L	1	59#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Bis(2-chloroethyl)ether	µg/L	1	0.014#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	· ·
	Carbazole	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Dibenzofuran	µg/L	1	7.9#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Hexachlorocyclopentadiene	µg/L	1	31#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Hexachloroethane	µg/L	1	0.9#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Chlorinated Hydrocarbons	Chloromethane	µg/L	1	20#3		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	µg/L	1	0.5#1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chloroethane	µg/L	1	21000#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloroethene	µg/L	1	30#3		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	µg/L	3	20#3	20#4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	trans-1,2-dichloroethene	µg/L	1	360#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloroethane	µg/L	1	2.7#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-dichloroethene	µg/L	1	36#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chloroform	µg/L	1	).99000000000015E11#	2.5#4	<1	<1	1.57	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.41
	1,1,1-trichloroethane	µg/L	1	2000#3	100#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
			-	3#1															
	Carbon tetrachloride	µg/L	1	÷	12#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Trichloroethene	µg/L	1	0.9900000000017E11#	10#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2-trichloroethane	µg/L	1	0.28#5	300#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Tetrachloroethene	µg/L	1	.99000000000017E11#	10#4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1	Sum of PCE and TCE	µg/L		10#1		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1		0				-	-	-	·F	·F	-	-	5	5	.E	5	5	-E	<5
	TCE+DCE+VC PCE+TCE+DCE+VC	μg/L μg/L				<5 <6	<5	<5 <6	<5	<5	<5	<5 <6	<5	<5 <6	<5 <6	<5	<5	<5	<3

### Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	5 01/09/20
A	nalyte	Units	EQL	DWS GAC	EQS Coastal GAC														
Phenolics	2-methylphenol	µg/L	1	930#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2-nitrophenol	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2,4-dimethylphenol	µg/L	1	360#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-chloro-3-methylphenol	µg/L	1	1400#5	40#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-methylphenol	µg/L	1	1900#5		<1	<1	<1	<1	<1	<1	172	<1	<1	<2	<1	5.42	<1	-
	4-nitrophenol	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Phenol	µg/L	1	5800#5	7.7#4	<1	<1	<1	<1	<1	<1	10.7	<1	<1	<2	<1	<1	<1	-
	2-chloronaphthalene	µg/L	1	750#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Amino Aliphatics	N-nitrosodi-n-propylamine	µg/L	1	0.011#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Anilines	2-nitroaniline	µg/L	1	190#5	1	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	3-nitroaniline	µg/L	1		1	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-chloroaniline	µg/L	1	0.36#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-nitroaniline	µg/L	1	3.8#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
xplosives	2,4-Dinitrotoluene	µg/L	1	0.24#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
-	2,6-dinitrotoluene	µg/L	1	0.048#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	
	Nitrobenzene	µg/L	1	0.14#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Halogenated Benzenes	1,3,5-Trichlorobenzene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
-	Chlorobenzene	µg/L	1	300#3		1.7	<1	<1	<1	1.77	<1	1.89	<1	<1	<1	<1	<1	1.8	<1
	Bromobenzene	µg/L	1	62#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-chlorotoluene	µg/L	1	240#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-chlorotoluene	µg/L	1	250#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-dichlorobenzene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,4-dichlorobenzene	µg/L	1	300#3		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichlorobenzene	µg/L	1	1000#3		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-trichlorobenzene	µg/L	1	1.1#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-trichlorobenzene	µg/L	1	7#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hexachlorobenzene	µg/L	1	1#3	0.01#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	
alogenated Hydrocarbons	Dichlorodifluoromethane	µg/L	1	200#5	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<b>,</b>	Bromomethane	µg/L	1	7.5#5		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Trichlorofluoromethane	μg/L	1	1100#5	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dibromoethane	µg/L	1	0.1#1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
alogenated Phenols	2-chlorophenol	μg/L	1	0.1#3	50#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2,4-dichlorophenol	µg/L	1	0.3#3	20#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	
	2,4,5-trichlorophenol	µg/L	1	9#3	2011	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2,4,6-trichlorophenol	μg/L	1	200#3	1	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Pentachlorophenol	µg/L	1	9#3	0.4#4	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	

### Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
	Analyte Units EQL DWS GAC																		
Phthalates	13				1.3#4	<2	<2	<2	<2	<2	<2	<8	<2	<2	<4	<2	<2	<2	· · ·
	Butyl benzyl phthalate	µg/L	1	16#5	20#7	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	- 1
	Di-n-butyl phthalate	µg/L	1	900#5	8#7	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	- 1
	Di-n-octyl phthalate	µg/L	5	200#5	20#7	<5	<5	<5	<5	<5	<5	<20	<5	<5	<10	<5	<5	<5	- 1
	Diethylphthalate	µg/L	1	15000#5	200#7	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	- 1
	Dimethyl phthalate	µg/L	1		800#7	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	- 1
Solvents	Carbon disulfide	µg/L	1	810#5		<1	<1	<1	<1	<1	<1	2.28	<1	<1	<1	<1	<1	<1	<1
	Isophorone	µg/L	1	78#5		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-

Notes:

Generic Assessment Criteria
UK Drinking Water Standards
Environmental Water Quality Standard - Coastal Waters
Estimated Quantitation Limit
Laboratory Method Detection Limit is greater than GAC
GAC Exceedance

#1 WS Regs 2010 (Eng/Wal) #2 WHO Petroleum In DW 2008 #3 WHO DWG 2011 #4 WFD EQS 2010 Coastal (Eng/Wal)

#4 WFD EQS 2010 Coastal (Eng/Wal)
#5 USEPA RSL (tapwater)
#6 SEPA WAT-SG-53 Marine EQS - MAC - 2013
#7 SEPA WAT-SG-53 Marine EQS - AA - 2013
#8 PNEC (EU REACH) - Coastal

#9 New Hampshire DES (2009) #10 California Draft health protective concentration #11 Calc WHO

### Table 11 - Field Duplicate QA Check

Well ID	BH4	DUP01	RPD
Date Sampled	01/09/2015	01/09/2015	

Method Type	Analyte	Units	EQL			
EPH by GC-FID	>C10-C40	µg/l		<46	<46	0
GRO by Headspace GC-FID	>C5-C10	µg/l		<10	<10	0
	MTBE	µg/l		<1	<1	0
	Benzene	µg/l		<1	<1	0
	Toluene	µg/l		<1	<1	0
	Ethylbenzene	µg/l		<1	<1	0
	Xylene (m & p)	µg/l		<1	<1	0
	Xylene (o)	µg/l		<1	<1	0
Vetals by ICP-OES	Arsenic (Filtered)	µg/l		52.7	52.2	0
	Boron (Filtered)	µg/l		<0.1	<0.1	0
	Cadmium (Filtered)	µg/l		1.53	1.22	11
	Chromium (III+VI) (Filtered)	µg/l		0.939	1.13	9
	Copper (Filtered)	µg/l		0.066	0.028	40
	Lead (Filtered)	µg/l		<0.01	<0.01	0
	Mercury (Filtered)	µg/l		1.77	1.81	1
	Nickel (Filtered)	µg/l		0.781	0.897	7
	Selenium (Filtered)	µg/l		12.6	5.01	43
	Zinc (Filtered)	µg/l		21.5	21.9	1
oH by Metrohm	pH (Lab)	-		7.1	7.14	0
SO4, CI, NO3, NO2, PO4, Amm N2, Thiocyanate, He	Nitrate (as NO3-)	mg/l		7.3	7.28	0
	ORTHOPHOSPHATE (PO4-P)	mg/l		<0.2	<0.2	0
	Ammoniacal Nitrogen as N	mg/l		<0.3	<0.3	0
	Ammonium as NH4 BRE	mg/l		43	42.3	1
	Sulphate (soluble)	µg/l		28.2	28.4	0

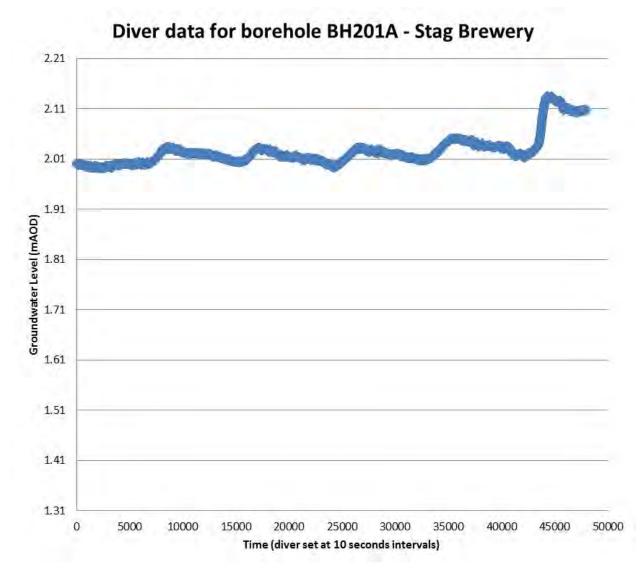
\*RPDs have only been considered where a concentration is greater than 1 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 100 (1-10 x EQL); 50 (10-20 x EQL); 30 ( > 20 x EQL) )

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

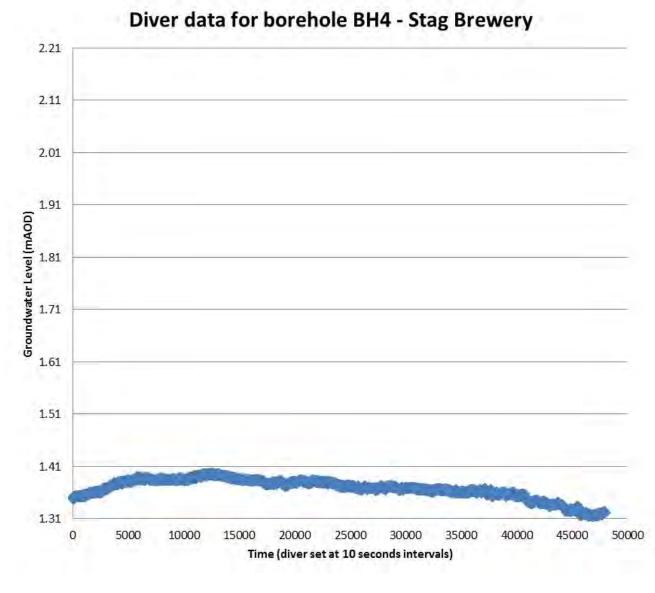


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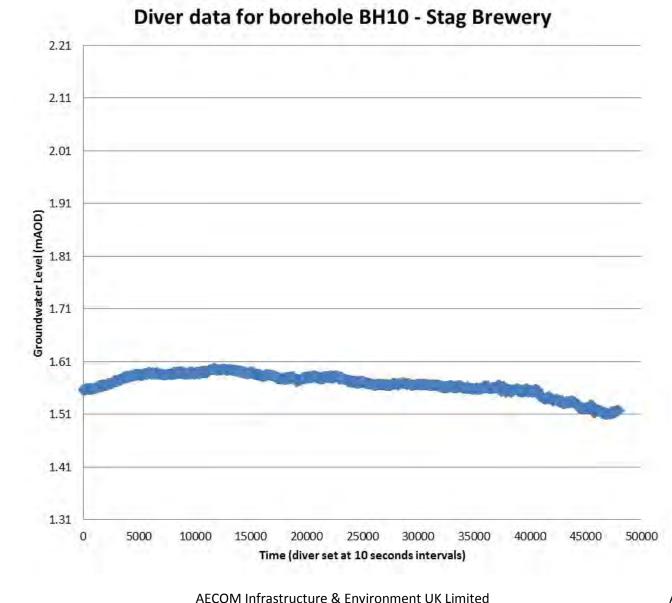
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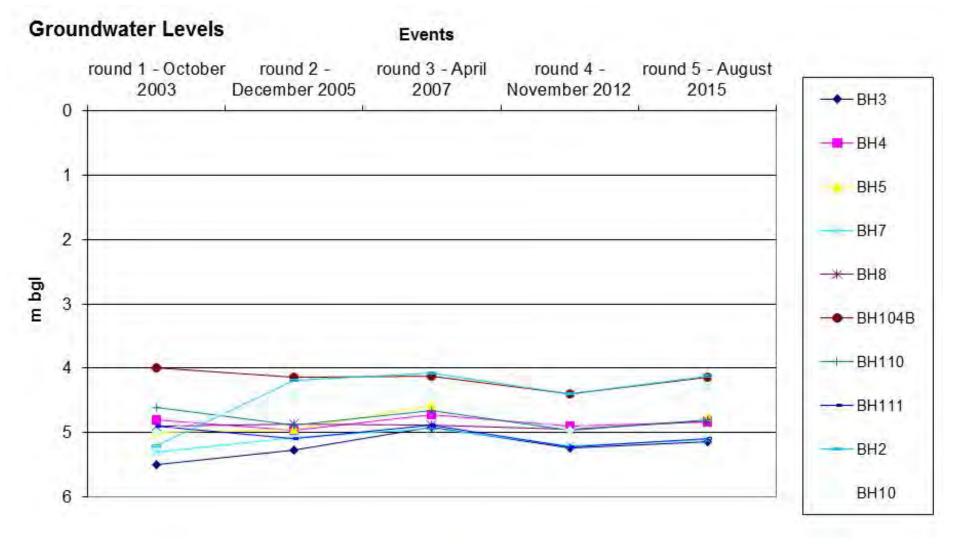


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### APPENDIX A – DE-SILTING & DEVELOPMENT OF EXISTING MONITORING WELLS

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### **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	able A1 – Changes in Wells Depths														
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	Table A2: De-silting of Groundwater Monitoring Wells (AECOM, 24-25 August 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.										
BH3	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.										
BH7	2.5 – 6.7m (*) (Sand)	5.140	6.470	7.150	Good recharge. 3 litres of sludge / silt removed.										



### Phase 2 Environmental Ste Assessment Report

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 a silt removed.
BH9	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

(\*) 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.

(\*\*) 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.

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



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**

47075502/ PH2 ESA 22 SEPTEMBER 2015



Proje	ect Name and Site						Client AD Inhard						BOREHOL	E No
	Stag Brewer	y, M	ortla	ke, Londo	on SW	14			AB	B Inbev			BH109	۸
Job N			Date Start Da	ate 28-08-	15	Ground	Level (n	1)	Co-Ordin	nates ()			DITI03	~
	47075502	1	End Da	te 28-08-	15									
Cont	ractor					Method	l / Plant U		1.D.	D'			Sheet	
	ESL		1	1			Concrete	e Corer and					1 of 1	
		bpm	ter		and h			S	TRATA	A				E
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend (T	ess)			SCRIPTIO	DN		C	OMMEN	NTS	Installation
-					0.35) - 0.35 -	CONCRE	TE							
- 0.5		<0.1			-	MADE G	ROUND	Brown, g						
-				×× "	0.70	fine to coa	urse. Grav	o subagula vel is conc	)		_			
- 1.0	BH109A_0.8	<0.1						atural ston andy, grav	)					
-					1.20	is fine to c	oarse. G	ravel is fin lar of flint						
- 1.5		<0.1			-	Brown, sa	ndy, slig	htly gravel	ly CLAY.	Sand	Damp NVC	)		
- 1.5						is fine to c subrounde		ravel is fin						
				000	1.90	Duorra oo	ndri fina	40 mg dinm			_			
- 2.0		<0.1			2.10	subangula	r GRAV	to medium EL of flint	. Sand is f	ine to	Damp NVC			
-				· · · · · ·	0.700 -	Brown, grey, slightly gravelly, fine to coarse								
-2.5		<0.1		0	-	SAND. Gravel is fine, subrounded of flint.								
-				0	2.80	Brown/ora	ange, grav	velly, fine	to coarse	SAND.	Damp NVC	)		
- 3.0		<0.1			-	Brown/orange, gravelly, fine to coarse SAND. Damp NVO Gravel is fine to medium, subangular to subrounded of flint.								
					-									
3.5 -		<0.1		a .	3.50	Borehole	erminate	d at 3.5m	bgl.					
Ē					-									
F					-									
ŀ					-									
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E .					-									
-														
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					-									
					-									
DT 52					-									
	Backfill				Sam	ple Deta	ails	Le	gend				GENERA	
	Cement seal					Small disturl sample		Concrete	0	Made	Ground		REMARK	
G 📕 I	Bentonite Fill					sample		Sandy grave	lly CLAY		y Gravel		NVO - No visual or Olfact Evidence of Contamination	
								Gravelly Sar	ıd				m bgl - meters below grou Hand pitted to 1.2mbgl	
- S														
GLOC										4				
							Ţ	Groundwater Table $\sum_{=}^{1}$ Groundwater Strike						
.02.10														
1E_08								Logged By CG Approved By MM						



Proje	ct Name and Sit					Client							BOREHOLE No		No
	Stag Brewe	-				14			AB	B Inbev					
Job N	10	1	Date	<sub>ate</sub> 20-0 te 20-0	8-15	Groun	d Level (n	n)	Co-Ordir	nates ()			БП	201	
	47075502	1	End Da	te 20-0	8-15										
Cont	ractor					Metho	d / Plant						Sheet		
	ESL						Concret	e Corer.					1	of 1	
		(mq	r					S	STRATA	4	1				
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	ness)			ESCRIPTIO			C	OMMEN	TS		Installation
Ē					0.25	TARMA	C over CO	ONCRETE	1						
- 0.5					(0.45)	MADE C fine-med brick and	GROUND ium, angu l concrete	: Dense, sa ilar-subang . Sand is fi	undy, jular grave ne to coar	el of se.	Dry NVO.				
						Borehole on concr	eterminate	ed at 0.7m	bgl due to	refusal					
	Backfill				Sam	ple De	tails	Le	gend				GENE	ERAL	
	Cement seal					Ashphalt Made Ground							REMA		
								Groundwater	Table	⊥ Ţ_Grou	undwater Strike		NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 0.7mbgl		
							Logged By CG Approved					oved By MM			



Bor	eho	le	Log

Proje	ect Name and Site						Client						BOREHOLE No		
	Stag Brewer	ry, M	lortla	ke, Lon	don S	W14			AE	B Inbev			PU201	•	
Job N	√o		Date Start Da	<sub>ate</sub> 24-0	8-15	Grou	nd Level (r	n)	Co-Ordin	nates ()			BH201	A	
	47075502		End Da	te 25-0	8-15										
Cont	tractor					Meth	od / Plant						Sheet		
	ESL						Concret	te Corer an	d Solid St	em Auger.			1 of 1		
		(mq	er			1			STRATA	A	1				
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick ness)			ESCRIPTI			C	OMME	NTS	Installation	
:					0.25	- TARMA -	AC over C	ONCRETH	Ξ						
- 0.5 	BH201A_0.7	<0.1			(0.95)	gravelly fine-coa	, fine-coar	): Brown/re se sand. G ar-subangu	ravel is		Damp NVC	)			
- 1.0		<0.1			1.20	-									
- - 		<0.1				<ul> <li>Light br</li> </ul>	own, dens al rounde	e, medium d flint.	-fine SAN	ID with	Dry NVO				
-2.0	BH201A_1.9-2.	.0 <0.1			(2.00)	-									
- 2.5		<0.1				-									
- 3.0		<0.1			3.20										
- 		<0.1	Ţ	<u> </u>		- medium		EL. Grave nt. Sand is		se	Wet from 3	.7mbgl	NVO		
- 4.0 					(1.90)	- - - -									
- 4.5 				<u>×1, 71</u> 1 <u>, 71</u> 7 71 ×11		- - - -									
- 5.0				1 <u>/ 11/ 1</u>	5.10										
- - 5.5					(0.90)	- Grey, m - CLAY ( - -	ottled dark LONDON	c brown, po V CLAY).	ossibly stil	ff	Dry, NVO.				
E					6.00	- -									
- 6.0					6.00		e terminate	ed at 6.0m	bgl.						
2						- - -									
						-									
	Backfill				Sa	ample De	tails	Le	egend				GENERAL	_	
	Cement seal riser					Small dist sample	urbed	Ashphalt		Made	e Ground		REMARKS		
	Bentonite seal riser							Sand		Silty/	clayey PEAT		NVO - No visual or Olfactor Evidence of Contamination.		
	Filter pack riser							Clay					m bgl - meters below ground Hand pitted to 1.2mbgl	u 10 VCI.	
	Filter pack screen														
	Hole Collapse						Ţ	Groundwate	r Table	$\underline{\underline{\underline{v}}}^{1}$ Grou	ndwater Strike				
					I		11	Logged I	Зу	CG/MN	/MM Approved By GM				



Proje	ct Name and Sit					Client							BOREHOLE No		No	
	Stag Brewer	ry, Mo	ortla	ke, Lon	don SW	14			AB Int	bev						
Job N	lo	I	Date	<sub>ite</sub> 24-0	8-15	Grour	nd Level (r	n)	Co-Ordinates	0			BH	202		
	47075502	I	End Da	te 24-0	8-15											
Cont	ractor					Meth	od / Plant	Used					Sheet			
	ESL						Concret	e Corer.					1 0	f 1		
		) m						S	STRATA							
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	ness)			ESCRIPTIO			C	OMMEN	ITS		Installation	
-					0.25	TARMA	AC over C	ONCRETE	2							
		<0.1			(0.35)	gravel of	f concrete.	: Grey, der Sand is fin gular-suba	nse, sand and ne-coarse. Grav ngular.	Dry NVO						
-				KXXX	0.80	MADE	GROUND	Brown, s	andv.	/	Dry NVO					
F					<u> </u>				gular gravel of							
-					-	Borehole on conci		ed at 0.8m	bgl due to refu	ısal						
-					-	on conci										
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	Backfill				San	nple De	tails	Le	gend				GENE	RAL		
	Cement seal							Ashphalt	$\boxtimes$	Made	e Ground		REMA	RKS		
E E	Bentonite Fill												NVO - No visual or Evidence of Contam	ination.		
						n F						m bgl - meters below Hand pitted to 1.2ml	ground l gl	level.		
						Groundwater Table										
							Logged By CG Approved By MN								мМ	



Proje	ct Name and Sit					Client							BOREHOLE No		
	Stag Brewer	ry, M	ortla	ke, Lor	ndon SW				AB	Inbev			PH202	•	
Job N	lo		Date	ata 24-0	8-15	Groun	d Level (r	n)	Co-Ordina	tes ()			BH202	4	
	47075502		End Da	te 24-0	8-15										
Cont	ractor					Metho	d / Plant	Used					Sheet		
	ESL						Concret	e Corer an	d Solid Sten	n Auger	r.		1 of 1		
		(m						<u>s</u>	STRATA						
Depth	Sample / Test	PID (ppm)	Water		Depth								77.0	ation	
BĜL	Details	PIC	>	Legend	(Thick- ness)		Dł	ESCRIPTI	ON		0	OMMEN	15	Installation	
E					0.25	TARMA	C over C	ONCRETI	Ξ						
-		<0.1		$\boxtimes$	- :	MADE (	ROUND	: Grey, sai	ndy,	of	Wet NVO			-	
0.5 -				$\bigotimes$	0.60	concrete.	Sand is f	ine-coarse			Dry NVO			_	
E	BH202A_0.8	< 0.1		$\bigotimes$		MADE (	ROUND	: Brown, g Gravel is fi	gravelly, ne-medium,		DIVINVO				
- 1.0				$\bigotimes$		subangul	ar-subrou	nded of co	oncrete.						
-				$\bigotimes$	(1.20) -										
- 1.5		< 0.1		$\bigotimes$											
-				$\bigotimes$	1.80										
E						Borehole on concr		ed at 1.8m	bgl due to re	efusal					
-															
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	Backfill					ple De		Le	egend				GENERAL		
Cement seal						Small distu sample	rbed	Ashphalt		Mac	de Ground		REMARKS		
E E	Bentonite Fill											NVO - No visual or Olfactor Evidence of Contamination.	-		
													m bgl - meters below ground Hand pitted to 1.2mbgl	1 level.	
8															
										4					
							⊻	Groundwate	r Table		undwater Strike				
								1-							
								Logged I	Ву	CG		Appro	oved By MM		



Proje	ct Name and Site						Client						BOREHOLE No		
	Stag Brewer	ry, Mo	ortla	ke, Lon	don SV					B Inbev			F	3H203	
Job N		S	Date Start Da	<sub>te</sub> 20-0	8-15	Groun	d Level (n	n)	Co-Ordi	nates ()				511205	
	47075502	E	End Dat	te 20-0	8-15		1 / 51								
Cont	ractor					Metho	od / Plant U						Sheet		
	ESL		1				Concrete Corer and Solid Stem Auger.							1 of 1	
		(udd	er					5	STRAT	A	1				-
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DE	SCRIPTIO	ON		C	OMMEN	NTS		Installation
[					0.20		C over CO								
- 0.5		<0.1			(0.70)	MADE of fine-med yellow a	GROUND lium, angu nd red bric	: Very den lar-subang ck, granite	se, sandy gular grav and conc	, el of rete.	Dry NVO				
È –				$\times$	0.90	~									
-					1.00	No reco	e / possible verv.	e granite sl	ab.	/					
Ē					-		)-								
					-										
-					-										
-					(2.00)	-									
					-										
-					-										
					-										
-					3.00-	D 1 1	· · ·	1 + 2 0	1 1 1 /	C 1					
-					-	Borehole on conci	e terminate ete.	ed at 3.0m	bgl due to	o refusal					
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	Backfill				Sar	nple De	tails	Le	gend				GE	NERAL	
	Cement seal riser					<u></u>		Ashphalt	0	Made	e Ground		RE	MARKS	
	Bentonite seal riser												NVO - No visu		7
F	Filter pack riser												Evidence of Co m bgl - meters Hand pitted to	below ground	level.
	Filter pack screen												and phice to	1.211051	
							∎	Groundwater	Table	⊥ ⊥ Grou	ndwater Strike				
										-					
								Logged H	By	CG		Appr	roved By	MM	



TE\_08.02.10 STAG LOGS - FULL.GPJ AGS3\_ALL.GDT 22/9/15

Proje	ct N	ame and Site	Loca		BOREHOLE No											
Fioje		ag Brewer			ke Lor	ndon SV	W14	Client		AB	Inbev		BUKERULL	INO		
Job N			-   T					d Level (n	2)	Co-Ordina			BH203	4		
JOD P		075502	5	Start Do	ate 20-0 te 20-0	18-15 18-15	Groun	d Level (n	n)	Co-Ordina	ates ()					
Cont	racto	or					Method / Plant Used					Sheet				
	E	SL					Concrete Corer and Solid Stem Auger.					1 of 1				
			(uic	r					C L							
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DE	ESCRIPTI	ON		COMME	NTS	Installation		
-						0.20	TARMA	C over CO	ONCRET	E				N N		
-0.5	X	BH203A_0.5	<0.1			(0.70)	MADE C angular t and conc	to sub-ang	: Very den jular grave	nse, sandy, el of brick, g	granite	Dry NVO				
- 			<0.1			0.90		e / granite	slab.							
						-	No recov					Damp, NVO.				
- 1.5			<0.1			-										
-						-	•									
- 2.0			<0.1				-									
-						(2.50)	-									
-2.5			<0.1			-	•									
-																
- 3.0						-	-									
						-	•									
- 3.5					P. A. A. P.	3.50	Concrete	e / granite	slab.							
-						-	No recov		blue.			Damp, NVO.				
- 4.0						-	-									
-						(1.20)										
- 4.5							•									
-						4.80	Possibly	CLAY (n	no recovery	<i>y</i> ).		Wet. NVO.				
- 5.0						- 3.00			ed at 5.0m							
-						-	•									
						-										
 -							-									
-						-	•									
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	Ū							.,[]					11			
		ackfill					mple De			egend			GENERAL REMARKS			
		ent seal riser					Small distu sample		Ashphalt			e Ground	NVO - No visual or Olfactor			
		nite seal riser						84	Concrete		Clay		Evidence of Contamination. m bgl - meters below ground	-		
		pack riser pack screen											Hand pitted to 1.2mbgl			
LHJ ·		Jduk Suruun														
								Ţ	Groundwate	r Table	$\frac{1}{\underline{\nabla}}$ Grour	ndwater Strike				

Logged By

CG

Approved By

MM



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Proje	ct Name and Sit			I Т	1	<b>V</b> 71 A	Client	AB Inbev				BOREHOLE No			
	Stag Brewer	-		ke, Lon	don S							В	H204		
Job N	47075502	S	Date tart Da	<sub>tte</sub> 21-0 te 21-0	8-15 8-15	Groun	d Level (n	n)	Co-Ordinates ()				• .		
Cont	ractor	E	and Da	le 21-0	0-15	Metho	d / Plant	Used				Sheet			
	ESL						Concrete Corer and Premier Rig.					1 of 1			
	2.52	Î					Control		STRATA			1 01 1			
Donth	G 1 (T )	udd)	Water		Depth									uo	
BGL	Sample / Test Details	PID (ppm)	W	Legend	(Thick- ness)		DE	ESCRIPTI	ON	CC	OMMEN	NTS		Installation	
[						- TARMA	C over C	ONCRETI	3	Dry NVO					
				XXX	0.28	MADE	GROUND	: Pea shing	gle.	Dry NVO					
-0.5					0.70	CONCR	ETE								
-		< 0.1			0.80			Red bric		Dry NVO					
- 1.0				$\otimes$	(0.40)	_ MADE C - fine-med	GROUND	: Brown/ 1 ilar-subang	ed, sandy, gular brick	Dry NVO					
-	BH204_1.3	<0.1		KXX	1.20	gravel.	-		/	Dry NVO					
- 1.5					1.50	MADE C very sand	BROUND ly clay. Sa	: Very sof and is fine	t, brown/ red, -coarse.						
-		.01		$\boxtimes$		MADE	ROUND	: Dark gre	y/ black, sandy, gular gravel of	Dry NVO					
- 2.0		<0.1		$\otimes$		_ flint. San	d is fine-o	coarse.	guiar graver or						
-					(1.50)	-									
-				$\boxtimes$	(1.50)	-									
-2.5				$\otimes$		-									
-					3.00	-									
- 3.0		<0.1			3.20	- Orange/	yellow, fi	ne-coarse s	SAND.	Dry NVO					
Ē	BH204_3.3	< 0.1		0.00		Brown, s	andy, fine	e-medium,	VEI	Damp NVC	)				
- 3.5				00.00	3.50			nded GRA ed at 3.5m							
-						-			0						
-						-									
Ē						-									
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						-									
3_ALL	Backfill				Sa	mple Det		Le	egend				VERAL		
₩ W GS	Cement seal							Ashphalt	Mac	le Ground		REMARKS			
GP.	Bentonite Fill							Concrete	San	d		NVO - No visual or Olfactory Evidence of Contamination.			
FULL								Sandy Grav	el			m bgl - meters b Hand pitted to 1		ievel.	
- SDC															
AG LC							1								
0 ST/							$\underline{\Psi}$ Groundwater Table $\frac{1}{\underline{\Psi}}$ Groundwater Strike								
3.02.1								Logged I	3v ~		Appr	oved By	101		
TE_0(									By CG		App	Joint By	MM		



Project Name and Site Location Client BORE																	
Proje	ct Name and Sit Stag Brewei			ke Lon	idon S	W14	Client		ABI	Inbev			BOREHOLE No				
Job N	-						d Level (1	m)	Co-Ordinat				B	H205			
0001	47075502	S	tart Da	te 21-0	8-15			)	eo orania								
Cont	ractor					Meth	od / Plant	Used					Sheet				
	ESL						Concret	te Corer an	d Premier R	ig.			1 of 1				
		(mi							STRATA								
Depth	Sample / Test	PID (ppm)	Water	Legend	Depth (Thick	ı _	וח	ESCRIPTI	ON		CC	)MMFN'	IENTS				
BĞL —	Details	IId	-		ness)								15		Installation		
Ē					0.27	- CONCR			01								
- 0.5				$\bigotimes$	(0.53)		GROUNE and and gi	D: Grey, de ravel of co	nse, fine to ncrete.		Dry NVO						
Ē		<0.1			0.80	) -											
	BH205_1.0	<0.1				- MADE	GROUNE	): Very der m. angular	ise, brown, -subangular		Dry NVO						
Ē		< 0.1				gravel o	f brick, co rse. Little	ncrete, flir	it, glass. San	id is							
- 1.5				$\otimes$			ise. Little	neovery.									
-				$\bigotimes$	(1.70)	-											
- 2.0		<0.1				-											
-						-											
- 2.5	BH205_2.5	<0.1			2.50										-		
-		<0.1		0	(0.50)	- Gravel i	s fine-med	lium,	e-coarse SAN	ND.	Dry NVO						
- 3.0		<0.1		0.0	3.00	subangu	lar-subrou with dept	inded, beco h. Little re	oming more covery.								
-		<0.1						ed at 3.0m		/							
Ē						-											
-						-											
-						-											
-						-											
-						-											
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-						-											
Ē						-											
-						-											
Ē						-											
-						-											
-						-											
						-											
9/15						-											
122						-											
	Backfill		l		S	ample De	tails	Īf	egend		1		CE	NEDVI	1		
BackTIII Sampl								Concrete		Mad	e Ground	——	GENERAL REMARKS				
Bentonite Fill							mall disturbed ample Concrete Made Ground						NVO - No visual or Olfactory				
NLL.G	Dentomer m														Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl		
(G LO										1.							
0 STA							$ \underbrace{\Psi}  \text{Groundwater Table}  \underbrace{\Psi}_{=}^{1}  \text{Groundwater Strike} $										
								Logged	Bv	00		Appro	ved By	104			
0									- 3	CG		, Philo		MM			



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### Client Project Name and Site Location **BOREHOLE** No Stag Brewery, Mortlake, London SW14 AB Inbev **BH206** Job No Ground Level (m) Co-Ordinates () Date 21-08-15 21-08-15 Start Date 47075502 End Date Contractor Method / Plant Used Sheet ESL Concrete Corer and Premier Rig 1 of 1 PID (ppm) STRATA Water Depth Depth BGL Sample / Test Details Istallation Legend (Thick DESCRIPTION COMMENTS ness) TARMAC over CONCRETE 0.20 MADE GROUND: Grey, dense, fine to coarse sand and gravel of concrete. Dry, NVO. -0.5 (0.80)1.00 1.0 < 0.1BH206\_1.1 MADE GROUND: Soft brown sandy clay. Dry, NVO. Gravel is fine-medium, angular-subangular of brick and concrete. (0.80) < 0.1 1.5 1.80 Borehole terminated at 1.8m bgl due to refusal on concrete 22/9/15 GDT ALL Backfill Sample Details Legend **GENERAL** REMARKS 08.02.10 STAG LOGS - FULL.GPJ AGS3 Small disturbed sample Cement seal Ashphalt Made Ground NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl Bentonite Fill Groundwater Table Groundwater Strike Logged By Approved By CG MM



									0			-	-		
Proje	ct Name and Site Stag Brewer			ke. Lon	don S	W14	Client		AB Inbev		BOREHOLE No				
Job N	<u> </u>	-   T					Ground Level (m) Co-Ordinates ()						BH207		
	47075502	E E	Start Da End Da	ate 25-0 te 25-0	8-15 8-15										
Cont	ractor					Metho	Method / Plant Used						Sheet		
	ESL						Concrete Corer and Premier Rig.						1 of 1		
		(und	er			1			STRATA						
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend		1 2-	D	ESCRIPTI	ON	OMMEN	MENTS				
-		P			ness) 0.20	- TARMA	C							Installation	
-				$\boxtimes$	0.20	- MADE C	GROUNI	D: Grey/red	, dense, fine to ncrete and brick.	Dry, NVO.					
-0.5	BH207.0.7	<0.1			(0.90)	-	inu anu g								
-	BH207_0.7			$\bigotimes$	(0.20)	- - -									
- 1.0		<0.1			1.10		velly bro	own CLAY	Gravel is	Dry, NVO.					
-		<0.1				fine-med (Possibly	ium, sub	angular-sul	prounded of flint.	Diy, 100.					
				<u> </u>		-	TOWOIK	<i>(</i> ()							
-		<0.1			(1.50)	-									
- 2.0						-									
- - 2.5		<0.1		- <u> </u>	2.0										
-	BH207_2.6-3.5				2.60	- Brown o	lense, gra	welly SAN	D. Gravel fine,	Dry, NVO.					
- 3.0		<0.1			(0.90)	E medium.	ally medi	um of flint	. Sand is fine to						
ł					(0.90)	-									
- 3.5		<0.1		· · · · ·	3.50	) - Doroholo	tomainor	ted at 3.5m	hal	_					
						- Borenoie - -	etermina	ed at 5.5m	bgi.						
F						-									
-						-									
-						-									
-						-									
-															
-						-									
-						-									
-						-									
-						-									
2/9/15															
101 2: -						-									
	Backfill				S	ample De	tails	Le	egend			GEI	NERAL		
	Cement seal							Ashphalt	Ma	de Ground			MARKS		
	Bentonite Fill							Gravelly Cla		NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level.					
- FUL													1.2mbgl		
STAG							$\mathbf{Y}$ Groundwater Table $\overset{1}{\overset{1}{}}$ Groundwater Strike								
02.10															
								Logged	By CG	r	Appr	oved By	MM		



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### Client Project Name and Site Location **BOREHOLE** No Stag Brewery, Mortlake, London SW14 AB Inbev **BH208** Job No Ground Level (m) Co-Ordinates () Date 25-08-15 25-08-15 Start Date End Date 47075502 Method / Plant Used Contractor Sheet **ESL** Concrete Corer. 1 of 1 PID (ppm) STRATA Water Depth Depth BGL Sample / Test Details nstallation (Thick Legend DESCRIPTION COMMENTS ness) 4 CONCRETE -0.25 MADE GROUND: Brown, sandy, medium gravel of concrete, brick and flint. Dry, NVO. < 0.1 -0.5 (0.55) 0.80 Borehole terminated at 0.8m bgl due to refusal on concrete. 22/9/15 GDT ALL Backfill Sample Details Legend GENERAL 08.02.10 STAG LOGS - FULL.GPJ AGS3 REMARKS Cement seal Concrete Made Ground NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl Bentonite Fill Groundwater Table Groundwater Strike Logged By Approved By CG MM



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#### Client Project Name and Site Location **BOREHOLE** No Stag Brewery, Mortlake, London SW14 AB Inbev **BH208A** Job No Ground Level (m) Co-Ordinates () Date 25-08-15 25-08-15 Start Date 47075502 End Date Contractor Method / Plant Used Sheet ESL Concrete Corer and Premier Rig 1 of 1 PID (ppm) STRATA Water Depth Depth BGL Sample / Test Details Istallation Legend (Thick COMMENTS DESCRIPTION ness) CONCRETE 0.25 MADE GROUND: Fine to medium, angular to subangular concrete gravel. Dry NVO 0.50 -0.5 < 0.1 Dry NVO MADE GROUND: Dark brown, slightly clayey, gravelly, fine to coarse sand. Gravel fine occasionally coarse, subangular to subrounded of brick and flint. (0.50) BH208A\_0.8 1.00 1.0 < 0.1 BH208A 1.1 Dry NVO 0 Medium density, brown, gravelly, fine to coarse SAND. Gravel is fine to medium, ò subangular to subrounded of flint. Very sandy 0 < 0.1 1.5 between 1.5m and 1.9m. Ò. 0 2.0 < 0.1 ο. 0 (2.50) Ō < 0.1 2.5 0 ò 3.0 < 0.1 0 ò 0 3.50 3.5 Borehole terminated at 3.5m bgl. 22/9/15 GDT ALL Backfill Sample Details Legend **GENERAL** REMARKS .02.10 STAG LOGS - FULL.GPJ AGS3\_ Small disturbed sample Cement seal Concrete Made Ground NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl Bentonite Fill Gravelly Sand Groundwater Table Groundwater Strike Logged By Approved By 80 CG MM



	1.01								8			DODI		
Proje	ct Name and Sit Stag Brewe			ka Lon	don S	X714	Client		AB Inbev			BORI	EHOLE	No
T 1 X		-		ke, Loii	uon s		<b>T</b> 1/	<u>``</u>				B	H209	
Job N	47075502		Date Start Da End Da	ate 25-0 te 25-0	8-15 8-15	Ground	Level (n	n)	Co-Ordinates ()					
Cont	ractor					Method	/ Plant U	Used				Sheet		
	ESL						Concrete	e Corer an	d Premier Rig.			1	1 of 1	
		(mo						,	STRATA					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	ness)		DE	SCRIPTI	DN	CO	OMMENT	ГS		Installation
-					0.27	- CONCRE	ГЕ							<i>Ŵ</i>
-0.5	BH209_0.5	<0.1			0.27	MADE GF gravelly, fi coarse, ang concrete. Becoming	ne to co	arse sand.	rey/ black, Gravel is fine to of brick and	Dry NVO				
-		<0.1				-								
- 1.5					(2.43)	- - - - -								
- 2.5					2.70	- - - -								
- 3.0	BH209_2.7-3.4	4 <0.1			(0.70) 3.40	<ul> <li>is fine to m</li> <li>of flint. Ve</li> </ul>	nedium, erv little	subangula gravel bet	se SAND. Gravel r to subrounded ween 3.0 -3.2m. - 3.4m. Driller 7m.	Dry NVO				
. GDT 22/9/15						- Borehole to								
3_ALL	Backfill				Sa	mple Deta		Le	gend			GEN	NERAL	
< <u></u> <	Cement seal Bentonite Fill					Small disturb sample		Concrete Gravelly Sat	nd 1	ade Ground pundwater Strike	1	REN NVO - No visua Evidence of coc n bgl - meters h Hand pitted to 1	ntamination. below ground	
TE_08.02.1(								Logged I	<sup>3y</sup> CC	ł	Approv	ved By	MM	



Droio	ot N	Jame and Sit	o Locat	tion				Client		8				DOD		No
Proje		tag Brewei			ke Lon	don SV	W14	Chent		AF	3 Inbev			BOR	EHOLE	NO
Job N		lug biewei	- 	2.4.				d Level (i	m)	Co-Ordin				— B	<b>H210</b>	
J00 I		075502	5	start D	ate 26-0 te 26-0	8-15	Gioui	iu Levei (	111)	Co-Oluli	liates ()					
Cont		075502	E	End Da	te 20-0	8-13	Meth	od / Plant	Used					Sheet		
Cont		SL					Wiedi		te Corer an	d Premier	Rig				1 of 1	
<u> </u>		5L						Collete							1 01 1	
			bpm	ter		Dopth				STRAT	4					ų
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	(Thick-		D	ESCRIPTIO	ON		CC	OMMEN	VTS		stallati
					P A A P A	ness)	- CONCR	ETE								Installation
-						0.30	_				1 (*	D NUO				-
-0.5			< 0.1		$\bigotimes$		to coarse	e, subangi	D: Dense, b ular to roun	rown, sand ded grave	dy, fine l of	Dry NVO				
E		BH210_0.8			$\bigotimes$	(0.90)	natural s	stones.		-						
- 		511210_0.0			$\otimes$		-									
-						1.20	-					D 1940				-
-			<0.1				<ul> <li>Soft, bro</li> <li>clay).</li> </ul>	own, sand	y CLAY (p	ossibly re	worked	Dry NVO				
						(0.90)	-									
E						Ì,	-									
- 2.0			< 0.1			2.10		11 (	<b>C*</b>	CAND	0 1	D NUO				-
F		BH210_2.2-2.8	3 <0.1		0		- is fine to	medium	fine to coar to subroun	ded of flin	t.	Dry NVO				
-2.5	X				· · · · · ·		Becomin	ng more g	ravelly with	n depth.						
-	$\square$		<0.1		· · · · · · ·	(1.40)	-									
- 3.0					· • · · · · ·	Ì, Í	-									
F							-									
- 3.5			<0.1		0	3.50	-									
-							- Borehol	e terminat	ted at 3.5m	bgl.						
-							-									
-							-									
-							-									
-							-									
-							-									
-																
E .							-									
-							-									
Ē							-									
Ŀ							-									
-							-									
-							-									
-							-									
-							-									
	B	ackfill				Sa	mple De	tails	Ιe	gend				CE	NERAL	
		ent seal					-			0-114	Mad	e Ground		REN	MARKS	
		onite Fill					⊔ sample		Sandy Clay			velly Sand		NVO - No visu	al or Olfactory	/
<b></b> `	5.110								oldy					Evidence of Co m bgl - meters Hand pitted to	below ground	level.
														Hand pitted to	1.2mogi	
									Groundwate	Table	∫ ∑ Grou	Indwater Strike				
											÷					
									Logged I	Ву	CG		Appro	oved By	MM	
1																



-									0						
Proje	ct Name and Site Stag Brewer			ka Lon	don S	W14	Client		Λ Ι	B Inbev			BOR	EHOLE	No
Job N	-	- г	2.4.				d Level (r	n)	Co-Ordi				- B	H211	
3001	47075502	S	start Da	<sub>tte</sub> 26-0 te 26-0	8-15 8-15	Groun	u Level (I	11)	Co-Orun	naus ()					
Cont	ractor			200	0 10	Metho	od / Plant	Used					Sheet		
	ESL						Concret	te Corer an	d Premier	Rig.			-	1 of 1	
		(mc	r					C L	STRAT	A					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick ness)			ESCRIPTI	ON		CO	OMMEN	NTS		Installation
					0.25	- MADE (	GROUND	): Brown, s	andy, fin d gravel o	e to	Dry NVO				~~~~~
- 1.0	BH211_0.7	<0.1			(1.25)	<ul> <li>natural s</li> <li>Becomin</li> </ul>	tone, woo	d and occa with depth	sional bri	ck.					
		<0.1			1.50		wn. grev.	sandy, gra	velly CLA	AY.	Dry NVO				
- 2.0		<0.1			(0.60) 2.10	Gravel is	fine to m and subrou	unded of fl y reworked	angular to	0					
	BH211_2.2	<0.1		0		<ul> <li>is fine to</li> </ul>	medium,	ine to coar subangula ore gravell	r to round	led of	Dry NVO				
		<0.1		· · · · · · · · · · · · · · · · · · ·	(1.40)	- - - -									
-				· • · · · · ·	3.50	- - Borehole	e terminate	ed at 3.5m	bgl.						
-						- - - -									
- - - -						- - - -									
-  - -						-  -									
-						- - -									
-						- - -									
DT 22/9/15						- - - -									
ALLG	Backfill		: 		Sa	ample De	tails	Le	gend		·			NERAL	
V 🛛 Vess	Cement seal					Small distu sample	urbed	Concrete		Mad	e Ground		REN	MARKS	
S - FULL.GPJ	Bentonite Fill							Gravelly Sa	ndy Clay	Grav	velly Sand		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ntamination. below ground	
							<b>I</b>	Groundwate	Table	⊥ Ţ_Grou	ndwater Strike				
TE_08.02.					1		11	Logged I	Зу	CG		Appr	oved By	MM	



Proje	ct Name and Site	e Loca	tion				Clien	t	-8				BOREH	OLE	No
5	Stag Brewer			ke, Lon	don S	W14			AI	B Inbev					1.10
Job N	No 47075502		Date Start Da	ate 27-0 te 27-0	8-15	Grour	d Level	(m)	Co-Ordi	nates ()			BH	212	
Cont	ractor				0 10	Meth	od / Plan	t Used					Sheet		
	ESL						Concre	ete Corer ai	nd Premier	Rig.			1 o	f 1	
		n)				I			STRAT	A					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick-		E	DESCRIPTI			СС	OMMEN	VTS		Installation
-					ness)	- CONCR	ETE								
-0.5	BH212_0.6	<0.1			0.30	- MADE	e sand. G h occasio	D: Pink / re bravel is fine onal coarse	e to mediu	m of	Dry NVO				
- 1.0		<0.1			(1.40)	- - -									
- 		<0.1			1.70	- - -									
- 2.0	BH212_1.8-2.5	<0.1		0	11/0	<ul> <li>Dense, b</li> <li>Gravel is</li> </ul>	s fine to	avelly fine medium sul	oangular to	)	Dry NVO				
-2.5		<0.1			(1.80)	- - - -									
- 3.0		<0.1			3.50	- - - -									
3.5 		<0.1				- Borehole - - -	e termina	ated at 3.5m	ı bgl.						
-						- - - -									
-						- - - -									
-						- - - -									
-						- 									
G1/6/22 10						- - - -									
	Backfill			!	Sa	imple De	tails	L	egend		·		GENE	RAL	
	Cement seal					Small dist	urbed			Mad	e Ground		REMA	RKS	
<u> </u>	Bentonite Fill							g Gravelly Sa	and				NVO - No visual or ( Evidence of Contami m bgl - meters below Hand pitted to 1.2mb	nation. ground l	
10 SIAG LOG								Groundwate	er Table	⊥ ⊥ Grou	indwater Strike				
IE_08.02.								Logged	By	CG		Appr	oved By	ИM	



Proje		ame and Site						Client						BORE	EHOLE	No
	Sta	ag Brewer	y, M	ortla	ke, Lor	idon S	W14			AB I	nbev				1040	
Job N	lo			Date	ate 27-0	8-15	Grour	nd Level (r	n)	Co-Ordinat	es ()			B	H213	
	470	075502		Start Da End Da	te 27-0	8-15										
Cont	racto	or					Meth	od / Plant	Used					Sheet		
	ES	SL						Concret	e Corer an	d Premier R	ig.			1	of 1	
			n)						5	STRATA						
Depth	Sar	nple / Test	PID (ppm)	Water		Depth										tion
BGL	Jui	Details	PID	B	Legend	(Thick- ness)		DE	ESCRIPTIO	NC		C	OMMEN	TS		Installation
-						0.24	- CONCR	RETE								Ŵ
[						0.24	MADE	GROUND	Brown /	grey, slightly	/	Damp NVC	)			-
-0.5	$\times$	BH213_0.6	<0.1		$\bigotimes$	(0.76)	<ul> <li>clayey, s</li> <li>subangu</li> </ul>	sandy, fine lar gravel	to coarse, of brick, c	angular to oncrete, tile	and					
-					$\bigotimes$	(0.70)	plastic.	Sand is fin	e to coarse							
- 1.0			< 0.1		$\swarrow$	1.00	Soft bro	wn grev sl	ightly gray	velly CLAY.						-
[						(0.60)	(Possibl	y reworke	d clay)	CITY CLAT.						
- 1.5					<u> </u>	1.60	-									
-		BH213_1.7-2.0	<0.1		0	1.00	- Dense, t	orown, gra	velly, fine	to coarse SA	ND.	Damp NVC	)			-
-	X						<ul> <li>Gravel is</li> <li>subround</li> </ul>	s fine to m ded of flin	edium, ang t. Occasio	gular to nal sand and						
- 2.0					0		gravel p	ockets thro	oughout.							
Ŀ					a	(1.40)	-									
2.5 -			<0.1				-									
-					0		-									
- 3.0			< 0.1			3.00	- Borehol	e terminate	ed at 3.0m	hơl						
ŀ							-	e terminat	24 at 5.011	05.						
ŀ							-									
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- -							-									
		1 011					-									
j 	Ba	ckfill				Sa	mple De		Le	egend					<b>IERAL</b>	
	Cemei	nt seal					Small dist sample	urbed	Concrete	[	Mac	de Ground			IARKS	
	Bentor	nite Fill							Gravelly Cla	iy [	o Gra	velly Sand		NVO - No visual Evidence of Con	tamination.	
1														m bgl - meters be Hand pitted to 1.	2mbgl	level.
3																
											1					
								⊻	Groundwate	r Table	⊥ ⊥ Gro	undwater Strike				
									I. 1*					1 D		
									Logged I	зу	CG		Appro	oved By	MM	



Pro	ject l	Name and Sit	e Loca	ation				Client						BORE	HOLE	No
	S	Stag Brewer	ry, M	ortla	ke, Londo	on SW	14			A	B Inbev				104.4	
Job	No			Date	<sub>ate</sub> 25-08-	15	Groun	d Level (n	n)	Co-Ordi	inates ()			BI	H214	
	4′	7075502		Start Da End Da		15										
Co	ntrac	ctor					Metho	d / Plant	Used					Sheet		
	F	ESL						Concret	e Corer an	d Solid S	tem Auger.			1	of 1	
			Û							TRAT	Δ					
Den	h c	1- / T(	PID (ppm)	Water	D	epth					11					noi
BG	L Si	ample / Test Details	E.	N.	Legend (T	hick- ss)		DE	ESCRIPTIO	ON		C	OMMEN	NTS		Installation
-						0.05	TARMA	C			/					
÷							CONCR					Dry NVO				
-0.5						0.60)  -	gravel. S	and is me	: Light bro dium to co	arse. Gra	vel is					
Ē						0.00-	medium	to coarse, nd concre	subangula	r to subro	ounded					
- 		≤ BH214_0.85	< 0.1						e. Elight bro d is mediu	wn, dens	ie	Dry NVO				
-						-	gravelly Gravel is	sand. San	d is mediu	n to coar	rse. ar to					
-						-	subround	led of flin	to coarse, s t and conc	rete.	a 10					
1.5 -						1.80) -										
-						1.80) -										
- 2.0						-										
						-										
- 2.5						2.60										
E						-	Borehole on concr	e terminate	ed at 2.6m	bgl due to	o refusal					
Ŀ						-	on conci	cic.								
È.						-										
-						-										
F						-										
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	В	ackfill				Sam	ple De	tails	Le	gend				GEN	ERAL	
		nent seal					Small distu sample		Ashphalt	~	Con	crete		REM	IARKS	
		tonite Fill					sample		Made Grour	d	<u></u>			NVO - No visual		ý
														Evidence of Cont m bgl - meters be	elow ground	level.
1														Hand pitted to 1.2	Zmogi	
1																
									Groundwater	Table	√ Grou	ndwater Strike				
											<u> </u>					
									Logged H	By	MM		Appr	roved By	GM	



Proje	ct Name and Si						Client						BOREHOI	LE No
	Stag Brewe	ery, M	lortla	ke, Lon	don SW	14			AE	3 Inbev			DU04	4 4
Job N	10		Date	25-0	8-15	Groun	d Level (n	n)	Co-Ordin	nates ()			BH21	4A
	47075502		Start Da End Da	ate 25-0 te 25-0	8-15									
Cont	ractor					Metho	d / Plant	Used					Sheet	
	ESL						Concret	e Corer an	d Solid St	em Auger			1 of	1
		n)						5	STRATA	A				
Depth	Sample / Test	PID (ppm)	Water		Depth									tion
BGL	Details	DID	B	Legend	(Thick- ness)		DE	ESCRIPTIO	ON		C	OMMEN	NTS	Installation
F				P N A P	0.05	TARMA				/	/			- \$777
Ē					-\_'			u Lioht huo		/	Dry NVO			
-0.5				$\bigotimes$	(0.60) -	gravel. S	and is me	: Light bro dium to co	arse. Grav	el is				
ŀ					0.00	of flint a	nd concre	subangula te.		/				
- 1.0				$\bigotimes$		MADE (	ROUND	: Light bro d is mediu to coarse, s t and conc	wn, dense	e	Dry NVO			
F				$\bigotimes$	-	gravelly : Gravel is	sand. San medium	d is mediu to coarse, s	m to coars subangula	se. r to				
				$\bigotimes$	(1.20)	subround	led of flin	t and conc	rete.					
-				$\bigotimes$	-									
-				$\bigotimes$	2.00									
- 2.0					- 1	Borehole	terminate	ed at 2.0m	bgl due to	refusal				
-					-	on concre	ete.							
-					-									
-					-									
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E					-									
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Ľ					-		<u></u>		<u> </u>					
	Backfill		Sam	ple De	tails	Le	gend				GENERA			
	Cement seal							Ashphalt		Con	crete		REMARI	KS
	Bentonite Fill							Made Grour	d				NVO - No visual or Olfa Evidence of Contaminati	ctory
													m bgl - meters below gro Hand pitted to 1.2mbgl	
-														
								Groundwater	Table	∫ ∑ Grou	Indwater Strike			
										-				
								Logged I	By	MM		Appr	oved By GM	[



	· NI 1.0"	<b>T</b> (						enore	- 8				DODE		N.T.
Proje	ect Name and Sit Stag Brewer			ka Lon	don S	W/1/	Client		41	B Inbev			BORE	HOLE	No
	-	- 											B	H2A	
Job N	NO 47075502	S	Date Start Da End Da	ate 25-0 te 25-0	8-15 8-15	Groui	nd Level (1	m)	Co-Ordi	nates ()					
Cont	ractor					Meth	od / Plant	Used					Sheet		
	ESL						Concre	te Corer ar	d Premier	r Rig.			1	of 1	
		m)							STRAT	А					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick	L 	DI	ESCRIPTI	ON		CO	OMME	NTS		Installation
-		H		P A A P A	ness)	- CONCE	ETE								
0.5	BH2A_0.5	<0.1			0.25 (0.55) 0.80	- MADE - fine-me - crushed	lium angu	D: Brown s Ilar gravel Sand is fir	of flint an	d	Dry NVO				
						- CONCE	ETE				Dry NVO				
- 1.0 -		<0.1			1.10		own, sand d clay)	y CLAY. (	Possibly		Dry NVO				
- 1.5	BH2A_1.5	< 0.1				-									
- 2.0		<0.1			(1.40)	- - - - -									
		<0.1		· · · · · · ·	2.50	- Dense, l	prown, gra	velly, fine	-coarse SA	AND.	Dry NVO				
- 3.0 		<0.1		· · · · · · · · · · · · · · · · · · ·	(1.00)	_ subangu	s fine-med lar-subrou	unded of fl	int.						
-				0	3.50	-									
	Backfill					- Borehol		ed at 3.5m	bgl.				GEN	ERAL	
	Cement seal							Concrete	- <u>5</u> 0110	Mad	le Ground			ERAL ARKS	
	Cement seal					스 sample		Sandy Clay	r Table	G Grav	velly Sand undwater Strike		NVO - No visual Evidence of Cont m bgl - meters be Hand pitted to 1.2	or Olfactory amination.	
TE_08.02								Logged	By	CG		Appı	roved By	MM	



D.	1.01								8				DODE		
Proje	ct Name and Sit Stag Brewe			ke Lon	don S	W14	Client	t	ΔĪ	3 Inbev			BORE	HOLE	No
	-	-					17 1.	( )					- B	H3A	
Job N	47075502	S	Date Start Da End Da	ate 28-0 te 28-0	8-15 8-15	Grour	d Level (	(m)	Co-Ordi	nates ()					
Cont	ractor					Meth	od / Plan	t Used					Sheet		
	ESL						Concre	ete Corer ar	d Premier	Rig.			1	of 1	
		(mg	r					2	STRAT	А					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick ness)	-	D	DESCRIPTI	ON		CO	OMMEI	NTS		Installation
-					0.25	- CONCR	ETE.								Ŵ.
-0.5	BH3A_0.5	<0.1			0.23	MADE	rse sand. ally coar	D: Brown, g Gravel is fi rse, angular- concrete.	ne-mediu	m, ar of	Dry NVO				-
- 1.0		<0.1			(1.25)	- - - -									
- 1.5 - -		<0.1				- Dense, b - subangu - Sand is t	orown, sa lar-subro fine-coar	ndy, fine-m ounded GRA	edium, VEL of f	lint.	Dry NVO				-
- 2.0		<0.1			2.00	- Dense, b	orown, gr	avelly, fine ular-subrou	coarse SA	AND. coarse	Dry NVO				
-2.5		<0.1		0	(1.00)	- - -									
- 3.0		<0.1			3.00		e termina	ted at 3.0m	bgl.						
-						- - - -									
						 - - -									
- - - -						- - - -									
						 - - -									
-						- - -									
-						- - - -									
GDT 22/9/15						- - -									
ZALL.	Backfill				S	ample De		Le	gend				GEN	ERAL	
V 🛛 Versi	Cement seal					Small dist sample	urbed	Concrete		Mad	e Ground			IARKS	
E FULL.GPJ	3entonite Fill							Sandy Grav	el	o Grav	elly Sand		NVO - No visual Evidence of Com m bgl - meters be Hand pitted to 1.	amination.	
								Groundwate	Table	1 ∑_ Grou	ndwater Strike				
TE_08.02.					I			Logged	Зу	CG		Аррі	roved By	MM	



#### Client Project Name and Site Location **BOREHOLE** No Stag Brewery, Mortlake, London SW14 AB Inbev BH4A Job No Ground Level (m) Co-Ordinates () Date 27-08-15 27-08-15 Start Date 47075502 End Date Contractor Method / Plant Used Sheet ESL Concrete Corer and Premier Rig 1 of 1 PID (ppm) STRATA Water Depth Depth BGL Sample / Test Details nstallation Legend (Thick-DESCRIPTION COMMENTS ness) MADE GROUND: Brown, grey, slightly Dry. Possible asbestos fragments. clayey, gravelly, fine-coarse sand. Gravel is fine-medium, angular-subangular of concrete, brick tile and rootlets. -0.5 < 0.1 (1.30)BH4A\_0.9 1.0 < 0.1 1.30 Brown, very gravelly, fine-coarse SAND. Dry NVO 0 < 0.1 1.5 Gravel is fine-medium, Ó subangular-subrounded of flint. 0 ο. 2.0 < 0.1 0 Ò. < 0.1 -2.5 0 (2.70)o 0 3.0 < 0.1 ò 0 - 3.5 BH4A\_3.5-4.0 $<\!0.1$ ò 0 o 4.00 4.0 < 0.1 Borehole terminated at 4.0m bgl. 22/9/15 GDT ALL Backfill Sample Details Legend **GENERAL** REMARKS 08.02.10 STAG LOGS - FULL.GPJ AGS3 Small disturbed sample Made Ground Cement seal Gravelly Sand NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl Bentonite Fill Groundwater Table Groundwater Strike Logged By Approved By CG MM Щ



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Proje	ect Name	and Sit	te Loca	tion				Client	t					BOF	REHOLE	No
	Stag F	Brewe	ry, M	ortla	ke, Lon	idon S	W14			AI	B Inbev					
Job N	Лo		1	Date	ate 28-0	18-15	Grou	nd Level (	(m)	Co-Ordi	nates ()				BH5A	
	47075	502	1	Start Da	te 28-0	8-15										
Cont	tractor						Meth	od / Plant	t Used					Sheet		
	ESL							Concre	ete Corer an	d Premier	Rig.				1 of 1	
			(mi						S.	STRAT	A					
Depth BGL	Sample	/ Test ils	PID (ppm)	Water	Legend	ness)			DESCRIPTI			C	OMMEN	NTS		Installation
ł.					$\bigotimes$	0.10	MADE	GROUN	D: Pea grav	el. lightly als		Dry NVO				
- 0.5 -	≫ BH	15A_0.5	<0.1				- fine-me	dium, occ	D: Brown, s urse sand. G casionally co ounded of re	oarse,	iyey,					
- 			<0.1			(1.70)	- 									
- 			<0.1			1.80	- - -		<u>11</u> <u>C</u>			DerNWO				_
-2.0			<0.1				- Dense, f Gravel i flint.	brown, gr is fine-me	avelly, fine- dium, subar	coarse SA 1gular-rou	and. Inded of	Dry NVO				
			<0.1			(1.20)	- - - -									
- 3.0			<0.1			3.00	- - Borehol -	le termina	ted at 3.0m	bgl.						
- - -																
-							- - -									
- - -							- - -									
- -  -							- - 									
-							- - -									
- - - -							- - - -									
/9/15							- - - -									
1 22							-									
	Backf	i11				SE	imple De	etails	Le	gend				GE	ENERAL	<u> </u>
	Cement sea										o Grav	elly Sand		RE	MARKS	
	Bentonite Fi						Sample Sample							Evidence of C	sual or Olfactory Contamination. s below ground o 1.2mbgl	
.10 STAG LOG								Ţ	Groundwate	r Table	$\stackrel{1}{\underline{\nabla}}$ Grou	ndwater Strike				
E_08.02									Logged 1	Зу	CG		Appr	oved By	MM	



D. ·	· N. 1.6%	T							-*8				DODDUOI	E M
Proje	ct Name and Site Stag Brewer			ka Lon	don SI	X/1/	Client		٨E	3 Inbev			BOREHOL	E No
L.L.N	<u> </u>	-					111(						BH7/	4
Job N			Date Start Da	ate 27-0	8-15	Groun	d Level (	m)	Co-Ordir	iates ()				
Cont	47075502	I	End Da	te 27-0	8-15	Math	od / Plant	Lload					Sheet	
Cont	ractor ESL					Nietho			1.0.	D'				
	ESL		1	1			Concre	ete Corer ar		-			1 of 1	
		(mdc	er		<b>D</b> 1				STRATA	4	1			
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick-		D	ESCRIPTI	ON		C	OMME	NTS	allation
-	Details	[]		P 4 4 P	ness)	- CONCR								Installation
E					(0.55)	-	LIL							
- 0.5					0.55	-								
È.	BH7A_0.7	< 0.1				MADE O	GROUNI	D: Soft, dar silty clay. C	k brown/g	rey,	Damp NVC	)		
-				$\boxtimes$	(0.65)	- subangu	lar of red	brick with	fragments	of				
- 1.0				$\boxtimes$	1.20	wood.					-			
ł.		< 0.1			1.50	<ul> <li>Brown, s</li> <li>medium</li> </ul>	slightly g to coarse	ravelly CL	AY. Gravel	l is	Dry NVO			
- 1.5				0.0	1.50	- Dense, b	rown, gra	avelly, fine	-coarse SA	ND.	Dry NVO			
Ē		< 0.1		· · · · · · · ·		Gravel c	ontent in lium, sub	creases wit angular-sul	n depth. Gi prounded c	ravel is of flint.				
- 2.0				0		- 		U						
ł.					(1.50)	-								
- 2.5	BH7A_2.5-3.0	< 0.1				-								
Ē				· · · ·		-								
- 3.0	Д	<0.1		· · · · · · · ·	3.00	-								
-						- Borehole	e termina	ted at 3.0m	bgl.					
ŀ						-								
Ē						-								
E						-								
F														
ļ.						-								
F						-								
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È.						-								
F						-								
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E						-								
F														
È.						-								
15						-								
22/9/						-								
Б <u>р</u>														
	Backfill				Sa	mple De	tails	Le	egend				GENERA	L
	Cement seal					Small dist	urbed	Concrete		Mad	e Ground		REMARK	S
G I	Bentonite Fill							Gravelly Cla	у	o Grav	elly Sand		NVO - No visual or Olfac Evidence of Contamination	on.
													m bgl - meters below grou Hand pitted to 1.2mbgl	and level.
GS - F														
G LO										4				
STA							║╹	Groundwate	r Table	⊥ Grou	ndwater Strike			
02.10														
								Logged 1	Зу	CG		Аррі	roved By MM	
⊢ <b>∟</b>														



Proje	ct Name and Si						Client						BOR	EHOLE	No
	Stag Brewe	ery, Mo	ortla	ke, Lon	don SW	/14			AB Inl	bev					
Job N	lo	I	Date	ate 27-0	8-15	Groun	d Level (n	n)	Co-Ordinates	0				BH7B	
	47075502	E	End Da	te 27-0	8-15										
Cont	ractor					Metho	d / Plant V						Sheet		
	ESL						Concret	e Corer.						1 of 1	
		(uud	r					C L	STRATA						
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	ness)			ESCRIPTI	ON		C	OMMEN	NTS		Installation
-					0.20	CONCR									
È.					0.30	MADE ( fine-med	GROUND ium, angu	: Brown, s ilar-subans	andy, gular gravel of ne-coarse.	/	Dry NVO			/	
- 0.5				0 0 0 0	0.60	flint and	concrete. ETE with	Sand is fi	ne-coarse.	/					
ł					-				bgl due to refu	isal /					
-					-	on concr	ete.		-						
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E					-										
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9/19					-										
	Backfill		I		Sor	nple De	tail	L	egend						I
N N S3					Sal	ipie De				1	Cround		REI	NERAL MARKS	
	Cement seal						Pa	Concrete	$\boxtimes$	l wade	e Ground		NVO - No visu	al or Olfactory	/
LL.GF													Evidence of Co m bgl - meters	ntamination. below ground	
- FU													Hand pitted to	u.ombgl	
LOGS															
TAG								Groundwate	r Table $\stackrel{1}{\underline{\lor}}$	7 Grour	ndwater Strike				
.10 S									<u> </u>	-					
								Logged I	Ву	CG		Appr	oved By	MM	
μ															



BH8A
Sheet
1 of 1
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tion
MENTS
noted.
GENERAL
REMARKS
NVO - No visual or Olfactory
Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
approved By MM



_															
Proje	ct Name and Si			1T	1	3714	Client			.1			BOREH	OLE	No
	Stag Brewe	-		ke, Lon	don S			<u> </u>	AB Ir				BH	9A	
Job N	No 47075502		Date Start Da End Da	ate 26-0 te 26-0	8-15 8-15	Ground	l Level (n	n)	Co-Ordinate	es ()				•	
Cont	ractor					Metho	d / Plant I	Used					Sheet		
	ESL						Concret	e Corer an	d Premier Rig	g.			1 01	f 1	
		(m						S	TRATA						
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	ness)		DE	ESCRIPTIO	DN		CO	OMMEI	NTS		Installation
E						- CONCRE	ETE								XĪ/Z
	BH9A_0.5	3			0.30 (1.90) 2.20 (1.10) 3.30	<ul> <li>MADE G</li> <li>fine-coars</li> <li>subrounde</li> <li>becoming</li> <li>-</li> <li>-</li></ul>	ROUND wm, angued concre very.	Gravel is fi ed of natur vith depth. : Black, sa ilar, red/gr ete. Sand is	Poor recover	y. lint	Dry NVO Wet NVO				
. GDT 22/9/15															
33_ALL	Backfill					mple Det		Le	gend				GENEI REMA	RAL	
AGS	Cement seal					Small distur sample	bed	Concrete	$\triangleright$	Made	e Ground				
	3entonite Fill						Ţ	Groundwater	Table	1 Groui =	ndwater Strike		NVO - No visual or C Evidence of Contami m bg1 - meters below Hand pitted to 1.2mb	nation. ground l	
TE_08.02								Logged I	Ву	CG		Appi	roved By N	1M	



# **APPENDIX C – LABORATORY CERTIFICATE**

47075502/ PH2 ESA 22 SEPTEMBER 2015



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 08 September 2015 H\_URS\_WIM 150822-16

Stag Brewery 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



Alcontrol Laboratories is a trading division of ALcontrol UK Limited Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

### **CERTIFICATE OF ANALYSIS**

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:

# **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.

										IAL		-		
SDG: Job: Client Reference:	150822-16 H_URS_WIM-2	273	Location: Customer Attention:	: /	AEC	g Brew COM y Mars	-						Order Number: Report Number: Superseded Report:	328
SOLID			7400110011			y mare	- Tan							
Results Legend		Lab Sample	e No(s)		1194	11942796	-	1104	1194	66174611	202	1194		
			(- )		11942793	2796		1942797	1942798	6617	2200	11942791		
												_		
No Determ Possible	ination	Custon Sample Ref			BH204	BH204		RH205	BH205		BLIODE	BH203A		
		AGS Refe	rence											
		Depth (	(m)		1.30	3.30		1 00	2.50	. 10	4	0.50		
		Contair	ner	400g Tub (ALE214) 250g Amber Jar (AL	60g VOC (ALE215)	60g VOC (ALE215) 400g Tub (ALE214) 2500 Amber Jar (Al	400g Tub (ALE214) 250g Amber Jar (AL	2009 Amber Jar (AL	60g VOC (ALE215) 400g Tub (ALE214)	400g Tub (ALE214) 250g Amber Jar (AL	250g Amber Jar (AL	60g VOC (ALE215)		
Ammonium Soil by Titra	ation All		NDPs: 0 Tests: 6	x		x	x		x	x		<b>c</b>		
Asbestos ID in Solid Sa	amples All		NDPs: 0 Tests: 6	x		x	x		x	x	<b>)</b>	<b>(</b>		
Asbestos Quant Was	te Limit All		NDPs: 0 Tests: 2				x				)	<mark>(</mark>		
Easily Liberated Sulphi	de All		NDPs: 0 Tests: 6	x		x	x		x	x	)	< Contraction of the second seco		
EPH CWG (Aliphatic) G	GC (S) All		NDPs: 0 Tests: 6	x		x	<mark>x</mark>	>	c I	<mark>x</mark>	x			
EPH CWG (Aromatic) (	GC (S) All		NDPs: 0 Tests: 6	x		x	x	)	C I	x	x			
GRO by GC-FID (S)	All		NDPs: 0 Tests: 6		x	x		×	x	2	<mark>(</mark>	x		
Hexavalent Chromium			NDPs: 0 Tests: 6	x		×	x		x	x	) 	<mark>(</mark>		
Metals in solid samples			NDPs: 0 Tests: 6	x		×	<mark>x</mark>	)	<mark>(</mark>	<mark>x</mark>	x			
PAH by GCMS	All		NDPs: 0 Tests: 6	x		×	<mark>x</mark>	)	C I	<mark>x</mark>	x			
pH	All		NDPs: 0 Tests: 6	x		x	x		x	×	<b>)</b>	< l		
Sample description	All		NDPs: 0 Tests: 5	x		x	<mark>x</mark>	>	<mark>(</mark>		x			
Total Organic Carbon	All		NDPs: 0 Tests: 6	x		x	<mark>x</mark>	)	c I	x	×			
Total Sulphate	All		NDPs: 0 Tests: 6	x		×	<mark>x</mark>	>	<mark>(</mark>	<mark>x</mark>	x			
TPH CWG GC (S)	All		NDPs: 0 Tests: 6											

#### 05:01:08 08/09/2015

	150822-16 H_URS_WIM-273	Location: Customer: Attention:	AE	g Brew COM ry Mars					Order Number: Report Number: Superseded Report:	32875
SOLID Results Legend	Lab Sampl	e No(s)	11942793	11942796	11942797	11942798	11942799	11942791		
No Determinati Possible	on Custor Sample Re	-	BH204	BH204	BH205	BH205	BH206	BH203A		
	AGS Refe	erence								
	Depth	(m)	1.30	3.30	1.00	2.50	1.10	0.50		
	Contai	ner	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	x	x		

### **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150822-16	Location:	Stag Brewery	Order Number:	328751
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number:	
Client Reference:		Attention:	Gary Marshall	Superseded Report:	

# **Sample Descriptions**

rain Sizes											
very fine <0.0	063mm fine 0.0	063mm - 0.1mm m	edium 0.1mm	- 2mm coa	rse 2mm - 1	0mm very coa	arse >10mm				
Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2				
11942793	BH204	1.30	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones	Vegetation				
11942796	BH204	3.30	Light Brown	Loamy Sand	0.1 - 2 mm	Stones	Vegetation				
11942797	BH205	1.00	Light Brown	Sandy Loam	0.1 - 2 mm	Brick	Stones				
11942798	BH205	2.50	Light Brown	Loamy Sand	0.1 - 2 mm	Stones	Vegetation				
11942799	BH206	1.10	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Brick	Stones				
11942791	BH203A	0.50	Light Brown	Sandy Loam	0.1 - 2 mm	Brick	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 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.

### **CERTIFICATE OF ANALYSIS**

Validated

	22-16 RS_WIM-27	3	Location: Customer: Attention:	Sta AE	ag Brewery COM ary Marshall				Order Number: Report Number: Superseded Repor	328751 <b>t</b> :			
Results Legend	C	ustomer Sample R	BH204		BH204		BH205		BH205	BH206		BH203A	
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / sottled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	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	
<ul> <li>** % recovery of the surrogate stand check the efficiency of the method results of individual compounds v samples aren't corrected for the re (F) Trigger breach confirmed</li> <li>1-5&amp;+§@ Sample deviation (see appendix)</li> </ul>	d. The vithin ecovery	Sampled Time 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/Units	Method											
Moisture Content Ratio (% of as received sample)	%	PM024	16		7.2		8.8		5.2	12		11	
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	<15	М	<15	м	<15	м	<15 M	<15	м	<15	м
Organic Carbon, Total	<0.2 %	TM132	0.266	М	<0.2	м	0.627	м	<0.2 M	0.522	м	0.396	м
рН	1 pH Units	TM133	9.55	М	8.43	М	11.3	М	9.88 M	8.95	М	11.7	м
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	#	<0.6	#	<0.6	#	<0.6 #	<0.6	#	<0.6	#
Sulphide, Easily liberated	<15 mg/kg	TM180	<15	#	<15	#	<15	#	<15 #	<15	#	20	#
Arsenic	<0.6 mg/kg	TM181	10.9	М	30	М	13.7	М	21.8 M	19.9	м	12.1	м
Cadmium	<0.02 mg/kg	TM181	0.21	М	0.319	м	0.414	м	0.263 M	0.324	М	0.29	м
Chromium	<0.9 mg/kg	TM181	17.4	М	15.2	м	20	м	20.6 M	21.9	м	31.2	м
Copper	<1.4 mg/kg	TM181	8.93	М	3.08	м	25.8	м	4.42 M	12.8	М	35.3	м
Lead	<0.7 mg/kg	TM181	10.6	М	6.08	м	96.4	м	10.2 M	39.4	М	59.6	М
Mercury	<0.14 mg/kg	TM181	<0.14	М	<0.14	м	0.162	м	<0.14 M	<0.14	М	<0.14	м
Nickel	<0.2 mg/kg	TM181	16.5	М	21.8	м	17.4	м	20 M	22.4	м	38.2	м
Selenium	<1 mg/kg		<1	#	<1	#	<1	#	<1 #	<1	#	<1	#
Zinc	<1.9 mg/kg	TM181	44.4	М	25.3	м	93	м	28.2 M	54.2	м	96.4	м
Sulphate, Total	<48 mg/kg	TM221	4280	М	2040	М	3750	М	883 M	573	м	8120	м

	450	1022 10		Lac-Altri	C1-						
SDG: Job:	H_U	)822-16 URS_WIM-2	273	Location: Customer:	AEG	g Brewery COM			Order Number: Report Number:	328751	
	Reference:			Attention:	Gar	ry Marshall			Superseded Report:		
AH by	GCMS Results Legend		Customer Sample R	BH204		BH204	BH205		BH205	BH206	BH203A
M mC	D17025 accredited. ERTS accredited. ueous / settled sample.					DT204				57200	
diss.filt Dis tot.unfilt Tot	asolved / filtered sample. al / unfiltered sample. bcontracted test.		Depth (m) Sample Type Date Sampled	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
** % r che	recovery of the surrogate sta ack the efficiency of the meth- ults of individual compound	od. The	Sampled Time Date Received	22/08/2015		22/08/2015	22/08/2015		22/08/2015	. 22/08/2015	22/08/2015
san	nples aren't corrected for the gger breach confirmed		SDG Ref Lab Sample No.(s)	150822-16 11942793		150822-16 11942796	150822-16 11942797		150822-16 11942798	150822-16 11942799	150822-16 11942791
1-5&+§@ Sar	mple deviation (see appendix		AGS Reference								
Componer		LOD/Uni	_	100		100	101	_	100	104	404
recovery*		%	TM218	106		103	104		102	104	104
Acenapht recovery*	thene-d10 %	%	TM218	103		102	103		102	105	105
Phenanth recovery*	nrene-d10 %	%	TM218	104		102	105		101	107	107
Chrysene recovery*	e-d12 %	%	TM218	96.7		99.7	112		101	98.9	101
Perylene- recovery*	-d12 %	%	TM218	104		99.7	110		102	105	107
Naphthale		<9 µg/	kg TM218	<9		<9	173		<9	<9	10.3
Acenapht	thylene	<12	TM218	<12	М	M <12	45.3	М	M <12	N <12	I 12
Acenapht	thene	μg/kg <8 μg/		<8	М	M <8	73.2	М	M <8	N <8	l
Fluorene		<10	TM218	<10	М	M <10	79.6	м	M <10	<10	ا ا <10
Phenanth		μg/kg <15		<15	М	<10 M	811	м	<10 M	N 	-
		µg/kg			м	м		м	м	N	II
Anthrace	ne	<16 µg/kg		<16	м	<16 M	179	м	<16 M	<16 N	41 I
Fluoranth	iene	<17 µg/kg	TM218	<17	м	<17 M	1310	м	<17 M	47.3 N	429
Pyrene		<15 µg/kg	TM218	<15	м	<15 M	1510	м	<15 M	53.2 N	412
Benz(a)a	nthracene	<14 µg/kg	TM218	<14	м	<14 M	1060	м	<14 M	<14 N	192
Chrysene	9	<10 µg/kg	TM218	<10	м	<10 M	976	м	<10 M	16.3 N	194
Benzo(b)	fluoranthene	<15	TM218	<15		<15	1300		<15	37.7	206
Benzo(k)	fluoranthene	µg/kg <14	TM218	<14	M	M <14	546	М	M <14	N 19.7	103
Benzo(a)	pyrene	μg/kg <15	TM218	<15	М	M <15	970	М	M <15	N 38.2	203
Indeno(1,	,2,3-cd)pyrene	µg/kg <18	TM218	<18	М	M <18	543	М	M <18	N 29	I I 124
	a,h)anthracene	µg/kg <23		<23	М	M <23	186	М	M <23	<23	
		µg/kg			М	м		м	<23 M <24	N	
	h,i)perylene	<24 µg/kg		<24	м	<24 M	676	м	м	30.1	ıı
PAH, Tota USEPA 1	al Detected 6	<118 µg/kg		<118		<118	10400		<118	300	2250
					$\neg$						
								-			
					-						
			_		$\square$						

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Job:	150822-16 H_URS_WIM-	273	Location: Customer:	Stag Brewery AECOM			Order Number: Report Number:	328751	
Client Reference:			Attention:	Gary Marshall			Superseded Repor	t:	
PH CWG (S) Results Legend		Customer Sample R	BH204	BH204		BH205	BH205	BH206	BH203A
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample		Depth (m)	1.30	3.30		1.00	2.50	1.10	0.50
tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surrogal		Sample Type Date Sampled Sampled Time	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	5	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 20/08/2015
check the efficiency of the results of individual comp	ounds within	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	-	Lab Sample No.(s)	11942793	11942796		11942797	11942798	11942799	11942791
1-5&+§@ Sample deviation (see app Component	LOD/Un	AGS Reference hits Method							
GRO Surrogate % recovery**	%	TM089	74	96		72	98	80	73
GRO TOT (Moisture Corrected)	<44 µg/kg		<44	<44 M	м	243	<44 M M	<44 M	<44
Methyl tertiary butyl ethe	r <5 µg/	/kg TM089	<5	<5		<5	<5	<5	<5
(MTBE) Benzene	<10 μg/kg		<10	M <10	M	<10	M M <10 M M	M <10 M	<10
Toluene	<2 µg/		<2	<2		5.4	<2	<2	<2
Ethylbenzene	<3 µg/	/kg TM089	<3	M <3	M	<3	M M <3	M <3	×3
m,p-Xylene	<6 µg/	/kg TM089	<6	M <6	М	7.55	M M	M <6	∣N <6
		Ĵ		м	м		М	M	N
o-Xylene	<3 µg/		<3	<3 M	м	<3	<3 M M	<3 M	
sum of detected mpo xylene by GC	<9 µg/	/kg TM089	<9	<9		<9	<9	<9	<9
sum of detected BTEX b GC	y <24 μg/kg		<24	<24		<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg		<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	) TM173	<100	<100		120000	<100	1660	97500
Aliphatics >C35-C44	μg/kg <100	) TM173	<100	<100		39400	<100	<100	70000
Total Aliphatics >C12-C4		) TM173	480	808	$\rightarrow$	195000	466	2000	180000
Aromatics >EC5-EC7	µg/kg <10	TM089	<10	<10	$\rightarrow$	<10	<10	<10	<10
Aromatics >EC7-EC8	μg/kg <10		<10	<10	-+	<10	<10	<10	<10
Aromatics >EC8-EC10	μg/kg <10		<10	<10	-+	29.1	<10	<10	<10
Aromatics >EC10-EC12		TM089	<10	<10	-+	62.6	<10	<10	<10
Aromatics >EC12-EC16		) TM173	486	402	-+	4430	519	<100	1610
Aromatics >EC16-EC21	μg/kg <100	]	<100	<100		21900	<100	<100	6760
Aromatics >EC21-EC35	µg/kg	3	269	462	-+	75100	693	3460	78300
Aromatics >EC35-EC44	µg/kg	3	<100	<100		55100	<100	<100	118000
	µg/kg	]							
Aromatics >EC40-EC44	µg/kg	3	<100	<100		25300	<100	<100	46400
Total Aromatics >EC12-EC44	<100 µg/kg	3	755	864		156000	1210	3460	205000
Total Aliphatics & Aromatics >C5-C44	<100 μg/kg		1230	1680		352000	1680	5470	385000
									1

				CEF		-								
SDG: Job:		322-16 RS_WIM-2	273	Location: Customer:	Stag AEC	g Brewery COM				Order Number: Report Number:	328751			
Client	Reference:	_		Attention:	Gary	y Marshall				Superseded Repor	t:			
ОС М	Results Legend		Customer Sample R	DUDOA		BH204		BH205	_	DUDDE	BH206		DU000A	
M n	SO17025 accredited. mCERTS accredited. Aqueous / settled sample.			BH204						BH205			BH203A	
diss.filt E tot.unfilt T * S	Dissolved / filtered sample. Fotal / unfiltered sample. Subcontracted test.		Depth (m) Sample Type Date Sampled	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	;
c r	% recovery of the surrogate stand check the efficiency of the metho results of individual compounds of	d. The within	Sampled Time 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) T	samples aren't corrected for the r Trigger breach confirmed Sample deviation (see appendix)	ecovery	Lab Sample No.(s)	11942793		11942796		11942797		11942798	11942799		11942791	
Compon		LOD/Uni	AGS Reference ts Method											
Dibromo	ofluoromethane**	%	TM116	117		102		96.6		98.9	116		71.6	
Toluene	e-d8**	%	TM116	99.6		99.9		91.2		97.9	101		87.7	
4-Bromo	ofluorobenzene**	%	TM116	101		101		77.1		101	90.4		70.8	
Dichloro	odifluoromethane	<6 µg/l	kg TM116	<6	м	<6	м	<6	м	<6 M	<6	м	<6	N
Chloron	nethane	<7 µg/l	kg TM116	<7	#	<7	#	<7	#	<7	<7		<7	
Vinyl Ch	hloride	<6 µg/l	kg TM116	<6	# M	<6		<6		# <6 M	<6	#	<6	#
Bromon	nethane	<10 µg/kg	TM116	<10	M	<10	M	<10	M	M <10 M	<10	M	<10	N
Chloroe	ethane	410 μg/kg	TM116	<10		<10		<10		<10	<10		<10	N
Trichlor	ofluorormethane	<6 µg/kg	kg TM116	<6	M	<6	M	<6	M	M <6 M	<6	M	<6	N
1,1-Dich	hloroethene	<10 µg/kg	TM116	<10		<10		<10		<10	<10		<10	
Carbon	Disulphide	- μg/kg <7 μg/l	kg TM116	<7	#	<7	#	<7	#	# <7	<7	#	<7	#
Dichloro	omethane	<10	TM116	<10	М	<10	М	<10	M	M <10	<10	М	<10	N
Methyl <sup>-</sup>	Tertiary Butyl Ether	µg/kg <10	TM116	<10	#	<10	#	<10	#	# <10	<10	#	<10	#
trans-1,	2-Dichloroethene	µg/kg <10	TM116	<10	M	<10	M	<10	M	M <10	<10	M	<10	N
1,1-Dich	hloroethane	μg/kg <8 μg/l	kg TM116	<8	M	<8	M	<8	M	M <8	<8	M	<8	N
cis-1,2-l	Dichloroethene	<6 µg/l	kg TM116	<6	M	<6	М	<6	M	<6	<6	M	<6	N
2,2-Dicł	hloropropane	<10	TM116	<10	M	<10	M	<10	М	M <10	<10	M	<10	N
Bromoc	hloromethane	μg/kg <10	TM116	<10	M	<10	M	<10	М	M <10	<10	М	<10	N
Chlorofo	orm	μg/kg <8 μg/l	<pre><g pre="" tm116<=""></g></pre>	<8	М	<8	М	<8	М	M <8	<8	М	<8	N
1,1,1-Tr	richloroethane	<7 µg/l		<7	М	<7	М	<7	М	M <7	<7	М	<7	N
1,1-Dich	hloropropene	<10	TM116	<10	М	<10	М	<10	М	M <10	<10	М	<10	N
Carbont	tetrachloride	µg/kg <10	TM116	<10	М	<10	М	<10	М	M <10	<10	М	<10	N
	hloroethane	μg/kg <5 μg/ł		<5	М	<5	М	<5	М	M <5	<5	М	<5	N
Benzen		<9 µg/l		<9	М	<9	М	<9	М	M <9	<9	М	<9	N
	oethene	<9 µg/l		<9	М	<9	М	<9	М	M <9	<9	М	<9	N
	hloropropane	<10 µg/i	TM116	<10	#	<10	#	<10	#	<10 #	<10	#	<10	#
-	omethane	μg/kg <9 μg/l		<9	м	<9	м	<9	м	<0 M <9	<9	м	<9	N
	lichloromethane		-	<9	м	<9	М	<9	м	<9 M <7	<9	м	<9	N
		<7 µg/l			м		м		м	М		м		N
	Dichloropropene	<10 µg/kg	TM116	<10	м	<10	М	<10	м	<10 M	<10	м	<10	N
Toluene		<7 µg/l		<7	м	<7	м	<7	м	<7 M	<7	м	<7	N
	3-Dichloropropene	<10 µg/kg	TM116	<10		<10		<10		<10	<10		<10	
1,1,2-Tr	richloroethane	<10 µg/kg	TM116	<10		<10	1	<10		<10	<10		<10	

### **CERTIFICATE OF ANALYSIS**

Validated

### VOC MS (S)

			_					
Results Legend           #         ISO17025 accredited.           M         mCERTS accredited.           aq         Aqueous / settled sample.		Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	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
** % recovery of the surrogate stands check the efficiency of the method	l. The	Sampled Time Date Received	22/08/2015	22/08/2015	22/08/2015	22/08/2015	. 22/08/2015	22/08/2015
results of individual compounds w samples aren't corrected for the re		SDG Ref	150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
(F) Trigger breach confirmed		Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
1-5&+§@ Sample deviation (see appendix)	LOD/Uni	AGS Reference						
Component			-7	-7	-7	-7	-7	-7
1,3-Dichloropropane	<7 µg/ł		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/ł	kg TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/ł	kg TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/ł	kg TM116	<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 410 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116	<10	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116						
Isopropylbenzene	<5 μg/ł	kg TM116	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	# <10 M	# <10 M	# <10 M	# <10 M	# <10 M	# <10 M
1,2,3-Trichloropropane	416 μg/kg	TM116	<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/ł	kg TM116	<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/ł	kg TM116	<8 M	<8	<8 M	<8 M	<8 M	<8
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/ł		<9 #	<9	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/ł		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/ł	kg TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloroprop ane	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M	<14 M	<14
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10	<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 M	<13 M	196 M	<13 M	<13 M	<13 M
	1.59	1	111	111	101	101	111	101

### **CERTIFICATE OF ANALYSIS**

Validated

VOC MS (S)								
Results Legend # ISO17025 accredited.		Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
M mCERTS accredited.								
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)		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 stand check the efficiency of the method		Sampled Time						
results of individual compounds v	vithin	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
samples aren't corrected for the re (F) Trigger breach confirmed	ecovery	Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units		<20	<20	<20	<20	<20	<20
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<20 #	~20	~20	<20 #
	µ9/19		<del></del>	<u>π</u>	<u>π</u>	<i>π</i>	π	<del>π</del>
		_						
	1							

### **CERTIFICATE OF ANALYSIS**

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:

# **Asbestos Identification - Soil**

						oution	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	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

### **CERTIFICATE OF ANALYSIS**

Validated

SDG: Job: Client Refere	150822-16 H_URS_W nce:		Cust	tomer: AEC	Brewery OM Marshall		R	rder Number: eport Number uperseded Re	: 3287	51	
		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	BH203A 0.50 SOLID 20/08/2015 00:00:00 24/08/2015 07:59:04 150822-16 11942791 TM048	25/08/15	Martin Cotterell	Soil containing loose fibres and debris typical of asbestos bitumen	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

### **CERTIFICATE OF ANALYSIS**

Validated

# **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 (#)

C

### **CERTIFICATE OF ANALYSIS**

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:	

# 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		
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		

### **CERTIFICATE OF ANALYSIS**

Stag Brewery

Gary Marshall

AEČOM

Order Number: Report Number: . Superseded Report:

328751

# **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
pH	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

Location:

Customer:

Attention:



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SDG:

Job:

Client Reference:

### **CERTIFICATE OF ANALYSIS**

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 328751 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	TM173	<b>98.33</b>	<b>92.29</b>
>C12-C35		71.67 : 116.67	68.25 : 114.73

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

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

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### **CERTIFICATE OF ANALYSIS**

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 328751 Superseded Report:

### Hexavalent Chromium (s)

**Client Reference:** 

SDG:

Job:

Component	Method Code	QC 1111	QC 1157
Hexavalent Chromium	TM151	<b>98.0</b> 92.20 : 106.60	<b>98.0</b> 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

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### **CERTIFICATE OF ANALYSIS**

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 3 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:** 

SDG:

Job:

Component	Method Code	QC 1112	QC 1121	QC 1102
Acenaphthene	TM218	99.5	97.0	97.5
		70.00 : 130.00	76.50 : 121.50	76.50 : 121.50
Acenaphthylene	TM218	87.5	89.0	90.0
		70.00 : 130.00	73.50 : 118.50	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	97.0	108.5	101.0
		70.00 : 130.00	82.07 : 118.33	82.07 : 118.33
Benzo(a)pyrene	TM218	98.5	101.5	105.5
		70.00 : 130.00	79.75 : 116.97	79.75 : 116.97
Benzo(b)fluoranthene	TM218	98.5	101.0	101.0
		70.00 : 130.00	82.41 : 117.15	82.41 : 117.15
Benzo(ghi)perylene	TM218	94.5	107.5	96.0
		70.00 : 130.00	77.09 : 114.38	77.09 : 114.38
Benzo(k)fluoranthene	TM218	95.0	100.5	100.5
		70.00 : 130.00	81.43 : 115.17	81.43 : 115.17
Chrysene	TM218	95.0	104.0	97.0
D'hanna (ab) an than an a	TN040	70.00 : 130.00	82.50 : 113.51	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	97.0	96.0	96.5
		70.00 : 130.00	78.67 : 117.61	78.67 : 117.61
Fluorene	TM218	98.0	93.5	95.5
		70.00 : 130.00	76.50 : 121.50	76.50 : 121.50
Indeno(123cd)pyrene	TM218	92.5	104.0	96.0
		70.00 : 130.00	79.19 : 117.60	79.19 : 117.60
Naphthalene	TM218	96.0	91.0	94.5
	These	70.00 : 130.00	77.00 : 117.50	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	95.5	94.0	95.0
		70.00 : 130.00	77.82 : 116.98	77.82 : 116.98

рΗ

Component	Method Code	QC 1188	QC 1135
рН	TM133	<b>100.5</b> 96.22 : 103.78	<b>99.75</b> 97.19 : 102.81

Total Organic Carbon

### **CERTIFICATE OF ANALYSIS**

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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:	

### Total Organic Carbon

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

### Total Sulphate

Component	Method Code	QC 1128
Total Sulphate	TM221	<b>112.12</b> 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
		72.58 : 116.06	72.58 : 116.06
1,2-Dichloroethane	TM116	94.8	109.8
		77.50 : 122.50	77.50 : 122.50
1,4-Dichlorobenzene	TM116	88.0	97.4
	<b>T</b> 14440	73.23 : 116.39	73.23 : 116.39
2-Chlorotoluene	TM116	88.4	93.0
4 Oblanataluana	TMAAC	69.22 : 110.64	69.22 : 110.64
4-Chlorotoluene	TM116	86.2	92.0
Benzene	TM116	68.57 : 106.26	68.57 : 106.26
Denzene	TIVITIO	<b>95.4</b> 84.33 : 124.27	<b>107.2</b> 84.33 : 124.27
Carbon Disulphide	TM116		
	TWITTO	<b>98.6</b> 77.20 : 122.80	<b>110.4</b> 77.20 : 122.80
Carbontetrachloride	TM116		
		<b>100.2</b> 84.20 : 119.90	<b>107.6</b> 84.20 : 119.90
Chlorobenzene	TM116	103.4	106.4
		85.28 : 129.96	85.28 : 129.96
Chloroform	TM116	92.4	106.8
		82.73 : 119.72	82.73 : 119.72
Chloromethane	TM116	128.8	122.4
		55.16 : 145.46	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

## CERTIFICATE OF ANALYSIS

		CER	TIFICATE OF ANAL	_ 1 3 1 3
SDG:	150822-16	Location:	Stag Brewery	Order Numbe
Job:	H_URS_WIM-273	Customer:	AECOM	Report Numb
Client Reference:		Attention:	Gary Marshall	Superseded
VOC MS (S)				

ber: 328751 nber: d Report:

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

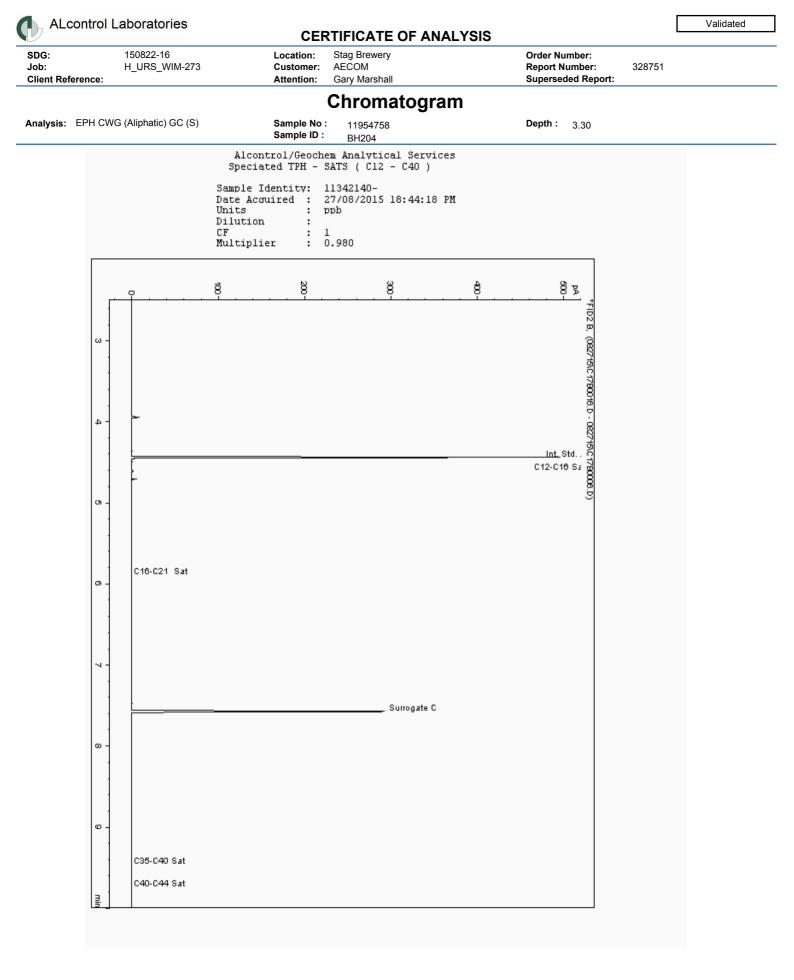
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

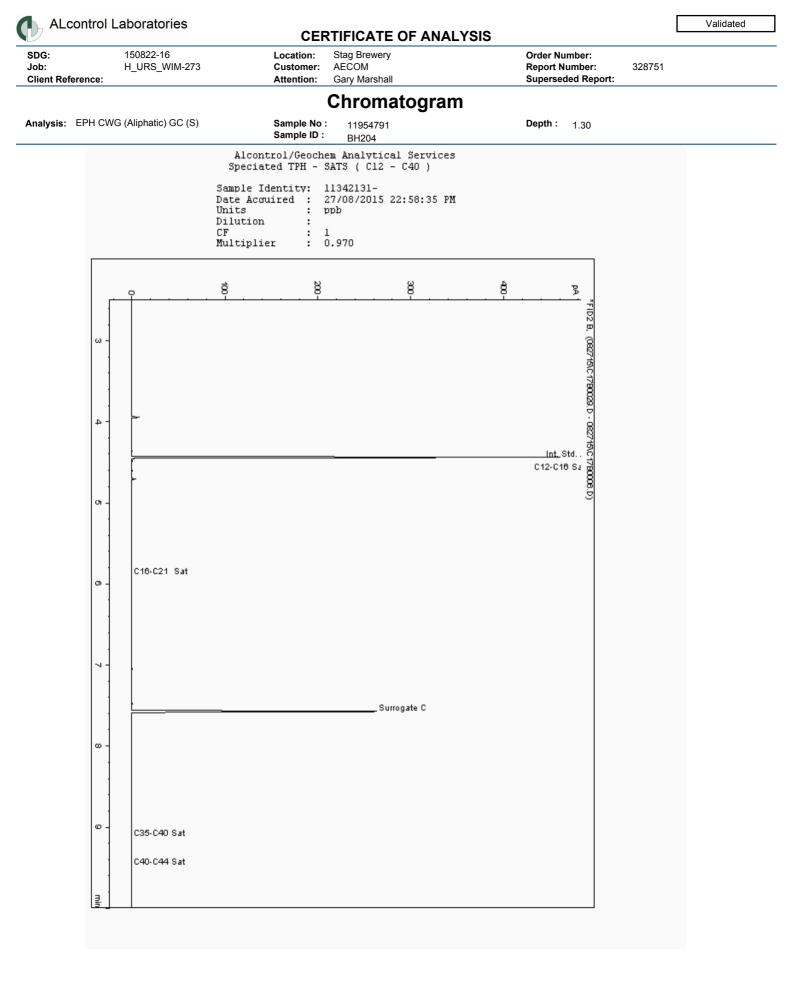
59.68 : 118.68

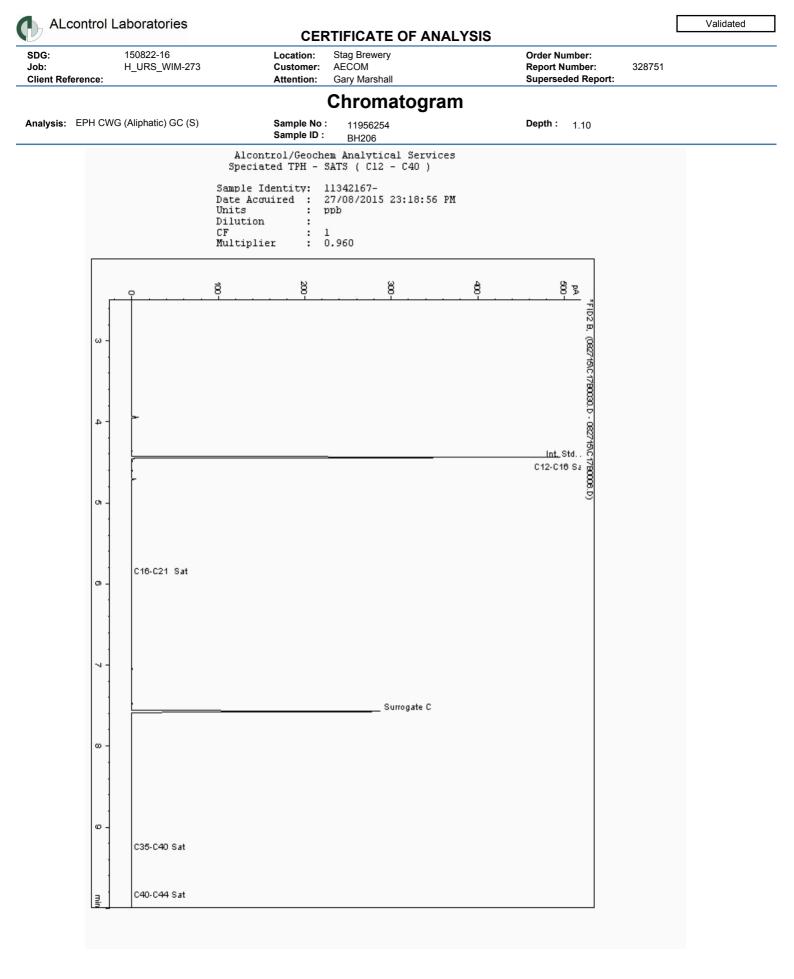
The figure detailed is the percentage recovery result for the AQC.

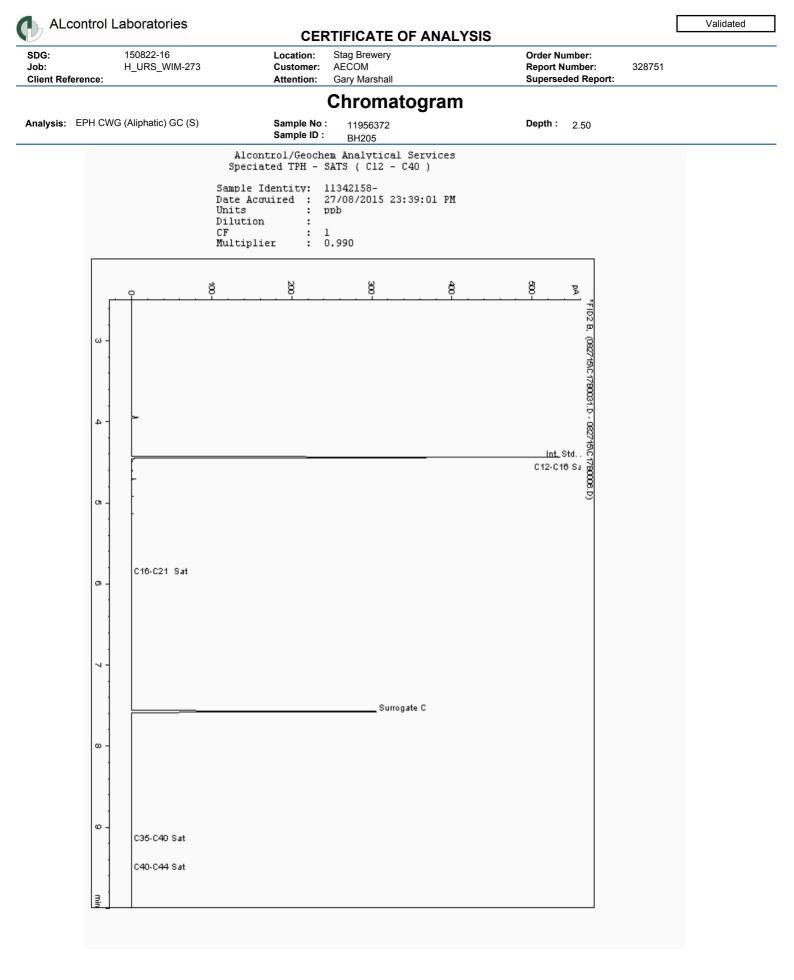
59.68 : 118.68

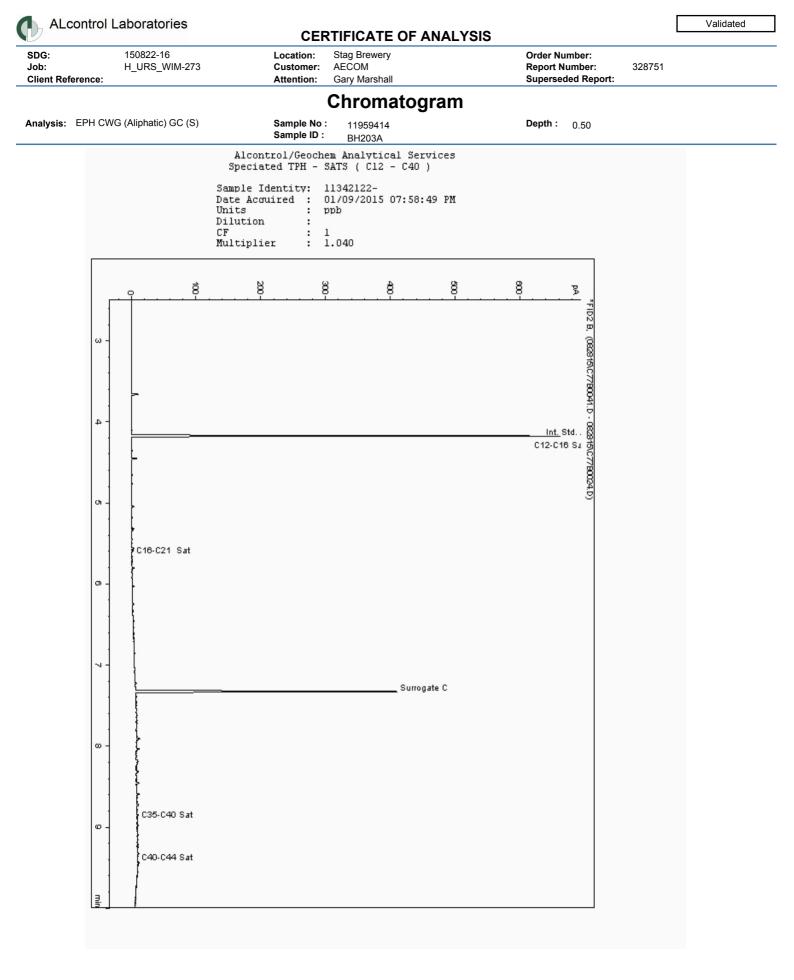
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

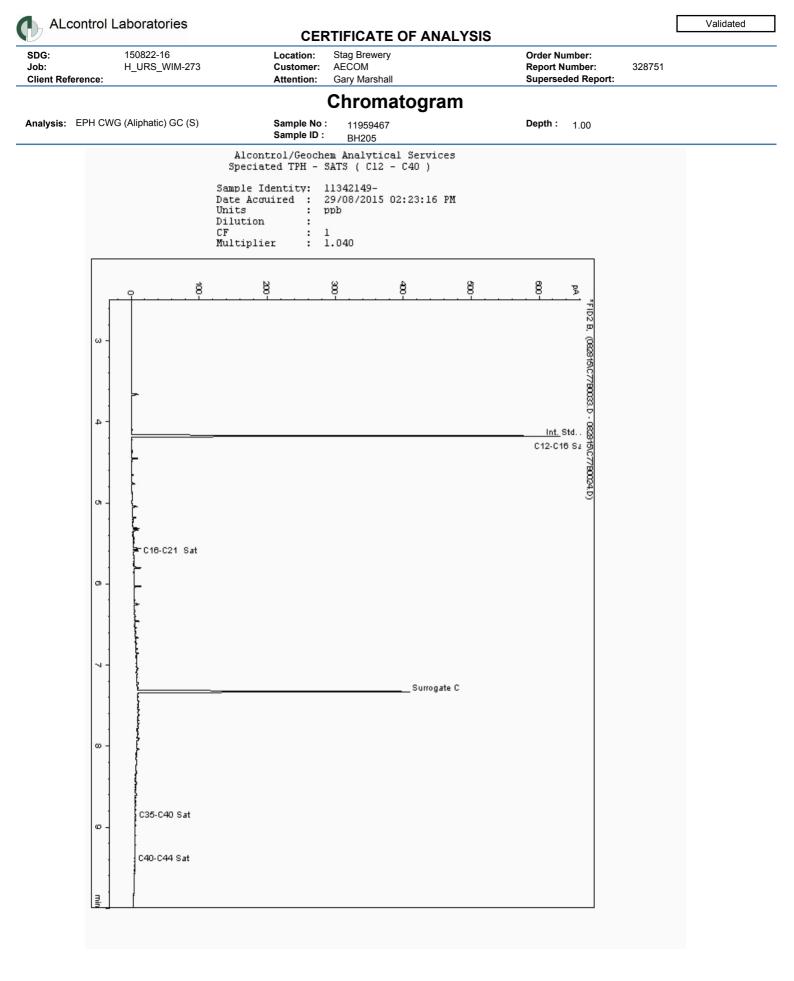


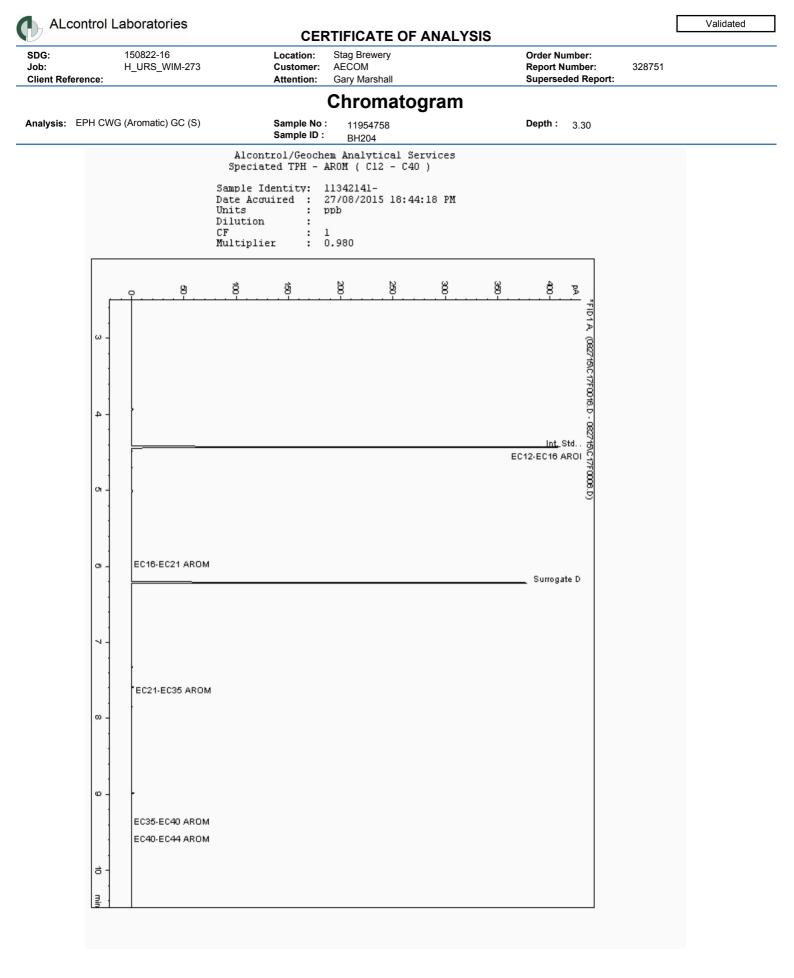


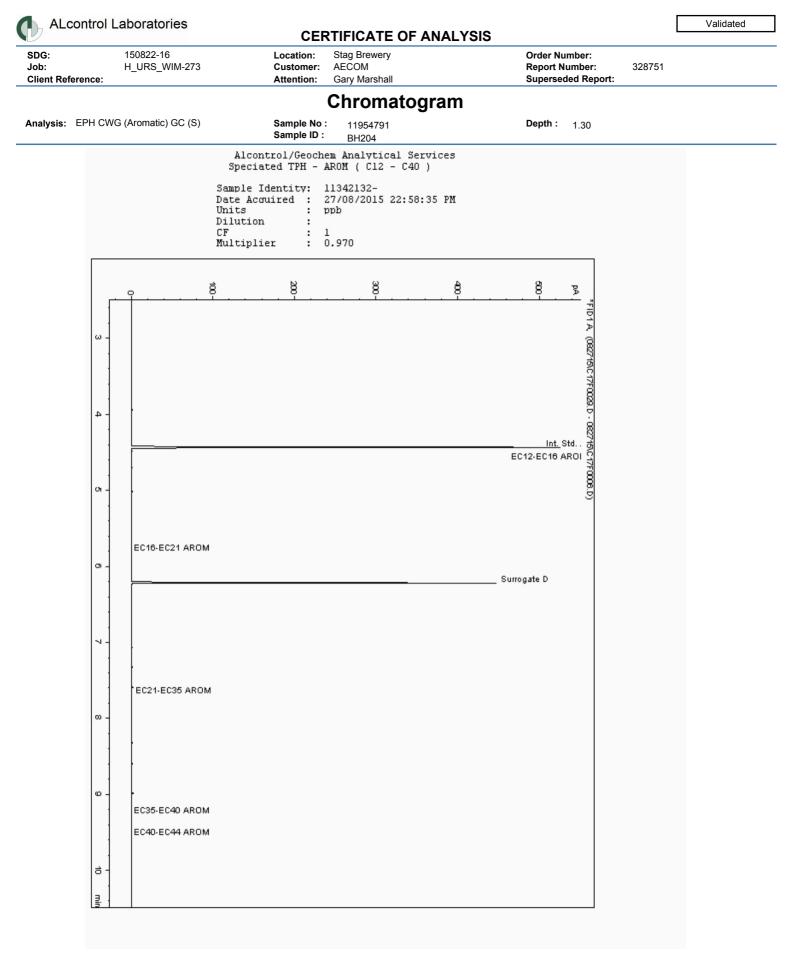


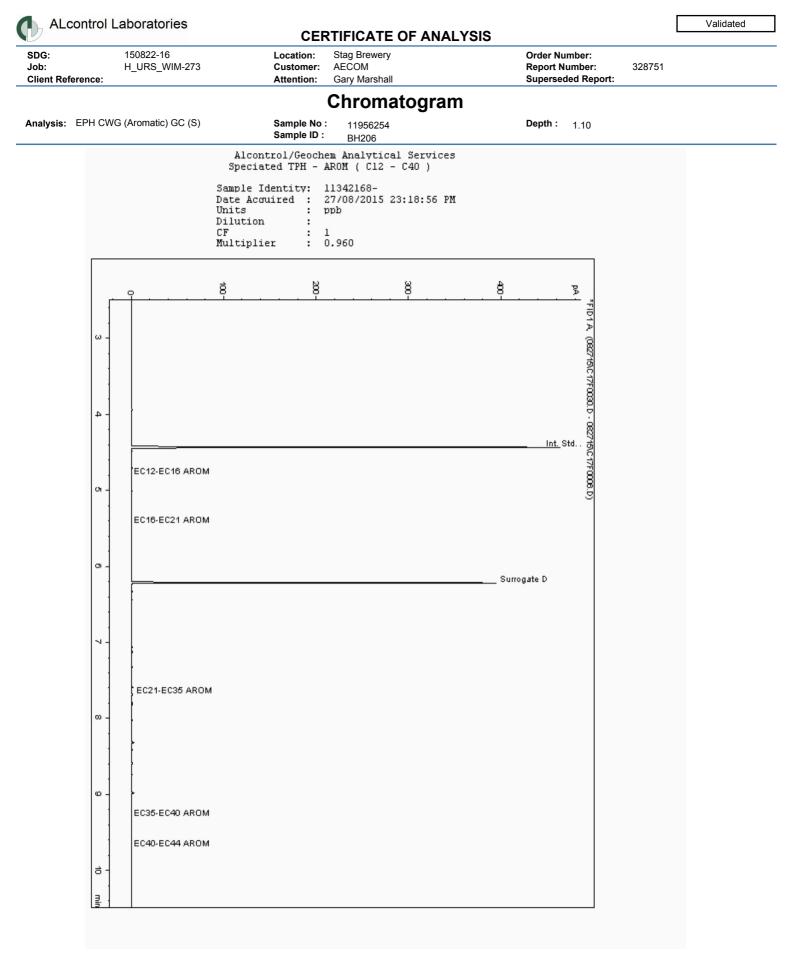


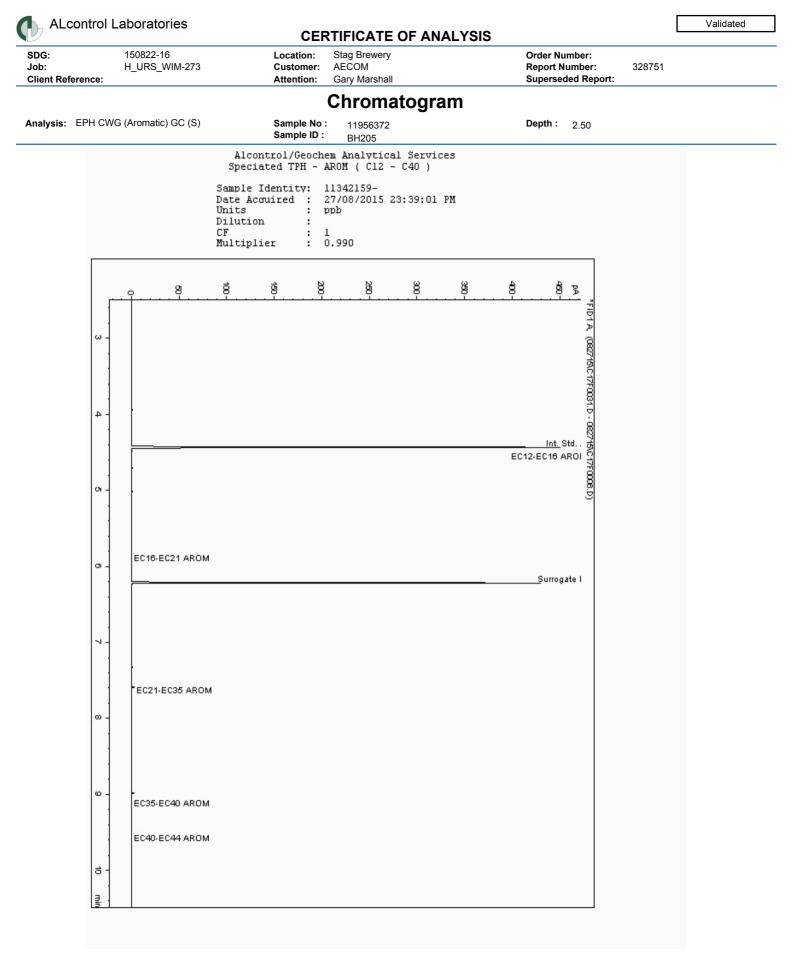


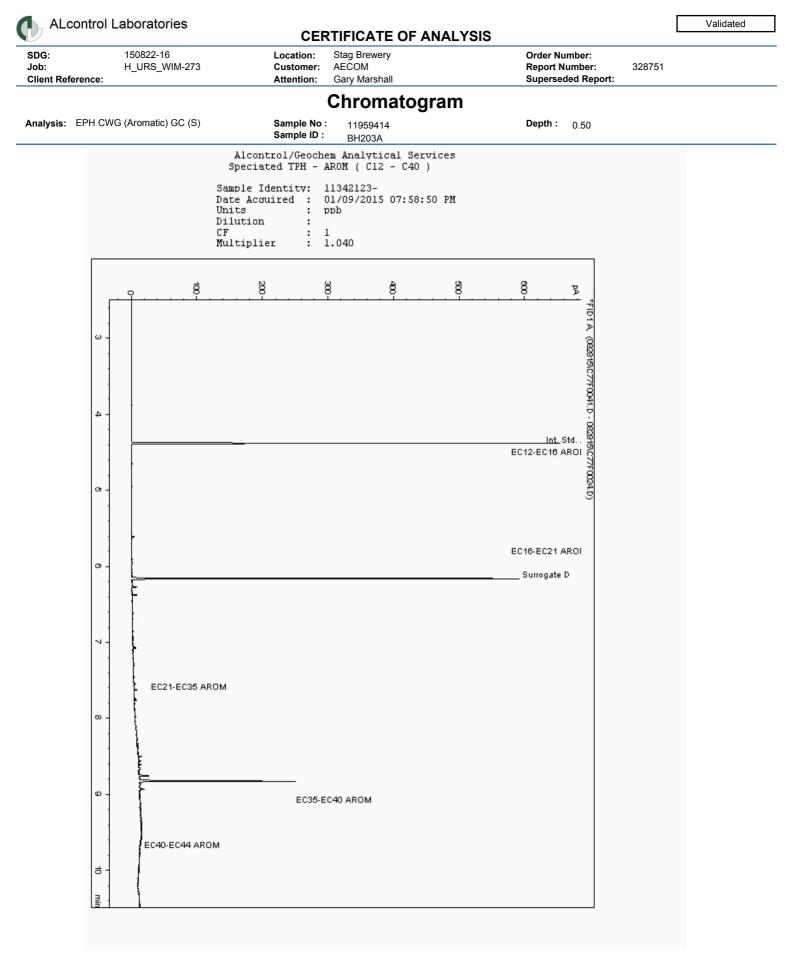


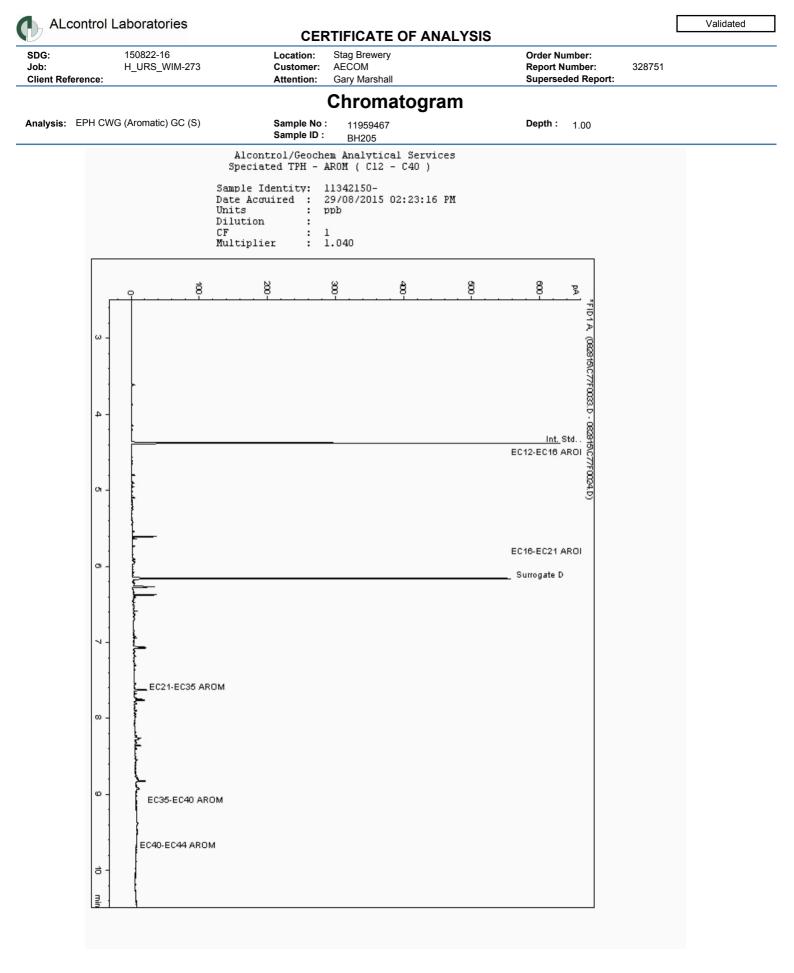


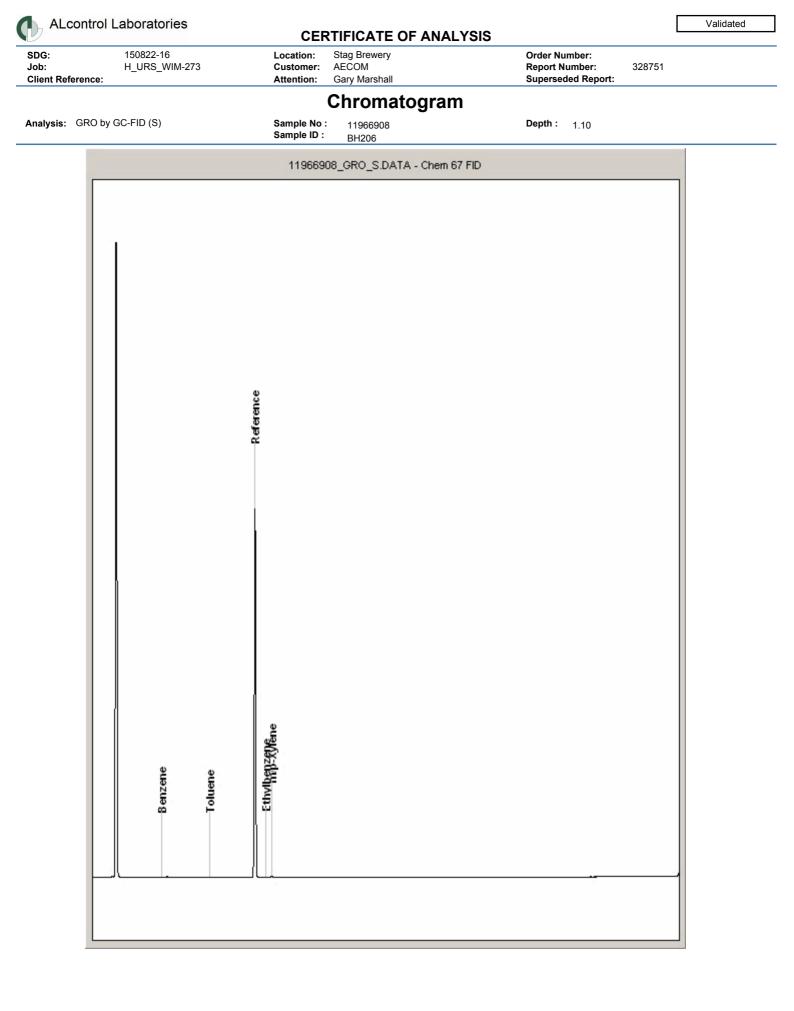


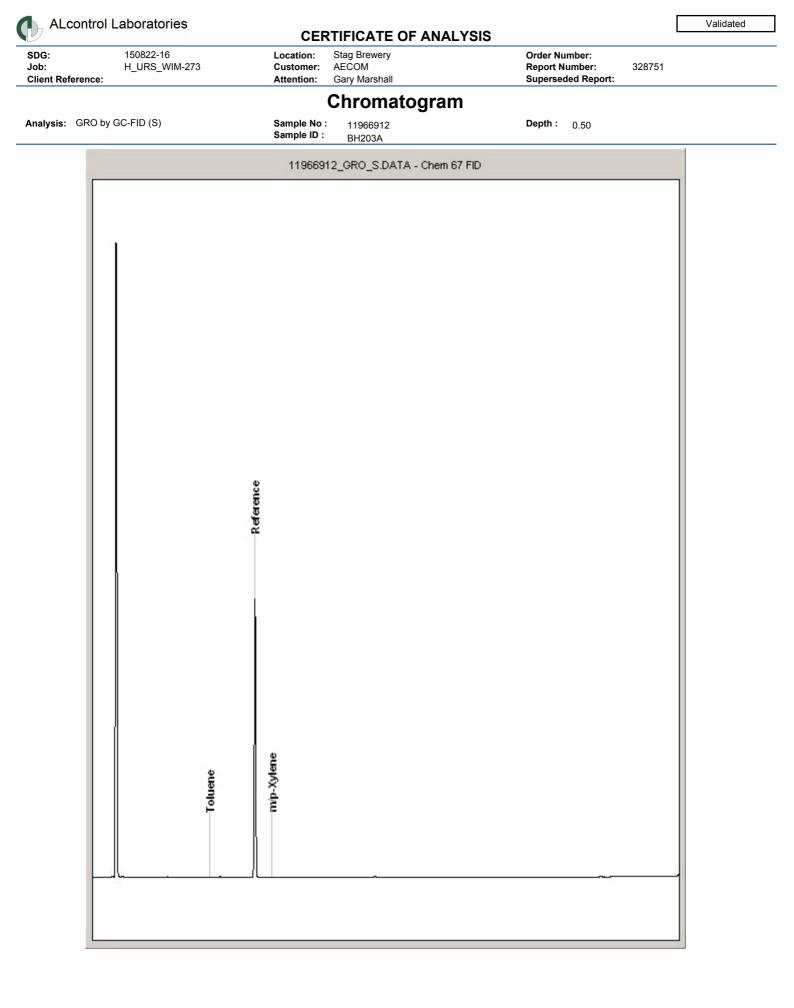


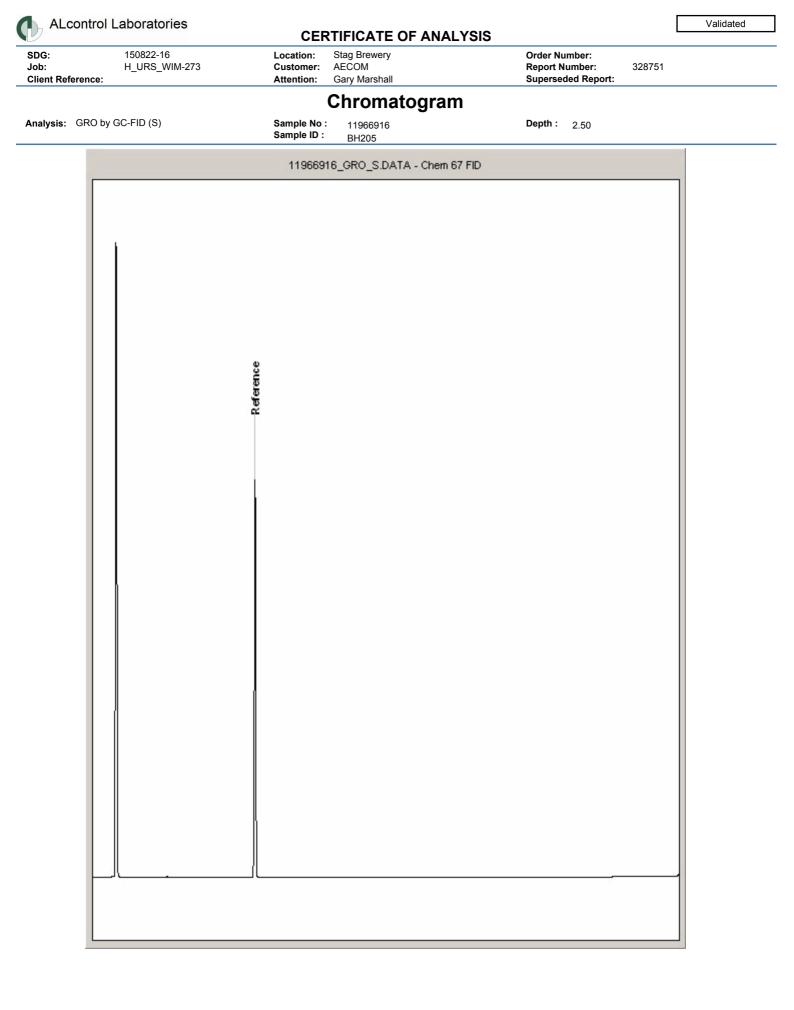


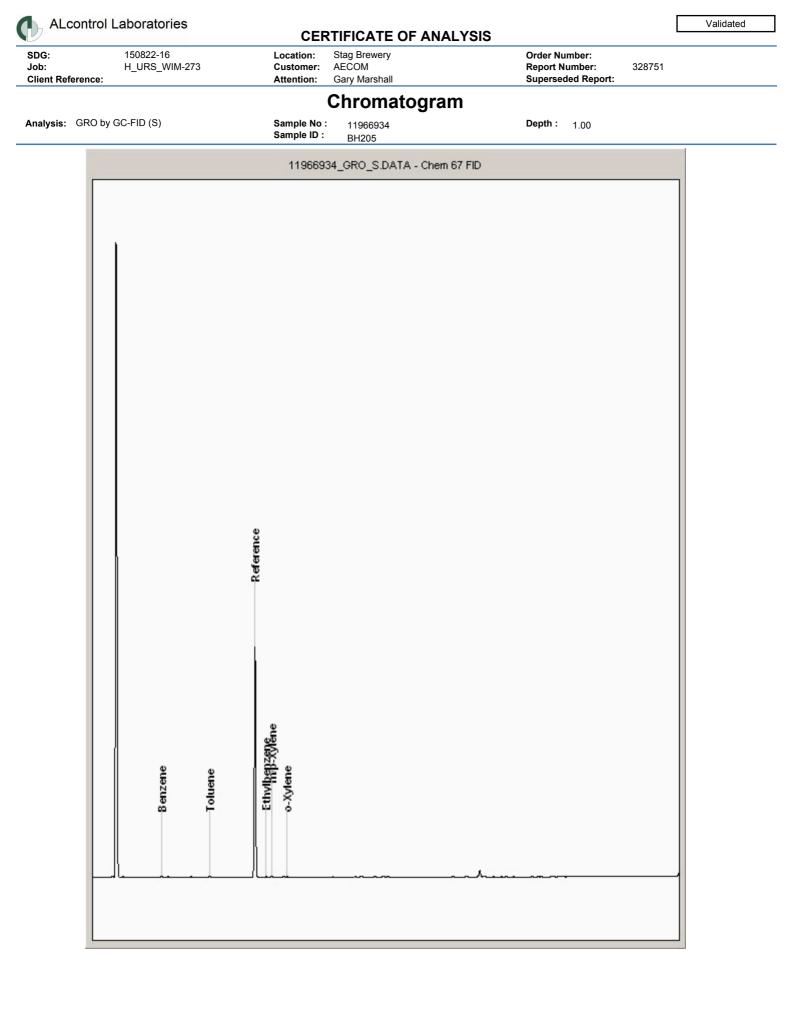




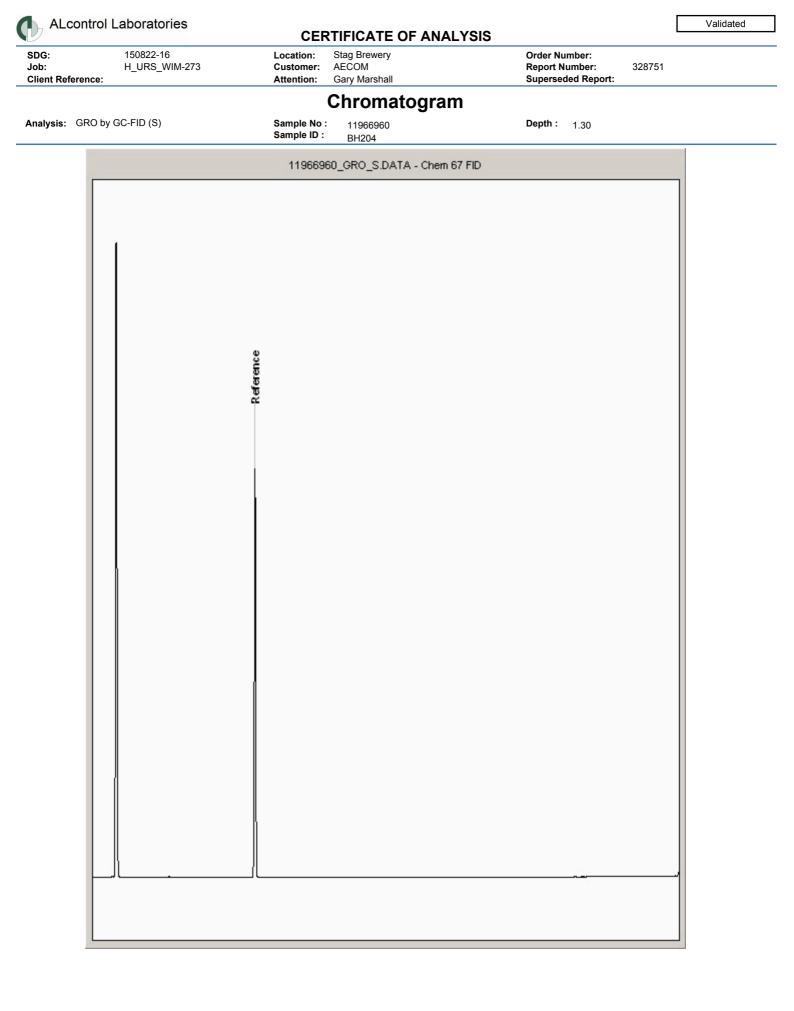








3:	150822-16	CEI Location:	Stag Brewery	Order Number:		
:	H_URS_WIM-273	Customer:	AECOM	Report Number:	328751	
nt Reference	:	Attention:	Gary Marshall	Superseded Repo	π:	
			Chromatograr			
lysis: GRO	by GC-FID (S)	Sample No Sample ID :	: 11966959 BH204	<b>Depth</b> : 3.30		
						1
		119669	59_GRO_S.DATA - Chem (	67 FID		
	1					
		Ice				
		Reference				
		Ref				
		l.				
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#### **CERTIFICATE OF ANALYSIS**

SDG:	150822-16	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

#### SOLID MATRICES EXTRACTION SUMMARY

328751

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	ATROSCAN
ELEMENTALSUPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGONS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANE/ACETONE	END OVEREND	GCFD
EPH (MINOL)	D&C	HEXANE/ACETONE	END OVEREND	GCFD
EPH (CLEANED UP)	D&C	HEXANE/ACETONE	END OVEREND	GCFD
EPH CWG BYGC	D&C	HEXANE/ACETONE	END OVEREND	GCFD
POB TOT / POB CON	D&C	HEXANEACETONE	BND OVERBND	GC-MS
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
08-040(06-040) EZ FLASH	WET	HEXANEACETONE	SHAVER	GC+EZ
POL VAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GCEZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
BPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCMG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
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
TFH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by R	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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) method of transmitted/polarised in-house light microscopy and central stop dispersion staining, based on HSG 248 (2005)

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

#### **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°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 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-lsopropylphenol, 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
Chrysolie	White Asbestos
Amoste	BrownAsbestos
Orodolite	Blue Asbestos
Fibrous Adinaite	-
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.

DG: ob: lient Ref ocation:	erence:	150826-58 ⊣_URS_WII Stag Brewer				Customer: Attention: Order No.: Report No:	AECON Gary N				
sbesto	s Identif										
		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fi
istomer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Priginal Sample lethod Number	BH201A NS Z 0.70 SOLID 25/08/2015 00:00:0 27/08/2015 13:33:2 150826-58 11963169 TM048 11351888		Kevin Hughes	Loose fibres in soil	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
istomer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG riginal Sample lethod Number	BH201A NS Z 1.90 - 2.00 SOLID 25/08/2015 00:00:0 27/08/2015 13:47:5 150826-58 11963171 TM048 11351923		Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
istomer Sample Ref. Depth (m) Sample Type Date Sampled Vate Receieved SDG priginal Sample lethod Number	BH202A NS Z 0.80 SOLID 25/08/2015 00:00:0 27/08/2015 13:38:2 11963170 TM048 11351909		Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detecte
stomer Sample Ref. Depth (m) Sample Type Date Sampled SDG vriginal Sample lethod Number	BH207 NS Z 0.70 SOLID 25/08/2015 14:00:0 150826-58 11963172 TM048 11351937		Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
istomer Sample Ref. Depth (m) Sample Type Date Sampled Jate Receieved SDG Original Sample lethod Number	BH208A NS Z 0.80 SOLID 25/08/2015 01:00:00:0 150826-58 11963174 TM048 11351964		Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Prelin	ninary	ALco	ontrol	Labor	atorie	s Ana	lytical	Servi	ces		
SDG:150826-58Job:H_URS_WIM-273Client Reference:Stag Brewery						Customer Attention: Order No.: Report No	Gary N	VI 1arshall			
		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 11963177 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 12:66:35 11963166 TM048 11351834	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected



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

Attention: Gary Marshall

# PRELIMINARY/INTERIM REPORT

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 September 2015 H\_URS\_WIM 150828-41

Stag Brewery 329009

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:



Alcontrol Laboratories is a trading division of ALcontrol UK Limited Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

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## PRELIMINARY/INTERIM REPORT

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:

# **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	BH7A		0.70	27/08/2015
11977604	BH7A		2.50 - 3.00	27/08/2015

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

SDC:	Lastin		C+~	a D		an i			Order Number		-		
	150828-41 H_URS_WI	M-273	Location: Custome Attention	r: .	AE	ig Bre COM ry Ma					 Order Number: Report Number: Superseded Re	329009	
SOLID					_		_		<u>.</u>	_			
Results Legend		Lab Sample	No(s)		11977605		11977606	1.1877603	10776	11977604			
X Test					05	:	6	03	3	04			
No Determinat	tion						+		+				
Possible		Custom	er		B	ļ	B	α	D	B			
		Sample Refe	erence		BH4A		BH4A	BH/A		BH7A			
							1						
		AGS Refere	ence										
	F						ω			2			
		Depth (n	n)		0.90	1	3.50 - 4.00	0.70	0 70	2.50 - 3.00			
				400g 250g /	60g V	400g 250g /	200 ∨	400g V	250g /	60g ∨ 400g			
		Contain	er	Tub (/ Amber	OC (/	Tub (/ Amber		Tub (/	Amber	Tub (/			
				Jar (A	LE215	LE214 Jar (A	LE215	400g Tub (ALE215) 400g Tub (ALE214) 250g Amber Jar (Al	Jar (A	LE215			
Ammonium Soil by Titration	ر ۱ /	All	NDPs: 0	FΞ		FS	e r	- :: :		50			
			Tests: 4	x		x		x		x			
Asbestos ID in Solid Sampl	es /	All	NDPs: 0 Tests: 2				1						
			16313. 2	X				x					
Asbestos Quant Waste Li	imit /	All	NDPs: 0 Tests: 1										
Easily Liberated Sulphide		AII		X									
	, '	- II	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	2	x	x				
GRO by GC-FID (S)	/	All	NDPs: 0 Tests: 4										
					x		x	×	<b>(</b>	x			
Hexavalent Chromium (s)		All	NDPs: 0 Tests: 4										
Metals in solid samples by (	OES	All	NDPs: 0	X	•	x	_	x		x			
Solid Campico by	, ''		Tests: 4	x		X	,	x	X				
PAH by GCMS		All	NDPs: 0		+		┥		*	+			
			Tests: 4	x		x	2	x	X				
рН	1	All	NDPs: 0				+			+			
			Tests: 4	X		x		x		x			
Sample description	1	All	NDPs: 0 Tests: 4										
				x		x	2	×	x				
Total Organic Carbon	/	All	NDPs: 0 Tests: 4										
Total Sulphate		All	NDD: 0	x		x	)	×	X				
i otal oupliate	/	וור	NDPs: 0 Tests: 4	x		x		x	X				
TPH CWG GC (S)		All	NDPs: 0	^	$\left  \right $	^	-		^	_			
(-)	,		Tests: 4	x		x		x	X				

ALcontrol L	aboratories	PRE	LIMI	VAR	//INT	ERIN	M REPORT	Preliminary
SDG: Job: Client Reference:	150828-41 H_URS_WIM-273	Location: Customer Attention:	r: AE	ig Brew COM ry Mars	-		Order Number: Report Number: 329009 Superseded Report:	
SOLID Results Legend	Lab Sample	No(s)	11977605	11977606	11977603	11977604		
No Determina Possible	ation Custom Sample Refe	-	BH4A	BH4A	BH7A	BH7A		
	AGS Refer	ence						
	Depth (r		0.90	3.50 - 4.00	0.70	2.50 - 3.00		
	Contain	er	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: 4	x	x	x	x		

## PRELIMINARY/INTERIM REPORT

Preliminary

SDG:         150828-41           Job:         H_URS_WIM-273           Client Reference:         Image: Client Reference in the second seco	Location: Stag Brewery Customer: AECOM Attention: Gary Marshall	Order Number: Report Number: 329009 Superseded Report:
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# **Sample Descriptions**

Grain Sizes															
very fine	<0.0	)63mm	fine	0.063mm - 0.1mm	me	edium	0.1mm	ı - 2mm	coar	rse	2mm - 1	0mm	very co	arse	>10mm
Lab Sample N	o(s)	Custom	er Sample Re	f. Depth (m)	1	Cole	our	Descript	ion	Gr	ain size	Incl	usions	Incl	usions 2
11977605	11977605 BH4A		0.90	0.90		Dark Brown		l	0.1	- 2 mm	E	Brick		ete/Aggre gate	
11977606			BH4A	3.50 - 4.00	3.50 - 4.00		Light Brown		l	0.1 - 2 mm		St	ones	1	None
11977603			BH7A	0.70		Dark Brow		Sandy C Loarr	-	0.1	- 2 mm	E	Brick	S	tones
11977604			BH7A	2.50 - 3.00		Light E	Brown	Sand	l	0.1	- 2 mm	St	ones	1	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/INTERIM REPORT

Preliminary

SDG:	150828-41	Location:	Stag Brewery	Order Number:	329009
Job:	H URS WIM-273	Customer:	AECOM	Report Number:	
Client Reference:	11_01(0_0100-270	Attention:	Gary Marshall	Superseded Report:	323003

Downline Lawrent							 
Results Legend # ISO17025 accredited.		Customer Sample R	BH4A	BH4A	BH7A	BH7A	
M mCERTS accredited. aq Aqueous / settled sample.		Depth (m)		0.50 / 65	0.70	0.50 0.55	
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	0.90 Soil/Solid	3.50 - 4.00 Soil/Solid	0.70 Soil/Solid	2.50 - 3.00 Soil/Solid	
* Subcontracted test. ** % recovery of the surrogate standa		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 re-	covery	SDG Ref	150828-41 11977605	150828-41 11977606	150828-41 11977603	150828-41 11977604	
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11977005	11977000	11977005	11977004	
Component	LOD/Units						
Moisture Content Ratio (%	%	PM024	7.1	4.4	28	4.8	
of as received sample)							 
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	23.8	<15	35.3	15.8	
Organic Carbon, Total	<0.2 %	TM132	M 2.08	M <0.2	M 3.51	M <0.2	
	40.2 /0	111102	2.00 M	N.2	M	M	
рН	1 pH	TM133	7.92	8.01	7.67	8.01	 
	Units		М	М	М	М	
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6	<0.6	
	mg/kg		#	#	#	#	 
Sulphide, Easily liberated	<15 ma/ka	TM180	<15	<15	<15	<15	
Arsenic	mg/kg <0.6	TM181	<b>◆</b> # 14.2	♦ # 21.4	◆ # 94	◆ # 16.4	
	mg/kg		14.2 M	21.4 M	54 M	10.4 M	
Cadmium	< 0.02	TM181	0.603	0.385	2.03	0.325	
	mg/kg		М	М	М	М	
Chromium	<0.9	TM181	16.9	21.5	28.7	16.5	
	mg/kg		M	M	M	M	 
Copper	<1.4 mg/kg	TM181	31.4	6.36	82.3	4.42	
Lead	<0.7	TM181	M 309	M 8.03	M 468	M 5.77	 
Leau	mg/kg	TWITOT	M	0.00 M	400 M	5.77	
Mercury	<0.14	TM181	<0.14	<0.14	0.702	<0.14	
	mg/kg		М	М	М	М	
Nickel	<0.2	TM181	15.6	24.2	36	19.4	
	mg/kg		M	M	M	M	
Selenium	<1 mg/k	g TM181	<1	<1	<1	<1	
Zinc	<1.9	TM181	# 217	# 28.5	# 1640	# 20.8	
	mg/kg	i ilii io i	2 M	20.0 M	М	20.0 M	
Sulphate, Total	<48	TM221	841	63.9	601	74.7	
	mg/kg		М	M	M	M	
							7
		+ +					
06:12:10 00/00/2015							

SDG:

Job:

## PRELIMINARY/INTERIM REPORT

Preliminary

Clien	it Reference:		-	Attention:	Gary	Marshall		Superseded Repo	rt:	
PAH b	OY GCMS									
#	Results Legend ISO17025 accredited.		Customer Sample R	BH4A		BH4A	BH7A	BH7A		
M aq	mCERTS accredited. Aqueous / settled sample.									
diss.filt	Dissolved / filtered 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		
•	Total / unfiltered sample. Subcontracted test.		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 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	thin	SDG Ref	150828-41		150828-41	150828-41	150828-41		
	Trigger breach confirmed	lovery	Lab Sample No.(s)	11977605		11977606	11977603	11977604		
Compo	Sample deviation (see appendix)	LOD/Uni	AGS Reference ts Method							
	nalene-d8 %	%	TM218	97.2		92.6	104	92.3		
recove		70	1111210	01.2		02.0	101	02.0		
	phthene-d10 %	%	TM218	98.5		92.1	104	91.4		
recove										
	nthrene-d10 %	%	TM218	99		89.7	104	89.4		
recove										
	ene-d12 %	%	TM218	93.5		79.4	94.8	80.1		
recove										
	ne-d12 %	%	TM218	102		86.9	101	88.5		
recove Naphth		<0	kg TM218	56		<9	69.9	<9		
Παριια		<9 µg/l	·9 1 IVIZ 10	50	м	<9 M	69.9 M	<9 M		
Acena	phthylene	<12	TM218	83	191	<12	84.3	<12		
	, <b>,</b>	µg/kg			м	M	04.0 M	M		
Acena	phthene	<8 µg/l		41.8		<8	11.5	<8		
			Ĵ.		м	М	М	М		
Fluore	ne	<10	TM218	48.2		<10	<10	<10		
		µg/kg			М	М	M	M		
Phena	nthrene	<15	TM218	1190		<15	307	<15		
		µg/kg			М	М	M	M		
Anthra	cene	<16	TM218	317		<16	107	<16		
<b></b>		µg/kg	T14040	0500	М	M	M	M		
Fluora	nthene	<17 ug/kg	TM218	2500		<17	967	<17		
Pyrene		µg/kg <15	TM218	2090	М	M <15	M 971	M <15		
i yrene		µg/kg	1111210	2030	м	M	M	M		
Benz(a	a)anthracene	<14	TM218	1320	101	<14	630	<14		
20112(0	a)ann acono	µg/kg		1020	м	M	M	M		
Chryse	ene	<10	TM218	1060		<10	684	<10		
-		µg/kg			м	М	М	М		
Benzo	(b)fluoranthene	<15	TM218	1700		<15	1930	<15		
		µg/kg			М	M	M	M		
Benzo	(k)fluoranthene	<14	TM218	609		<14	724	<14		
Denne	(-)	µg/kg		4.470	М	-15	M	M		
Benzo	(a)pyrene	<15 µg/kg	TM218	1470		<15 M	1050	<15		
Indeno	o(1,2,3-cd)pyrene	µ9/ку <18	TM218	787	М	M <18	M 975	M <18		
indend	(1,2,0-00)pyrene	µg/kg		101	м	M	575 M	M		
Dibenz	zo(a,h)anthracene	<23	TM218	216		<23	269	<23		
	· · · ·	µg/kg			м	M	M	M		
Benzo	(g,h,i)perylene	<24	TM218	967		<24	1160	<24		
		µg/kg			М	М	М	M		
	Fotal Detected	<118		14500		<118	9950	<118		
USEP	A 16	µg/kg								
					T					
			_							

## PRELIMINARY/INTERIM REPORT

Preliminary

		atoriot		PRELI	PRELIMINARY/INTERIM REPORT								
SDG: Job: Client Referenc		28-41 RS_WIM-:	273	Location: Customer: Attention:	AE	ag Brewery ECOM ary Marshall			Order Number: Report Number: Superseded Report	329009			
TPH CWG (S)				Attention.	00				Cuporcould Report	<u> </u>			
	lited.		Customer Sample R	BH4A		BH4A	BH7A		BH7A				
diss.filt Dissolved / filter tot.unfilt Total / unfiltered * Subcontracted 1 ** % recovery of th check the efficie results of indivi	red sample. d sample. test. ne surrogate standa ancy of the method dual compounds w corrected for the re confirmed	l. The vithin	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	0.90 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-41 11977605		3.50 - 4.00 Soii/Solid 27/08/2015 28/08/2015 150828-41 11977606	0.70 Soil/Solid 27/08/2015 28/08/2015 150828-41 11977603		2.50 - 3.00 Soil/Solid 27/08/2015 28/08/2015 150828-41 11977604				
Component	(see appendix)	LOD/Un	AGS Reference its Method										
GRO Surrogate % recovery**	6	%	TM089	74		117	28		129				
GRO TOT (Moiste Corrected)		<44 µg/kg		<44	М	<44 M	<44	М	<44 M				
Methyl tertiary but (MTBE)	tyl ether	<5 µg/	-	<5	М	<5 M	<5	М	<5 M				
Benzene		<10 µg/kg	TM089	<10	М	<10 M	<10	М	<10 M				
Toluene		<2 µg/	kg TM089	<2	М	<2 M	<2	М	<2 M				
Ethylbenzene		<3 µg/	kg TM089	<3	М	<3 M	<3	М	<3 M				
m,p-Xylene		<6 µg/	kg TM089	<6	М	<6 M	<6	М	<6 M				
o-Xylene		<3 µg/	kg TM089	<3	М	<3 M	<3	М	<3 M				
sum of detected n xylene by GC	npo	<9 µg/	kg TM089	<9		<9	<9		<9				
sum of detected E GC	BTEX by	<24 µg/kg	TM089	<24		<24	<24		<24				
Aliphatics >C5-C6	3	<10 µg/kg	TM089	<10		<10	<10		<10				
Aliphatics >C6-C8	3	<10 <10 µg/kg	TM089	<10		<10	<10		<10				
Aliphatics >C8-C1	10	<10 µg/kg	TM089	<10		<10	<10		<10				
Aliphatics >C10-C	012	<10 µg/kg	TM089	<10		<10	<10		<10				
Aliphatics >C12-C	216	<100 µg/kg	TM173	<100		<100	<100		<100		_		
Aliphatics >C16-C	21	<100 µg/kg	TM173	1680		<100	<100		<100				
Aliphatics >C21-C	35	<100 µg/kg	TM173	54500		<100	21900		<100		_		
Aliphatics >C35-C	244	<100 µg/kg	TM173	32400		<100	5130		<100				
Total Aliphatics >	C12-C44	<100 µg/kg	TM173	88500		<100	27000		<100				
Aromatics >EC5-I	EC7	<pre>     µg/kg     </pre>	TM089	<10		<10	<10		<10				
Aromatics >EC7-I	EC8	μg/kg <10 μg/kg	TM089	<10		<10	<10		<10		-		
Aromatics >EC8-I	EC10	410 μg/kg	TM089	<10		<10	<10		<10				
Aromatics >EC10	-EC12	<pre>     µg/kg     </pre>	TM089	<10		<10	<10		<10				
Aromatics >EC12	-EC16	+9/kg <100 μg/kg	TM173	1610		<100	1920		<100		-		
Aromatics >EC16	-EC21	<100	TM173	17100		<100	8470		<100				
Aromatics >EC21	-EC35	μg/kg <100	TM173	74700		<100	70000		<100				
Aromatics >EC35	-EC44	μg/kg <100	TM173	37300		<100	28500		<100				
Aromatics >EC40	-EC44	μg/kg <100	TM173	14200		<100	10500		<100				
Total Aromatics >EC12-EC44		μg/kg <100	TM173	131000		<100	109000		<100				
Total Aliphatics & Aromatics >C5-C4		μg/kg <100 μg/kg	TM173	219000		<100	136000		<100				
	. T	μy/ng									-		

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ALcontrol Labo	oratories		PRELI	MI	NARY/INTERI	M REPORT		L	Preliminary
	)828-41 URS_WIM-2	73	Location: Customer: Attention:	AE	ag Brewery COM ary Marshall		Order Number: Report Number: Superseded Repo	329009 ort:	
VOC MS (S) Results Legend		0t				21/21			
Kesuits Legend     Kesuits Legend     Kesuits Legend     Kesuits Legend     M mCERTS accredited.     M mCERTS accredited.     aq Aqueous / settied sample.     diss.fit Dissolved / fittered sample.     * Subcontracted test.     * % recovery of the surrogate stat         check the efficiency of the meth         results of individual compound-         samples aren't corrected for the     (F) Trigger breach confirmed     1-5&&& @ Sample deviation (see appendix     Component	ndard to lod. The s within o recovery	Customer Sample R Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference s Method	BH4A 0.90 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-41 11977605		BH4A 3.50 - 4.00 Soil/Solid 27/08/2015 28/08/2015 150828-41 11977606	0.70 Soil/Solid 27/08/2015 28/08/2015 150828-41 11977603	BH7A 2.50 - 3.00 Soil/Solid 27/08/2015 28/08/2015 150828-41 11977604		
Dibromofluoromethane**	%	TM116	120		103	112	124		
Toluene-d8**	%	TM116	98.1		103	99.5	110		
4-Bromofluorobenzene**	%	TM116	69.9		94.2	74.1	106		
Dichlorodifluoromethane	<6 µg/k	g TM116	<6		<6	<60	<6		
Chloromethane	<7 µg/k	g TM116	<7	М	M <7	M <70	M <7		
Vinyl Chloride	<6 µg/k	g TM116	<6	#	# <6	# <60	# <6		
Bromomethane	<10	TM116	<10	М	M <10	M <100	<10		
Chloroethane	µg/kg <10	TM116	<10	М	M <10	M <100	M <10		
Trichlorofluorormethane	μg/kg <6 μg/k	g TM116	<6	М	M <6	M <60	M <6		
1,1-Dichloroethene	<10	TM116	<10	М	M <10	M <100	<10		
Carbon Disulphide	μg/kg <7 μg/k	g TM116	<7	#	# <7	# <70	# <7		
Dichloromethane	<10	TM116	<10	М	M <10	M <100	M <10		
Methyl Tertiary Butyl Ether	µg/kg <10	TM116	<10	#	# <10	# <100	# <10		
trans-1,2-Dichloroethene	µg/kg <10	TM116	<10	М	M <10	M <100	M <10		
1,1-Dichloroethane	μg/kg <8 μg/k	g TM116	<8	М	M <8	M <80	M <8		
cis-1,2-Dichloroethene	<6 µg/k	g TM116	<6	М	M <6	M <60	<6		
2,2-Dichloropropane	<10	TM116	<10	М	M <10	M <100	<10		
Bromochloromethane	μg/kg <10	TM116	<10	М	M <10	M <100	<10		
Chloroform	μg/kg <8 μg/k	g TM116	<8	М	M <8	M <80	<8		
1,1,1-Trichloroethane	<7 µg/k	g TM116	<7	М	M <7	M <70	<7		
1,1-Dichloropropene	<10	TM116	<10	М	M <10	M <100	<10		
Carbontetrachloride	μg/kg <10	TM116	<10	M	M <10	M <100	<10		
1,2-Dichloroethane	μg/kg <5 μg/k	g TM116	<5	M	M <5	M <50	<5		
Benzene	<9 µg/k	g TM116	<9	M	M <9	M <90	<9		
Trichloroethene	<9 µg/k	g TM116	<9	M	M <9	M <90	<9		
1,2-Dichloropropane	<10	TM116	<10	#	# <10	# <100	<10		
Dibromomethane	μg/kg <9 μg/k	g TM116	<9	M	M <9	M <90	<9		
Bromodichloromethane	<7 µg/k	g TM116	<7	M	M <7	<70	<7		
cis-1,3-Dichloropropene	<10	TM116	<10	M	M <10	M <100	<10		
Toluene	μg/kg <7 μg/k	g TM116	<7	M	M <7	<70	<7		
trans-1,3-Dichloropropene	<10	TM116	<10	М	M <10	M <100	M <10		
1,1,2-Trichloroethane	μg/kg <10	TM116	<10		<10	<100	<10		
	µg/kg			Μ	М	М	M	<u> </u>	

## PRELIMINARY/INTERIM REPORT

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:	

## VOC MS (S)

	Results Legend		Customer Sample R	BH4A		BH4A		BH7A	BH7A		T I	
a. a	# ISO17025 accredited.		Customer Sample K	DH4A		DI14A		BHIA	BH/A			
Image: contraction of the sector of												
	oubcontracted test.	ard to				27/08/2015		27/08/2015	21/06/2015			
And set of the s				28/08/2015		28/08/2015						
radia division versionVote withoutVote withoutVot			SDG Ref									
Decomport         Orbune         Number         Num	(F) Trigger breach confirmed			11977605		11977606		11977603	11977604			
13-Dechargongone       47 upkg       TM16       47 upkg												
Interview         Number of the second												
Tendentomethome     check of parka     Tendentomethome     check of parka     Tendentomethome     check of parka     check of	1,3-Dichloropropane	<7 µg/	kg TM116	<7		<7		<70	<7			
No.No				1	М		М	Ν		Μ		
	Tetrachloroethene	<5 µg/	kg TM116	<5		<5		<50	<5			
				r I	м		М	Ν	1	М		
1.2.0brombane    1998    MIIE    MIIE <t< td=""><td>Dibromochloromethane</td><td>&lt;10</td><td>TM116</td><td></td><td></td><td></td><td></td><td>&lt;100</td><td>&lt;10</td><td></td><td></td><td></td></t<>	Dibromochloromethane	<10	TM116					<100	<10			
1.2-Dormorphane         <10         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100         <100					м		м			м		
up%         vm         v	1.2 Dibromoethane						141			141		
Cholombarane $< $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $$	1,2-Dibioinioetriane											
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$					IVI		IVI			IVI		
1.1.1.2. Fetablonce/meme         -11.10	Chlorobenzene	<5 µg/l	kg IM116									
$ \begin{array}{                                    $					М		М			Μ		
Ethylenzene         <4 µghq         TM10         TM10 <thtm10< th="">         TM10        TM10<td>1,1,1,2-Tetrachloroethane</td><td>&lt;10</td><td>TM116</td><td>&lt;10</td><td></td><td>&lt;10</td><td></td><td>&lt;100</td><td>&lt;10</td><td></td><td></td><td></td></thtm10<>	1,1,1,2-Tetrachloroethane	<10	TM116	<10		<10		<100	<10			
1.3 $1.0$ <t< td=""><td></td><td>µg/kg</td><td></td><td>n n</td><td>М</td><td></td><td>М</td><td>Ν</td><td>1</td><td>Μ</td><td></td><td></td></t<>		µg/kg		n n	М		М	Ν	1	Μ		
1.3 $1.0$ <t< td=""><td>Ethylbenzene</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Ethylbenzene	1										
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$					М		м		1	м		
y y k q $y y k q$ $y q q q$ <	p/m-Xylene	<10	TM116		-							
oxygene         <10 byte         TM116 ( $-10$ )         C10 ( $-10$ )         C100 ( $-10$ )	P				#	-10	#			#		
upyka byrne         viska upyka byrne         viska upyka byrne         viska upyka upyka byrne         viska upyka upyka upyka byrne         viska upyka upyka upyka upyka byrne         viska upyka upyka upyka upyka byrne         viska upyka u		-			#	-40	#			#		
Syrene $4'10$ TM16 $4'10$ </td <td>o-Xyiene</td> <td></td>	o-Xyiene											
μgkq $  $					M		М			М		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Styrene			<10		<10		<100	<10			
log         log <thl>log         <thl>log         log&lt;</thl></thl>		µg/kg			#		#	:	¥	#		
	Bromoform	<10	TM116	<10		<10		<100	<10			
		µg/kg		1	м		м	N	1	м		
1.1.2. Tetrachloropethane         10 $100$	Isopropylbenzene											
1.1.2.2.Tetrachlorogethane         <10         K1116         <10         K10         K100         K100 <thk< td=""><td>Isopiopyibenzene</td><td>~0 µg/i</td><td>Ng INTIO</td><td></td><td>-</td><td>-0</td><td>щ</td><td></td><td></td><td>4</td><td></td><td></td></thk<>	Isopiopyibenzene	~0 µg/i	Ng INTIO		-	-0	щ			4		
12.3-Trichoropropane         198         TM16 $< M$ $M$		.10	T14440		#	-10	#			#		
1.2.3-Trichloropropane         <16 µ9/80 µ9/80 µ9/80         TM116 M         <16 M         <10 M         <10 M <td>1,1,2,2-Tetrachioroethane</td> <td></td>	1,1,2,2-Tetrachioroethane											
$\mu g/g$ $(10)$ $(11)$ $(10)$		-			М		М			М		
Bromobenzene         <10         TM116         <10         M	1,2,3-Trichloropropane	<16	TM116	<16		<16		<160	<16			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		µg/kg		r	м		М	N	1	Μ		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Bromobenzene	<10	TM116	<10		<10		<100	<10			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		ua/ka			м		м	N	1	м		
$\mu g k g$ $\mu g k g$ TM116 $( - q) m g k g$ $( - q) m g k g g k g$ $( - q) m g k g g k g$ $( - q) m g k g g k g g k g g k g g k g g k g g k g g k g g k g$	Propylbenzene						141			141		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fiopyidenzene											
i.d.         i.d. <t< td=""><td></td><td></td><td></td><td></td><td>IVI</td><td></td><td>IVI</td><td></td><td></td><td>IVI</td><td></td><td></td></t<>					IVI		IVI			IVI		
1.3.5-Trimethylbenzene         <8 µg/kg         TM116         <8 µg/kg         M         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80         <80 <t< td=""><td>2-Chiorotoluene</td><td>&lt;9 µg/i</td><td>kg IM116</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></t<>	2-Chiorotoluene	<9 µg/i	kg IM116						-			
Image: constraint of the section of the se					М		М	N	1	Μ		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1,3,5-Trimethylbenzene	<8 µg/	kg TM116	<8		<8		<80	<8			
interval         jup/kg         interval				n n	М		М	Ν	1	Μ		
tert-Butylbenzene         <14         TM116         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14	4-Chlorotoluene	<10	TM116	<10		<10		<100	<10			
tert-Butylbenzene         <14         TM116         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14         <14		µg/kg		1	м		м	N	1	м		
$\mu_{g/kg}$ $\nu_{g/kg}$	tert-Butylbenzene				-							
1.2.4-Trimethylbenzene         <9 µg/kg         TM116         <9         <9         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90         <90										N 4		
No. 100<	1.0.4 Trimothulbergers				IVI		IVI			IVI		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1,2,4-1 rimetnyibenzene	<9 µg/i	kg IM116			<9						
$\mu g/kg$ $\mu g/kg$ $\mu g/kg$ $\mu g/kg$ $\mu g/kg$ $\pi M 116$ $\alpha 10$ $\alpha 10$ $\alpha 100$			_		#		#			#	L	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	sec-Butylbenzene			<10								
$\mug/kg$ $\mug/kg$ $mg/kg$ <		µg/kg		N	М		М		1	Μ		
up/kg <th< td=""><td>4-Isopropyltoluene</td><td>&lt;10</td><td>TM116</td><td>&lt;10</td><td></td><td>&lt;10</td><td></td><td>&lt;100</td><td>&lt;10</td><td></td><td></td><td></td></th<>	4-Isopropyltoluene	<10	TM116	<10		<10		<100	<10			
1.3-Dichlorobenzene<8 µg/kgTM116<8<8<80<80<8<80<8<80<80<8<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80<80 <td></td> <td></td> <td></td> <td>r I</td> <td>м</td> <td></td> <td>м</td> <td></td> <td>1</td> <td>М</td> <td></td> <td></td>				r I	м		м		1	М		
Index <th< td=""><td>1.3-Dichlorobenzene</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	1.3-Dichlorobenzene											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	.,	·ς μg/i			M		NA			Ν.4		
$ \begin{array}{ c c c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabual}{ c c c c } \hline \ \begin{tabual}{ c c c c c } \hline \ \begin{tabual}{ c c c c c } \hline \ \begin{tabual}{ c c c c c } \hline \ \begin{tabual}{ c c c c c c c } \hline \hline \ \begin{tabual}{ c c c c c c c c c c c c c c c c c c c$	1.4 Dichlorobenzone	<e td="" und<=""><td>ka TM116</td><td></td><td>IVI</td><td></td><td>IVI</td><td></td><td></td><td>IVI</td><td></td><td></td></e>	ka TM116		IVI		IVI			IVI		
n-Butylbenzene $<11$ µg/kgTM116 µg/kg $<11$ $<110$ $<110$ $<11$ $<11$ $<110$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ $<11$ <td>r,4-Dichiorobenzene</td> <td>&lt;&gt;&gt; µg/l</td> <td>NY INTIO</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	r,4-Dichiorobenzene	<>> µg/l	NY INTIO									
$\mu g/kg$ $\mu g/kg$ $n m m m m m m m m m m m m m m m m m m m$					M		М			Μ		
1,2-Dichlorobenzene<10 µg/kgTM116 µg/kg<10 M<10 M<100 M<10 M<10 M<100 M<10 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<100 M<10	n-Butylbenzene			<11		<11		<110	<11			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $												
1,2-Dibromo-3-chloroprop ane<14 µg/kgTM116 $M$ <14 $M$ <140 $M$ <140 $M$ <14 $M$ <140 $M$ <14 $M$ <140 $M$ <td>1,2-Dichlorobenzene</td> <td>&lt;10</td> <td>TM116</td> <td>&lt;10</td> <td></td> <td>&lt;10</td> <td></td> <td>&lt;100</td> <td>&lt;10</td> <td></td> <td></td> <td></td>	1,2-Dichlorobenzene	<10	TM116	<10		<10		<100	<10			
1,2-Dibromo-3-chloroprop ane<14 µg/kgTM116 $M$ <14 $M$ <140 $M$ <140 $M$ <14 $M$ <140 $M$ <14 $M$ <140 $M$ <td></td> <td>µg/kg</td> <td></td> <td>n I</td> <td>м</td> <td></td> <td>м</td> <td>Ν</td> <td>1</td> <td>М</td> <td></td> <td></td>		µg/kg		n I	м		м	Ν	1	М		
ane $\mu g/kg$ $\mu g/kg$ $\mu g/kg$ $\mu g/kg$ $10666666666666666666666666666666666666$	1,2-Dibromo-3-chloroprop											
Tert-amyl methyl ether<10 µg/kgTM116 1<10 $\mu g/kg$ <10 $\mu g/kg$ <10 <br< td=""><td></td><td></td><td></td><td></td><td>М</td><td></td><td>м</td><td></td><td></td><td>М</td><td></td><td></td></br<>					М		м			М		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $					141		141			141		
1,2,4-Trichlorobenzene $<20$ TM116 $<20$ $<20$ $<200$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$ $<20$					"	×10	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
μg/kg         μg/kg         Image: Marcine state					#	0.5	#			#		
Hexachlorobutadiene         <20 μg/kg         TM116         <20         <20         <200         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <20         <2	1,2,4-Irichlorobenzene			<20		<20		<200	<20			
μg/kg         μg/kg <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
Naphthalene         <13         TM116         <13         <130         <13	Hexachlorobutadiene	<20	TM116	<20		<20		<200	<20			
Naphthalene         <13         TM116         <13         <130         <13		µg/kg										
	Naphthalene			<13		<13		<130	<13			
					М		м			М		
	L	r 9/119			. V I		141	I		111	L	

## PRELIMINARY/INTERIM REPORT

Preliminary

### VOC MS (S)

(

VOC MS (S)										
Results Legend # ISO17025 accredited. M mCERTS accredited.		istomer Sample R	BH4A	BH4A	BH7A	BH7A				
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogate stand.	and to	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 stands check the efficiency of the method results of individual compounds w	. The	Sampled Time Date Received	00:00:00 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 1-5&+\$@ Sample deviation (see appendix)	I	SDG Ref ab Sample No.(s) AGS Reference	11977605	11977606	11977603	11977604				
Component 1,2,3-Trichlorobenzene	LOD/Units <20	Method TM116	<20	<20	<200	<20				
1,2,3-meniorobenzene	ν μg/kg	TIMITIO	~20 #	~20 #	~200 #	~20 #				

## PRELIMINARY/INTERIM REPORT

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:

# **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

SDG:

Job:

Client Reference:

### PRELIMINARY/INTERIM REPORT

Preliminary

 150828-41
 Location:
 Stag Brewery
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 Gary Marshall
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# 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		
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>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C.

NA = not applicable.

(

SDG:

Job:

## PRELIMINARY/INTERIM REPORT

150828-41 Location: Stag Brewery Order Number: H\_URS\_WIM-273 AEČOM 329009 Customer: Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

# **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
pН	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

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PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 3 Superseded Report:

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Preliminary

# ASSOCIATED AQC DATA

#### Ammonium Soil by Titration

SDG:

Job:

Client Reference:

Component	Method Code	QC 1292	QC 1205
Exchangeable	TM024	<b>86.07</b>	<b>98.01</b>
Ammonium as NH4		79.30 : 104.61	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	TM173	<b>85.21</b>	<b>87.08</b>
>C12-C35		62.50 : 112.50	70.80 : 111.51

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

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

## PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329009 Superseded Report:

Hexavalent Chromium (s)

**Client Reference:** 

SDG:

Job:

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

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#### 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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## PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329009 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:** 

SDG:

Job:

Component	Method Code	QC 1122	QC 1106
Acenaphthene	TM218	88.5	91.5
		78.75 : 116.25	78.84 : 114.36
Acenaphthylene	TM218	85.0	85.5
		76.45 : 110.05	65.50 : 119.50
Anthracene	TM218	87.5	91.0
		67.15 : 124.45	75.54 : 110.88
Benz(a)anthracene	TM218	95.5	97.5
- ()		82.00 : 127.00	78.02 : 127.38
Benzo(a)pyrene	TM218	97.5	99.5
	T14040	75.60 : 124.20	79.21 : 128.01
Benzo(b)fluoranthene	TM218	97.5	96.0
Benzo(ghi)perylene	TM218	81.20 : 121.77	86.21 : 131.42
Berizo(grii)peryiene	1 11/2 10	<b>96.5</b> 77.49 : 119.12	<b>95.0</b> 80.11 : 120.52
Benzo(k)fluoranthene	TM218		
Denzo(k)indoranthene	111/2/10	<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	94.0	93.5
		<b>54.0</b> 77.15 : 122.45	<b>76.39</b> : 122.63
Fluoranthene	TM218	91.0	95.0
		79.08 : 114.40	77.25 : 117.75
Fluorene	TM218	90.5	95.5
		79.03 : 113.38	79.28 : 117.35
Indeno(123cd)pyrene	TM218	96.0	93.0
		75.65 : 125.15	78.87 : 122.50
Naphthalene	TM218	92.0	93.0
		77.25 : 112.60	74.75 : 118.25
Phenanthrene	TM218	90.5	95.0
		78.25 : 115.44	78.61 : 113.98
Pyrene	TM218	90.0	94.0
		78.07 : 114.06	76.15 : 115.26

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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/INTERIM REPORT

SDG:	150828-41 H URS WIM-273	Location: Customer:	Stag Brewery	Order Number:
Job:		Customer:	AECOM	Report Number
Client Reference:		Attention:	Gary Marshall	Superseded Re

rder Number: eport Number: 329009 uperseded Report:

### 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 1128	QC 1175	QC 1164
1,1,1,2-tetrachloroethane	TM116	95.6	102.6	105.6
		83.24 : 124.28	83.24 : 124.28	76.60 : 121.00
1,1,1-Trichloroethane	TM116	100.8	102.4	101.0
		81.77 : 121.07	81.77 : 121.07	77.80 : 123.40
1,1,2-Trichloroethane	TM116	100.4	94.2	92.6
		79.24 : 112.23	79.24 : 112.23	75.40 : 119.80
1,1-Dichloroethane	TM116	103.0	106.6	106.8
		72.58 : 116.06	72.58 : 116.06	80.84 : 124.49
1,2-Dichloroethane	TM116	118.8	112.0	108.2
		77.50 : 122.50	77.50 : 122.50	91.00 : 135.67
1,4-Dichlorobenzene	TM116	96.2	95.4	102.4
	THEF	73.23 : 116.39	73.23 : 116.39	80.88 : 114.60
2-Chlorotoluene	TM116	85.6	86.6	97.2
	T1440	69.22 : 110.64	69.22 : 110.64	74.00 : 117.20
4-Chlorotoluene	TM116	89.0	87.4	93.4
Benzene	TM116	68.57 : 106.26	68.57 : 106.26	71.20 : 113.20
Denzene	TIMITIO	<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			
Carbon Disaphice	IMITIO	<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	102.4	103.2	102.4
		85.28 : 129.96	85.28 : 129.96	83.47 : 116.82
Chloroform	TM116	108.2	106.6	107.0
		82.73 : 119.72	82.73 : 119.72	82.00 : 128.80
Chloromethane	TM116	123.4	117.2	129.8
		55.16 : 145.46	55.16 : 145.46	74.62 : 135.86
Cis-1,2-Dichloroethene	TM116	108.4	108.4	109.8
		73.56 : 118.93	73.56 : 118.93	81.20 : 128.00
Dibromomethane	TM116	104.4	98.0	90.8
		73.40 : 116.60	73.40 : 116.60	73.40 : 116.60
Dichloromethane	TM116	113.2	108.2	109.2
		76.16 : 121.98	76.16 : 121.98	86.60 : 137.00

SDG:

Job:

**Client Reference:** 

VOC MS (S)

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#### PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 3 Superseded Report:

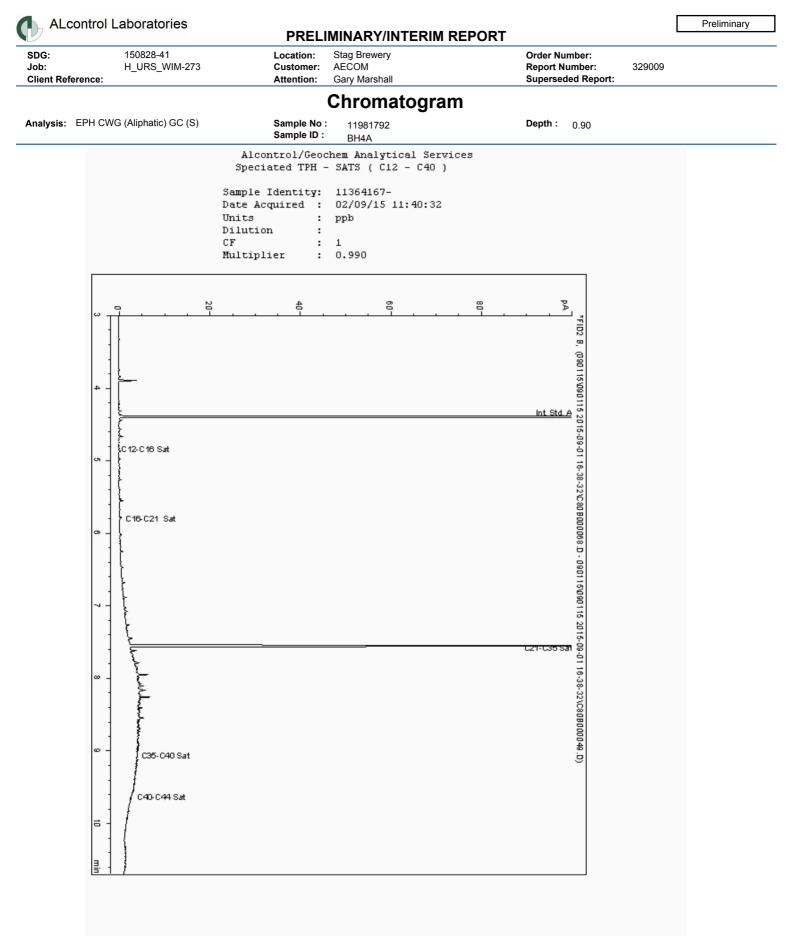
329009

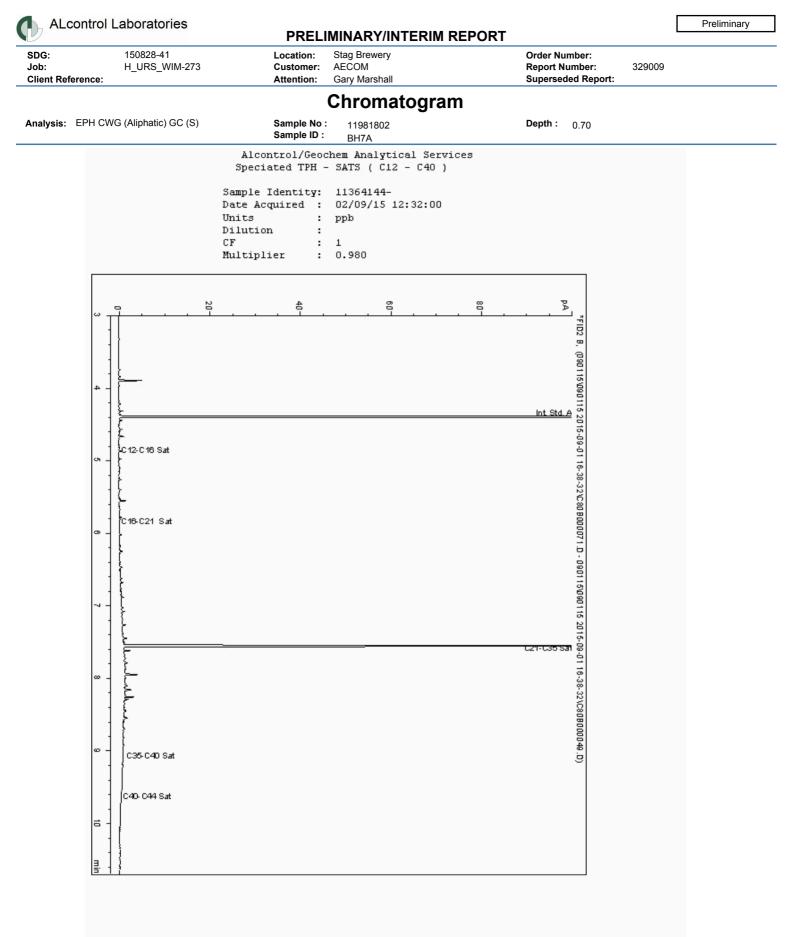
		QC 1128	QC 1175	QC 1164
Ethylbenzene	TM116	<b>94.0</b> 80.07 : 125.98	<b>99.2</b> 80.07 : 125.98	<b>95.4</b> 73.60 : 115.60
Hexachlorobutadiene	TM116	<b>69.0</b> 30.92 : 132.28	<b>89.2</b> 30.92 : 132.28	<b>70.2</b> 33.65 : 130.56
Isopropylbenzene	TM116	<b>82.6</b> 69.27 : 125.32	<b>92.6</b> 69.27 : 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

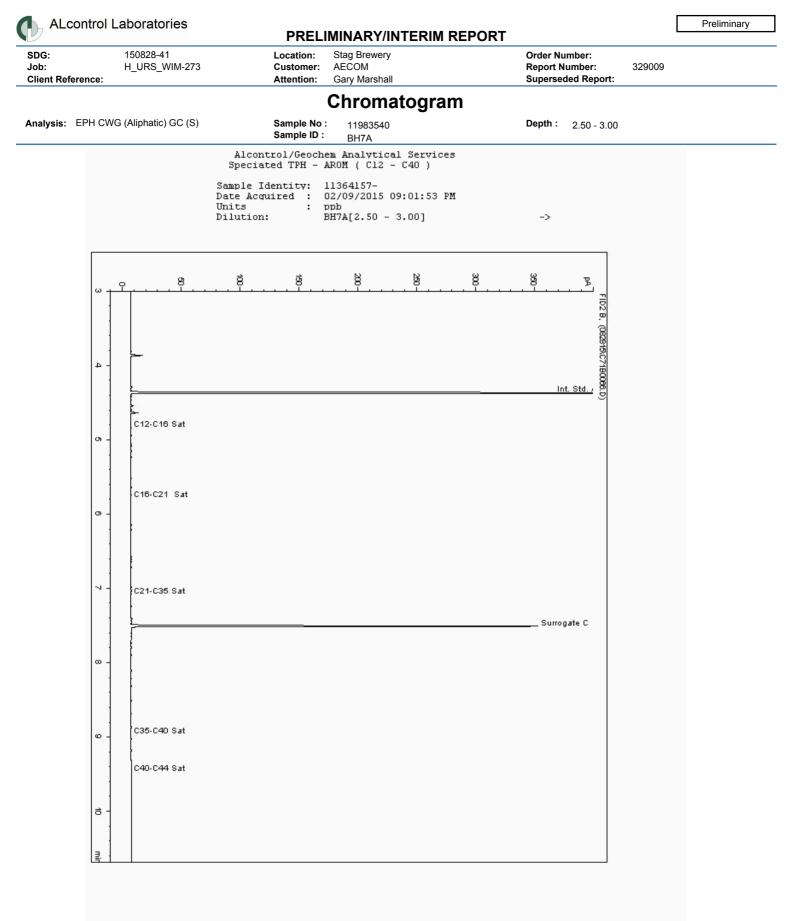
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

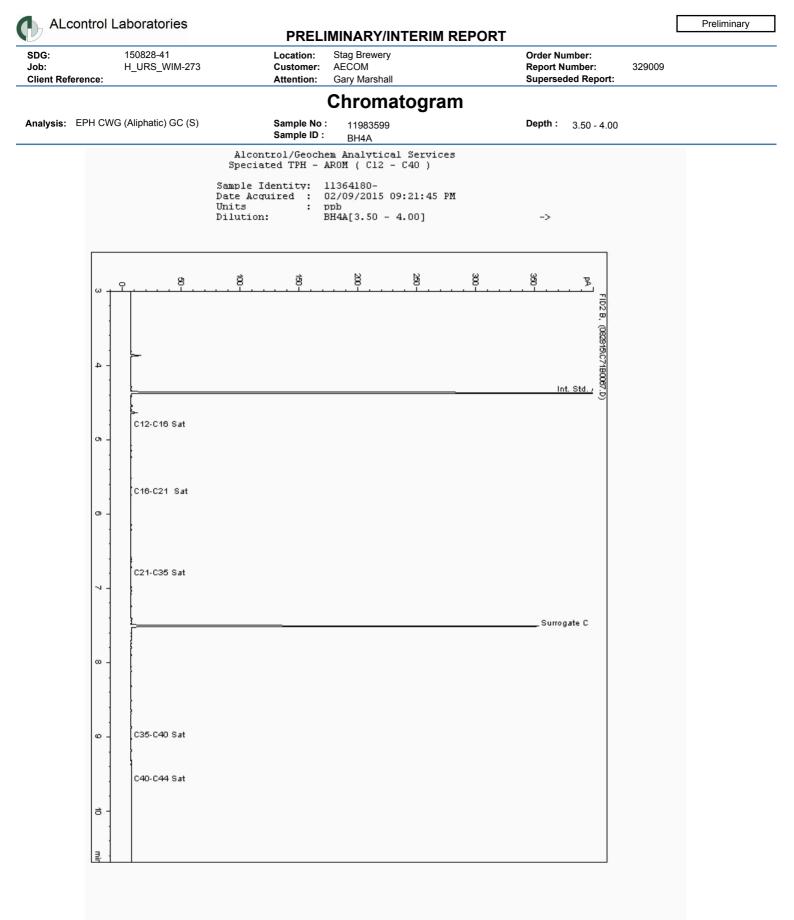
The figure detailed is the percentage recovery result for the AQC.

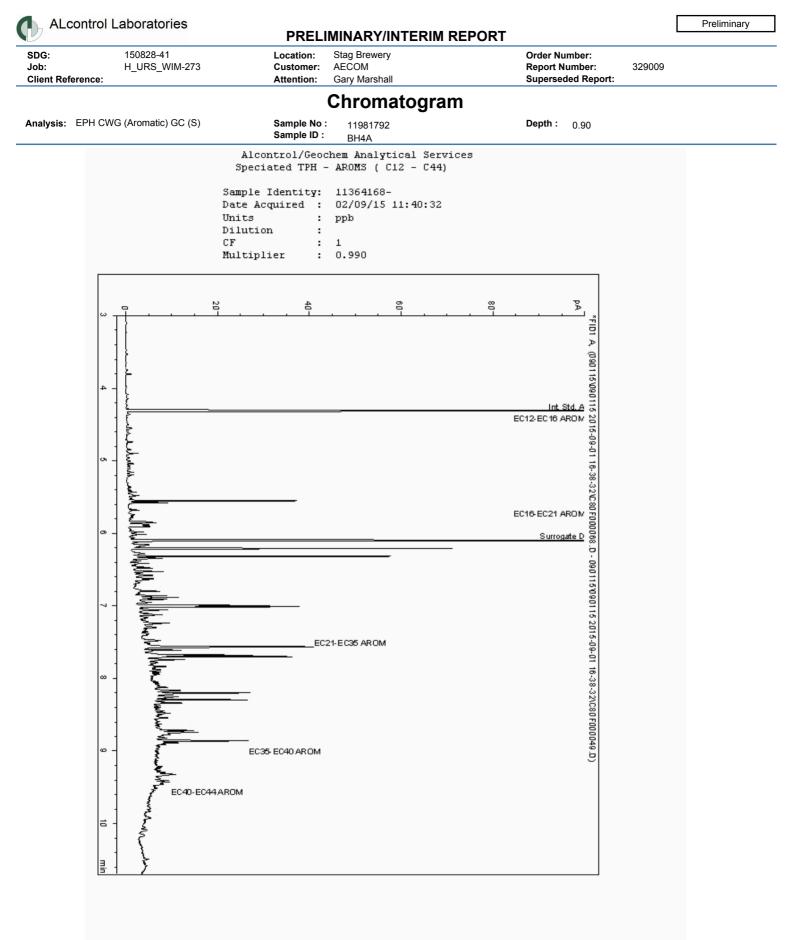
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

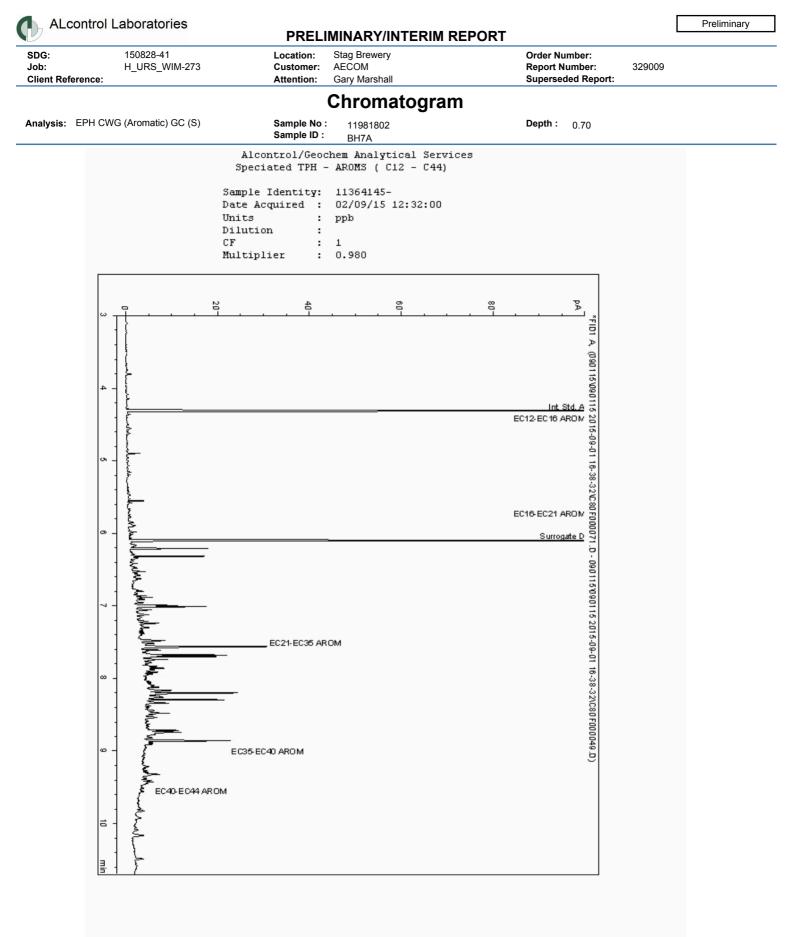


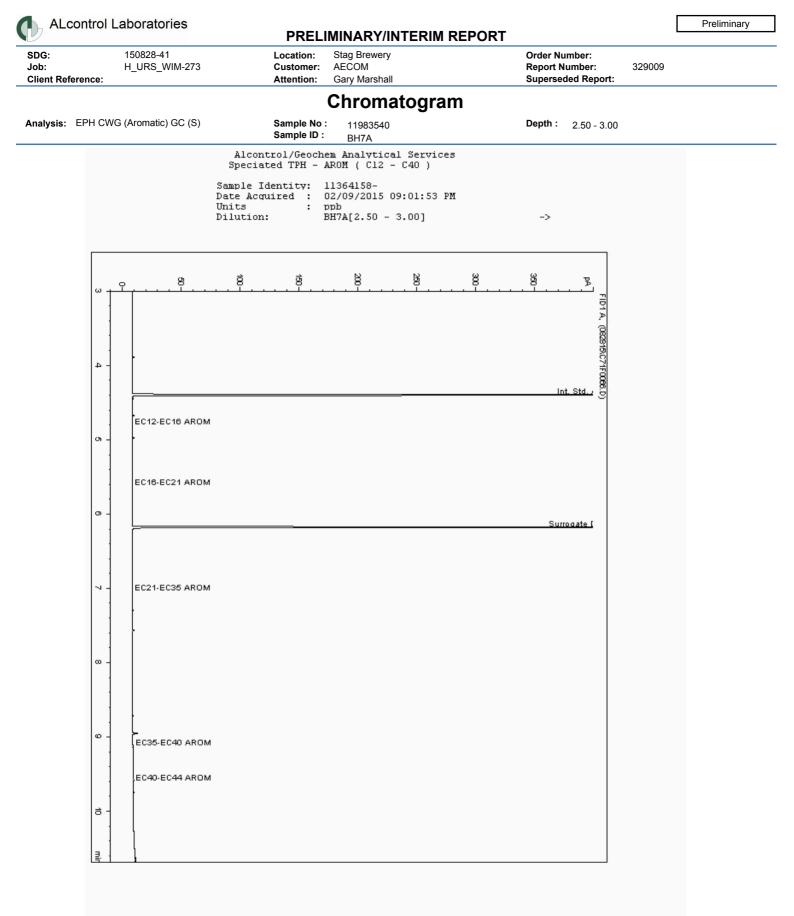


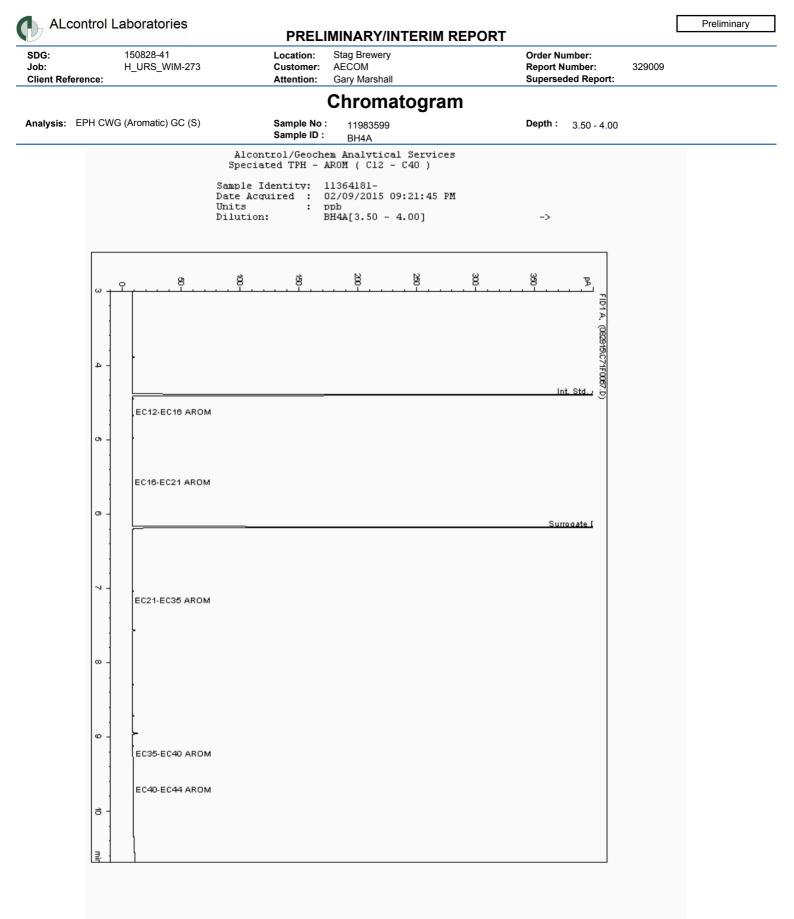


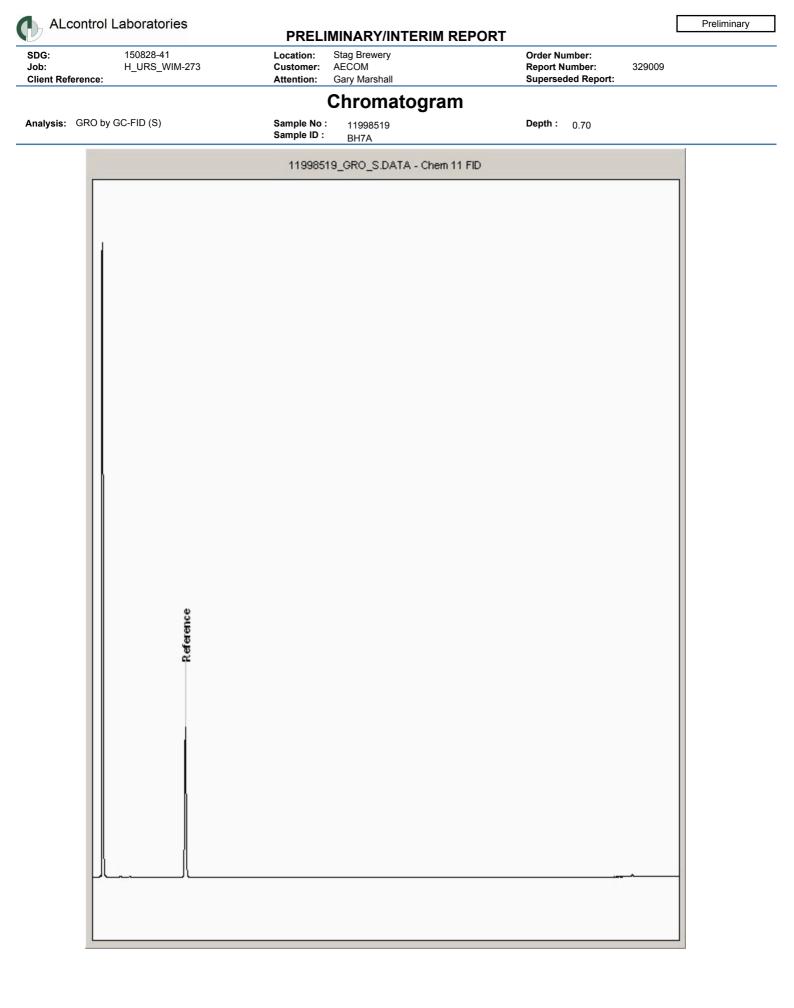


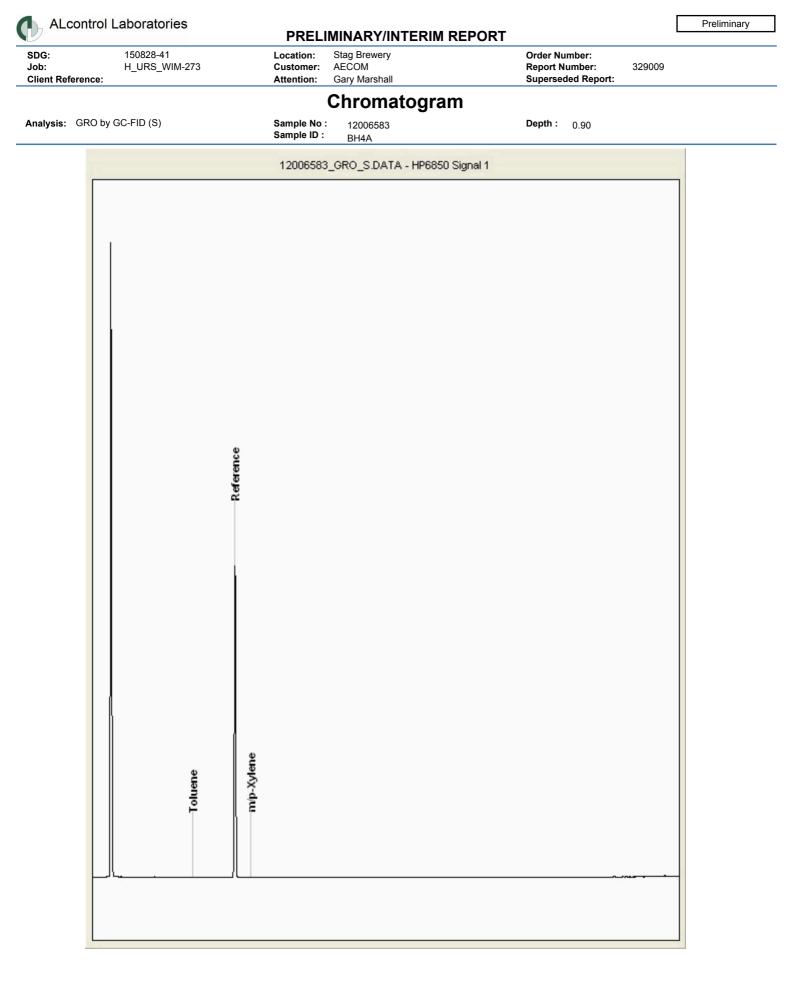


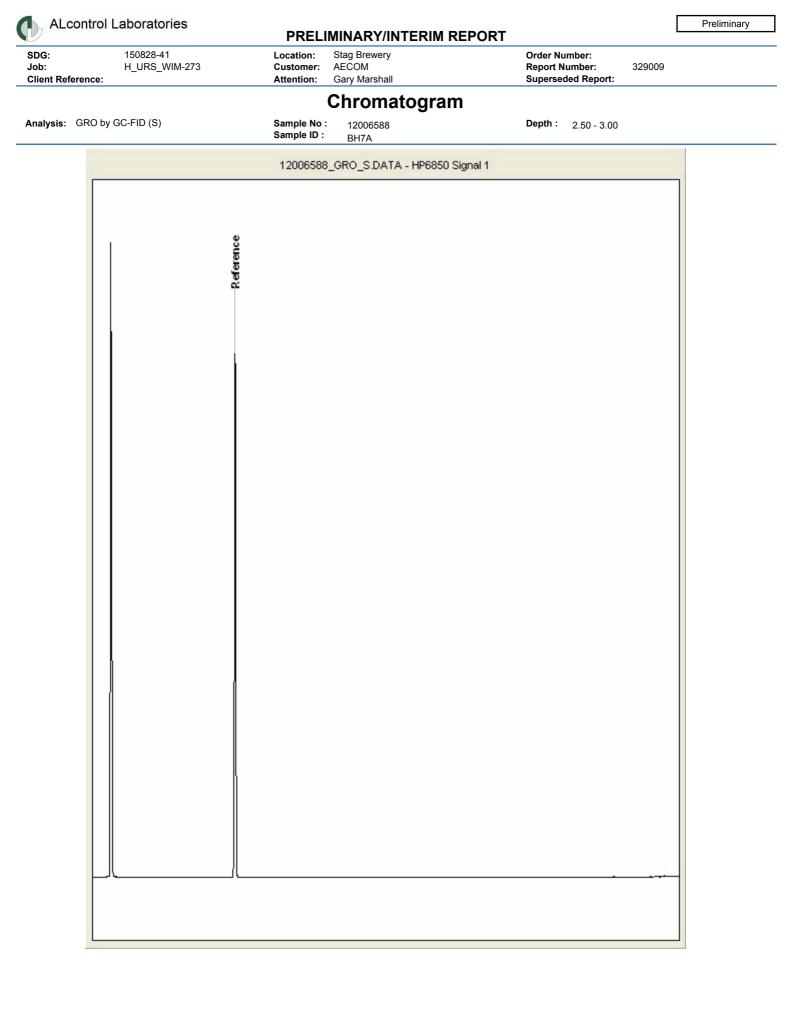


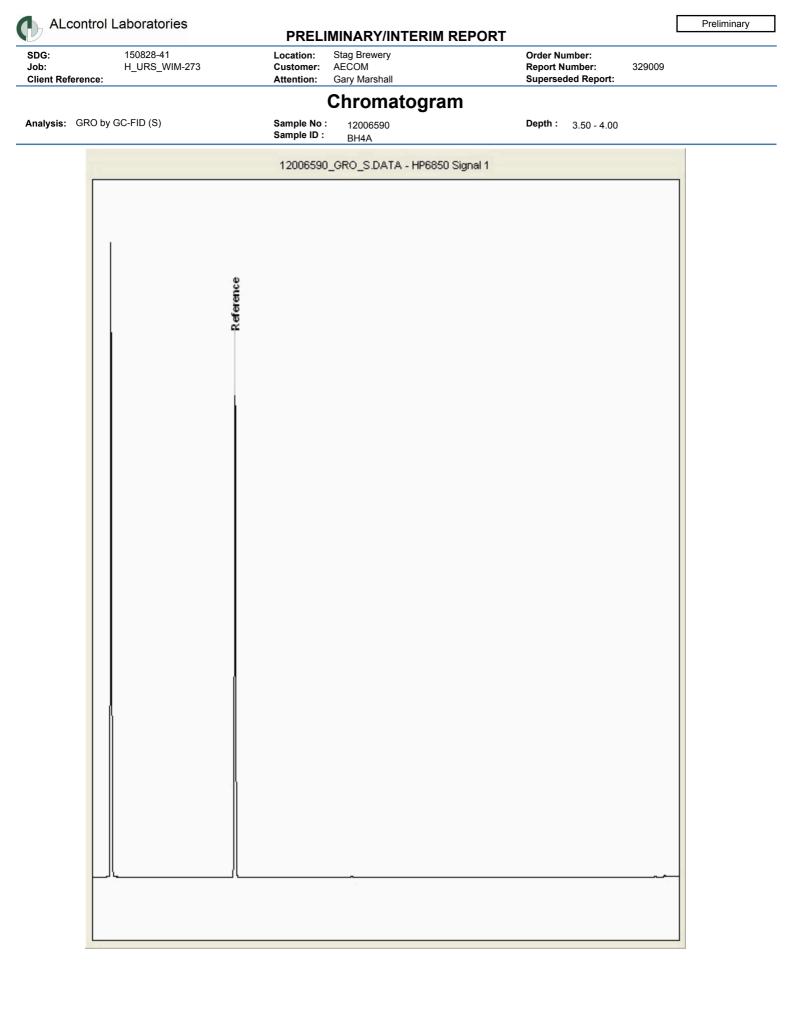












#### PRELIMINARY/INTERIM REPORT

SDG:	150828-41	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

SOLID MATRICES EXTRACTION SUMMARY

329009

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	ATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFD
POB TOT / POB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
08-040(06-040) EZ FLASH	WET	HEXANEACETONE	SHAVER	GC+EZ
POLVAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAVER	6C-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GC-MS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
<b>EPH</b>	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCMG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
PCB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
PCB 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
TIH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

#### 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°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 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-lsopropylphenol, 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	
Chrysolie	White Asbestos	
Amoste	BrownAsbestos	
Oroddalite	Blue Asbestos	
Fibrous Adinate	-	
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.



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

Attention: Gary Marshall

## PRELIMINARY/INTERIM REPORT

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 September 2015 H\_URS\_WIM 150828-44

Stag Brewery 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:



Alcontrol Laboratories is a trading division of ALcontrol UK Limited Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

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### PRELIMINARY/INTERIM REPORT

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:

# **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.

SDG:	150828-44		Location		Star	Brev	verv		Order Number:		
SDG: Job: Client Reference:	H_URS_W		Location Custome Attention	er: A	AEC	OM / Mars			 Order Number: Report Number: Superseded Report:	329060	
SOLID					_		_				
Results Legend		Lab Samp	e No(s)		11977692	11977693	11977094	11977695			
X Test					392	<u> 5</u> 93	4	595			
No Determina	ation			-							
Possible		Custor	ner		_						
		Sample Re			BH210	BH210		BH211			
		AGS Refe	erence								
					0	2.20					
		Depth	(m)		0.80	2.20 - 2.80	0.70	2.20			
				400g 250g	509 5052	400g	400g 250g	400g 250g			
		Contai	nor	g Tub g Amb	VOC	Tub	g Tub J Amb	a Tub			
		Contai	nei	(ALE21 er Jar (	er Jar ( (ALE21	(ALE21	(ALE21) er Jar (	400g VUC (ALE215) 400g Tub (ALE214) 250g Amber Jar (AL			
Ammonium Soil by Titratio	on	All	NDPs: 0	AL 4)	5 P	2 4 5	4) AL	י <u>4</u> ט ב			
	-		Tests: 4	x		X	X	X			
Asbestos ID in Solid Sam	ples	All	NDPs: 0								
			Tests: 2	x			x				
Asbestos Quant Waste	Limit	All	NDPs: 0 Tests: 1								
			10010. 1	x							
Easily Liberated Sulphide		All	NDPs: 0 Tests: 4								
		All		X		×	X	X			
EPH CWG (Aliphatic) GC	(5)	All	NDPs: 0 Tests: 4				<b>X</b>				
EPH CWG (Aromatic) GC	; (S)	All	NDPs: 0	x	×		x	x			
2	(0)		Tests: 4	x	×	<u>,</u>	X	X			
GRO by GC-FID (S)		All	NDPs: 0	<u>^</u>	-			<u>^</u>			
			Tests: 4		X	X	)	<mark>(                                    </mark>			
Hexavalent Chromium (s)	)	All	NDPs: 0								
			Tests: 4	x		x	x	x			
Metals in solid samples by	y OES	All	NDPs: 0 Tests: 4								
			16515. 4	x	X	C I	x	x			
PAH by GCMS		All	NDPs: 0 Tests: 4								
				×	×	(	x	x			
рН		All	NDPs: 0 Tests: 4								
Operando de la citati		All		×		x	×	x			
Sample description		All	NDPs: 0 Tests: 4								
Total Organic Carbon		All		x	X		x	x			
Total Organic Carbon			NDPs: 0 Tests: 4	x		,	X	x			
Total Sulphate		All	NDPs: 0	^	×		^	^			
			Tests: 4	X	×	<u>,</u>	x	X			
TPH CWG GC (S)		All	NDPs: 0					^			
			Tests: 4	X	×		X				

ALcontrol Lal	boratories P	RELI	MIN		//INT	ERIN	/ REPORT	Preliminary
	50828-44 Loca H_URS_WIM-273 Cust Atter	omer:	AEG	g Brew COM 'y Mars			Order Number: Report Number: 329060 Superseded Report:	
SOLID Results Legend X Test	Lab Sample No(s)		11977692	11977693	11977694	11977695		
No Determination Possible	Customer Sample Reference		BH210	BH210	BH211	BH211		
	AGS Reference							
	Depth (m)		0.80	2.20 - 2.80	0.70	2.20		
	Container	250g Amber Jar (AL	60g VOC (ALE215) 400g Tub (ALE214)	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 Tests	s: 0	×	x	x	x		

#### PRELIMINARY/INTERIM REPORT

Preliminary

SDG:         150828-44           Job:         H_URS_WIM-273           Client Reference:         Image: Client Reference in the second seco	Location: Customer: Attention:	Stag Brewery AECOM Gary Marshall	Order Number: Report Number: Superseded Report:	329060
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# **Sample Descriptions**

Grain Sizes											
very fine <	0.063mm	fine	0.063mm - 0.1mm	mediu	m 0.1mi	n - 2mm	coars	e 2mm - 1	0mm	very coars	e >10mm
Lab Sample No(s)	Custome	er Sample Ref.	Depth (m)		Colour	Descrip	tion	Grain size	Inclu	isions	Inclusions 2
11977692	11977692 BH210		0.80		Dark Brown	Sandy C Loan		0.1 - 2 mm	Sto	ones	None
11977693		BH210	2.20 - 2.80	1	light Brown	Loamy S	Sand	0.1 - 2 mm	Vege	etation	Stones
11977694		BH211	0.70		Dark Brown	Sandy C Loan		0.1 - 2 mm	Sto	ones	Vegetation
11977695		BH211	2.20		light Brown	Loamy S	Sand	0.1 - 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/INTERIM REPORT

Preliminary

#ISO17025 accredited. m mCERTS accredited. aq Aqueous / settled sample. totunfiti total / unfittered sample. subcontracted test.Depth (m) Sample Type Soil/SoildDepth (m) Sample Type Soil/SoildDepth (m) Soil/SoildDepth (m) <br< th=""><th>_</th><th></th><th></th><th></th><th></th><th></th><th></th><th> </th></br<>	_							 
M       CENTR scaladid. Second and second and se	Results Legend # ISO17025 accredited.		Customer Sample R	BH210	BH210	BH211	BH211	
Baseling in the struct (Mared sample)         Image in the struct (Mared sample)	M mCERTS accredited.							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			Depth (m)	0.80	2.20 - 2.80	0.70	2.20	
**         ************************************	tot.unfilt Total / unfiltered sample.							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		ard to		26/08/2015	26/08/2015	26/08/2015	26/08/2015	
	check the efficiency of the method	. The		28/08/2015	28/08/2015	28/08/2015	28/08/2015	
ComponentLOD/UnitsMethod <t< td=""><td>(F) Trigger breach confirmed</td><td></td><td></td><td>11977692</td><td>11977693</td><td>11977694</td><td>11977695</td><td></td></t<>	(F) Trigger breach confirmed			11977692	11977693	11977694	11977695	
Moisture Content Ratio (% of as received sample)         %         PM024         13         6.9         12         8.9           Account of a received sample)         TM024         45.6         <15								
of as received sample Exchangeable Ammonia as NH4         <1/1         (-1) <th(-1)< th="">         (-1)         <t< td=""><td>· ·</td><td></td><td></td><td></td><td></td><td></td><td></td><td> </td></t<></th(-1)<>	· ·							 
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		%	PM024	13	6.9	12	8.9	
as NH4         mg/kg         <								
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			TM024			<15	<15	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								
pH         1 pH         TM133         9.67         8.35         10.3         8.66         () <th()< th=""></th()<>	Organic Carbon, Total	<0.2 %	5 TM132	0.358	<0.2	<0.2	<0.2	
Inits         Inits <t< td=""><td></td><td></td><td></td><td>М</td><td>М</td><td>М</td><td>М</td><td></td></t<>				М	М	М	М	
Inits         Inits <t< td=""><td>pH</td><td>1 pH</td><td>TM133</td><td>9.67</td><td>8.35</td><td>10.3</td><td>8.66</td><td></td></t<>	pH	1 pH	TM133	9.67	8.35	10.3	8.66	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				М	м	М	М	
mg/kg         mg/kg <t< td=""><td>Chromium, Hexavalent</td><td>&lt;0.6</td><td>TM151</td><td></td><td></td><td></td><td></td><td></td></t<>	Chromium, Hexavalent	<0.6	TM151					
Sulphide, Easily liberated         <15         TM 180         <15         <15         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <17         <24.1         <16         <16         <17         <24.1         <16         <16         <17         <24.1         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <17         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16         <16								
mg/kg         mg/kg $+ #$ <t< td=""><td>Sulphide Fasily liberated</td><td>-</td><td>TM180</td><td></td><td></td><td></td><td></td><td> I</td></t<>	Sulphide Fasily liberated	-	TM180					 I
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			1.00					
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Arsenic		TM101					I
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			1 11 10 1					
$\begin{array}{ c c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Cadmium		TMACA					<u> </u>
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Caomium		11/11/81					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								 
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Chromium		TM181					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		÷						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Copper		TM181	31.2		9.01	6.47	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		mg/kg		М	М	М	М	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Lead	<0.7	TM181	32.7	5.73	44.5	7.8	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		mg/kg		М	М	М	М	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Mercurv		TM181					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Nickel		TM181					
Selenium         <1 mg/kg         TM181         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1			imitor					
Image: Constraint of the system of	Colonium		a TM101					
Zinc         <1.9 mg/kg         TM181 M         43.4 M         21.9 M         41.3 M         28.4 M <t< td=""><td>Selenium</td><td>&lt;1 mg/k</td><td>.g 11/11/81</td><td></td><td></td><td></td><td></td><td></td></t<>	Selenium	<1 mg/k	.g 11/11/81					
mg/kg         mg/kg         M         M         M           Sulphate, Total         <48								
Sulphate, Total         <48         TM221         481         <48         545         88.2	Zinc		TM181					
ingkg	Sulphate, Total		TM221					
Image: series of the series		mg/kg		M	M	M	M	
Image: big								
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	Laboratories				NARY/INTERI	M REPORT			
SDG: Job:	150828-44 H_URS_WIM-	273	Location: Customer:	AE	ag Brewery COM		Order Number: Report Number:	329060	
Client Reference:			Attention:	Ga	ry Marshall		Superseded Report:		
PAH by GCMS Results Le		Customer Sample R	BH210		BH210	BH211	BH211		
# ISO17025 accredited M mCERTS accredited. aq Aqueous / settled sa diss.filt Dissolved / filtered sa tot.unfilt Total / unfiltered san	mple. ample.	Depth (m) Sample Type	0.80 Soil/Solid		2.20 - 2.80 Soil/Solid	0.70 Soil/Solid	2.20 Soil/Solid		
<ul> <li>Subcontracted test.</li> <li>% recovery of the su check the efficiency</li> </ul>	rrogate standard to of the method. The	Date Sampled Sampled Time Date Received	26/08/2015 28/08/2015		26/08/2015 28/08/2015	26/08/2015	26/08/2015		
results of individual samples aren't corre (F) Trigger breach confi 1-5&+§@ Sample deviation (se	cted for the recovery rmed	SDG Ref Lab Sample No.(s) AGS Reference	150828-44 11977692		150828-44 11977693	150828-44 11977694	150828-44 11977695		
Component	LOD/Un		400		100	07.1			
Naphthalene-d8 % recovery**	%		103		102	97.1	95.7		
Acenaphthene-d10 % recovery**		TM218	98.9		94.5	95.1	96.4		
Phenanthrene-d10 % recovery**		TM218	95.9		94.2	92.9	96.8		
Chrysene-d12 % recovery**	%		92.5		78.5	92	88.1		
Perylene-d12 % recovery**	% <9 µg	TM218 /kg TM218	94.6		86.2 <9	97	95.7		
Naphthalene Acenaphthylene	<9 μg. <12		<9	М	<9 M <12	53.8 <u>M</u> 14.8	<9 M <12		
Acenaphthylene	< ۱۲ µg/kg <8 µg،	g	<12	М	<12 M <8	14.8 <u>M</u> 48.1	<12 M 		
Fluorene	<0 μg. <10		<10	М	<0 M <10	48.1 M 48.6	<0 M <10		
Phenanthrene	<10 μg/kg <15	9	27.7	М	<10 M <15	40.0 <u>M</u> 352	<10 M <15		
Anthracene	μg/kg <16	9	<16	М	<10 M	M	<10 M		
Fluoranthene	μg/kg <17	9	47	М	<17 M	M	<17 M		
Pyrene	μg/kg <15	9	43.6	М	<17 <15	M	<15 M		
Benz(a)anthracene	μg/kg <14	9	48.1	М	M <14	174	M		
Chrysene	μg/kg <10	9	28.5	М	M <10	M 151	<10 M		
Benzo(b)fluoranthen	μg/kg	9	38.8	М	<10 <15	M	<15 M		
Benzo(k)fluoranthen	µg/kg	9	18.1	М	M	90.7	<14 M		
Benzo(a)pyrene	μg/kg <15	9	30	М	M	M	M		
	µg/kç	9		М	М	М	м		
Indeno(1,2,3-cd)pyre	µg/kg	9	<18	М	<18 M	77.5 M	<18 M		
Dibenzo(a,h)anthrac	µg/kg	9	<23	М	<23 M	<23 M	<23 M		
Benzo(g,h,i)perylene	μg/kg	g	28.6	М	<24 M	105 M	<24 M		
PAH, Total Detected USEPA 16	<11ξ μg/kg		311		<118	2250	<118		

Preliminary

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	ntrol Labor	atones		PRELI	MI	NARY/INT	ERI	M REPOR	Т			L	Preliminary
SDG: Job: Client Refere	H_UI	28-44 RS_WIM∹	273		AE	ag Brewery COM iry Marshall				Order Numbe Report Numb Superseded I	er:	329060 rt:	
TPH CWG (S						,							
R # ISO17025 a M mCERTS a aq Aqueous / diss.filt Dissolved /	tesults Legend accredited. accredited. settled sample. filtered sample.		Customer Sample R Depth (m)	BH210 0.80		BH210 2.20 - 2.80		BH211 0.70		BH211 2.20			
* Subcontrac ** % recovery check the e results of in	Itered sample. cted test. of the surrogate stand officiency of the methor ndividual compounds v en't corrected for the re	d. The vithin	Sample Type Date Sampled Sampled Time Date Received SDG Ref	Soil/Solid 26/08/2015 28/08/2015 150828-44		Soil/Solid 26/08/2015 28/08/2015 150828-44		Soil/Solid 26/08/2015 28/08/2015 150828-44		Soil/Solid 26/08/2015 28/08/2015 150828-44			
	ach confirmed		Lab Sample No.(s) AGS Reference	11977692		11977693		11977694		11977695			
Component	- 0/	LOD/Un		405		110		100		440			
GRO Surrogat recovery**		%	TM089	105		119		109		110			
GRO TOT (Mc Corrected)	bisture	<44 µg/kg	TM089	<44	М	<44	м	5160	м	<44	м		
Methyl tertiary (MTBE)	butyl ether	<5 µg/	kg TM089	<5	м	<5	м	<5	м	<5	м		
Benzene		<10 µg/kg	TM089	<10		<10		<10		<10			
Toluene		-2 μg/		<2	М	<2	M	<2	М	<2	M		
Ethylbenzene		<3 µg/	kg TM089	<3	М	<3	М	<3	М	<3	М		
m,p-Xylene		<6 µg/		<6	М	<6	М	<6	М	<6	М		
o-Xylene		<3 µg/	- -		М	<3	М	<3	М	<3	М		
-			°		М		М		М		М		
sum of detecte xylene by GC	ed mpo	<9 µg/	kg TM089	<9		<9		<9		<9			
sum of detecte GC	ed BTEX by	<24 µg/kg	TM089	<24		<24		<24		<24			
Aliphatics >C5	-C6	<10 µg/kg	TM089	<10		<10		<10		<10			
Aliphatics >C6	-C8	<10	TM089	<10		<10	_	34.2		<10	_		
Aliphatics >C8	-C10	μg/kg <10	TM089	<10		<10		1010		13.1			
Aliphatics >C1	0-C12	μg/kg <10	TM089	<10		<10	_	2060		<10	_		
Aliphatics >C1	2-C16	μg/kg <100		<100		<100	_	15100		<100	_		
Aliphatics >C1	6-021	µg/kg <100		3150		<100		23200		<100			
		µg/kg											
Aliphatics >C2		<100 µg/kg		18600		<100		57300		<100			
Aliphatics >C3	5-C44	<100 µg/kg		1920		<100		10600		<100			
Total Aliphatics	s >C12-C44	<100 µg/kg		23700		<100		106000		<100			
Aromatics >EC	C5-EC7	<10 µg/kg	TM089	<10		<10		<10		<10			
Aromatics >EC	C7-EC8	<10	TM089	<10		<10		<10		<10			+
Aromatics >EC	C8-EC10	μg/kg <10	TM089	<10		<10		671		<10			
Aromatics >EC	C10-EC12	µg/kg <10	TM089	<10		<10		1380		<10			
Aromatics >EC	C12-EC16	μg/kg <100		<100		<100		4150		<100			
Aromatics >EC		µg/kg <100		<100		<100		10500		<100			
Aromatics >EC		μg/kg <100		4960		<100		26600		<100			
		µg/kg											
Aromatics >EC		<100 µg/kg		1400		<100		10500		<100			
Aromatics >EC	C40-EC44	<100 µg/kg		<100		<100		3890		<100			
Total Aromatic >EC12-EC44	S	<100 µg/kg	TM173	6360		<100		51900		<100			
Total Aliphatics		<100	TM173	30000		<100		163000		<100			+
Aromatics >C5	p-044	µg/kg					_						

				PRELI		/								
SDG: Job:		28-44 RS_WIM-2	273	Location: Customer:	Stag AEC	Brewery OM				Order Numbe Report Numb		329060		
	Reference:			Attention:	Gary	y Marshall				Superseded F	Report:			
ос м	S (S) Results Legend		Customer Sample R	DU040		DU040		DUD44		PU044				
M n	SO17025 accredited. CERTS accredited. Aqueous / settled sample.		Customer Sample R	BH210		BH210		BH211		BH211				
diss.filt D ot.unfilt T	vissolved / filtered sample. iotal / unfiltered sample. subcontracted test.		Depth (m) Sample Type Date Sampled	0.80 Soil/Solid 26/08/2015		2.20 - 2.80 Soil/Solid 26/08/2015		0.70 Soil/Solid 26/08/2015		2.20 Soil/Solid 26/08/2015				
** % c	b recovery of the surrogate stands heck the efficiency of the method esults of individual compounds w	. The	Sampled Time Date Received	28/08/2015		28/08/2015		28/08/2015		28/08/2015				
s	amples aren't corrected for the re rigger breach confirmed		SDG Ref Lab Sample No.(s)	150828-44 11977692		150828-44 11977693		150828-44 11977694		150828-44 11977695				
-5&+§@ S	ample deviation (see appendix)		AGS Reference											
Compone		LOD/Uni %	_	120	_	110		100		102	_		_	
	ofluoromethane**		TM116	130		119		128		123				
Toluene		%	TM116	102		111		103		111				
1-Bromo	ofluorobenzene**	%	TM116	89.8		102		94.5		102				
Dichloro	difluoromethane	<6 µg/	kg TM116	<6	м	<6	М	<6	М	<6	м			
Chlorom	nethane	<7 µg/	kg TM116	<7	#	<7	#	<7	#	<7	#			
Vinyl Ch	lloride	<6 µg/	kg TM116	<6	м	<6	м	<6	м	<6	м			
Bromon	nethane	<10 µg/kg	TM116	<10	м	<10	м	<10	M	<10	м			
Chloroe	thane	<10 μg/kg	TM116	<10	M	<10	м	<10	M	<10	M			
Frichlor	ofluorormethane	<6 µg/		<6	M	<6	M	<6	M	<6	M			
1,1-Dich	loroethene	<10 µg/kg	TM116	<10		<10		<10		<10				
Carbon	Disulphide	- μg/kg <7 μg/		<7	#	<7	#	<7	#	<7	#			
Dichloro	methane	<10	TM116	<10	M	<10	М	<10	M	<10	M			
Methyl ⊺	Fertiary Butyl Ether	µg/kg <10	TM116	<10	#	<10	#	<10	#	<10	#			
rans-1,2	2-Dichloroethene	μg/kg <10	TM116	<10	M	<10	М	<10	M	<10	M			
1,1-Dich	loroethane	µg/kg <8 µg/		<8	M	<8	М	<8	M	<8	M			
cis-1,2-[	Dichloroethene	<6 µg/	kg TM116	<6	M	<6	M	<6	M	<6	M			
2,2-Dich	loropropane	<10		<10	M	<10	М	<10	M	<10	M			
Bromoc	hloromethane	µg/kg <10	TM116	<10	M	<10	М	<10	M	<10	M			
Chlorofo	orm	μg/kg <8 μg/		<8	м	<8	М	<8	М	<8	M			
	ichloroethane	<7 µg/		<7	м	<7	М	<7	М	<7	М			
	lloropropene	<10	-	<10	м	<10	М	<10	М	<10	М			
	etrachloride	μg/kg <10		<10	м	<10	М	<10	М	<10	м			
		µg/kg		<10	м	<5	М	<10	М	<5	м			
	lloroethane	<5 µg/			м	-	м		М		м			
Benzen		<9 µg/		<9	м	<9	м	<9	М	<9	м			
	bethene	<9 µg/		<9	#	<9	#	<9	#	<9	#			
·	lloropropane	<10 µg/kg		<10	м	<10	м	<10	М	<10	м			
	omethane	<9 µg/		<9	м	<9	м	<9	М	<9	м			
Bromod	ichloromethane	<7 µg/		<7	м	<7	М	<7	М	<7	М			
cis-1,3-[	Dichloropropene	<10 µg/kg		<10	м	<10	м	<10	М	<10	м			
Foluene	1	<7 µg/		<7	м	<7	м	<7	м	<7	м			
rans-1,	3-Dichloropropene	<10 µg/kg	TM116	<10		<10		<10		<10				
1,1,2-Tr	ichloroethane	<10		<10		<10		<10		<10				

#### PRELIMINARY/INTERIM REPORT

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:	

#### VOC MS (S)

Results Legend # ISO17025 accredited. # 025770 condition		Customer Sample R	BH210		BH210		BH211	BH211		
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. * Subcontracted test.		Sample Type Date Sampled	Soil/Solid 26/08/2015		Soil/Solid 26/08/2015		Soil/Solid 26/08/2015	Soil/Solid 26/08/2015		
** % recovery of the surrogate stands check the efficiency of the method		Sampled Time								
results of individual compounds w samples aren't corrected for the re	vithin	Date Received SDG Ref	28/08/2015 150828-44		28/08/2015 150828-44		28/08/2015 150828-44	28/08/2015 150828-44		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	covery	Lab Sample No.(s) AGS Reference	11977692		11977693		11977694	11977695		
Component	LOD/Unit									
1,3-Dichloropropane	<7 µg/k	g TM116	<7	м	<7	м	<7 N	<7	м	
Tetrachloroethene	<5 µg/k	g TM116	<5	M	<5	м	<5 N	<5	м	
Dibromochloromethane	<10 µg/kg	TM116	<10	M	<10	M	<10 N	<10	M	
1,2-Dibromoethane	<10	TM116	<10		<10		<10	<10		
Chlorobenzene	μg/kg <5 μg/k	g TM116	<5	M	<5	M	<5	<5	M	
1,1,1,2-Tetrachloroethane	<10	TM116	<10	M	<10	M	<10 N	<10	M	
Ethylbenzene	μg/kg <4 μg/k	.g TM116	<4	M	<4	М	N <4	<4	M	
p/m-Xylene	<10	TM116	N <10	M	<10	М	<10	/ <10	М	
o-Xylene	µg/kg <10	TM116	<10	#	<10	#	<10	¥ <10	#	
Styrene	µg/kg <10	TM116	N <10	М	<10	М	N <10	/ <10	М	
-	µg/kg			#		#		¥	#	
Bromoform	<10 µg/kg	TM116		м	<10	м	<10		М	
Isopropylbenzene	<5 µg/k	-		#	<5	#		<5 #	#	
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 N	м	<10	м	<10 N	<10 1	М	
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 N	м	<16	м	<16 M	<16 1	М	
Bromobenzene	<10 µg/kg	TM116	<10 N	м	<10	м	<10 N	<10	М	
Propylbenzene	<10 µg/kg	TM116	<10 N	м	<10	м	<10 N	<10	М	
2-Chlorotoluene	<9 µg/k	.g TM116	<9	м	<9	м	<9 M	<9	М	
1,3,5-Trimethylbenzene	<8 µg/k	g TM116	<8	M	<8	М	<8	<8	М	
4-Chlorotoluene	<10 µg/kg	TM116	<10	м	<10	м	<10 N	<10	м	
tert-Butylbenzene	<14 µg/kg	TM116	<14	м	<14	м	<14 N	<14	м	
1,2,4-Trimethylbenzene	<9 µg/kg	g TM116	<9	#	<9	#	<9	// <9 #	#	
sec-Butylbenzene	<10 µg/kg	TM116	<10	# M	<10	т М	<10 N	<10	m m	
4-Isopropyltoluene	<10 µg/kg	TM116	<10	M	<10	M	<10	<10	M	
1,3-Dichlorobenzene	<8 µg/kg	g TM116	<8	M	<8	M	<8	<8	M	
1,4-Dichlorobenzene	<5 µg/k	g TM116	<5	M	<5	м	<5	<5	M	
n-Butylbenzene	<11 µg/kg	TM116	<11	171	<11	IVI	<11	<11	IVI	
1,2-Dichlorobenzene	+μg/kg <10 μg/kg	TM116	<10	N4	<10		<10	<10		
1,2-Dibromo-3-chloroprop	<14	TM116	<14	M	<14	M	<14	<14	M	
ane Tert-amyl methyl ether	μg/kg <10	TM116	<10	M	<10	M	<10	<10	M	
1,2,4-Trichlorobenzene	μg/kg <20	TM116	<20	#	<20	#	<20	¥ <20	#	
Hexachlorobutadiene	μg/kg <20	TM116	<20	_	<20	_	<20	<20		
Naphthalene	µg/kg <13	TM116	<13	_	<13		<13	<13		
	µg/kg		N	М		М	Ν	1	М	

### PRELIMINARY/INTERIM REPORT

Preliminary

#### VOC MS (S)

**(**)

VOC MS (S)							
Results Legend # ISO17025 accredited.	Cu	istomer Sample R	BH210	BH210	BH211	BH211	
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	0.80 Soil/Solid 26/08/2015	2.20 - 2.80 Soil/Solid 26/08/2015	0.70 Soil/Solid 26/08/2015	2.20 Soil/Solid 26/08/2015	
** % recovery of the surrogate stand check the efficiency of the method	ard to	Sampled Time					
results of individual compounds w samples aren't corrected for the re	rithin	Date Received SDG Ref	28/08/2015 150828-44	28/08/2015 150828-44	28/08/2015 150828-44	28/08/2015 150828-44	
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	L	.ab Sample No.(s)	11977692	11977693	11977694	11977695	
Component	LOD/Units	AGS Reference Method					
1,2,3-Trichlorobenzene	<20	TM116	<20	<20	<20	<20	
	µg/kg		#	#	#	#	 

#### PRELIMINARY/INTERIM REPORT

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:

## **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

SDG:

Job:

Client Reference:

#### PRELIMINARY/INTERIM REPORT

Preliminary

 150828-44
 Location:
 Stag Brewery
 Order Number:

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

 Attention:
 Gary Marshall
 Superseded Report:

# 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>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C.

NA = not applicable.

(

SDG:

Job:

## PRELIMINARY/INTERIM REPORT

150828-44 Location: Stag Brewery Order Number: H\_URS\_WIM-273 AEČOM 329060 Customer: 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
pН	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

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PRELIMINARY/INTERIM REPORT

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall Order Number: Report Number: 3 Superseded Report:

329060

Preliminary

# ASSOCIATED AQC DATA

Ammonium Soil by Titration

SDG:

Job:

Client Reference:

Component	Method Code	QC 1292	QC 1205
Exchangeable	TM024	<b>86.07</b>	<b>98.01</b>
Ammonium as NH4		79.30 : 104.61	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
-	Fotal 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
Component		QC 1100	QC 1290	QC 1294
Benzene by GC	TM089	<b>110.0</b>	<b>100.0</b>	<b>101.5</b>
(Moisture Corrected)		82.67 : 117.96	76.23 : 120.71	79.00 : 121.00
Ethylbenzene by GC	TM089	<b>110.5</b>	<b>100.5</b>	<b>104.0</b>
(Moisture Corrected)		80.45 : 118.61	73.32 : 122.02	79.00 : 121.00
m & p Xylene by GC	TM089	<b>110.0</b>	<b>100.75</b>	<b>104.25</b>
(Moisture Corrected)		79.25 : 119.43	72.90 : 122.64	79.00 : 121.00
MTBE GC-FID (Moisture	TM089	<b>114.5</b>	<b>101.0</b>	<b>106.5</b>
Corrected)		79.10 : 122.51	72.17 : 124.81	74.48 : 125.29
o Xylene by GC (Moisture	TM089	<b>111.5</b>	<b>100.5</b>	<b>104.5</b>
Corrected)		80.03 : 117.19	71.65 : 124.40	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	TM089	<b>110.5</b>	<b>100.5</b>	<b>102.5</b>
Corrected)		82.06 : 117.54	74.60 : 120.38	79.00 : 121.00

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## PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329060 Superseded Report:

#### Hexavalent Chromium (s)

SDG:

Job:

**Client Reference:** 

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	<b>100.0</b> 92.20 : 106.60	<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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### PRELIMINARY/INTERIM REPORT

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329060 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:** 

SDG:

Job:

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

pН

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/INTERIM REPORT

SDG: Job:	150828-44 H URS WIM-273	Location: Customer:	Stag Brewery AECOM	Order Number: Report Number: 329	060
Client Reference:		Attention:	Gary Marshall	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

#### 

				KEPURI
SDG: Job:	150828-44 H_URS_WIM-273	Location: Customer:	Stag Brewery AECOM	Order Number: Report Number:
Client Reference:		Attention:	Gary Marshall	Superseded Report:
VOC MS (S)				

329060

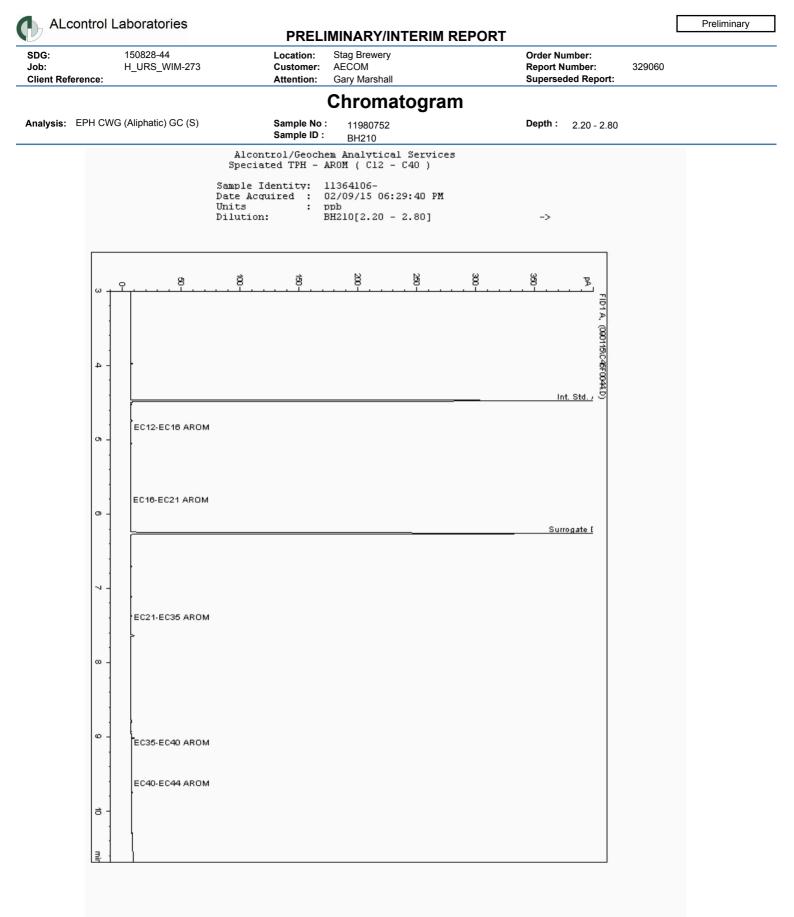
Preliminary

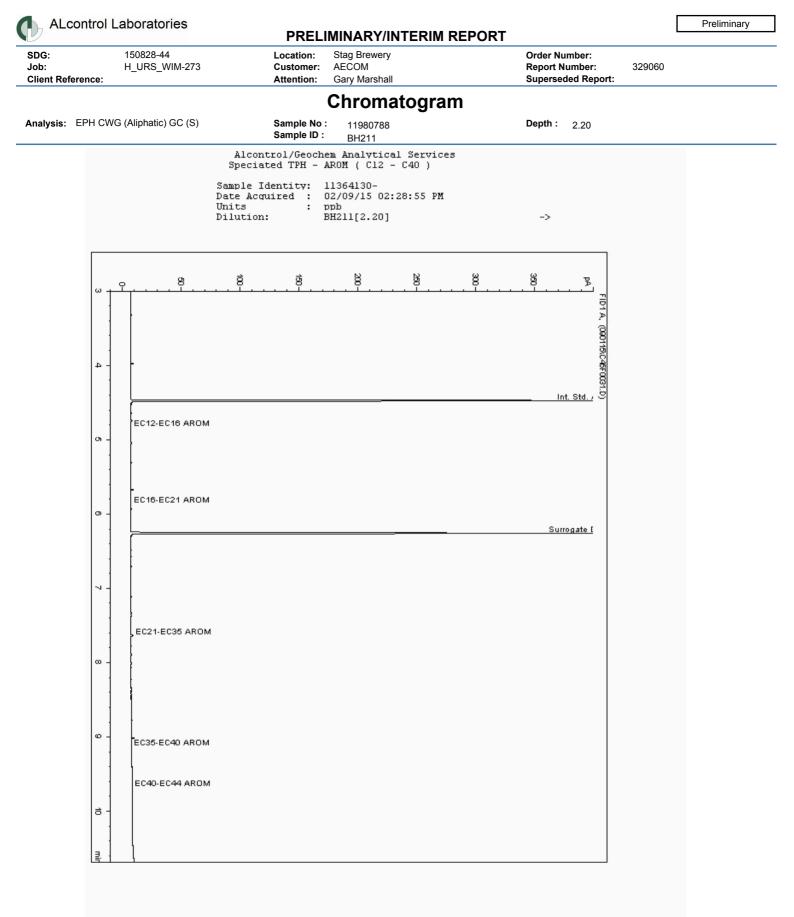
		QC 1172	QC 1128
Ethylbenzene	TM116	96.6	94.0
		73.60 : 115.60	80.07 : 125.98
Hexachlorobutadiene	TM116	114.0	69.0
		33.65 : 130.56	30.92 : 132.28
Isopropylbenzene	TM116	92.0	82.6
		72.52 : 117.52	69.27 : 125.32
Naphthalene	TM116	107.0	110.0
		83.23 : 126.48	79.15 : 121.98
o-Xylene	TM116	92.4	77.6
		69.60 : 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

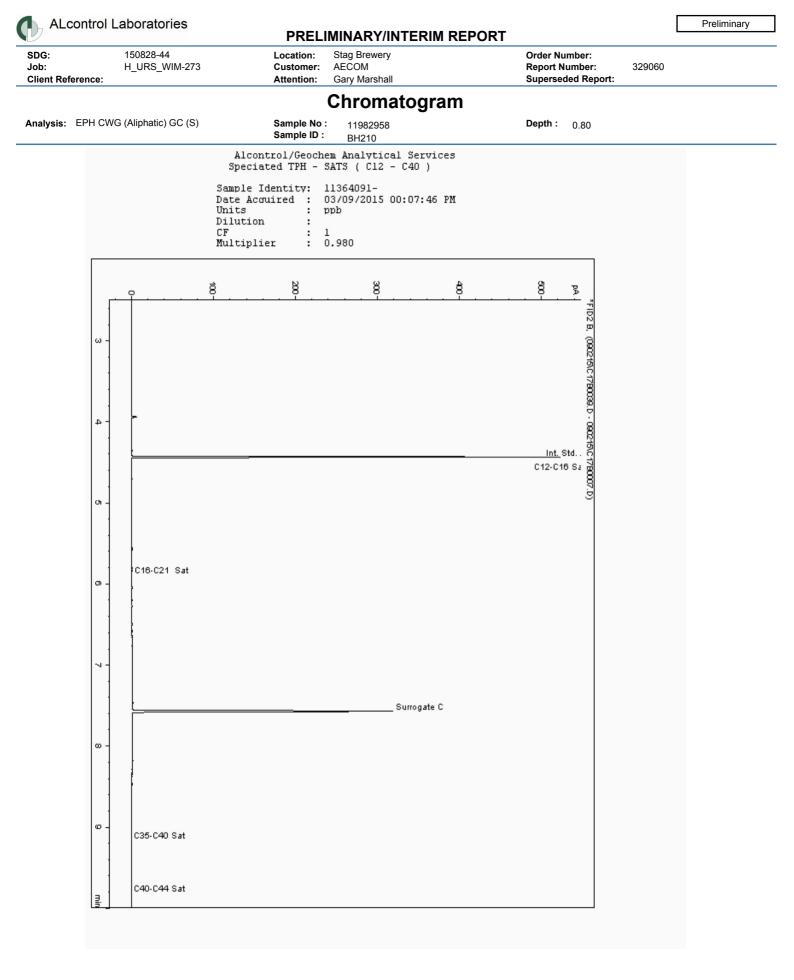
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

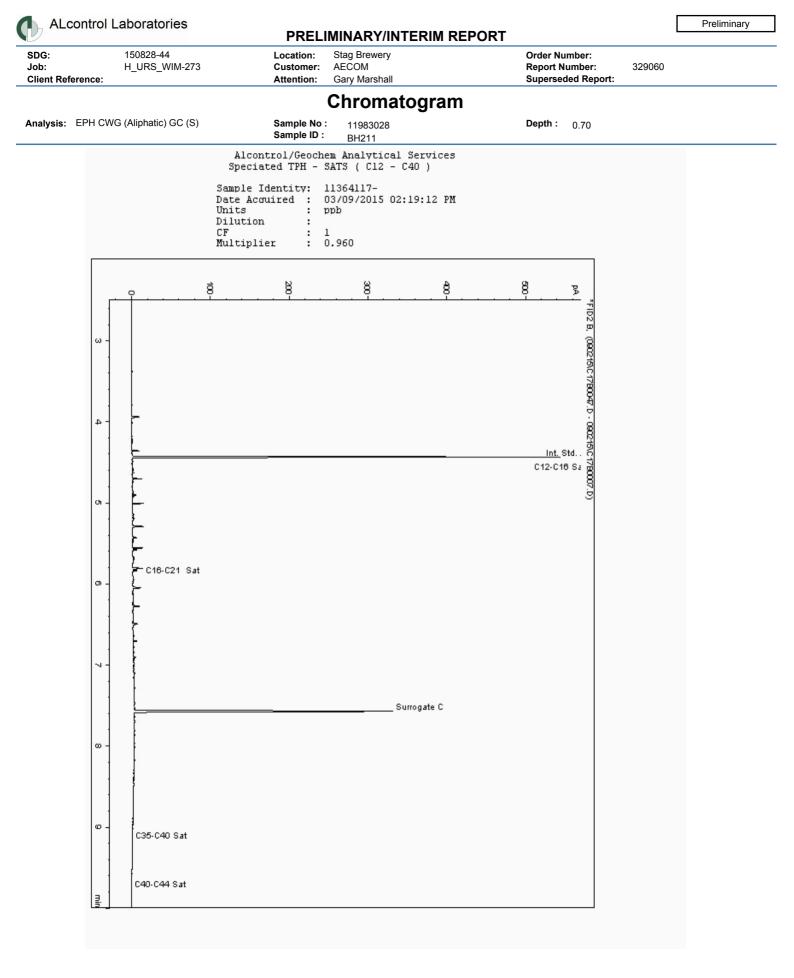
The figure detailed is the percentage recovery result for the AQC.

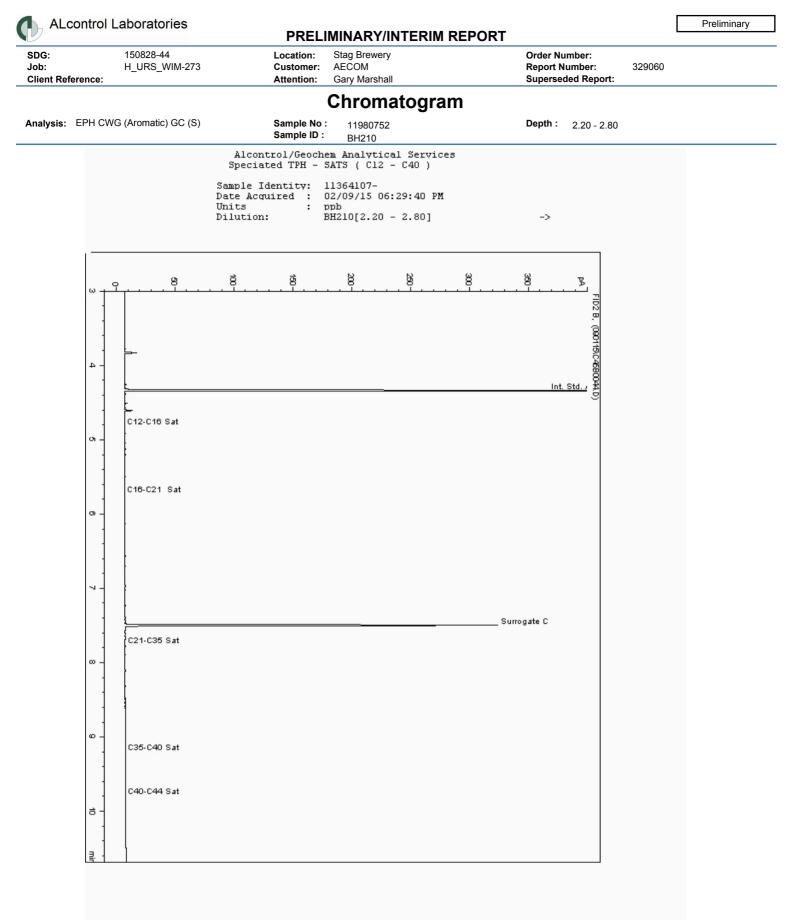
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

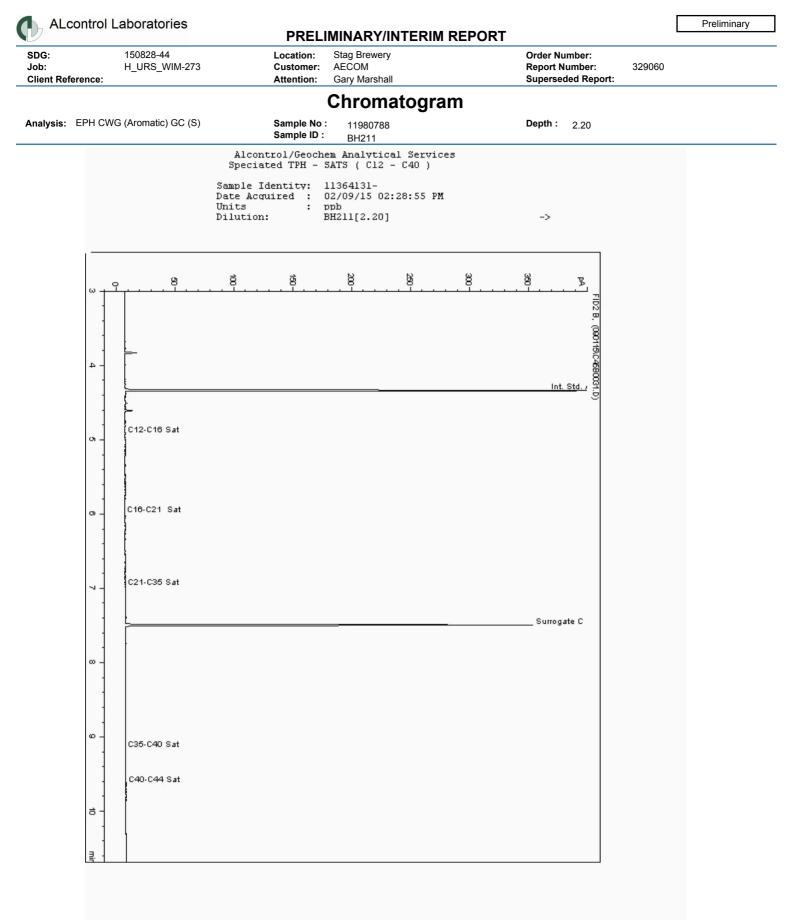


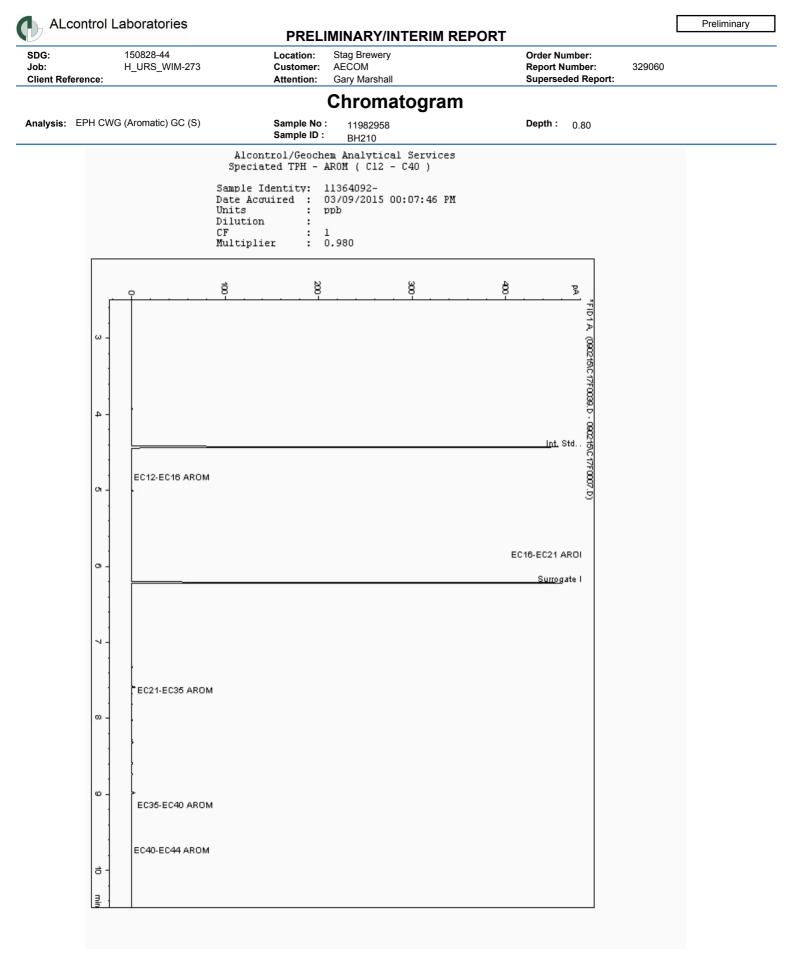


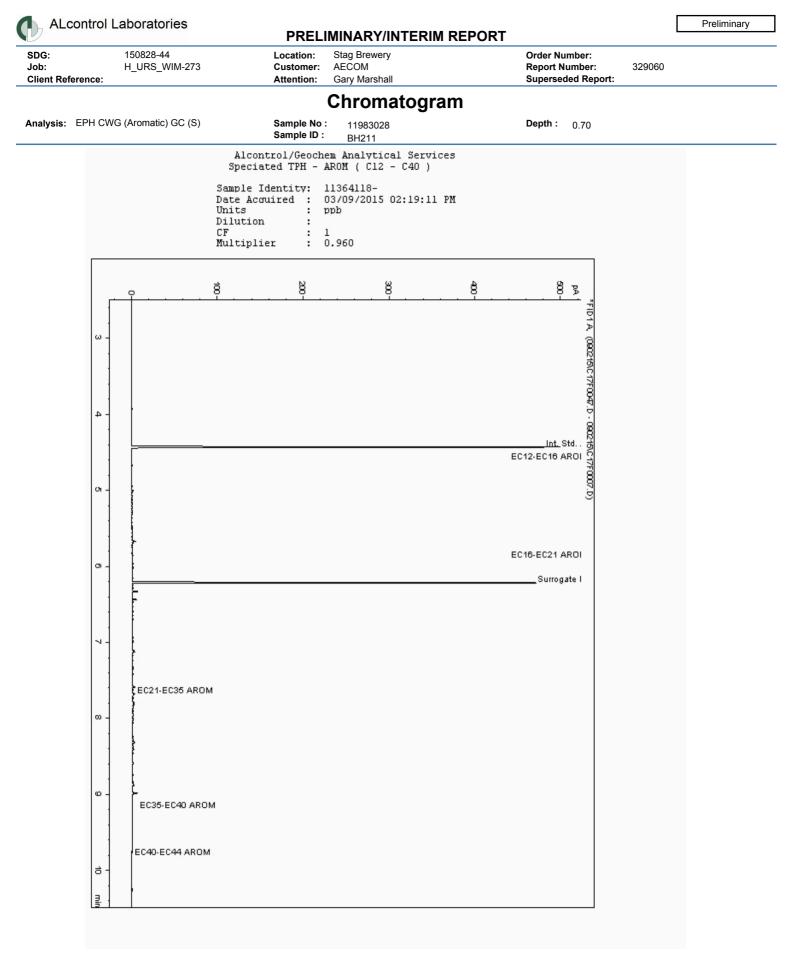


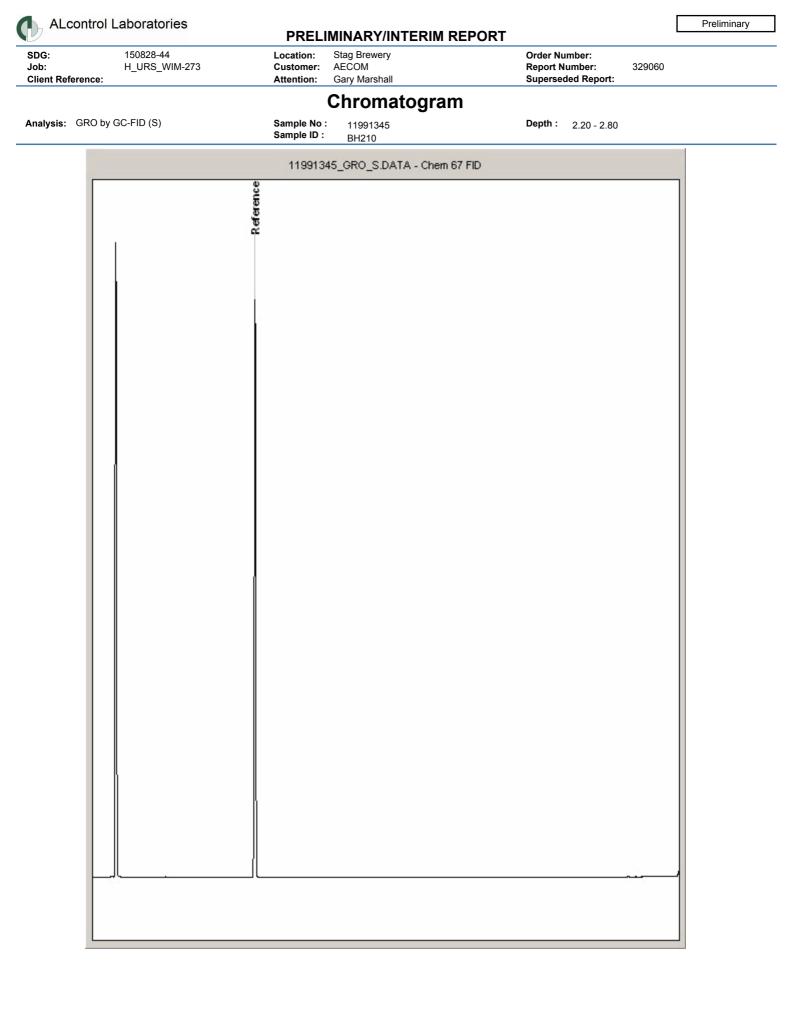


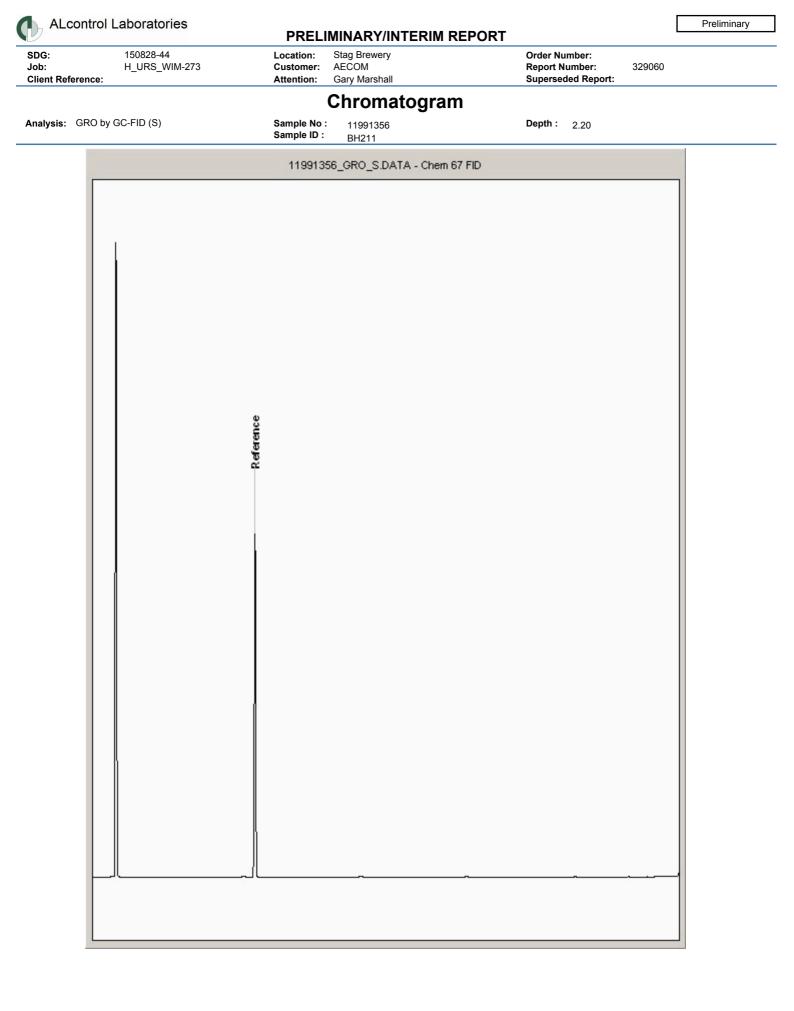




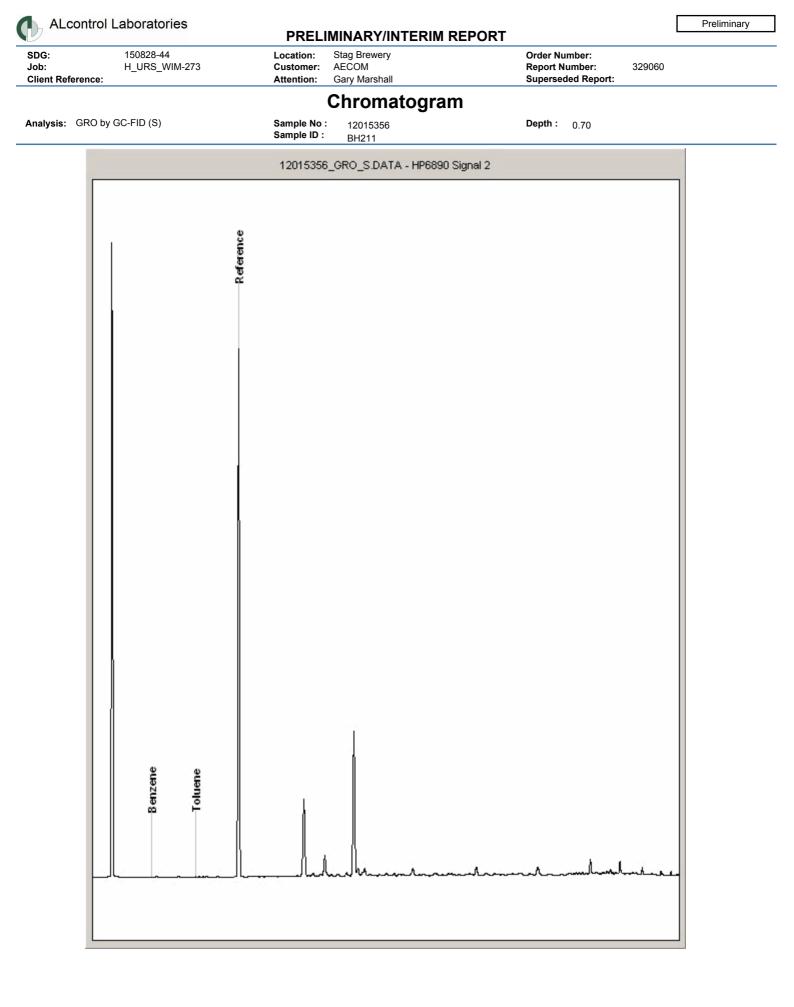








G:	150828-44	Location:	Stag Brewery	Order Number:		
o: ent Reference	H_URS_WIM-273	Customer: Attention:	AECOM Gary Marshall	Report Number: Superseded Report:	329060	
	-		Chromatogram			
Iveis: GRO	by GC-FID (S)	Sample No :		<b>Depth :</b> 0.80		
ilysis. Orto	by 80-11b (8)	Sample ID :	12006569 BH210	Deptil . 0.80		
		12006569	_GRO_S.DATA - HP6850 Sig	noal 1		
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#### PRELIMINARY/INTERIM REPORT

SDG:	150828-44	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

329060

#### SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	d/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYOLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANEACETONE	ENDOWEREND	GCFD
EPH (MNOL)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH CWG BYGC	D&C	HEXANEACETONE	END OVER END	GCFD
PCB TOT / PCB CON	D&C	HEXANEACETONE	ENDOWEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
08-040(06-040) EZ FLASH	WET	HEXANEACETONE	SHAVER	GCEZ
POL VAROMATIC HYDROCARBONS RARD GC	WET	HEXANEACETONE	SHAVER	(CCEZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
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 0CP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

Preliminary

#### 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°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 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-lsopropylphenol, 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

Container with Headspace provided for volatiles analysis
Incorrect container received
Deviation from method
Holding time exceeded before sample received
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 Adinate	-
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.



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 September 2015 H\_URS\_WIM 150828-48

Stag Brewery 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



#### **CERTIFICATE OF ANALYSIS**

Validated

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

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329008

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
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

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

ALcontrol	Laborator	les	CE	ERT	ΊFI	CA	ΤE	OF	AN	IALYSIS		Validated
SDG: Job: Client Reference:	150828-48 H_URS_W		Location: Customer Attention	: S r: A	Stag AECC Gary	Brev DM	very			Order Number: Report Number: 3290 Superseded Report:	08	
SOLID Results Legend		Lab Sample						119	119			
X Test			10(3)		11977832	11977833		11977835	11977837			
No Determin Possible	nation	Custome Sample Refe			BH212	BH212		BH213	BH213			
		AGS Refere	ence									
		Depth (n			0.60	1.80 - 2.50		0.60	1.70 - 2.00			
		Containe	ər	400g Tub (ALE214) 250g Amber Jar (AL	250g Amber Jar (AL 60g VOC (ALE215)	60g VOC (ALE215) 400g Tub (ALE214)	400g Tub (ALE214) 250g Amber Jar (AL	250g Amber Jar (AL 60a VOC (ALE215)	60g VOC (ALE215) 400g Tub (ALE214)			
Ammonium Soil by Titra	tion	All	NDPs: 0 Tests: 4	x		x	x		x	*		
Asbestos ID in Solid Sar	mples	All	NDPs: 0 Tests: 2	x			X					
Easily Liberated Sulphid	le	All	NDPs: 0 Tests: 4	X		X	X		x			
EPH CWG (Aliphatic) G	C (S)	All	NDPs: 0 Tests: 4	X	×		x	×				
EPH CWG (Aromatic) G	iC (S)	All	NDPs: 0 Tests: 4	^ X	×		^ X	x				
GRO by GC-FID (S)		All	NDPs: 0 Tests: 4		x			x				
Hexavalent Chromium (s	s)	All	NDPs: 0 Tests: 4	×		x	×		X			
Metals in solid samples	by OES	All	NDPs: 0 Tests: 4	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	×				
Total Organic Carbon		All	NDPs: 0 Tests: 4	x	×		x	X				
Total Sulphate		All	NDPs: 0 Tests: 4	x	×		x	X				
TPH CWG GC (S)		All	NDPs: 0 Tests: 4	x	x		x	X				
VOC MS (S)		All	NDPs: 0 Tests: 4		^			^				

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150828-48	Location:	Stag Brewery	Order Number:	329008
Job:	H URS WIM-273	Customer:	AECOM	Report Number:	
Client Reference:	11_01(3_WIW-275	Attention:	Gary Marshall	Superseded Report:	525008

# **Sample Descriptions**

Grain Sizes												
very fine	<0.063mr	n fine	0.063mm - 0.1mm	me	dium	0.1mm	- 2mm	coar	se 2mm	- 10mm	very coar	se >10mm
Lab Sample N	o(s) C	Customer Sample R	ef. Depth (m)	1	Colou	r	Descript	ion	Grain size	Inc	lusions	Inclusions 2
11977832		BH212	0.60		Dark Bro	own	Sandy Loam		0.1 - 2 mm	S	Stones	None
11977833		BH212	1.80 - 2.50	)	Light Brown		Sand		0.1 - 2 mm		Stones	None
11977835		BH213	0.60		Dark Brown		Sandy Clay Loam		y 0.1 - 2 mm		Stones	Tile/Insulation Board
11977837		BH213	1.70 - 2.00	)	Light Brown		Sand	l	0.1 - 2 mm	S	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.

**(**)

### **CERTIFICATE OF ANALYSIS**

Validated

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) 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 check the efficiency of the method.		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00	
results of individual compounds w	ithin	Date Received SDG Ref	28/08/2015 150828-48	28/08/2015 150828-48	28/08/2015 150828-48	28/08/2015 150828-48	
samples aren't corrected for the re- (F) Trigger breach confirmed	covery	Lab Sample No.(s)	11977832	11977833	11977835	11977837	
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Units						 
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	
			M	M	M	M	 
рН	1 pH	TM133	8.95	7.72	8.04	7.84	
	Units		M	M	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		♦ #	♦ #	♦ #	♦ #	
Arsenic	<0.6	TM181	19.2	18.8	19.1	19.1	
	mg/kg		М	M	M	M	
Cadmium	<0.02	TM181	1.44	0.393	0.547	0.389	
	mg/kg		М	М	М	М	
Chromium	<0.9	TM181	6.94	16.9	17.1	20.2	
	mg/kg		М	М	М	М	
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		М	м	М	М	
Mercury	<0.14	TM181	<0.14	<0.14	<0.14	<0.14	
	mg/kg		М	м	М	М	
Nickel	< 0.2	TM181	6.81	19.2	14.7	22	
	mg/kg		М	м	М	М	
Selenium	<1 mg/k	g TM181	<1	<1	<1	<1	
		5	#	#	#	#	
Zinc	<1.9	TM181	276	23.4	906	26.2	
	mg/kg		М	M	М	М	
Sulphate, Total	<48	TM221	1090	49.6	7440	80.7	
	mg/kg		М	М	М	М	
		1 1					
		1 1					
		+ +					
		+ +					
		+ +					
		+ +					
		1					
00.40.47.00/00/0045							

ALcontrol La	boratories	3	CER	RTI	FICATE OF A	NALYSIS		[	Validated
	150828-48 H_URS_WIM-	273	Location: Customer:		ag Brewery ECOM		Order Number: Report Number:	329008	
Client Reference:			Attention:		ary Marshall		Superseded Report:	020000	
AH by GCMS									
Results Legend # ISO17025 accredited.		Customer Sample R	BH212		BH212	BH213	BH213		
M mCERTS accredited. aq Aqueous / sottled sample. diss.filt Dissolved / filtered sample tot.unfilt Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogat check the efficiency of the results of individual compr samples aren't corrected ff (F) Trigger breach confirmed	e standard to method. The bunds within	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	0.60 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977832		1.80 - 2.50 Soii/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977833	0.60 Soii/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977835	1.70 - 2.00 Soil/Soild 27/08/2015 00:00:00 28/08/2015 150828-48 11977837		
1-5&+§@ Sample deviation (see app		AGS Reference							
Component Naphthalene-d8 %	LOD/Un %	TM218	97.6		94.5	98.6	96.2		
recovery** Acenaphthene-d10 %	%	TM218	94.2		90.6	95	92.2		
recovery**									
Phenanthrene-d10 % recovery**	%	TM218	91.1		87.3	91.2	89.6		
Chrysene-d12 % recovery**	%	TM218	91.4		77.2	90.4	79		
Perylene-d12 %	%	TM218	97.3		78.4	95.7	80.7		
recovery** Naphthalene	<9 µg	/kg TM218	<9		<9	27.4	<9		
Acenaphthylene	<12		20.5	М	M <12	27.8	M M <		
	μg/kǫ	3		М	М	1	ИМ		
Acenaphthene	<8 µg	/kg TM218	<8	М	<8 M	15.9 I	<8 MM		
Fluorene	<10 μg/kg		<10	М	<10 M	12.1	<10 M M		
Phenanthrene	<15	TM218	218		<15	329	<15		
Anthracene	µg/kç <16		85.9	М	M <16	71.8	M M <		
Fluoranthene	μg/kg <17		1270	М	M <17	820	M MM MMMM MMMM MMMM MM MM MM MMM MM M MM M M M M M M M M M M M M M M M M M M M		
	μg/kǫ	3		М	М	1	ИМ		
Pyrene	<15 µg/kg		975	м	<15 M	729 I	<15 M M		
Benz(a)anthracene	<14 µg/kç		927	М	<14 M	449	<14 M M		
Chrysene	<10	TM218	908		<10	414	<10		
Benzo(b)fluoranthene	μg/kg <15	TM218	1460	М	M <15	588	M M <		
Benzo(k)fluoranthene	µg/ko <14		503	М	M <14	255	M M <		
	μg/kg <15	<b>a</b>	1050	М	M <15		M M		
Benzo(a)pyrene	µg/kg	<b>j</b>	1050	М	<15 M		М		
Indeno(1,2,3-cd)pyrene	<18 µg/kg		668	М	<18 M	270 I	<18 M M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	195	М	<23 M	73.2	<23 M M		
Benzo(g,h,i)perylene	<24	TM218	755		<24	358	<24		
PAH, Total Detected	μg/kg <118		9030	М	M <118	4920	M M <		
USEPA 16	µg/ko	]							
							+ +		
							+ +		+
		_							
									_
							+ +		
							+		

SDG:	1508	28-48		Location:	Stan	Brewery				Order Numbe	er:			
Job:	H_U	20-40 RS_WIM-2	73	Customer:	AEČ	OM				Report Numb	oer:	329008		
Client Refe				Attention:	Gary	Marshall				Superseded	Report:			
	Results Legend		Customer Sample R	BH212		BH212		BH213		BH213				
M mCERTS aq Aqueous diss.filt Dissolved tot.unfilt Total / un			Depth (m) Sample Type	0.60 Soil/Solid		1.80 - 2.50 Soil/Solid		0.60 Soil/Solid		1.70 - 2.00 Soil/Solid				
** % recover check the results of samples a	acted test. ry of the surrogate stand efficiency of the method individual compounds v aren't corrected for the re	l. The vithin	Date Sampled Sampled Time Date Received SDG Ref	27/08/2015 00:00:00 28/08/2015 150828-48 11977832		27/08/2019 00:00:00 28/08/2019 150828-48 11977833	5	27/08/2015 00:00:00 28/08/2015 150828-48 11977835		27/08/2015 00:00:00 28/08/2015 150828-48 11977837				
-5&+§@ Sample d	reach confirmed eviation (see appendix)		Lab Sample No.(s) AGS Reference	11377032		11377033		11377033		11377037				
Component GRO Surroga	ite %	LOD/Unit	s Method TM089	114		127		76		110				
recovery**														
GRO TOT (M Corrected)	oisture	<44 µg/kg	TM089	<44	м	<44	м	<44	м	<44	м			
Methyl tertiar (MTBE)	y butyl ether	<5 µg/k	g TM089	<5		<5		<5		<5				
Benzene		<10 µg/kg	TM089	<10	M	<10	M M	<10	M	<10	M			
Toluene		<2 µg/k	g TM089	<2		<2	м	<2		<2				
Ethylbenzene	;	<3 µg/k	g TM089	<3	M	<3	М	<3	М	<3	M		-	
m,p-Xylene		<6 µg/k	g TM089	<6	М	<6	М	<6	М	<6	М		_	
			о - Паралана - Парала		м		м		м		м			
o-Xylene		<3 µg/k		<3	м	<3	М	<3	М	<3	м			
sum of detect xylene by GC		<9 µg/k	g TM089	<9		<9		<9		<9				
sum of detect GC	ed BTEX by	<24 µg/kg	TM089	<24		<24		<24		<24				
Aliphatics >C	5-C6	<10 µg/kg	TM089	<10		<10		<10		<10				
Aliphatics >C	6-C8	<10 µg/kg	TM089	<10		<10		<10		<10				
Aliphatics >C	8-C10	<10 µg/kg	TM089	<10		<10		<10		<10				
Aliphatics >C	10-C12	<10 µg/kg	TM089	<10		<10		<10		<10				
Aliphatics >C	12-C16	<100 µg/kg	TM173	<100		<100		<100		<100				
Aliphatics >C	16-C21	<100 µg/kg	TM173	<100		<100		<100		<100				
Aliphatics >C	21-C35	<100	TM173	<100	-	<100		6060		<100				
Aliphatics >C	35-C44	μg/kg <100	TM173	<100		<100		<100		<100				
Total Aliphatio	cs >C12-C44	µg/kg <100	TM173	<100		<100		6060		<100				
Aromatics >E	C5-EC7	µg/kg <10	TM089	<10		<10		<10		<10				
		µg/kg											_	
Aromatics >E		<10 µg/kg	TM089	<10		<10		<10		<10				
Aromatics >E	C8-EC10	<10 µg/kg	TM089	<10		<10		<10		<10				
Aromatics >E	C10-EC12	<10 µg/kg	TM089	<10		<10		<10		<10				
Aromatics >E	C12-EC16	<100 µg/kg	TM173	<100		<100		2150		<100				
Aromatics >E	C16-EC21	<100 µg/kg	TM173	496		<100		10600		<100				
Aromatics >E	C21-EC35	<100 µg/kg	TM173	4600		<100		31100		<100				
Aromatics >E	C35-EC44	<100 µg/kg	TM173	<100		<100		10900		<100				
Aromatics >E	C40-EC44	<100 µg/kg	TM173	<100		<100		3970		<100				
Total Aromati >EC12-EC44		<100 µg/kg	TM173	5100		<100		54800		<100				
Total Aliphatio	cs &	µy/kg <100	TM173	5100		<100		60900		<100				
Aromatics >C	5-C44	µg/kg												
		1												

	100000			0) F				<b>.</b>		
Job:	150828-48 H_URS_WIM-:	273	Location: Customer:	Stag Brewery AECOM				Order Number: Report Number:	329008	
Client Reference:			Attention:	Gary Marshall				Superseded Report		
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.	s.	Depth (m)	0.60	1.80 - 2.50 Soil/Solid		0.60		1.70 - 2.00		
tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surroga check the efficiency of the results of individual comp	method. The	Sample Type Date Sampled Sampled Time Date Received	Soil/Solid 27/08/2015 00:00:00 28/08/2015	27/08/2015 00:00:00 28/08/2015 150828-48		Soil/Solid 27/08/2015 00:00:00 28/08/2015		Soil/Solid 27/08/2015 00:00:00 28/08/2015		
samples aren't corrected f (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	150828-48 11977832	150828-48 11977833		150828-48 11977835		150828-48 11977837		
-5&+§@ Sample deviation (see app	endix) LOD/Un	AGS Reference its Method								
Component Dibromofluoromethane**		TM116	114	124		121		116		
Toluene-d8**	%	TM116	102	111	_	108		110		
4-Bromofluorobenzene**	* %	TM116	94.1	105	_	85.4		104		
Dichlorodifluoromethane	e <6 µg/	/kg TM116	<6	<6		<6		<6		
Chloromethane	<7 µg/	kg TM116	<7	M <7	М	<7	М	M <7		
/inyl Chloride	<6 µg/	kg TM116	<6	# <6	#	<6	#	#		
Bromomethane	<0 µg/	0	<10	M <10	м	<10	м	<0 M <10		
	µg/kg	J	-	м	М	-	м	М		
Chloroethane	<10 µg/kg		<10	<10 M	м	<10	м	<10 M		
Frichlorofluorormethane	<6 µg/		<6	<6 M	М	<6	м	<6 M		
I,1-Dichloroethene	<10 μg/kg	1	<10	<10 #	#	<10	#	<10 #		
Carbon Disulphide	<7 µg/		<7	<7 M	м	<7	м	<7 M		
Dichloromethane	<10 µg/kg	ı	<10	<10 #	#	<10	#	<10 #		
Methyl Tertiary Butyl Eth	µg/kg	TM116 TM116	<10	<10 M <10	м	<10	м	<10 M <10		
1,1-Dichloroethane	- το μg/kg <8 μg/	1	<8	M <8	м	<8	м	<10 M <8		
cis-1,2-Dichloroethene	<6 μg/		<6	M <6	м	<6	м	<6 <6		
2,2-Dichloropropane	<10 µg,	-	<10	M <10	м	<10	М	<10 M		
Bromochloromethane	μg/kg <10	ı	<10	M <10	м	<10	М	<10 M		
Chloroform	μg/kg <8 μg/	1	<8	M <8	м	<8	М	M <8		
		- -		м	м		м	М		
1,1,1-Trichloroethane	<7 µg/	-	<7	<7 M	м	<7	м	<7 M		
I,1-Dichloropropene	<10 µg/kg	ı I	<10	<10 M	м	<10	м	<10 M		
	<10 µg/kg	,	<10	<10 M	м	<10	м	<10 M		
I,2-Dichloroethane	<5 µg/		<5	<5 M	м	<5 <9	м	<5 M <9		
Benzene Frichloroethene	/9 µg >9 µg		<9 <9	M	М	<9	м	<9 M 		
,2-Dichloropropane	<9 µg/	-	<9	// <9 // <10	#	<9 <10	#	<9 # <10		
Dibromomethane	µg/kg	ı	<10	M <9	М	<10	м	<10 <u>M</u> <9		
Bromodichloromethane	<9 µg/	- -	<9	M <7	м	<9	м	<9 M <7		
cis-1,3-Dichloropropene	<7 µg/ <10		<10	<br M <10	М	<7	м	<7 M <10		
CIS-1,3-DICNIOROPROPENE	<10 μg/kg <7 μg/	1	<10	M <7	М	<10	м	<10 M <7		
rans-1,3-Dichloroproper		- -	<10	<br M <10	М	<7	м	<7 M <10		
rans-1,3-Dicnioroproper	ne <10 μg/kg <10	ı	<10	<10		<10		<10		
	μg/kg		~10	M	м	~10	м	<10 M		

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150828-48	Location:	Stag Brewery	Order Number:	
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number:	329008
Client Reference:		Attention:	Gary Marshall	Superseded Report:	

## VOC MS (S)

Results Legend		Customer Sample R	DUD40	DU040		DU040	DU040			
# ISO17025 accredited.		Customer Sample R	BH212	BH212		BH213	BH213			
M mCERTS accredited.										
aq Aqueous / settled sample.		Depth (m)	0.60	1.80 - 2.50		0.60	1.70 - 2.00			
diss.filt Dissolved / filtered sample.		Sample Type	Soil/Solid	Soil/Solid		Soil/Solid	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 stands	ard 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 (F) Trigger breach confirmed	covery	Lab Sample No.(s)	11977832	11977833		11977835	11977837			
1-5&+§@ Sample deviation (see appendix)		AGS Reference								
Component	LOD/Uni									
			-7	-7	_	-7	-7			<u> </u>
1,3-Dichloropropane	<7 µg/	kg TM116	<7	<7		<7	<7			
			М		Μ		M	M		
Tetrachloroethene	<5 µg/	kg TM116	<5	<5		<5	<5			
			м				м	М		
					М			IVI		
Dibromochloromethane	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		Μ		M	M		
1,2-Dibromoethane	<10	TM116	<10	<10		<10	<10			
	µg/kg									
			М	-	М		М	М		
Chlorobenzene	<5 µg/	kg TM116	<5	<5		<5	<5			
			М		Μ		м	М		
1,1,1,2-Tetrachloroethane	<10	TM116	<10	<10		<10	<10			
	µg/kg		M		М		M	М	L	<u> </u>
Ethylbenzene	<4 µg/	kg TM116	<4	<4		<4	<4			
			М		М		м	М		
p/m-Xylene	<10	TM116	<10	<10		<10	<10			
P.111 7 (310110						-10				
	µg/kg		#		#		#	#		L
o-Xylene	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		М		м	М		
Styrene	<10	TM116	<10	<10		<10	<10			<u> </u>
Gigrene						~10				
	µg/kg		#		#		#	#		
Bromoform	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		М		м	М		
Isopropylbenzene	<5 µg/l		<5	<5		<5	<5			
isopropyidenzene	<0 µg/i	Ng INTIO				~0				
			#		#		#	#		
1,1,2,2-Tetrachloroethane	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		М		м	М		
1,2,3-Trichloropropane	<16	TM116	<16	<16		<16	<16			<u> </u>
1,2,3-1101101001000	1									
	µg/kg		М		М		М	М		
Bromobenzene	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		Μ		M	Μ		
Propylbenzene	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		м		м	М		
0. Ohle set also se a					IVI			IVI		
2-Chlorotoluene	<9 µg/	kg TM116	<9	<9		<9	<9			
			М		М		M	М		
1,3,5-Trimethylbenzene	<8 µg/	kg TM116	<8	<8		<8	<8			
,., <b>,</b>		5			М			54		
1 Obless tables a	.10	T14440	M		M		M	M		<u> </u>
4-Chlorotoluene	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		Μ		M	М		
tert-Butylbenzene	<14	TM116	<14	<14		<14	<14			
-	µg/kg		М		М		м	М		
124 Trimothylhonzona			<9	<9	IVI	<9	<9	IVI		<u>                                     </u>
1,2,4-Trimethylbenzene	<9 µg/	NY TIVITTO				<9				
			#		#		#	#		
sec-Butylbenzene	<10	TM116	<10	<10		<10	<10			
	µg/kg		М		М		м	М		
4-Isopropyltoluene	<10	TM116	<10	<10		<10	<10			<u>                                     </u>
	µg/kg		M		М		M	Μ		<u> </u>
1,3-Dichlorobenzene	<8 µg/	kg TM116	<8	<8		<8	<8			
			М		М		м	М		
1,4-Dichlorobenzene	<5 µg/l	kg TM116	<5	<5		<5	<5			
,	~ µg/i	5	м		М		м	М		
		<b>T</b> 14440			IVI			IVI		
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 Dibrores 2 shi sans	-				141			IVI		<u>├</u>
1,2-Dibromo-3-chloroprop	<14	TM116	<14	<14		<14	<14			
ane	µg/kg		M		М		М	М		
Tert-amyl methyl ether	<10	TM116	<10	<10		<10	<10			
· · · ·	µg/kg		#		#		#	#		
1,2,4-Trichlorobenzene	<20	TM116	<20	<20		<20	<i>"</i> <20			<u>├</u>
			~20	~20		~20	~20			
	µg/kg									
Hexachlorobutadiene	<20	TM116	<20	<20		<20	<20			
	µg/kg									
Naphthalene	<13	TM116	<13	<13		<13	<13			
L	µg/kg		М		М		M	М	L	

### **CERTIFICATE OF ANALYSIS**

Validated

#### VOC MS (S)

**(**)

/OC MS (S)							
Results Legend # ISO17025 accredited.	Cu	stomer Sample R	BH212	BH212	BH213	BH213	
M         mCERTS accredited.           aq         Aqueous / settled sample.           diss.filt         Dissolved / filtered sample.           tot.unfilt         Total / unfiltered sample.           *         Subcontracted test.           **         % recovery of the surrogate standard check the efficiency of the method. T results of individual compounds with samples aren't corrected for the reco           (F)         Trigger breach confirmed	The hin overv	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref .ab Sample No.(s)	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	
1-5&+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<20	<20	 
	10 0						

#### **CERTIFICATE OF ANALYSIS**

Validated

S	DG:	150828-48	Location:	Stag Brewery	Order Number:	
J	ob:	H_URS_WIM-273	Customer:	AECOM	Report Number: 3	329008
С	lient 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	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

#### **CERTIFICATE OF ANALYSIS**

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

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329008

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

# Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate 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		

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

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### CERTIFICATE OF ANALYSIS

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

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329008

 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

150828-48

H\_URS\_WIM-273

**CERTIFICATE OF ANALYSIS** 

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329008 Superseded Report:

# ASSOCIATED AQC DATA

Ammonium Soil by Titration

SDG:

Job:

Client Reference:

Component	Method Code	QC 1292	QC 1205
Exchangeable	TM024	<b>86.07</b>	<b>98.01</b>
Ammonium as NH4		79.30 : 104.61	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	TM173	<b>97.92</b>	<b>92.08</b>
>C12-C35		69.19 : 111.75	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
component	Method Code		QU 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	TM089	<b>110.5</b>	<b>105.5</b>
(Moisture Corrected)		80.45 : 118.61	75.73 : 123.83
m & p Xylene by GC	TM089	<b>110.0</b>	<b>104.5</b>
(Moisture Corrected)		79.25 : 119.43	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

### **CERTIFICATE OF ANALYSIS**

 SDG:
 150828-48
 Location:
 Stag Brewery

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

 Client Reference:
 Attention:
 Gary Marshall

Order Number: Report Number: 329008 Superseded Report:

#### Hexavalent Chromium (s)

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	<b>100.0</b> 92.20 : 106.60	<b>102.0</b> 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

### **CERTIFICATE OF ANALYSIS**

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

### 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

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
		73.54 : 114.21	67.15 : 124.45
Benz(a)anthracene	TM218	102.5	97.5
		74.99 : 132.24	82.00 : 127.00
Benzo(a)pyrene	TM218	102.0	99.5
	714040	80.75 : 127.25	75.60 : 124.20
Benzo(b)fluoranthene	TM218	99.5	99.0
Denne(ski)sesulese	TM218	75.84 : 127.12	81.20 : 121.77
Benzo(ghi)perylene	11/1218	<b>97.0</b> 74.74 : 124.03	96.0
Benzo(k)fluoranthene	TM218		77.49 : 119.12
Denzo(k)indoranthene	111/12/10	<b>98.0</b> 80.00 : 125.00	<b>96.5</b> 83.50 : 116.50
Chrysene	TM218		
Chilybonio	1111210	<b>98.0</b> 77.24 : 120.84	<b>95.5</b> 78.35 : 114.42
Dibenzo(ah)anthracene	TM218	96.5	95.0
		<b>90.5</b> 76.00 : 122.50	<b>95.0</b> 77.15 : 122.45
Fluoranthene	TM218	92.5	92.5
		78.51 : 118.75	79.08 : 114.40
Fluorene	TM218	93.0	91.5
		76.95 : 117.18	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

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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

### **CERTIFICATE OF ANALYSIS**

SDG:	150828-48	Location:	Stag Brewery AECOM	Order Number:	20008
Job:	H_URS_WIM-273	Customer:	AECOIVI	Report Number: 3	329008
Client Reference:		Attention:	Gary Marshall	Superseded Report:	

#### 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

#### **CERTIFICATE OF ANALYSIS**

	CERTIFICATE OF ANALISIS			-1313
SDG:	150828-48	Location:	Stag Brewery	Order Numbe
Job:	H_URS_WIM-273	Customer:	AECOM	Report Numb
Client Referen	nce:	Attention:	Gary Marshall	Superseded I
VOC MS (S	)			

ler Number: port Number: 329008 perseded Report:

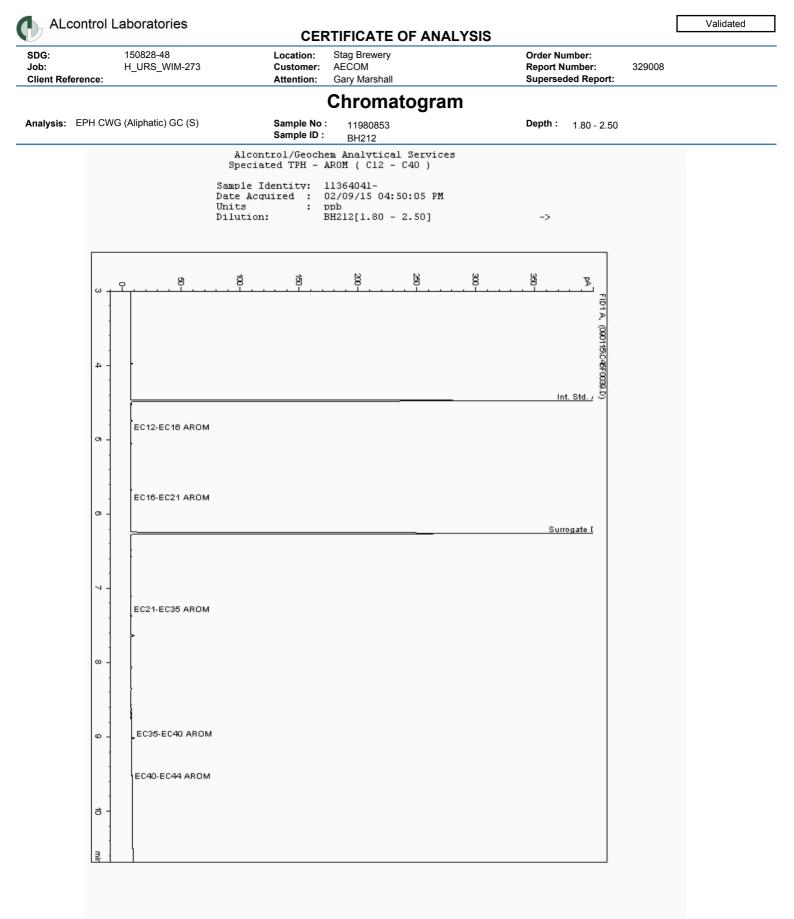
		QC 1172	QC 1128
Ethylbenzene	TM116	<b>96.6</b> 73.60 : 115.60	<b>94.0</b> 80.07 : 125.98
Hexachlorobutadiene	TM116	<b>114.0</b> 33.65 : 130.56	<b>69.0</b> 30.92 : 132.28
Isopropylbenzene	TM116	<b>92.0</b> 72.52 : 117.52	<b>82.6</b> 69.27 : 125.32
Naphthalene	TM116	<b>107.0</b> 83.23 : 126.48	<b>110.0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

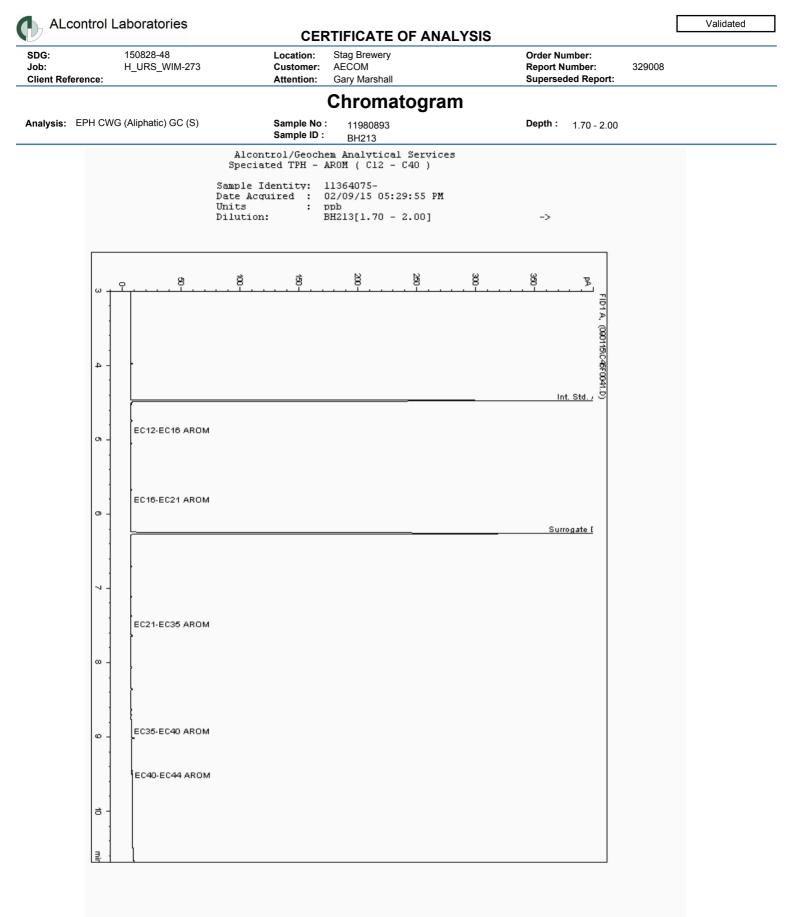
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

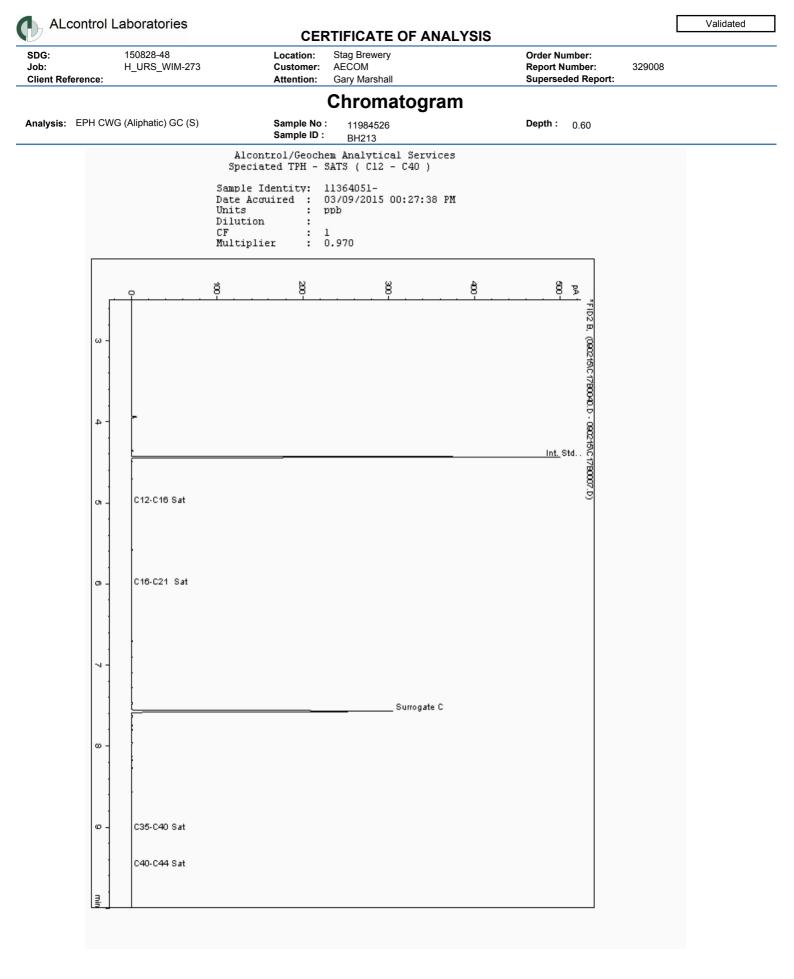
The figure detailed is the percentage recovery result for the AQC.

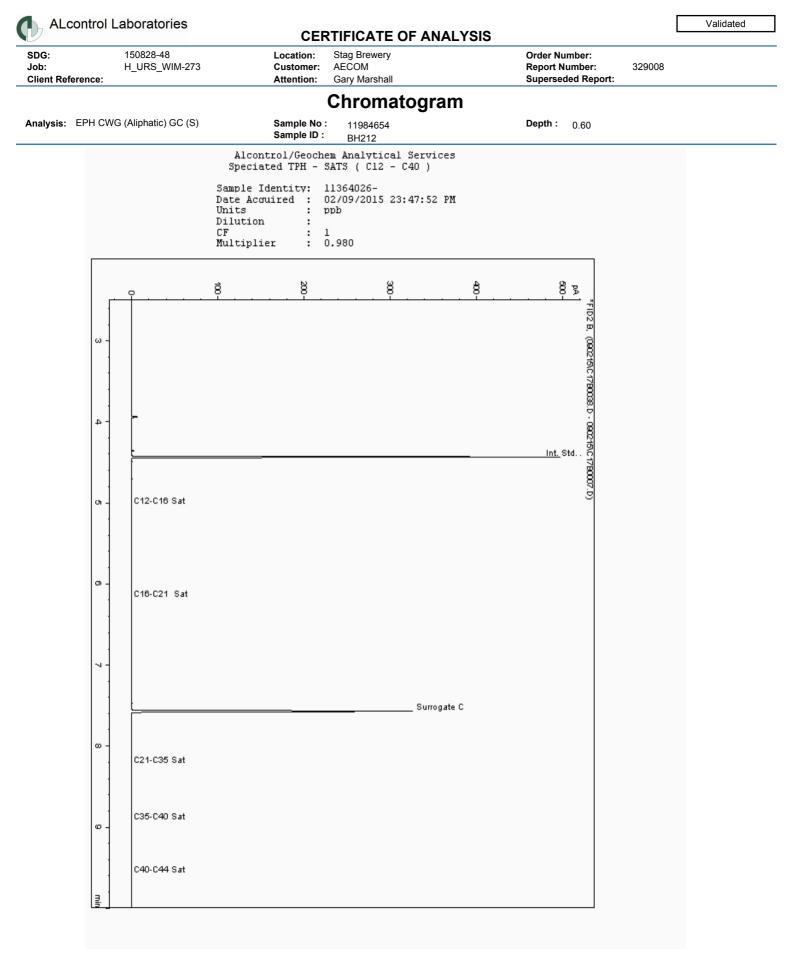
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

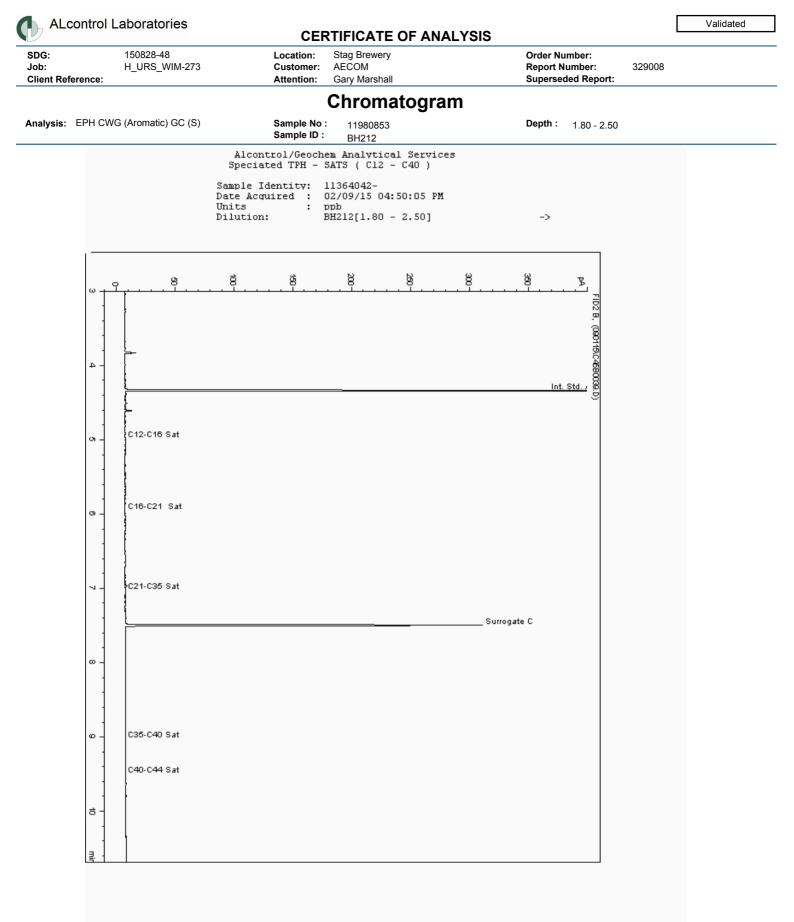
Validated

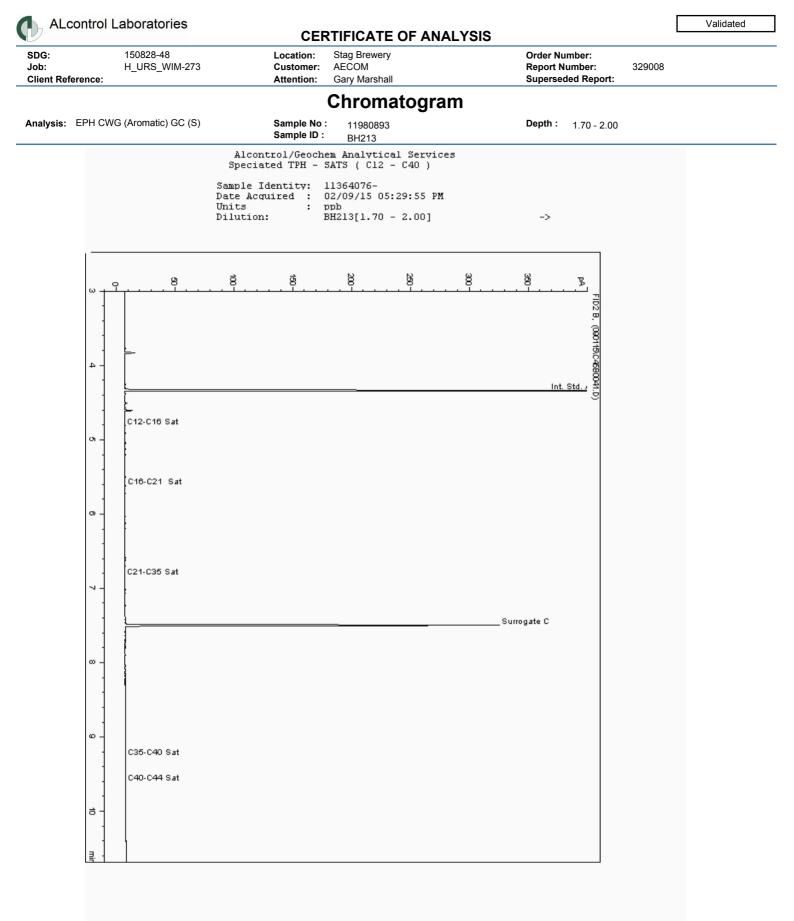


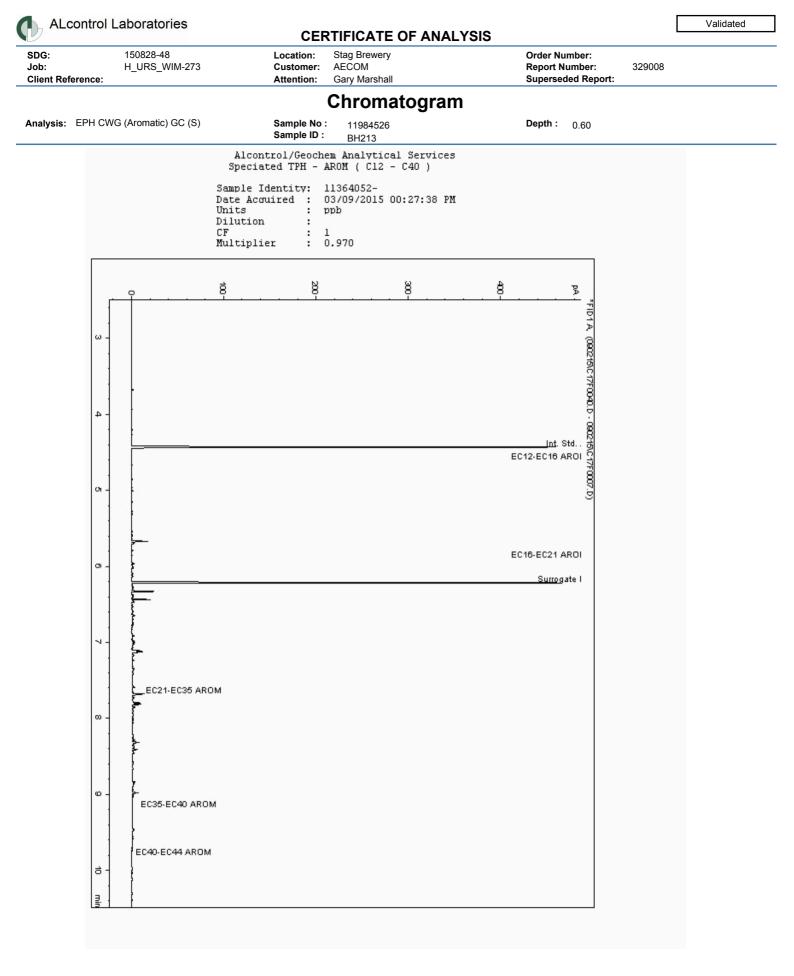


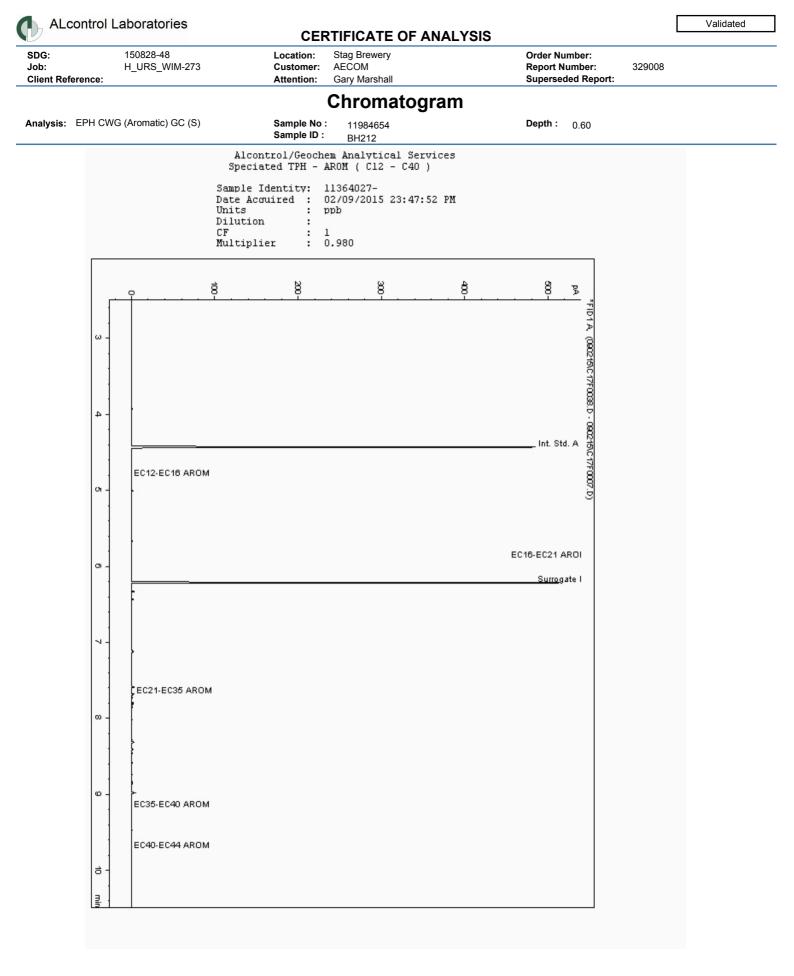


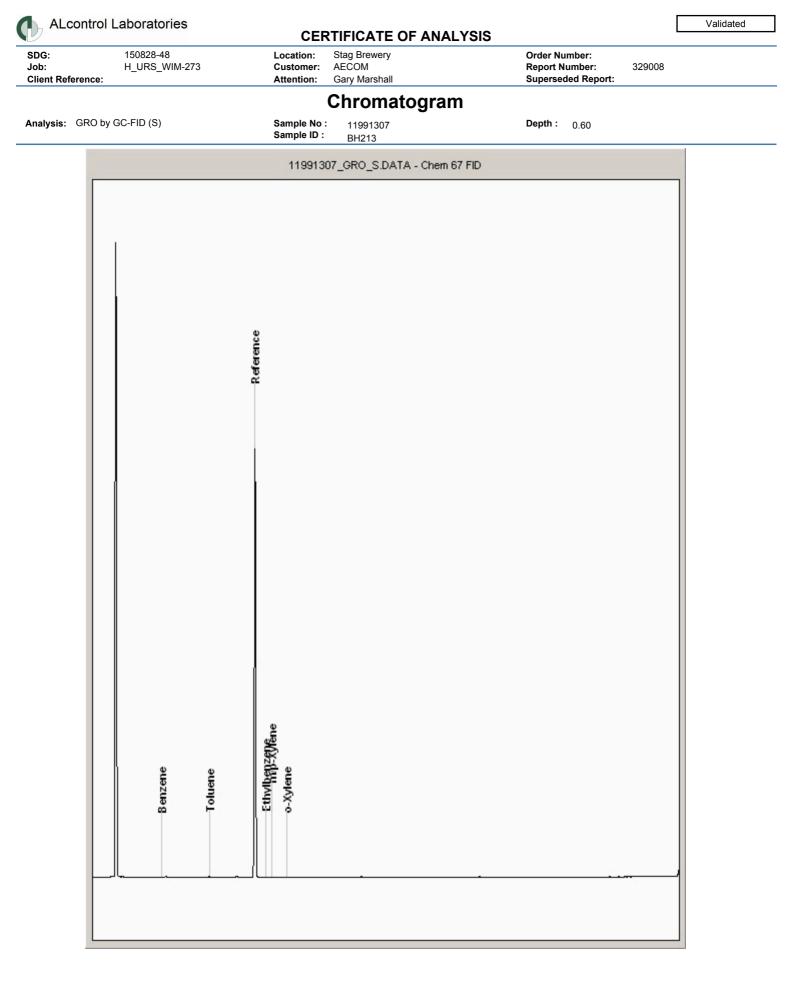


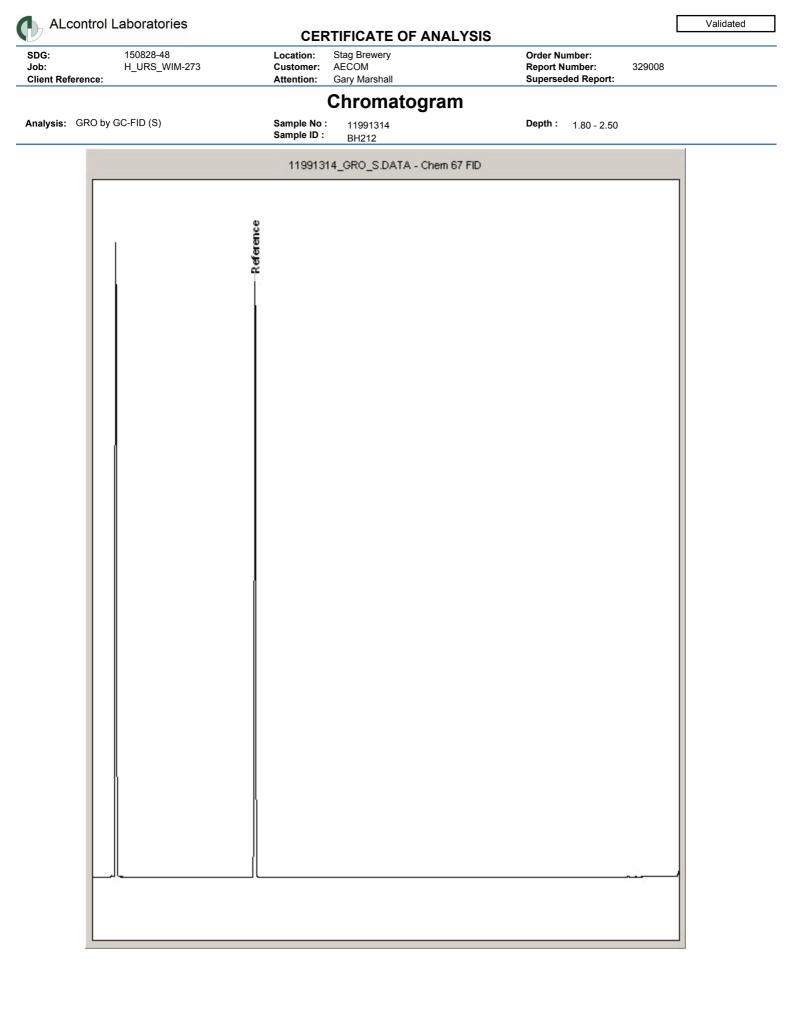


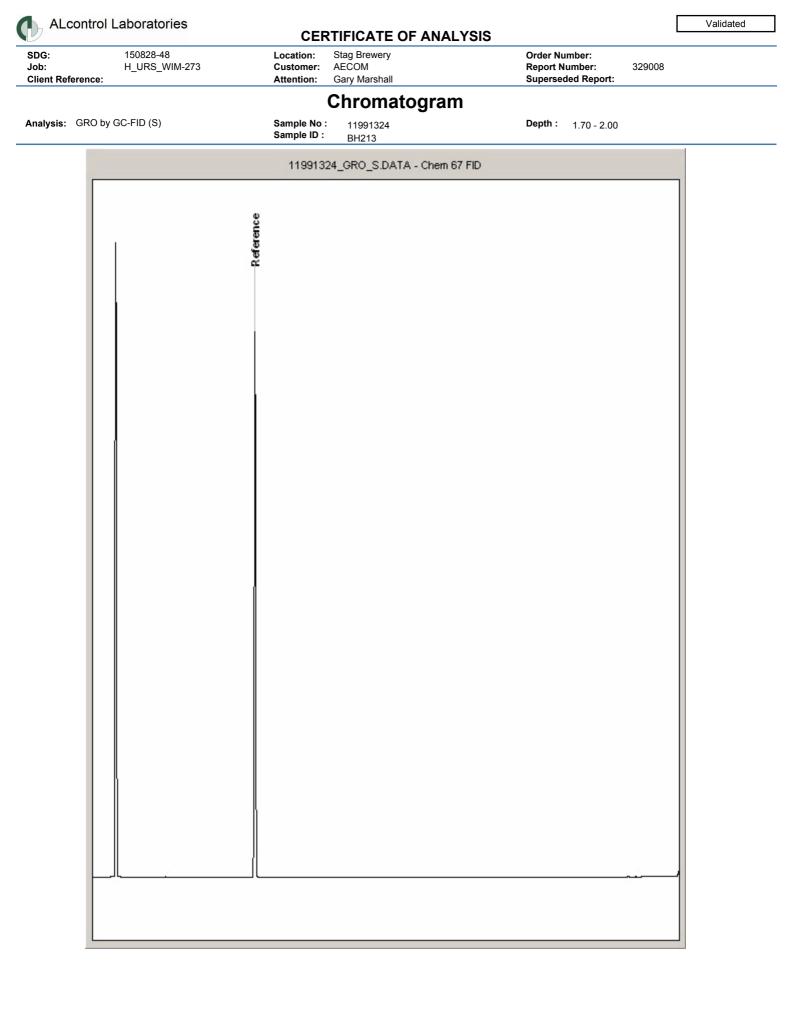


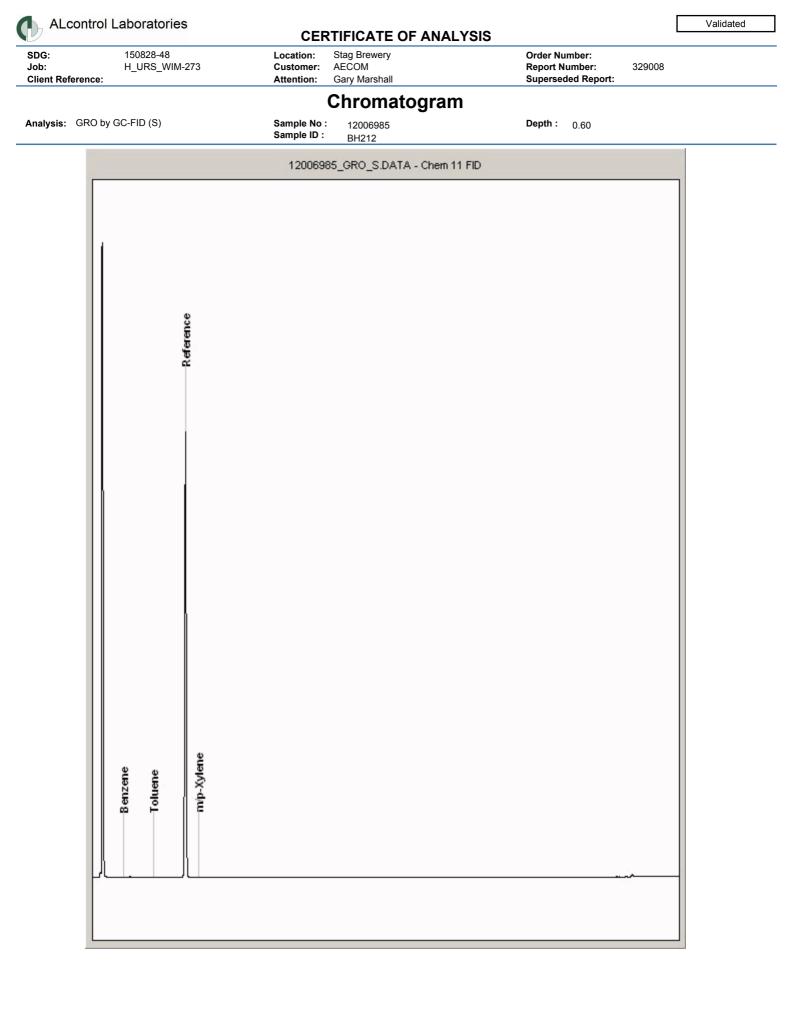












#### **CERTIFICATE OF ANALYSIS**

SDG:	150828-48	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

#### SOLID MATRICES EXTRACTION SUMMARY

329008

	D/C OR	EXTRACTION	EXTRACTION		
ANALYSIS	WET	SOLVENT	METHOD	ANALYSIS	
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC	
CYOLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC	
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	ATROSCAN	
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC	
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GC-MS	
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	HEXANE/ACETONE	ENDOWEREND	GCFID	
EPH CMG BYGC	D&C	HEXANEACETONE	ENDOWEREND	GCFID	
PCB TOT / PCB CON	D&C	HEXANE/ACETONE	ENDOWEREND	GCMS	
FOL YAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GC-MS	
08-040(06-040)EZ FLASH	WET	HEXANEACETONE	SHAVER	GCEZ	
POL VAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAVER	0CEZ	
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS	

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
BH	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
PCB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
SVOC	DOM	LIQUID'LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST COP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TIH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

#### **CERTIFICATE OF ANALYSIS**

SDG:	150828-48	Location:	Stag Brewery	Order Number:
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number: 329008
Client Reference:		Attention:	Gary Marshall	Superseded Report:

# 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 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-lsopropylphenol, 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
Chrysolie	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adinate	-
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.



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 September 2015 H\_URS\_WIM 150828-57

Stag Brewery 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



#### **CERTIFICATE OF ANALYSIS**

Validated

		VEN			
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:	

# **Received Sample Overview**

Lab Sample No(s) 11978081	Customer Sample Ref. BH8A	AGS Ref.	Depth (m) 0.50	Sampled Date 26/08/2015
11978081	вная		0.90	26/08/2015
11978083	BH8A		3.00 - 3.50	26/08/2015
11978079	BH9A		0.50	26/08/2015
11978080	BH9A		2.20 - 3.30	26/08/2015

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

ALcontrol	Laborator	ies		срт		\ T⊏	: ^		NALY	cic				Valida
SDG: Job:	150828-57 H_URS_W	IM-273	Location: Custome	: S r: A	tag Bre	wery	,	л A	INAL Y	313	Order Num Report Nur	nber:	329023	
Client Reference:			Attention	: G	Bary Ma	rshal					Supersede	d Report:		
OLID esults Legend		Lab Samp	le No(s)	-	1197	1107	1197		1107					
X Test			(-)	-	11978081	11978083	11978079	0000	11078080					
No Determin	notion					-			-					
No Determin Possible	nation	Custo	mer											
		Sample Re		Ī	RH8A	RHRA	BH9A		RHOA					
		AGS Refe	erence											
									_					
		Depth	(m)	c 	0 50	3 00 - 3 50	0.50		2 20 2 3 20					
		Bopti												
				400g 250g	400g Tub (ALE214) 250g Amber Jar (AL 60g VOC (ALE215)	250g	60g \	400g 250g	602 1					
		Contai	iner	Tub (A Amber	Tub (A Amber	Amber		Tub (A Amber						
				LE214 Jar (Al	LE214 Jar (Al	Jar (Al	LE215	LE214 Jar (Al	- П 3 1 л					
mmonium Soil by Titrat	tion	All	NDPs: 0 Tests: 4											
			16515. 4	x	x	)	ĸ	x						
sbestos ID in Solid Sar	nples	All	NDPs: 0 Tests: 2	x			ĸ		_					
Easily Liberated Sulphid	e	All	NDPs: 0			<b>_</b>	<u>`</u>		-					
			Tests: 4	x	x	)	ĸ	X						
EPH CWG (Aliphatic) G	C (S)	All	NDPs: 0 Tests: 4											
	0 (0)	A11		x	x	x		x						
EPH CWG (Aromatic) G	0 (5)	All	NDPs: 0 Tests: 4	X	X	x		X	-					
GRO by GC-FID (S)		All	NDPs: 0	^	^	<u>^</u>	+	<u>^</u>	-					
			Tests: 4		x	x	x		×					
Hexavalent Chromium (s	s)	All	NDPs: 0 Tests: 4											
Metals in solid samples I	by OES	All		X	x	)	K	X	_					
vietais in solid samples i	by OES	All	NDPs: 0 Tests: 4	x	X	x	-	X	-					
PAH by GCMS		All	NDPs: 0		<u>^</u>		-		-					
			Tests: 4	x	x	x		x						
H		All	NDPs: 0 Tests: 4											
Sample description		All	NDPs: 0	X	×	)	K	X	_					
		<i>1</i> 741	Tests: 4	X	X	X	-	X	-					
Fotal Organic Carbon		All	NDPs: 0				+		-					
			Tests: 4	x	x	x		x						
Total Sulphate		All	NDPs: 0 Tests: 4											
PH CWG GC (S)		All	NDPs: 0	x	x	x		x	-					
			Tests: 4	x	x	x		X	-					
/OC MS (S)		All	NDPs: 0				+		-					
			Tests: 4		x	x	x		x					

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150828-57	Location:	Stag Brewery	Order Number:	329023
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number:	
Client Reference:		Attention:	Gary Marshall	Superseded Report:	

# **Sample Descriptions**

Grain Sizes											
very fine	<0.063mm	n fine	0.063mm - 0.1mm	medi	ium 0.1mm	n - 2mm	coarse	2mm - 1	.0mm	very coars	se >10mm
Lab Sample No	(s) C	ustomer Sample I	Ref. Depth (m	)	Colour	Descript	ion	Grain size	Inclu	usions	Inclusions 2
11978081		BH8A	0.50		Black	Sand		0.1 - 2 mm	Sto	ones	None
11978083		BH8A	3.00 - 3.5	0	Light Brown	Sand		0.1 - 2 mm	Stones		None
11978079		BH9A	0.50		Light Brown	Sand		0.1 - 2 mm		ones	None
11978080		BH9A	2.20 - 3.3	0	Dark Brown	Sandy Clay Loam		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.

**(**)

#### **CERTIFICATE OF ANALYSIS**

Validated

Client Reference:			Attention: G	ary Marshall		Superseded Repo	<i>n</i> t.	
					-			
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 stands	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	150828-57	150828-57	150828-57	150828-57		
(F) Trigger breach confirmed		Lab Sample No.(s)	11978081	11978083	11978079	11978080		
1-5&+§@ Sample deviation (see appendix)	LOD/Unit	AGS Reference s Method						
Component			47	0.5	7.0	44		
Moisture Content Ratio (%	%	PM024	17	9.5	7.3	14		
of as received sample)	.45	T1400.4	.45	40.4	.45	74.4		
Exchangeable Ammonia	<15	TM024	<15	18.4	<15	71.4		
as NH4	mg/kg		M			M		
Organic Carbon, Total	<0.2 %	5 TM132	19.1	<0.2	<0.2	0.443		
		<b>T</b> 14400	M			M		
рН	1 pH	TM133	8.38	7.66	10.2	11.2		
	Units		M			M		
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6	<0.6		
	mg/kg		#			#		
Sulphide, Easily liberated	<15	TM180	40.4	<15	<15	252		
	mg/kg		<b>*</b> #			♦ #		
Arsenic	<0.6	TM181	13.7	14.7	16.5	15.5		
	mg/kg		М			M		
Cadmium	<0.02		0.344	0.338	0.395	0.378		
	mg/kg		М			M		
Chromium	<0.9	TM181	13.9	19.1	18.9	21.1		
	mg/kg		М			M		
Copper	<1.4	TM181	80.7	5.98	8.36	12		
	mg/kg		М	М	м	М		
Lead	<0.7	TM181	41.4	6.89	12.4	23.7		
	mg/kg		М	М	М	М		
Mercury	<0.14		<0.14	<0.14	<0.14	<0.14		
	mg/kg		М			М		
Nickel	<0.2	TM181	37.6	18.8	23.6	20.7		
	mg/kg		М			М		
Selenium	<1 mg/ł		<1	<1	<1	<1		
		.ge.	. #			. #		
Zinc	<1.9	TM181	24.4	25.5	34.5	62.4		
2	mg/kg		 M			M		
Sulphate, Total	<48	TM221	775	80.9	212	1040		
	mg/kg	1111221	м			M		
			111	IVI	IVI	101		

SDG: Job:	F	150828-57 H_URS_WIM-2	273	Location: Customer:	AEC				Order Num Report Nu	mber:	329023		
	Reference:			Attention:	Gary	y Marshall			Supersede	d Report:			 
PAH by	GCMS Results Legend		Customer Sample R	BH8A		BH8A		BH9A	BH9A				 
M mCl	17025 accredited. ERTS accredited.			Dilort		5110/1		5.16,1	5110/1				
diss.filt Diss	ueous / settled sample. solved / filtered sample.		Depth (m) Sample Type	0.50 Soil/Solid		3.00 - 3.50 Soil/Solid		0.50 Soil/Solid	2.20 - 3.3 Soil/Soli				
* Sub	al / unfiltered sample. contracted test.	- standard to	Date Sampled	26/08/2015		26/08/2015		26/08/2015	26/08/201				
che	ecovery of the surrogate eck the efficiency of the n ults of individual compo	method. The	Sampled Time Date Received	28/08/2015		28/08/2015		28/08/2015	28/08/201	15			
sam	nples aren't corrected for gger breach confirmed		SDG Ref Lab Sample No.(s)	150828-57 11978081		150828-57 11978083		150828-57 11978079	150828-5 1197808				
1-5&+§@ Sam	nple deviation (see appe		AGS Reference										
Componen Naphthale		LOD/Uni %	its Method TM218	122		101	+	99	95.4			$\rightarrow$	 
recovery*		70	TIVIZ TO	122		101		99	95.4				
Acenapht recovery*	thene-d10 %	%	TM218	124		97.4		98.4	94.8				
	rene-d10 %	%	TM218	118		93.6		96.9	93.4				
Chrysene	e-d12 %	%	TM218	99.3	$\neg$	83.8		92.1	84.9			+	
recovery* Perylene-	-d12 %	%	TM218	96.2		83.6	+	99	91.4			+	 
recovery* Naphthale		<9 µg/	kg TM218	111	-+	<9	+	<9	32.7			+	 
Acenapht		<12	TM218	16	м	<12	м		M 15	М		+	 
· · ·	-	µg/kg			м		м		м	М		$\perp$	 
Acenapht	inene	<8 µg/l	kg TM218	<8	м	<8	м	<8	11 M	М			
Fluorene		<10 µg/kg	TM218	<10	м	<10	м	<10	54.6 M	м			
Phenanth	irene	<15 µg/kg	TM218	215	м	<15	м	<15	360 M	M			 
Anthracer	ne	<16	TM218	33.2		<16		<16	105			+	 
Fluoranth	ene	µg/kg <17	TM218	237	M	<17	M	<17	M 400	M		+	 
Pyrene		µg/kg <15	TM218	186	M	<15	M	16.7	M 317	M		+	 
Benz(a)ar	nthracene	µg/kg <14	TM218	128	М	<14	м	24.7	M 283	М		+	 
. ,		µg/kg			м		м		м	М		$\square$	 
Chrysene		<10 µg/kg		137	м		м		218 M	м		$\square$	 
	fluoranthene	<15 µg/kg		193	м	<15	м		306 M	м			
Benzo(k)f	fluoranthene	<14 µg/kg	TM218	59.9	м	<14	м	<14	108 M	м			
Benzo(a)p	pyrene	<15 µg/kg		122	м	<15	м	18.2	259 M	м			
Indeno(1,	2,3-cd)pyrene	<18 µg/kg	TM218	76.6	м	<18	м	<18	121 M	M		$\top$	
Dibenzo(a	a,h)anthracene	<23	TM218	<23		<23		<23	40.4			+	
Benzo(g,ł	h,i)perylene	µg/kg <24	TM218	108	M	<24	M	<24	M 144	M		+	
	al Detected	µg/kg <118	TM218	1620	M	<118	M	<118	M 2780	M		+	 
USEPA 1	6	µg/kg					+					+	
												$\rightarrow$	 
												$\perp$	 
												$\top$	 
												+	 
					$\rightarrow$							+	 
							+					+	 
												+	 

SDG:         150828-57         Location:         Stag Brewery         Order Number:												
SDG: Job:	H_URS_WI	M-273		Location: Customer:		COM			Report Numbe	er:	329023	
Client Reference:				Attention:	Ga	ry Marshall			Superseded R	eport:		
PH CWG (S) Results L	agend	Cu	stomer Sample R	BH8A		BH8A	BH9A		BH9A			
# ISO17025 accredite M mCERTS accredited aq Aqueous / settled s	i. I. ample.	U.	Depth (m)	0.50		3.00 - 3.50	0.50		2.20 - 3.30			
diss.filt Dissolved / filtered a tot.unfilt Total / unfiltered sa * Subcontracted test. ** % recovery of the s	nple.		Sample Type Date Sampled Sampled Time	Soil/Solid 26/08/2015		Soil/Solid 26/08/2015	Soil/Solid 26/08/2015		Soil/Solid 26/08/2015			
check the efficiency results of individua samples aren't corr	of the method. The compounds within acted for the recovery		Date Received SDG Ref	28/08/2015 150828-57 11978081		28/08/2015 150828-57 11978083	28/08/2015 150828-57 11978079		28/08/2015 150828-57 11978080			
(F) Trigger breach cont -5&+§@ Sample deviation (s			ab Sample No.(s) AGS Reference	11370001		11970003	11370073		11370000			
Component		/Units	Method									
GRO Surrogate % recovery**		%	TM089	72		107	113		97			
GRO TOT (Moisture Corrected)	μg	44 /kg	TM089	<44	м	<44 M	178	м	106	м		
Methyl tertiary butyl (MTBE)	ether <5	µg/kg	TM089	<5	м	<5 M	<5	м	<5	м		
Benzene	μg	10 /kg	TM089	<10	М	<10 M	<10	м	<10	м		
Toluene		µg/kg	TM089	2.42	М	<2 M	<2	м	<2	м		
Ethylbenzene		µg/kg	TM089	<3	М	<3 M	<3	м	<3	м		
m,p-Xylene		µg/kg	TM089	<6	М	<6 M	<6	м	<6	м		
o-Xylene	<3	µg/kg	TM089	<3	М	<3 M	<3	м	<3	м		
sum of detected mp xylene by GC		µg/kg	TM089	<9		<9	<9		<9			
sum of detected BT GC		24 /kg	TM089	<24		<24	<24		<24			
Aliphatics >C5-C6		10 /kg	TM089	<10		<10	<10		<10			
Aliphatics >C6-C8		10 /kg	TM089	14.5		<10	<10		19.7			
Aliphatics >C8-C10		10 /kg	TM089	10.9		<10	11.9		22			
Aliphatics >C10-C12	μg	10 /kg	TM089	<10		<10	87.4		25.5			
Aliphatics >C12-C16		100 /kg	TM173	555		<100	<100		1290			
Aliphatics >C16-C2		100 /kg	TM173	1230		<100	<100		3060			
Aliphatics >C21-C3	; < <sup>,</sup>	100 /kg	TM173	5830		<100	<100		6690			
Aliphatics >C35-C44	<mark>،</mark> ح	100 /kg	TM173	567		<100	<100		<100			
Total Aliphatics >C1	2-C44 <	100 /kg	TM173	8180		<100	<100		11000			
Aromatics >EC5-EC	7 <	10 /kg	TM089	<10		<10	<10		<10			
Aromatics >EC7-EC	8 <	10 /kg	TM089	<10		<10	<10		<10			
Aromatics >EC8-EC	10 <	10 /kg	TM089	<10		<10	<10		15.1			
Aromatics >EC10-E	C12 <	10 /kg	TM089	<10		<10	58.3		17.4			
Aromatics >EC12-E	C16 <	/kg /kg	TM173	<100		<100	<100		2810			
Aromatics >EC16-E	C21 <	/kg /kg	TM173	<100		<100	<100		19400			
Aromatics >EC21-E	C35 <	/kg 100 /kg	TM173	<100		<100	<100		66300			
Aromatics >EC35-E	C44 <	/kg 100 /kg	TM173	<100		<100	<100		16400	+		
Aromatics >EC40-E	C44 <'	100	TM173	<100		<100	<100		5980			
Total Aromatics >EC12-EC44	<'	/kg 100 /kg	TM173	<100		<100	<100		105000			
>EC12-EC44 Total Aliphatics & Aromatics >C5-C44	<'	/kg 100 /kg	TM173	8220		<100	111		116000			
	<u>94</u>	, ng										

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(D)	ALcontrol Labor	alones		CER	RTI	FICATE OF AI	NALYSIS			L	Validated
SDG: Job: Client		28-57 RS_WIM-2	273	Location: Customer: Attention:	AE	ag Brewery COM ry Marshall			Order Number: Report Number: Superseded Rep	329023 ort:	
VOC N			Our family D							-	
M aq diss.filt tot.unfilt ** (F) 1-5&+§@	Results Legand ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted test. % recovery of the surrogate standa check the efficiency of the method. results of individual compounds w samples aren't corrected for the re- Trigger breach confirmed Sample deviation (see appendix)	. The ithin	Customer Sample R Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference its Method	0.50 Soil/Solid 26/08/2015 28/08/2015 150828-57 11978081		BH8A 3.00 - 3.50 Soii/Solid 26/08/2015 28/08/2015 150828-57 11978083	BH9A 0.50 Soii/Solid 26/08/2015 28/08/2015 150828-57 11978079		BH9A 2.20 - 3.30 Soil/Solid 26/08/2015 28/08/2015 150828-57 11978080		
Compon Dibrom	nofluoromethane**	%	TM116	114		109	120		112		
Toluen	e-d8**	%	TM116	102		101	102		102		
4-Brom	nofluorobenzene**	%	TM116	88.1		95	96.1		92.2		
Dichlor	odifluoromethane	<6 µg/	kg TM116	<60		<6	<6		<6		
Chloror	methane	<7 µg/	kg TM116	<70	М	M <7	<7	М	M <7		
Vinyl C	hloride	<6 µg/		<60	#	# <6	<6	#	# <6		
	methane	<10	TM116	<100	М	M <10	<10	М	M <10		
		µg/kg			М	M		М	М		
Chloroe		<10 µg/kg		<100	М	<10 M	<10	м	<10 M		
Trichlor	rofluorormethane	<6 µg/		<60	М	<6 M	<6	М	<6 M		
1,1-Dic	chloroethene	<10 µg/kg	TM116	<100	#	<10 #	<10	#	<10 #		
Carbon	n Disulphide	<7 µg/	kg TM116	<70	М	<7 M	<7	м	<7 M		
Dichlor	omethane	<10 µg/kg	TM116	<100	#	<10 #	<10	#	<10 #		
Methyl	Tertiary Butyl Ether	<10 µg/kg	TM116	<100	М	<10 M	<10	м	<10 M		
trans-1	,2-Dichloroethene	<10 µg/kg	TM116	<100	M	<10 M	<10	м	<10 M		
1,1-Dic	chloroethane	-8 μg/		<80		<8	<8		<8		
cis-1,2-	-Dichloroethene	<6 µg/	kg TM116	<60	M	M <6	<6	М	M <6		
2,2-Dic	chloropropane	<10	TM116	<100	M	M <10	<10	М	M <10		
Bromod	chloromethane	µg/kg <10	TM116	<100	M	M <10	<10	М	M <10		
Chlorof	form	μg/kg <8 μg/		<80	M	M <8	<8	М	M <8		
1,1,1-T	richloroethane	<7 µg/	kg TM116	<70	M	M <7	<7	М	M <7		
1,1-Dic	chloropropene	<10	TM116	<100	М	M <10	<10	М	M </td <td></td> <td></td>		
Carbon	ntetrachloride	µg/kg <10	TM116	<100	М	M <10	<10	М	M <10		
1,2-Dic	chloroethane	μg/kg <5 μg/		<50	М	M <5	<5	М	M <5		
Benzer	ne	<9 µg/		<90	Μ	M <9	<9	М	M <9		
Trichlor	roethene	<9 µg/	-	<90	М	M <9	<9	М	M <9		
	chloropropane	<10	TM116	<100	#	# <10	<10	#	# <10		
	nomethane	μg/kg <9 μg/		<90	М	M <9	<9	М	M <9		
	dichloromethane			<70	М	<9 M <7	<7	м	M		ļ
		<7 µg/	Ĵ		М	M		м	М		
	-Dichloropropene	<10 µg/kg		<100	М	<10 M	<10	м	<10 M		
Toluen		<7 µg/		<70	М	<7 M	<7	м	<7 M		
	,3-Dichloropropene	<10 µg/kg		<100		<10	<10		<10		
112T	richloroethane	<10	TM116	<100		<10	<10		<10		

#### **CERTIFICATE OF ANALYSIS**

Validated

#### VOC MS (S)

Results Legend # ISO17025 accredited. M mCERTS accredited.		Customer Sample R	BH8A	BH8A		BH9A	BH9A		
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered 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		
* 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 w 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)	11978081	11978083		11978079	11978080		
	LOD/Unit	AGS Reference s Method							
Component					_		_		
1,3-Dichloropropane	<7 µg/k	g TM116	<70 M	<7	м	<7 M	<7 M		
Tetrachloroethene	<5 µg/k	g TM116	<50 M	<5	м	<5 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
Chlorobenzene	<5 µg/k	g TM116	<50 M	<5	м	<5 M	<5 M		
1,1,1,2-Tetrachloroethane	<10	TM116	<100	<10	191	<10	<10		
	µg/kg		<100 M		м	М	M		
Ethylbenzene	<4 µg/k	g TM116	<40 M	<4	м	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<100 #	<10	#	<10 #	<10 #		
o-Xylene	<10	TM116	<100	<10		<10	<10		
Styrene	µg/kg <10	TM116	M <100	<10	M	M <10	M <10		
	µg/kg		#		#	#	#		
Bromoform	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
Isopropylbenzene	<5 µg/k	g TM116	<50 #	<5	#	<5 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
1,2,3-Trichloropropane	<16	TM116	<160	<16		<16	<16		
	µg/kg		M		М	M	М		
Bromobenzene	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
Propylbenzene	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
2-Chlorotoluene	<9 µg/k	g TM116	<90 M	<9	м	<9 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/k	g TM116	<80 M	<8	м	<8 M	<8		
4-Chlorotoluene	<10 µg/kg	TM116	<100 M	<10	м	<10 M	<10 M		
tert-Butylbenzene	<14	TM116	<140	<14		<14	<14		
	µg/kg		M		м	M	M		
1,2,4-Trimethylbenzene	<9 µg/kg	g TM116	<90	<9		<9	<9		
sec-Butylbenzene	<10	TM116	# <100	<10	#	# <10	# <10		
4-Isopropyltoluene	μg/kg <10	TM116	M <100	<10	M	<10	M <10		
1,3-Dichlorobenzene	μg/kg <8 μg/k	g TM116	M <80	<8	M	M <8	M <8		
1,4-Dichlorobenzene	<5 µg/k	g TM116	M <50	<5	M	M <5	M <5		
n-Butylbenzene	<11	TM116	M <110	<11	м	M <11	M <11		
1,2-Dichlorobenzene	μg/kg <10	TM116	<100	<10		<10	<10		
	µg/kg		М		м	М	М		
1,2-Dibromo-3-chloroprop ane	<14 µg/kg	TM116	<140 M		м	<14 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<100 #	<10	#	<10 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200	<20		<20	<20		
Hexachlorobutadiene	<20 µg/kg	TM116	<200	<20		<20	<20		
Naphthalene	<13	TM116	<130	<13		<13	<13		
L	µg/kg		М		М	M	M	ļ	1

#### **CERTIFICATE OF ANALYSIS**

Validated

voci	VIS (S)							
	Results Legend	Cu	istomer Sample R	BH8A	BH8A	BH9A	BH9A	
# M	ISO17025 accredited. mCERTS accredited.							
aq diss.filt	Aqueous / settled sample. Dissolved / filtered sample.		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30	
tot.unfilt *	Total / unfiltered sample. Subcontracted test.		Sample Type Date Sampled	Soil/Solid 26/08/2015	Soil/Solid 26/08/2015	Soil/Solid 26/08/2015	Soil/Solid 26/08/2015	
**	% recovery of the surrogate standa check the efficiency of the method.	rd to	Sampled Time					
	results of individual compounds wi samples aren't corrected for the rec	ithin	Date Received SDG Ref	28/08/2015 150828-57	28/08/2015 150828-57	28/08/2015 150828-57	28/08/2015 150828-57	
(F)	Trigger breach confirmed	Lovery	ab Sample No.(s)	11978081	11978083	11978079	11978080	
Compo	Sample deviation (see appendix)	LOD/Units	AGS Reference Method					
	Trichlorobenzene	<20	TM116	<200	<20	<20	<20	
.,_,-		µg/kg		#	#	#	#	
				<u> </u>			<u> </u>	

#### **CERTIFICATE OF ANALYSIS**

Validated

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:

# **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	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

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#### **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:

# 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		
TM243		Mixed Anions In Soils By Kone		

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

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## **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:

# **Test Completion Dates**

	11978081	11978083	11070070	11978080
Lab Sample No(s)	11970001	11970003	11978079	
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
pН	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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H\_URS\_WIM-273

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SDG:

Job:

Client Reference:

**CERTIFICATE OF ANALYSIS** 

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 3 Superseded Report:

329023

Validated

# ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable	TM024	<b>86.07</b>	<b>98.01</b>
Ammonium as NH4		79.30 : 104.61	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	TM173	<b>85.21</b>	<b>87.08</b>	<b>90.21</b>
>C12-C35		62.50 : 112.50	70.80 : 111.51	71.67 : 116.67

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

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

#### GRO by GC-FID (S)

Component	Method Code	00 4405	00 4470
Component	Methoa Coae	QC 1105	QC 1173
Benzene by GC	TM089	<b>83.5</b>	<b>95.0</b>
(Moisture Corrected)		79.00 : 121.00	76.33 : 121.87
Ethylbenzene by GC	TM089	<b>83.5</b>	<b>99.0</b>
(Moisture Corrected)		79.00 : 121.00	75.73 : 123.83
m & p Xylene by GC	TM089	<b>83.75</b>	<b>97.5</b>
(Moisture Corrected)		79.00 : 121.00	75.52 : 120.32
MTBE GC-FID (Moisture	TM089	<b>85.5</b>	<b>94.0</b>
Corrected)		74.48 : 125.29	77.89 : 119.70
o Xylene by GC (Moisture	TM089	<b>83.5</b>	<b>93.5</b>
Corrected)		79.00 : 121.00	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	TM089	<b>83.5</b>	<b>93.5</b>
Corrected)		79.00 : 121.00	77.91 : 122.33

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### **CERTIFICATE OF ANALYSIS**

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 329023 Superseded Report:

#### Hexavalent Chromium (s)

**Client Reference:** 

SDG:

Job:

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	<b>100.0</b> 92.20 : 106.60	<b>102.0</b> 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

H\_URS\_WIM-273

### **CERTIFICATE OF ANALYSIS**

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329023 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:** 

SDG:

Job:

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

pН

Component	Method Code	QC 1208	QC 1218	QC 1227	QC 1293
рН	TM133	<b>100.13</b> 97.19 : 102.81	<b>100.25</b> 97.19 : 102.81	<b>100.5</b> 97.19 : 102.81	<b>100.63</b> 97.19 : 102.81

Total Organic Carbon

### **CERTIFICATE OF ANALYSIS**

		VEN			
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:	

## Total Organic Carbon

Component	Method Code	QC 1254	QC 1245
Total Organic Carbon	TM132	<b>100.46</b> 88.82 : 111.18	<b>98.17</b> 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	95.6	102.6
		83.24 : 124.28	83.24 : 124.28
1,1,1-Trichloroethane	TM116	100.8	102.4
		81.77 : 121.07	81.77 : 121.07
1,1,2-Trichloroethane	TM116	100.4	94.2
		79.24 : 112.23	79.24 : 112.23
1,1-Dichloroethane	TM116	103.0	106.6
		72.58 : 116.06	72.58 : 116.06
1,2-Dichloroethane	TM116	118.8	112.0
1 4 Disklanskansans	TM116	77.50 : 122.50	77.50 : 122.50
1,4-Dichlorobenzene	TIVITIO	96.2	<b>95.4</b>
2-Chlorotoluene	TM116	73.23 : 116.39	73.23 : 116.39
2-Chiorotoluene	TIVITIO	<b>85.6</b> 69.22 : 110.64	<b>86.6</b> 69.22 : 110.64
4-Chlorotoluene	TM116		
4 Oniorotoldene		<b>89.0</b> 68.57 : 106.26	<b>87.4</b> 68.57 : 106.26
Benzene	TM116	103.2	
		84.33 : 124.27	<b>106.0</b> 84.33 : 124.27
Carbon Disulphide	TM116	110.4	107.4
		77.20 : 122.80	77.20 : 122.80
Carbontetrachloride	TM116	98.2	102.8
		84.20 : 119.90	84.20 : 119.90
Chlorobenzene	TM116	102.4	103.2
		85.28 : 129.96	85.28 : 129.96
Chloroform	TM116	108.2	106.6
		82.73 : 119.72	82.73 : 119.72
Chloromethane	TM116	123.4	117.2
		55.16 : 145.46	55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	108.4	108.4
		73.56 : 118.93	73.56 : 118.93
Dibromomethane	TM116	104.4	98.0
		73.40 : 116.60	73.40 : 116.60
Dichloromethane	TM116	113.2	108.2
		76.16 : 121.98	76.16 : 121.98

#### CERTIFICATE OF ANALYSIS

			CERTIFICATE OF ANALISIS			
	SDG: Job:	150828-57 H URS WIM-273	Location: Customer:	Stag Brewery AECOM	Order Number: Report Number	
	Client Reference:		Attention:	Gary Marshall	Superseded Re	

VOC MS (S)

er: 329023 er: Report:

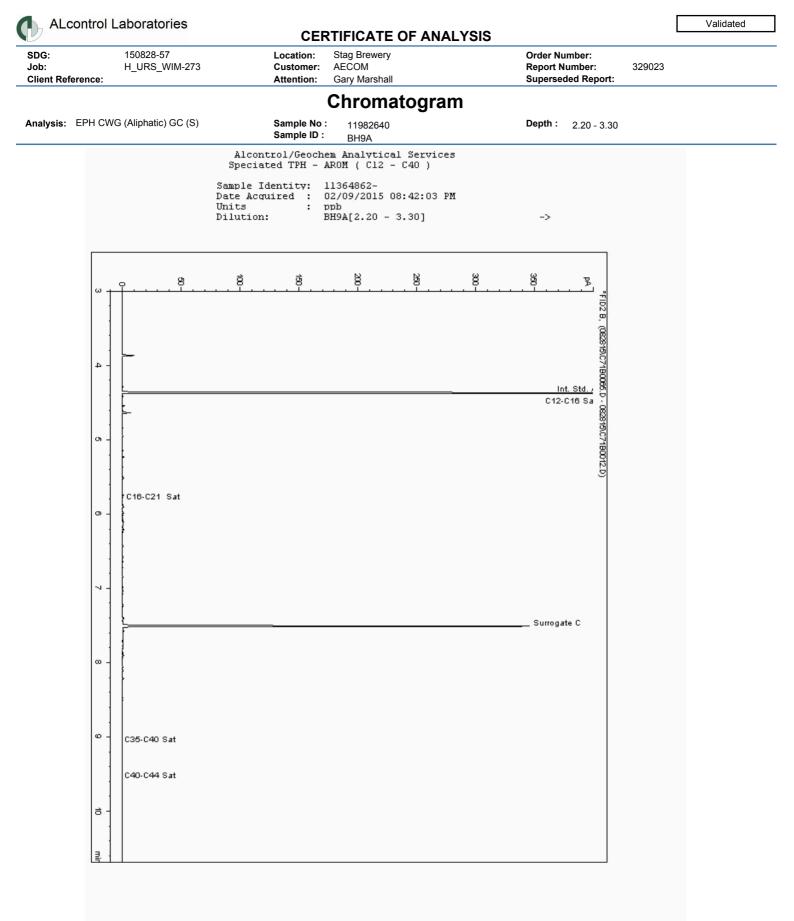
Validated

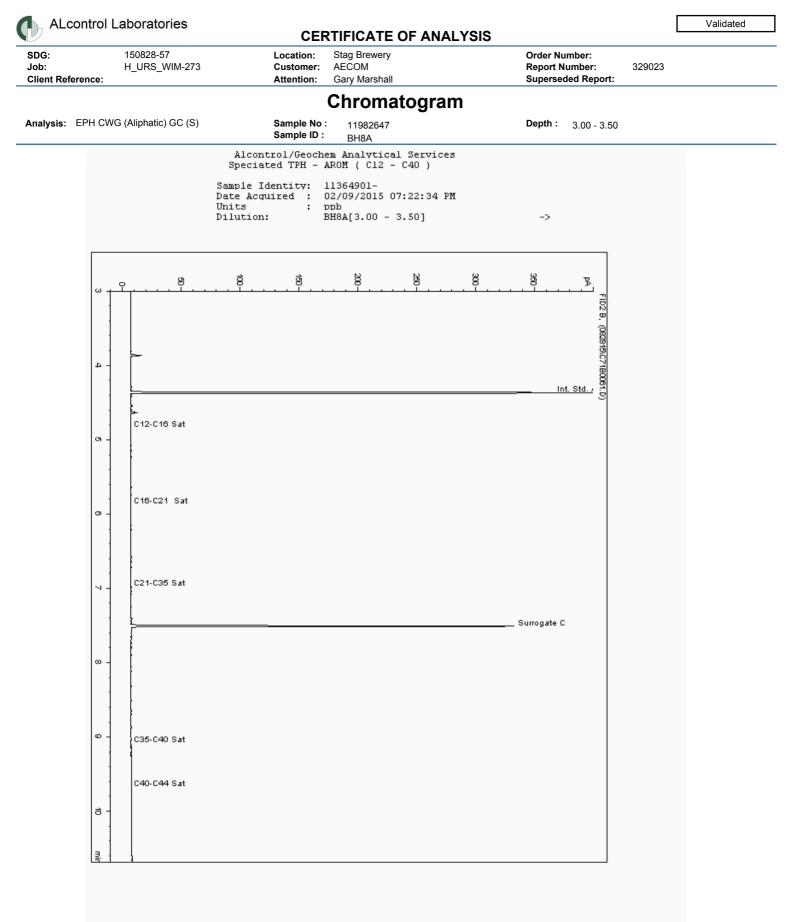
		QC 1128	QC 1175
Ethylbenzene	TM116	<b>94.0</b> 80.07 : 125.98	<b>99.2</b> 80.07 : 125.98
Hexachlorobutadiene	TM116	<b>69.0</b> 30.92 : 132.28	<b>89.2</b> 30.92 : 132.28
Isopropylbenzene	TM116	<b>82.6</b> 69.27 : 125.32	<b>92.6</b> 69.27 : 125.32
Naphthalene	TM116	<b>110.0</b> 79.15 : 121.98	<b>107.4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

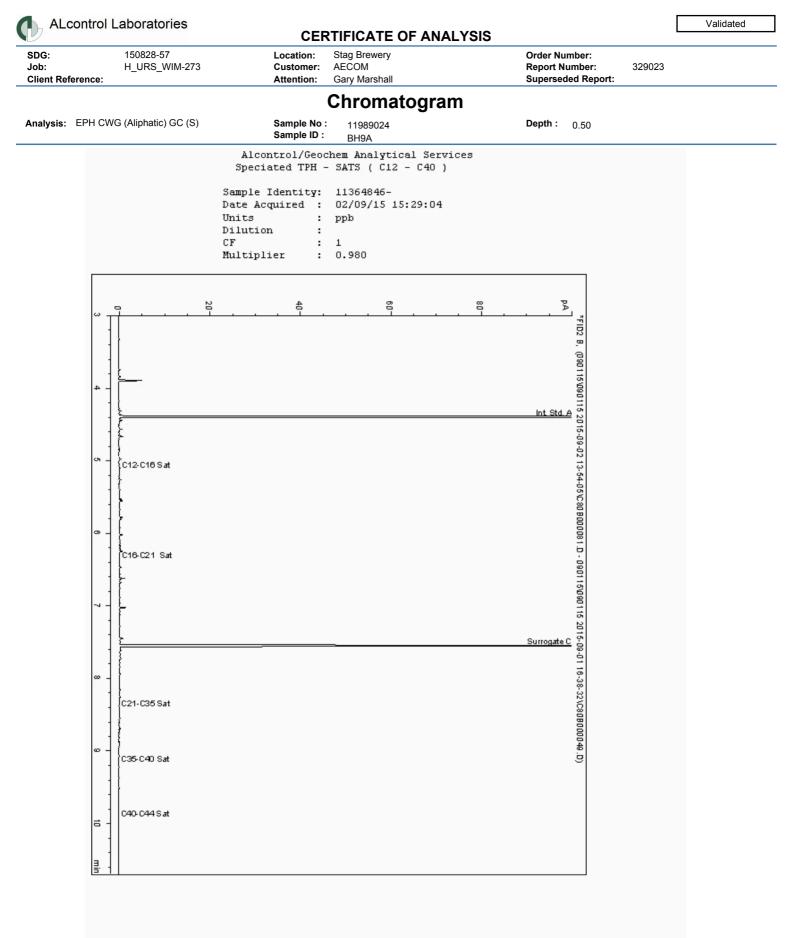
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

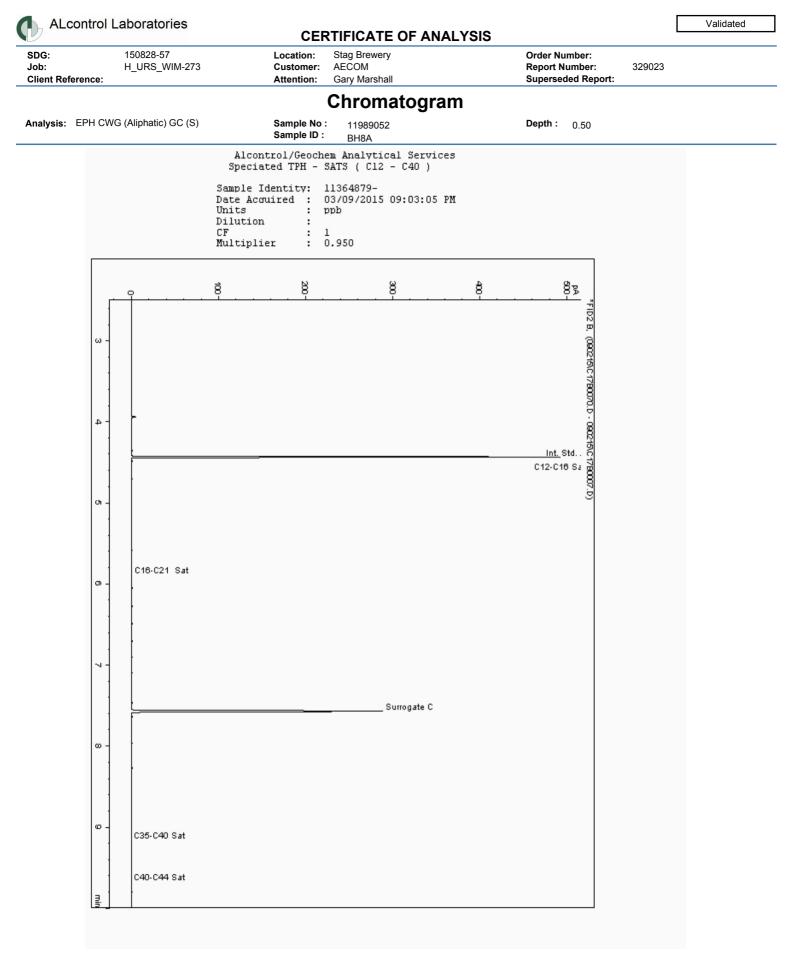
The figure detailed is the percentage recovery result for the AQC.

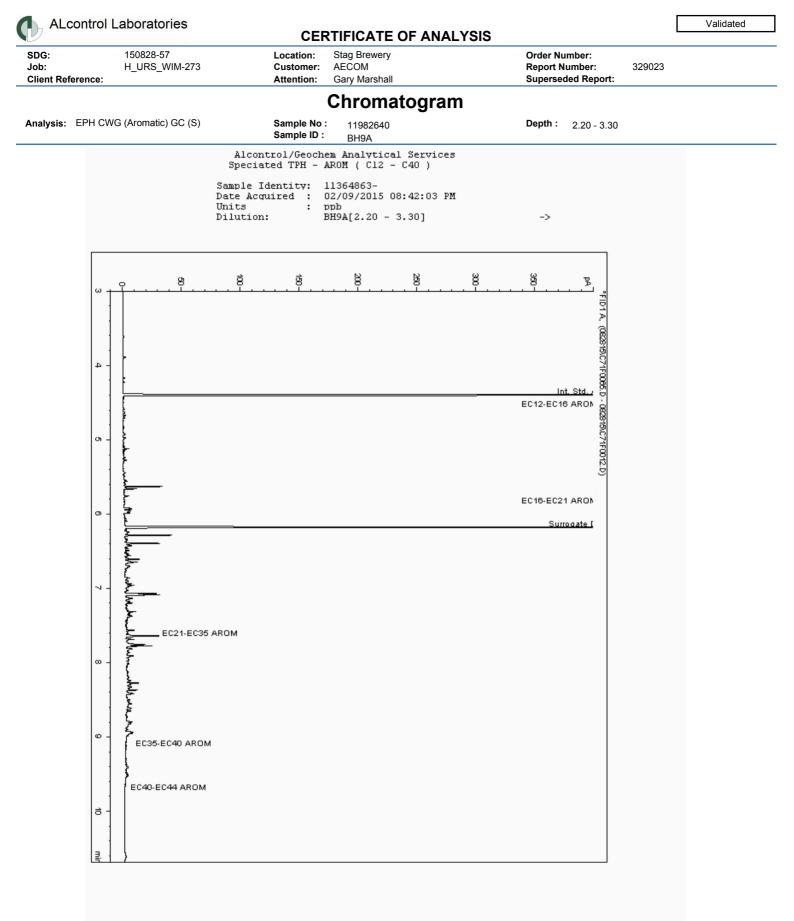
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

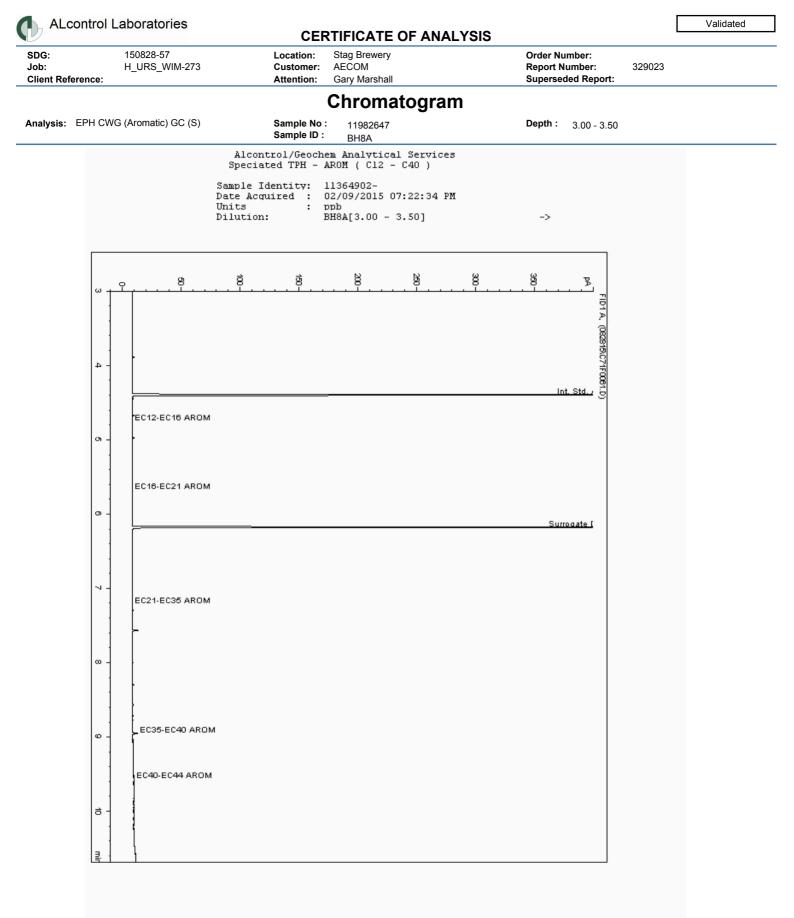


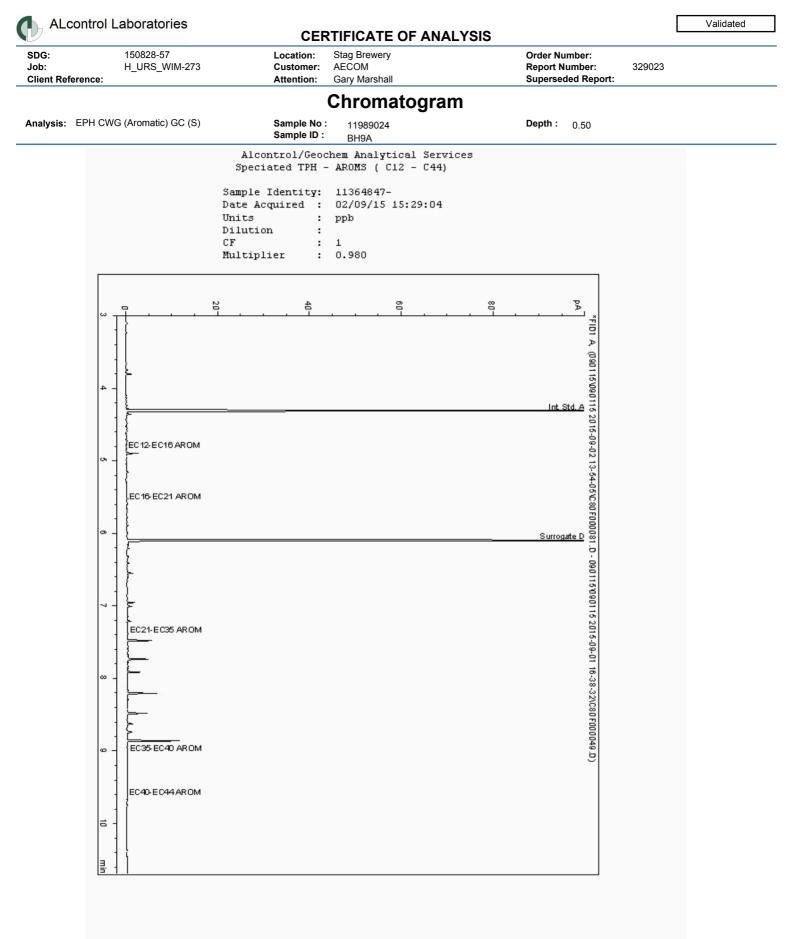


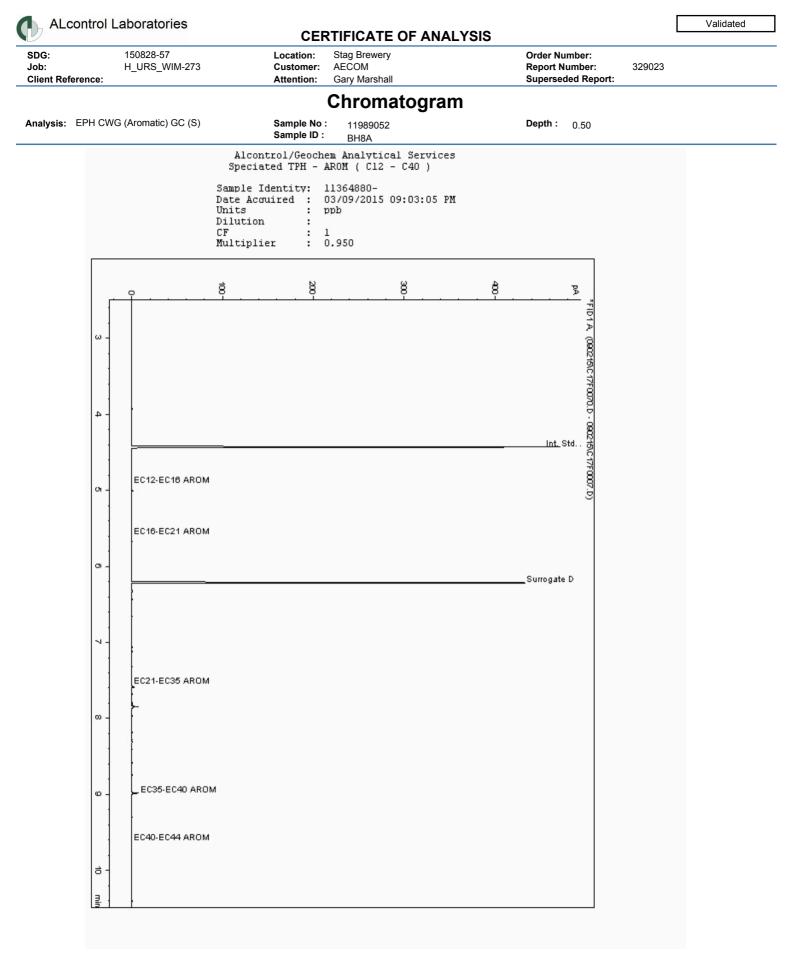




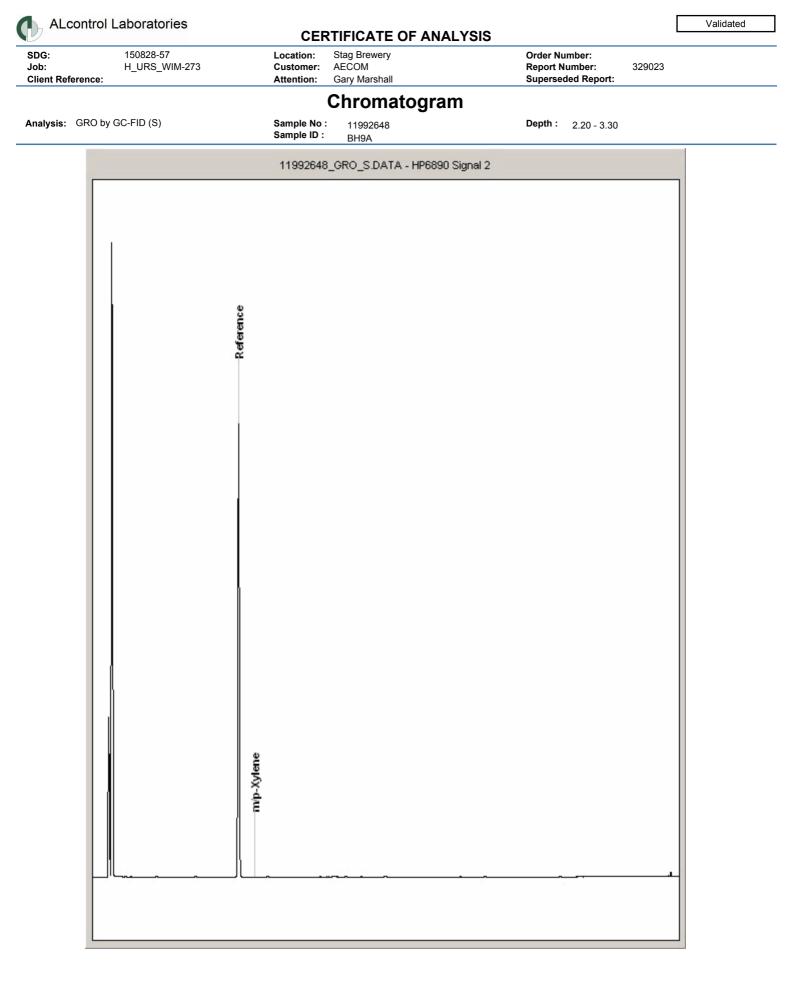


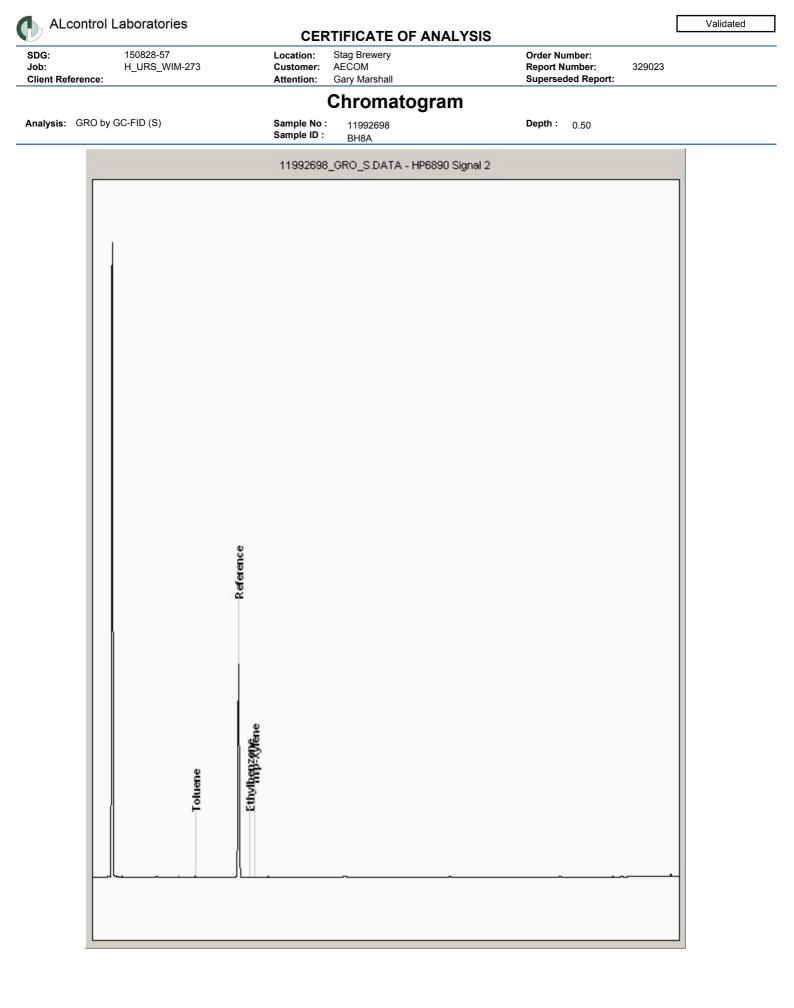


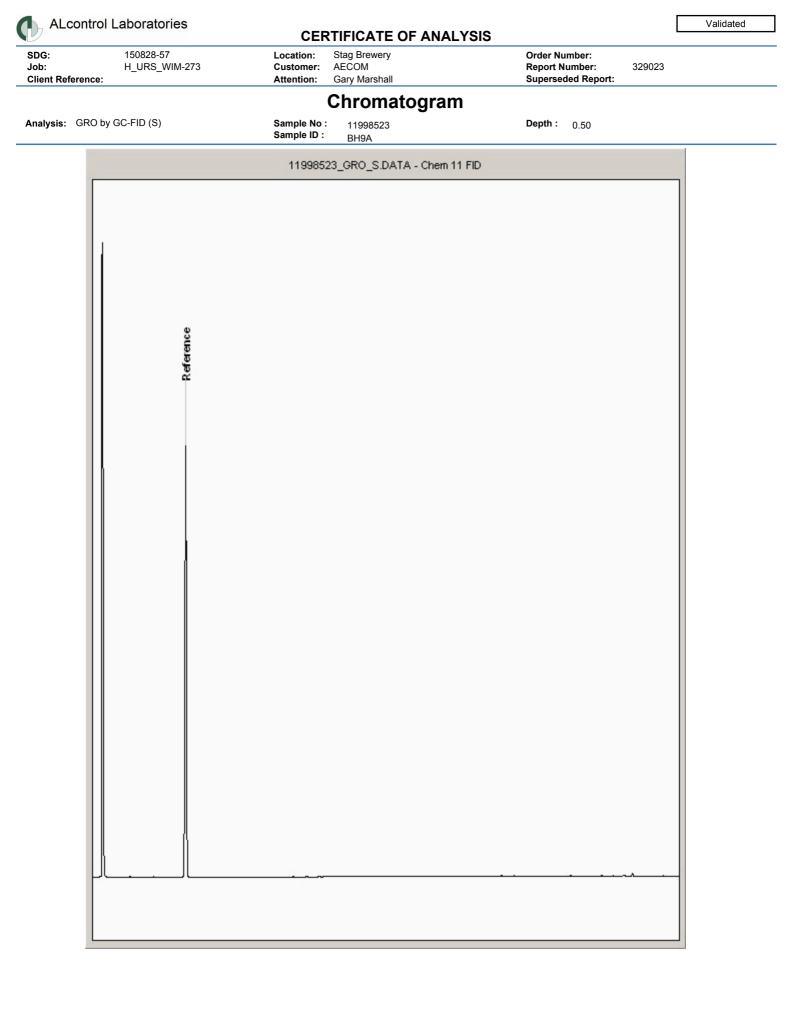




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G: o: ent Reference:	150828-57 H_URS_WIM-273	Location: Customer: Attention:	Stag Brewery AECOM Gary Marshall	Order Number: Report Number: Superseded Repor	329023 t:	
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alysis: GRO by	GC-FID (S)	Sample No : Sample ID :		<b>Depth :</b> 3.00 - 3.4	50	
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#### **CERTIFICATE OF ANALYSIS**

SDG:	150828-57	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

#### SOLID MATRICES EXTRACTION SUMMARY

329023

ANALYSIS	d/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	ATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGONS	WET	DOM	SOXTHERM	GC/MS
HERBICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GC/MS
PESTICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GC/MS
EPH (DRO)	D&C	HEXANE/ACETONE	ENDOWEREND	GCFD
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH (OLEANED UP)	D&C	HEXANE/ACETONE	END OVEREND	GCFD
EPH CWG BYGC	D&C	HEXANE/ACETONE	END OVEREND	GCFD
PCB TOT / PCB CON	D&C	HEXANEACETONE	ENDOWEREND	GC-MS
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
08-040(06-040)EZ FLASH	WET	HEXANEACETONE	SHAVER	GC-EZ
POL VAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAVER	GCFZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GC/MS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSS
ANALTSIS	SOLVENI	WEIHOD	ANAL 135
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
BH	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
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 0CP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by R	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

#### **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°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 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-lsopropylphenol, 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
Chrysolie	White Asbestos
Amoste	BrownAsbestos
Oroddalite	Blue Asbestos
Fibrous Adinate	-
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.



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 10 September 2015 H\_URS\_WIM 150829-68

Stag Brewery 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



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#### **CERTIFICATE OF ANALYSIS**

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:	

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11984669	BH3A		0.50	28/08/2015
11984670	BH3A		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.

SDG:         150829           Job:         H_URS           Client Reference:         Image: Client Reference	-68 WIM-273	Location: Custome Attention	r: AE	ECC	Brewer M Marsha		Order Number: Report Number: 329373 Superseded Report:	
SOLID Results Legend X Test	Lab Sample I	No(s)	11984669	11984670	11984671	11984672		
No Determination Possible	Custome Sample Refer		BH3A	BH3A	BH5A	BH5A		
	AGS Refere	ence						
	Depth (m	1)	0.50	1.50 - 2.00	0.50	2.50 - 3.00		
	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		
Ammonium Soil by Titration	All	NDPs: 0 Tests: 3	x		x	x		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3	x		X	x		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3	x		x	x		
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 3	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	x		
Metals in solid samples by OES	All	NDPs: 0 Tests: 3	x		×	x		
PAH by GCMS	All	NDPs: 0 Tests: 3	x		x	X		
pH	All	NDPs: 0 Tests: 3	x		x	x		
Sample description	All	NDPs: 0 Tests: 4	x	<b>X</b>	x	x		
Total Organic Carbon	All	NDPs: 0 Tests: 3	x		x	x		
Total Sulphate	All	NDPs: 0 Tests: 3	x		x	x		
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	x		x	X		
VOC MS (S)	All	NDPs: 0 Tests: 3	x		x	×		

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150829-68	Location:	Stag Brewery	Order Number:	329373
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number:	
Client Reference:		Attention:	Gary Marshall	Superseded Report:	

# **Sample Descriptions**

Grain Sizes										
very fine <0.	063mm fine	0.063mm - 0.1mm	medium	0.1mm	n - 2mm	coarse	2mm - 1	0mm	very coars	e >10mn
Lab Sample No(s)	Customer Sample	Ref. Depth (m)	C	olour	Descriptio	n (	Grain size	Incl	usions	Inclusions 2
11984669	BH3A	0.50	Darl	Brown	Sand	C	).1 - 2 mm	Sto	ones	None
11984670	BH3A	1.50 - 2.00	Darl	Brown	Sandy Loa	m C	).1 - 2 mm	Sto	ones	None
11984671	BH5A	0.50	Ligh	t Brown	Sand	C	).1 - 2 mm	Sto	ones	Vegetation
11984672	BH5A	2.50 - 3.00	Darl	Brown	Sandy Loa	m C	).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.

**(**)

### **CERTIFICATE OF ANALYSIS**

Validated

Results Legend # ISO17025 accredited.		Customer Sample R	BH3A	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 window 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/Units						
Moisture Content Ratio (%	%	PM024	6.3	7	5.8		
of as received sample)							
Exchangeable Ammonia as NH4	<15	TM024	<15	27.7	<15		
Organic Carbon, Total	mg/kg <0.2 %	TM132	M 1.52	M 1.33	M <0.2	 	
	~0.2 /0	111132	1.52 M	1.55 M			
рН	1 pH	TM133	8.22	7.86	7.86		
·	Units		М	М			
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6		
	mg/kg	T14400	#	#		 	
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 & #	<15 & #	<15 & #		
Arsenic	<0.6	TM181	18.9	<u> </u>	22.4		
	mg/kg		M	M			
Cadmium	<0.02	TM181	0.475	1.13	0.533		
	mg/kg		М	M			
Chromium	<0.9	TM181	19.5	25.4	21.6		
Copper	mg/kg <1.4	TM181	49.3	M 28	M 3.56	 	
Copper	<1.4 mg/kg	1 111 1 0 1	49.3 M	28 M			
Lead	< 0.7	TM181	178	85.7	9.05		
	mg/kg		М	М	М		
Mercury	<0.14	TM181	0.151	1.9	<0.14		
	mg/kg	THIOL	M	M		 	
Nickel	<0.2 mg/kg	TM181	29.2 M	17.1 M	20.7 M		
Selenium	<1 mg/kg	g TM181	M <1	M <1	<1 M		
	, mg/k		#	#			
Zinc	<1.9	TM181	89.3	101	28.6		
	mg/kg		М	М			
Sulphate, Total	<48	TM221	579	356	95.9		
	mg/kg		M	M	M	 	
					ļ	 	
					1		
					ļ	 	

Component

recovery\*\*

recovery\*\*

recovery\*\* Chrysene-d12 %

recovery\*\* Perylene-d12 %

recovery\*\* Naphthalene

Acenaphthylene

Acenaphthene

Phenanthrene

Anthracene

Fluoranthene

Pyrene

Fluorene

Naphthalene-d8 %

Acenaphthene-d10 %

Phenanthrene-d10 %

AGS Reference

Method

TM218

95

90.7

89.2

83.6

87.7

34.7

29.9

<8

<10

188

36

445

384

Μ

Μ

Μ

Μ

Μ

Μ

Μ

LOD/Units

%

%

%

%

%

<9 µg/kg

<12

µg/kg

<8 µg/kg

<10

µg/kg

<15

µg/kg

<16

µg/kg

<17 µg/kg

<15

96.9

92.6

90.5

85

92.4

15.9

28.9

9.32

<10

147

39.9

417

359

Μ

Μ

Μ

Μ

Μ

Μ

Μ

97.3

96

94.6

86.6

90.2

<9

<12

<8

<10

<15

<16

<17

29.8

Μ

Μ

Μ

М

Μ

Μ

Μ

Pyrene	<15	TM218	384		359		29.8			
	µg/kg	<b>T</b> 14040	0.15	М	0.07	М		М		
Benz(a)anthracene	<14 µg/kg	TM218	245	м	227	м	<14	М		
Chrysene	<10	TM218	291		236		24.5			
	µg/kg			М		М		М		
Benzo(b)fluoranthene	<15	TM218	459		391		23.5			
	µg/kg			М		М		М		
Benzo(k)fluoranthene	<14	TM218	134		132		<14			
	µg/kg			М		М		М		
Benzo(a)pyrene	<15	TM218	289		260		<15			
	µg/kg			М		М		М		
Indeno(1,2,3-cd)pyrene	<18	TM218	210		156		<18			
	µg/kg			М		М		М	 	
Dibenzo(a,h)anthracene	<23	TM218	63.4		46.8		<23			
	µg/kg	TM040	0.45	М	100	М	-0.4	М		
Benzo(g,h,i)perylene	<24	TM218	245		196		<24			
PAH, Total Detected	μg/kg <118	TM218	2050	М	0000	М	<118	М		
USEPA 16	<118 µg/kg	11/1218	3050		2660		<118			
	_									
16:04:17 10/09/2015										
					Page 6 o	f 29				

**ALcontrol Laboratories** Validated **CERTIFICATE OF ANALYSIS** 150829-68 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273 Customer: AEČOM 329373 Report Number: **Client Reference:** Attention: Gary Marshall Superseded Report: Results Lege ISO17025 accredited. Customer Sample R BH3A BH5A BH5A

## TPH CWG (S)

# ISO17025 accredited. 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 stand check the efficiency of the method		Sampled Time	29/08/2015	29/08/2015	29/08/2015		
results of individual compounds v samples aren't corrected for the re	vithin	Date Received SDG Ref	150829-68	150829-68	150829-68		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s)	11984669	11984671	11984672		
Component	LOD/Unit	AGS Reference ts Method					
GRO Surrogate %	%	TM089	69	72	99		
recovery**	,						
GRO TOT (Moisture	<44	TM089	<44	<44	<44		
Corrected)	µg/kg		М	М	М		
Methyl tertiary butyl ether	<5 µg/ł	g TM089	<5	<5	<5		
(MTBE)			M	M	M		
Benzene	<10 µg/kg	TM089	<10	<10	<10		
Toluene	<2 µg/kg	g TM089	M <2	M <2	M <2		
Tolucito	-2 μg/i	i i i i i i i i i i i i i i i i i i i	 M	 M	 M		
Ethylbenzene	<3 µg/k	(g TM089	5.34	<3	<3		
-		-	М	М	М		
m,p-Xylene	<6 µg/ł	(g TM089	<6	<6	<6		
- Malana		THEFT	M	M	M		 
o-Xylene	<3 µg/ł	(g TM089	<3	<3	<3		
sum of detected mpo	<9 µg/k	(g TM089	M <9	M <9	M <9		
xylene by GC	~3 µy/r	9 11003	6	6	6		
sum of detected BTEX by	<24	TM089	<24	<24	<24		
GC	µg/kg						
Aliphatics >C5-C6	<10	TM089	<10	<10	<10		
	µg/kg						
Aliphatics >C6-C8	<10	TM089	<10	<10	<10		
Aliphatics >C8-C10	µg/kg <10	TM089	<10	<10	<10		
	µg/kg	10003	10	10	10		
Aliphatics >C10-C12	<10	TM089	<10	<10	<10		
	µg/kg						
Aliphatics >C12-C16	<100	TM173	<100	<100	<100		
	µg/kg						
Aliphatics >C16-C21	<100	TM173	3140	234	<100		
Aliphatics >C21-C35	µg/kg <100	TM173	9790	6660	<100		
	μg/kg	1101175	9790	0000	<100		
Aliphatics >C35-C44	<100	TM173	3030	968	<100		
•	µg/kg						
Total Aliphatics >C12-C44	<100	TM173	15900	7860	<100		
	µg/kg						
Aromatics >EC5-EC7	<10	TM089	<10	<10	<10		
Aromatics >EC7-EC8	µg/kg <10	TM089	<10	<10	<10		
Aromatics >EC7-EC6	×10 μg/kg	110009	<10	<10	<10		
Aromatics >EC8-EC10	<10	TM089	<10	<10	<10		
	µg/kg		-		-		
Aromatics >EC10-EC12	<10	TM089	<10	<10	<10		
	µg/kg						
Aromatics >EC12-EC16	<100		714	358	<100		
Aromatica >FC16 FC24	µg/kg		4700	2620	~100		
Aromatics >EC16-EC21	<100 µg/kg		4780	2620	<100		
Aromatics >EC21-EC35	<100		24700	16100	<100		
	µg/kg						
Aromatics >EC35-EC44	<100		12700	8050	<100		
	µg/kg						
Aromatics >EC40-EC44	<100		5160	2870	<100		
Total Aramatica	µg/kg		42000	27100	<100		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	42900	27100	<100		
Total Aliphatics &	<100	TM173	58900	35000	<100		
Aromatics >C5-C44	µg/kg						

**ALcontrol Laboratories** Validated **CERTIFICATE OF ANALYSIS** 150829-68 Stag Brewery SDG: Location: Order Number: Job: H\_URS\_WIM-273 Customer: AECOM Report Number: 329373 Superseded Report: **Client Reference:** Attention: Gary Marshall VOC MS (S) sults Leae Customer Sample R BH3A BH5A BH5A ISO17025 accredited mCERTS accredited. # M aα Aqueous / settled sample. Dissolved / filtered sample Depth (m) 0.50 0.50 2.50 - 3.00 diss.filt Sample Type tot.unfilt Total / unfiltered sample Soil/Solid Soil/Solid Soil/Solid totunfit Total / unfiltered sample. Subcontracted test. \* % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confimed 1-5&+§@ Sample deviation (see appendix) Date Sampled 28/08/2015 28/08/2015 28/08/2015 Sampled Time Date Received 29/08/2015 29/08/2015 29/08/2015 150829-68 150829-68 SDG Ref 150829-68 11984669 11984671 11984672 Lab Sample No.(s) AGS Reference LOD/Units Component Method Dibromofluoromethane\*\* TM116 116 122 120 % Toluene-d8\*\* % TM116 104 103 113 4-Bromofluorobenzene\*\* % TM116 69.3 72.4 102 Dichlorodifluoromethane TM116 <6 <6 <6 <6 µg/kg Μ М Μ

<7

<6

<10

<10

<6

<10

<7

<10

<10

<10

<8

<6

<10

<10

<8

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	·• µ9/1.9		.0		.0		.0		
				М		М		М	
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7		<7		<7		
				М		М		М	
1,1-Dichloropropene	<10	TM116	<10		<10		<10		
	µg/kg			М		М		М	
Carbontetrachloride	<10	TM116	<10		<10		<10		
	µg/kg			М		М		М	
1,2-Dichloroethane	<5 µg/kg	TM116	<5		<5		<5		
				М		М		М	
Benzene	<9 µg/kg	TM116	<9		<9		<9		
				М		М		Μ	
Trichloroethene	<9 µg/kg	TM116	<9		<9		<9		
				#		#		#	
1,2-Dichloropropane	<10	TM116	<10		<10		<10		
	µg/kg			М		М		М	
Dibromomethane	<9 µg/kg	TM116	<9		<9		<9		
				М		М		М	
Bromodichloromethane	<7 µg/kg	TM116	<7		<7		<7		
				М		М		Μ	
cis-1,3-Dichloropropene	<10	TM116	<10		<10		<10		
	µg/kg			М		М		Μ	
Toluene	<7 µg/kg	TM116	<7		<7		<7		
				М		М		М	
trans-1,3-Dichloropropene	<10	TM116	<10		<10		<10		
	µg/kg								
1,1,2-Trichloroethane	<10	TM116	<10		<10		<10		
	µg/kg			М		М		М	
16:04:17 10/09/2015									
					Page 8 o	of 29			

Chloromethane

Vinyl Chloride

Bromomethane

Chloroethane

Trichlorofluorormethane

1,1-Dichloroethene

Carbon Disulphide

Dichloromethane

Methyl Tertiary Butyl Ether

trans-1,2-Dichloroethene

1,1-Dichloroethane

cis-1,2-Dichloroethene

2,2-Dichloropropane

Bromochloromethane

Chloroform

TM116

<7

<6

<10

<10

<6

<10

<7

<10

<10

<10

<8

<6

<10

<10

<8

#

Μ

Μ

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<7 µg/kg

<6 µg/kg

<10

µg/kg

<10

µg/kg

<6 µg/kg

<10

µg/kg

<7 µg/kg

<10

µg/kg

<10

µg/kg

<10

µg/kg

<8 µg/kg

<6 µg/kg

<10

µg/kg

<10

µg/kg

<8 µg/kg

#### **CERTIFICATE OF ANALYSIS**

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:	

#### VOC MS (S)

		0						1	
Results Legend # ISO17025 accredited. M mCERTS accredited.		Customer Sample R	BH3A	BH5A		BH5A			
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 stan check the efficiency of the metho		Sampled Time	·	· · · · ·		·			
results of individual compounds		Date Received	29/08/2015 150829-68	29/08/2015		29/08/2015			
samples aren't corrected for the	recovery	SDG Ref	11984669	150829-68 11984671		150829-68 11984672			
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11001000	11001011		11001012			
Component	LOD/Un								
· ·			.7			.7			
1,3-Dichloropropane	<7 µg/	kg TM116	<7	<7		<7			
			M		М		M		
Tetrachloroethene	<5 µg/	kg TM116	<5	<5		<5			
			М		М		м		
Dibromochloromethane	<10	TM116	<10	<10		<10			
Disformound in the market									
	µg/kg		M		М		M		
1,2-Dibromoethane	<10	TM116	<10	<10		<10			
	µg/kg		M		Μ		M		
Chlorobenzene	<5 µg/	kg TM116	<5	<5		<5			
		5	М		М		м		
1,1,1,2-Tetrachloroethane	<10	TM116	<10	<10	IVI	<10			
1, 1, 1, 2-1 etrachioroethane									
	µg/kg		М		М		M		
Ethylbenzene	<4 µg/	kg TM116	4.45	<4		<4			
			м		М		M		
p/m-Xylene	<10	TM116	<10	<10		<10			
	µg/kg		#		щ		#		
					#		#		
o-Xylene	<10	TM116	<10	<10		<10			
	µg/kg		М		Μ		M		
Styrene	<10	TM116	<10	<10		<10			
	µg/kg		#		#		#		
Bromoform	<10	TM116	<10	<10	π	<10	<i>π</i>		
Бюпюют									
	µg/kg		M		М		M		
Isopropylbenzene	<5 µg/	kg TM116	<5	<5		<5			
			#		#		#		
1,1,2,2-Tetrachloroethane	<10	TM116	<10	<10		<10			
1,1,2,2 10000100000000	µg/kg						N 4		
1007:11			M		М		M		
1,2,3-Trichloropropane	<16	TM116	<16	<16		<16			
	µg/kg		M		М		M		
Bromobenzene	<10	TM116	<10	<10		<10			
	µg/kg		м		М		м		
Propylbenzene	<10	TM116	<10	<10		<10			
Tropyibenzene									
	µg/kg		М		М		M		
2-Chlorotoluene	<9 µg/	kg TM116	<9	<9		<9			
			M		Μ		M		
1,3,5-Trimethylbenzene	<8 µg/	kg TM116	<8	<8		<8			
,., <b>,</b>		5	М		М		M		
1 Chloratoluono	<10	TM116	<10	<10	141	<10			
4-Chlorotoluene									
	µg/kg		М		М		M		
tert-Butylbenzene	<14	TM116	<14	<14		<14			
	µg/kg		М		Μ		M		
1,2,4-Trimethylbenzene	<9 µg/	kg TM116	<9	<9		<9			
,,_, · · · · · · · · · · · · · · · · · ·	° µ9				#		#		
and Butylbonzons	<10	TNAAAO	<10	<10	#	<10	π		<u> </u>
sec-Butylbenzene							[		
	µg/kg		М		М		M		
4-Isopropyltoluene	<10		<10	<10		<10			
	µg/kg		м		М		м		
1,3-Dichlorobenzene	<8 µg/		<8	<8		<8			
	·• µ9/				М		м		
A A Disklasskass			M		IVI				<u> </u>
1,4-Dichlorobenzene	<5 µg/	kg TM116	<5	<5		<5			
			М		М		M		
n-Butylbenzene	<11	TM116	<11	<11		<11			
	µg/kg								
1,2-Dichlorobenzene	<10		<10	<10		<10			1
	µg/kg		M		М		M		
1,2-Dibromo-3-chloroprop	<14		<14	<14		<14			
ane	µg/kg		М		Μ		M		
Tert-amyl methyl ether	<10		<10	<10		<10			
	µg/kg		#		#		#		
104 Triphlanch array					#		#		
1,2,4-Trichlorobenzene	<20		<20	<20		<20			
	µg/kg								
Hexachlorobutadiene	<20	TM116	<20	<20		<20			
	µg/kg								
Naphthalene	<13		<13	<13		<13			
							NA		
L	µg/kg		М		М		M		

## **CERTIFICATE OF ANALYSIS**

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#### VOC MS (S)

**(**)

VOCI	VIS (S)						-	
#	Results Legend ISO17025 accredited.	c	ustomer Sample R	BH3A	BH5A	BH5A		
м	mCERTS accredited.							
aq diss.filt	Aqueous / settled sample. Dissolved / filtered sample.		Depth (m)	0.50	0.50	2.50 - 3.00		
tot.unfilt *	Total / unfiltered sample.		Sample Type	Soil/Solid 28/08/2015	Soil/Solid 28/08/2015	Soil/Solid 28/08/2015		
**	Subcontracted test. % recovery of the surrogate standa	ird to	Date Sampled Sampled Time	20/00/2015				
	check the efficiency of the method. results of individual compounds wi	The	Date Received	29/08/2015	29/08/2015	29/08/2015		
	samples aren't corrected for the rec	covery	SDG Ref	150829-68 11984669	150829-68 11984671	150829-68 11984672		
(F) 1-5&+§@	Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11904009	11904071	11904072		
Compo		LOD/Units						
	Trichlorobenzene	<20	TM116	<20	<20	<20		
, ,=		µg/kg		#	#	#		
			+					
			+					
			+					

#### **CERTIFICATE OF ANALYSIS**

Validated

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	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:	

# **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	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

#### **CERTIFICATE OF ANALYSIS**

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:

# 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		

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

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## **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:

# **Test Completion Dates**

			-
11984669	11984670	11984671	11984672
BH3A	BH3A	BH5A	BH5A
0.50	1.50 - 2.00	0.50	2.50 - 3.00
SOLID	SOLID	SOLID	SOLID
09-Sep-2015		09-Sep-2015	09-Sep-2015
02-Sep-2015		02-Sep-2015	09-Sep-2015
08-Sep-2015		08-Sep-2015	08-Sep-2015
02-Sep-2015		02-Sep-2015	03-Sep-2015
02-Sep-2015		02-Sep-2015	03-Sep-2015
02-Sep-2015		02-Sep-2015	02-Sep-2015
04-Sep-2015		04-Sep-2015	10-Sep-2015
07-Sep-2015		07-Sep-2015	04-Sep-2015
03-Sep-2015		03-Sep-2015	03-Sep-2015
09-Sep-2015		09-Sep-2015	09-Sep-2015
01-Sep-2015	29-Aug-2015	01-Sep-2015	29-Aug-2015
07-Sep-2015		10-Sep-2015	07-Sep-2015
04-Sep-2015		04-Sep-2015	04-Sep-2015
02-Sep-2015		02-Sep-2015	03-Sep-2015
02-Sep-2015		02-Sep-2015	02-Sep-2015
	Внза 0.50 SOLID 09-Sep-2015 02-Sep-2015 02-Sep-2015 02-Sep-2015 02-Sep-2015 04-Sep-2015 03-Sep-2015 03-Sep-2015 03-Sep-2015 03-Sep-2015 01-Sep-2015 04-Sep-2015 04-Sep-2015	BH3A         BH3A           DH3A         BH3A           0.50         1.50 - 2.00           SOLID         SOLID           09-Sep-2015         SOLID           02-Sep-2015         -           02-Sep-2015         -           02-Sep-2015         -           02-Sep-2015         -           02-Sep-2015         -           03-Sep-2015         -           03-Sep-2015         -           09-Sep-2015         -           01-Sep-2015         -           01-Sep-2015	BH3A         BH3A         BH5A           BH3A         BH3A         BH5A           D         1.50 - 2.00         0.50           SOLID         SOLID         SOLID           09-Sep-2015         09-Sep-2015         02-Sep-2015           02-Sep-2015         08-Sep-2015         08-Sep-2015           02-Sep-2015         08-Sep-2015         02-Sep-2015           02-Sep-2015         02-Sep-2015         02-Sep-2015           02-Sep-2015         02-Sep-2015         02-Sep-2015           04-Sep-2015         04-Sep-2015         03-Sep-2015           03-Sep-2015         03-Sep-2015         03-Sep-2015           04-Sep-2015         04-Sep-2015         04-Sep-2015           04-Sep-2015         04-Sep-2015         04-Sep-2015  <

150829-68

H\_URS\_WIM-273

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SDG:

Job:

Client Reference:

### **CERTIFICATE OF ANALYSIS**

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 3 Superseded Report:

329373

Validated

# ASSOCIATED AQC DATA

Ammonium	Soil	by	Titration
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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	TM173	<b>85.21</b>	<b>87.08</b>
>C12-C35		62.50 : 112.50	70.80 : 111.51

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

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

#### GRO by GC-FID (S)

Component	Method Code	QC 1141
component	Method Code	QC 1141
Benzene by GC	TM089	93.0
(Moisture Corrected)		76.33 : 121.87
Ethylbenzene by GC	TM089	91.5
(Moisture Corrected)		75.73 : 123.83
m & p Xylene by GC	TM089	92.0
(Moisture Corrected)		75.52 : 120.32
	T14000	
MTBE GC-FID (Moisture	TM089	95.0
Corrected)		77.89 : 119.70
o Xylene by GC (Moisture	TM089	91.0
Corrected)		74.15 : 124.59
QC	TM089	93.51
		62.31 : 122.61
Toluene by GC (Moisture	TM089	92.0
Corrected)		77.91 : 122.33

## **CERTIFICATE OF ANALYSIS**

150829-68 Location: Stag Brewery H\_URS\_WIM-273 AEČOM Customer: **Client Reference:** Attention: Gary Marshall

Order Number: 329373 Report Number: Superseded Report:

#### Hexavalent Chromium (s)

SDG:

Job:

Component	Method Code	QC 1187	QC 1229
Hexavalent Chromium	TM151	<b>96.0</b> 92.20 : 106.60	<b>100.0</b> 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

## **CERTIFICATE OF ANALYSIS**

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SDG: Job:	150829-68 H URS WIM-273	Location: Customer:	Stag Brewery AECOM	Order Number: Report Number:	329373
JOD.		customer.	AECOM	Report Nulliber.	329373
Client Reference	e:	Attention:	Gary Marshall	Superseded Report:	

## 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
Acenaphthene	TM218	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	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
- (10)		81.11 : 119.79	82.41 : 117.15
Benzo(ghi)perylene	TM218	88.5	89.0
Deere (It) fluere atheres	TM040	81.23 : 116.67	77.09 : 114.38
Benzo(k)fluoranthene	TM218	<b>92.0</b> 79.07 : 114.76	<b>95.5</b> 81.43 : 115.17
Chrysene	TM218		
Onlysene	111/2/10	<b>93.5</b> 77.94 : 118.46	<b>94.5</b> 82.50 : 113.51
Dibenzo(ah)anthracene	TM218		
		<b>92.0</b> 79.94 : 120.03	<b>92.5</b> 81.00 : 120.00
Fluoranthene	TM218	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	94.5	90.0
		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

pН

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

## **CERTIFICATE OF ANALYSIS**

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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:	

# Total Organic Carbon

Component	Method Code	QC 1297	QC 1208	QC 1227
Total Organic Carbon	TM132	<b>97.72</b> 89.40 : 103.09	<b>99.54</b> 89.40 : 103.09	<b>95.89</b> 89.40 : 103.09

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

## **CERTIFICATE OF ANALYSIS**

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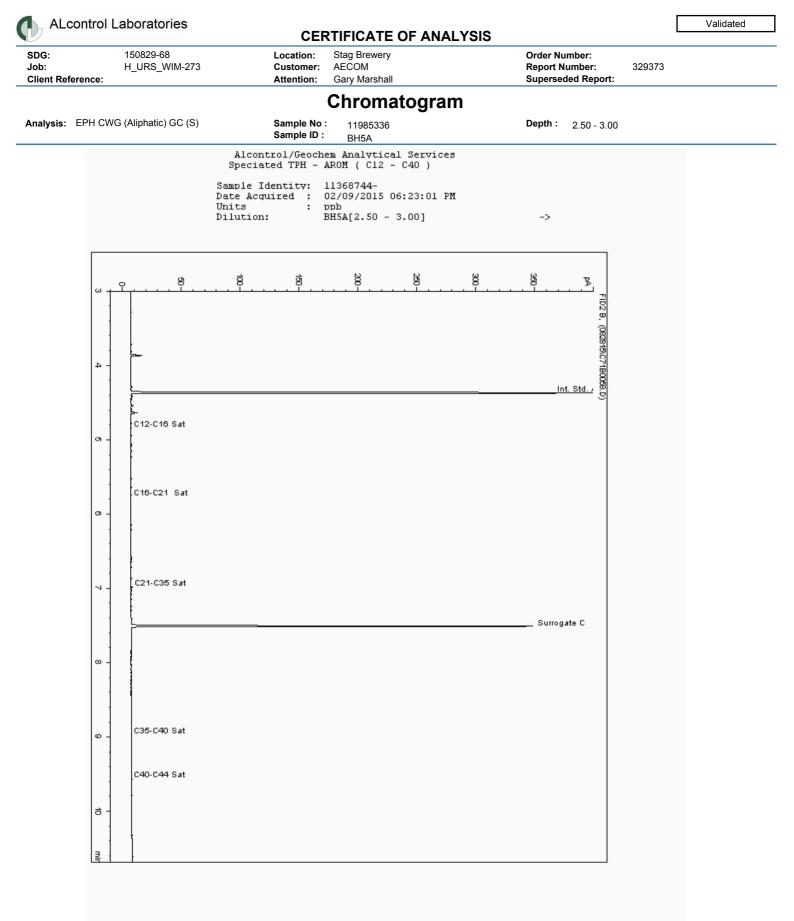
	ag Brewery Or		
Client Reference: Attention: Ga	ECOM Re	rder Number: eport Number: 32 uperseded Report:	29373
VOC MS (S)			

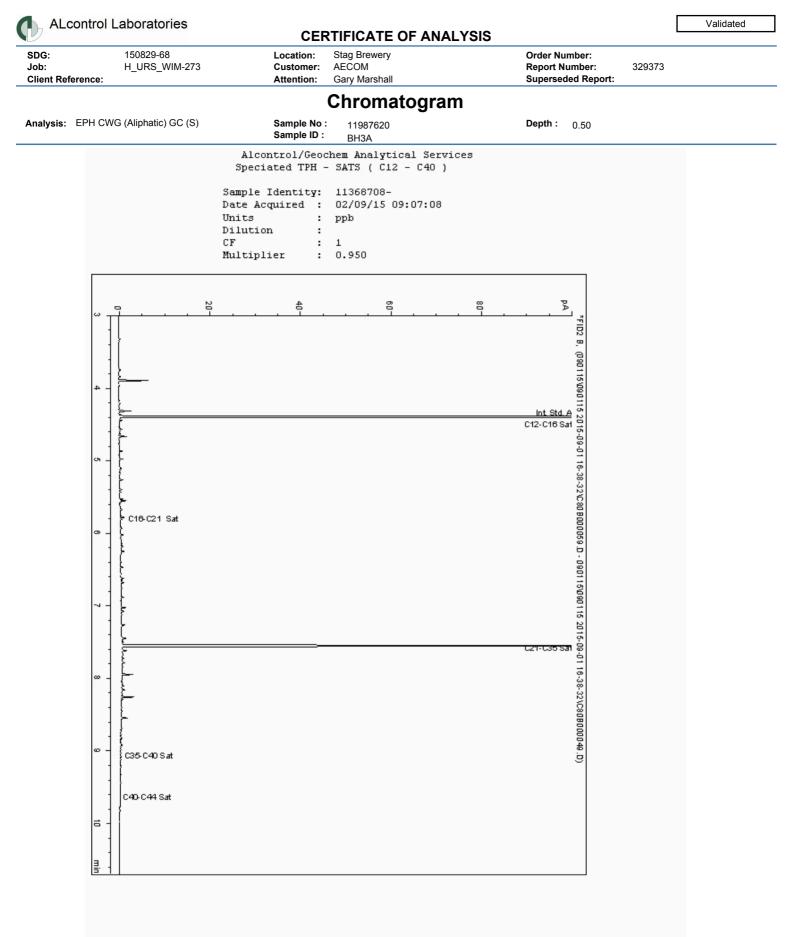
		QC 1154
Ethylbenzene	TM116	<b>97.8</b> 73.60 : 115.60
Hexachlorobutadiene	TM116	<b>86.2</b> 33.65 : 130.56
Isopropylbenzene	TM116	<b>101.0</b> 72.52 : 117.52
Naphthalene	TM116	<b>106.0</b> 83.23 : 126.48
o-Xylene	TM116	<b>92.2</b> 69.60 : 110.40
p/m-Xylene	TM116	<b>93.6</b> 71.30 : 112.70
Sec-Butylbenzene	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

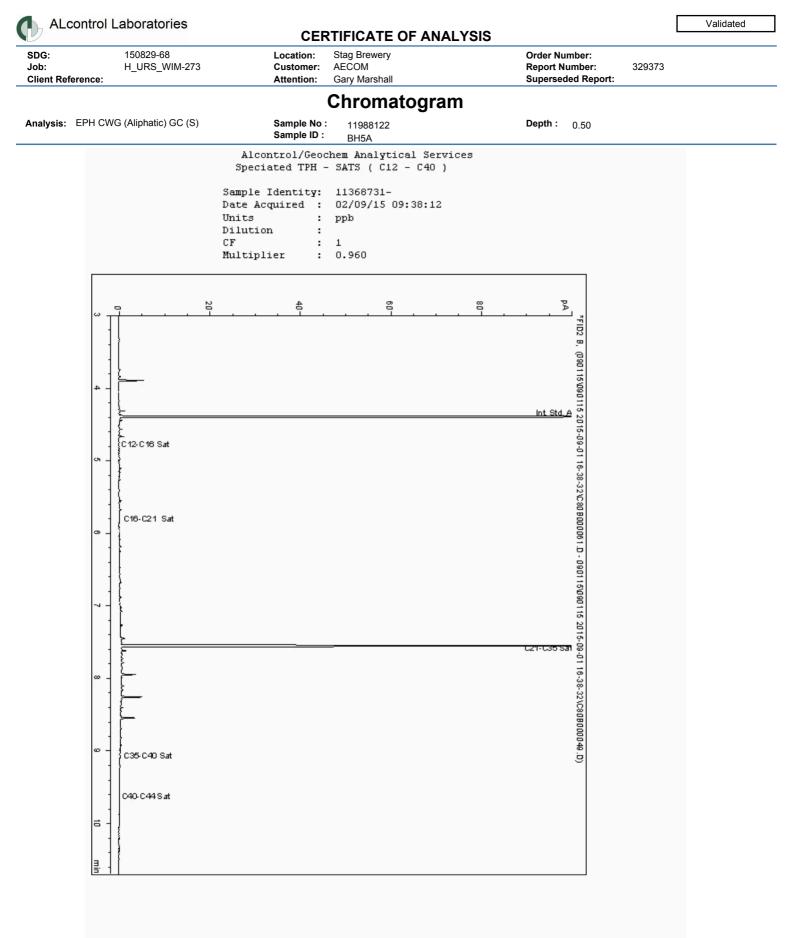
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

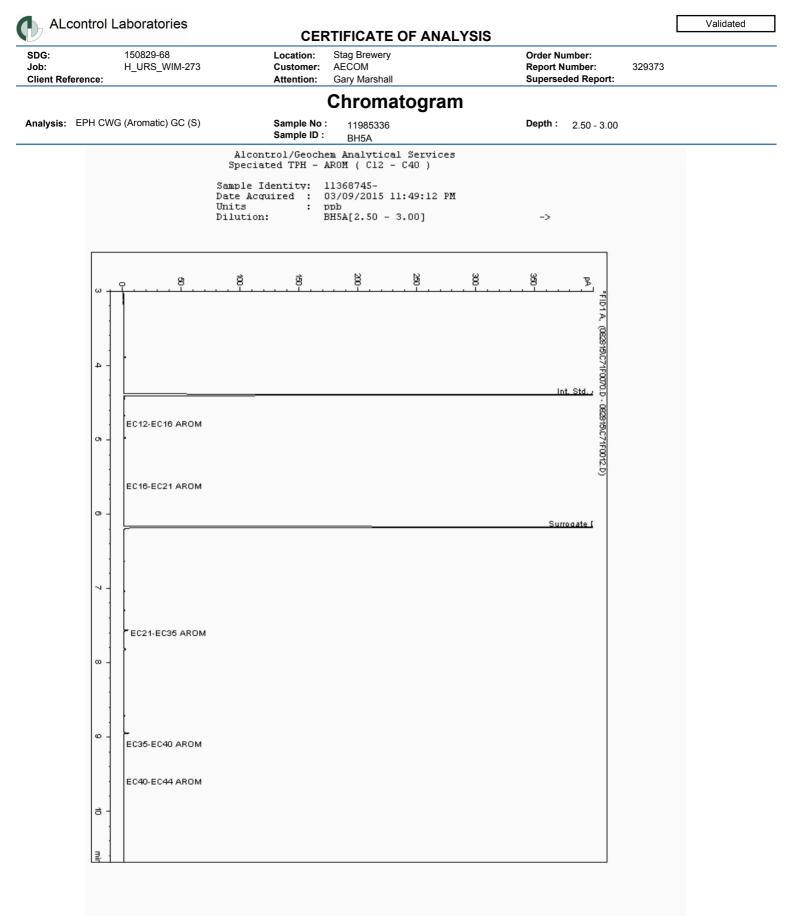
The figure detailed is the percentage recovery result for the AQC.

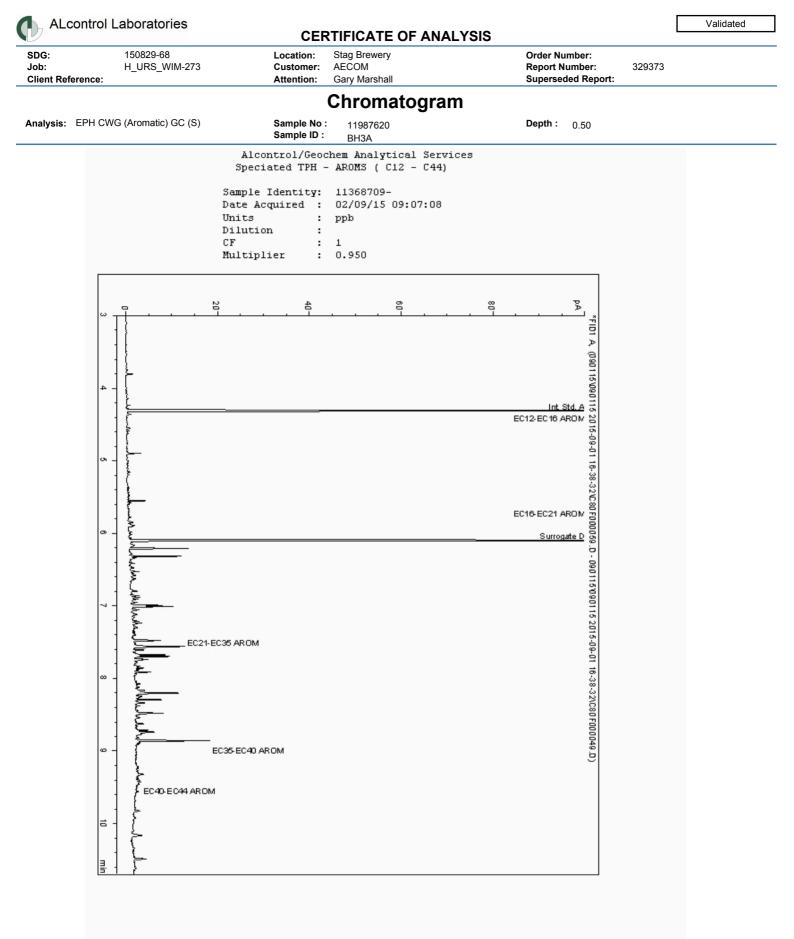
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

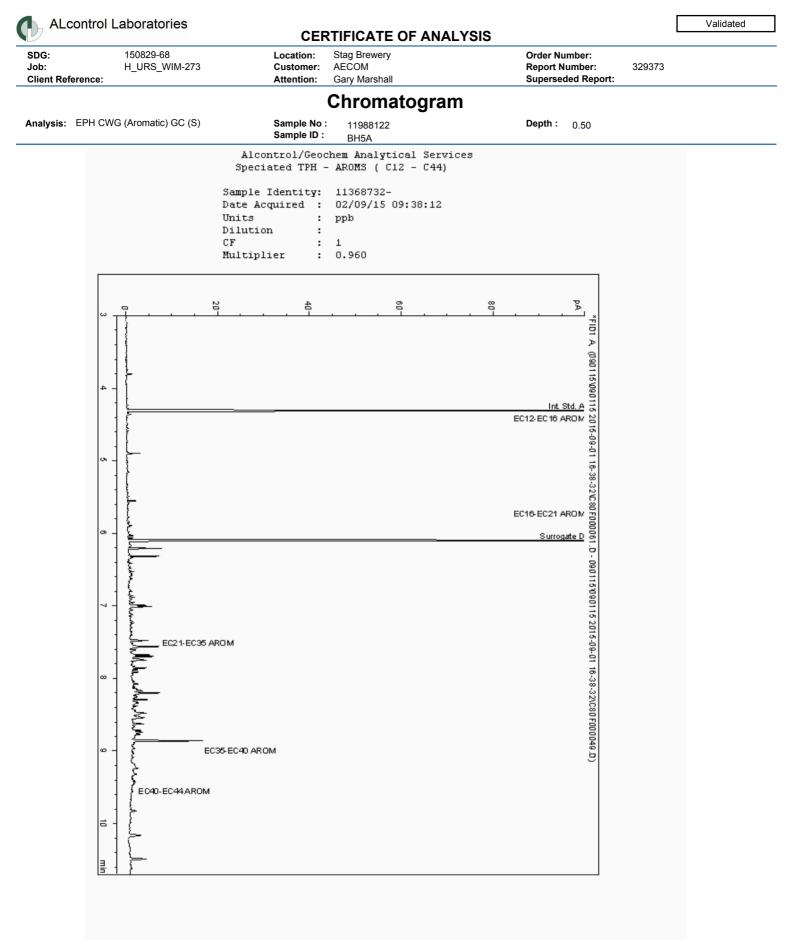


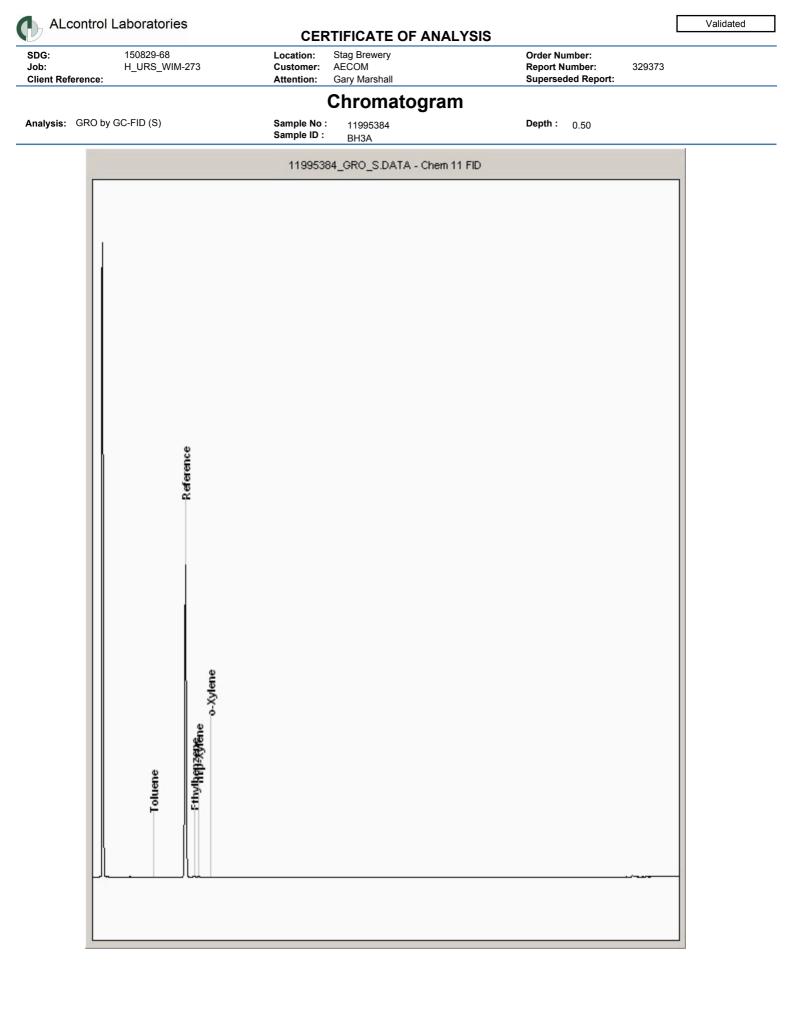


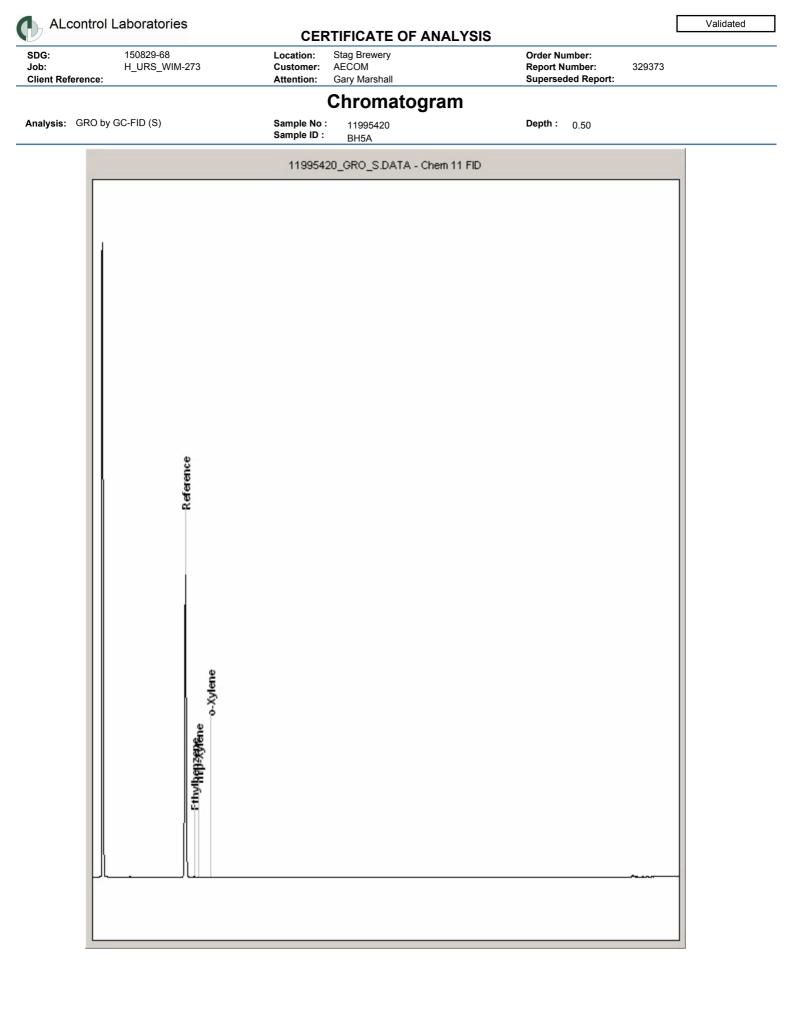


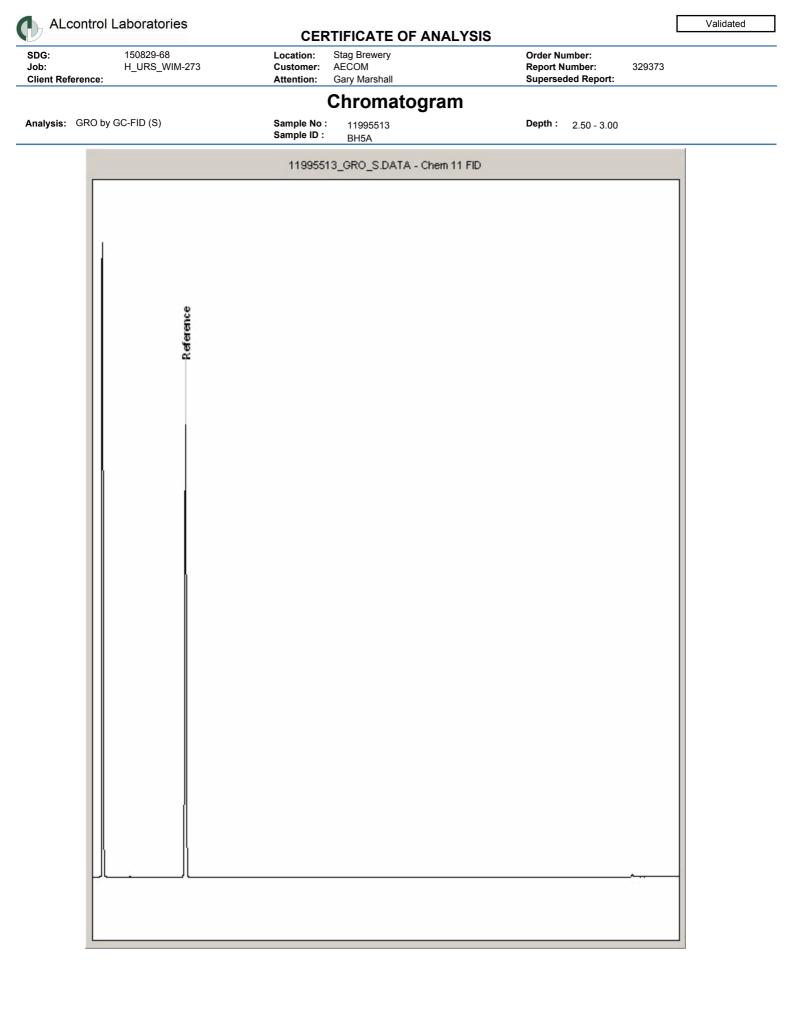












#### **CERTIFICATE OF ANALYSIS**

SDG:	150829-68	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

## 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 -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.

Order Number: Report Number: Superseded Report:

329373

#### SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS			
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	GC-MS			
HERBICIDES	D&C	HEXANEACETONE	GC-MS				
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS			
EPH (DRO)	D&C	HEXANEACETONE	HEXANEACETONE END OVER END				
EPH (MNOL)	D&C	HEXANEACETONE	END OVEREND	GCFD			
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFD			
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFD			
PCB TOT / PCB CON	D&C	HEXANEACETONE	ENDOWEREND	GC-MS			
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS			
08-040(06-040) EZ FLASH	WET	HEXANEACETONE	SHAVER	GCEZ			
POL VAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAVER	6CEZ			
SEM VOLATILEORGANIC COMPOUNDS WE		DOMAGETONE	SONICATE	GCMS			

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS		
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS		
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID		
EPHCMG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID		
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID		
PCB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS		
PCB 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		
TIH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC		
MINERALOIL by IR	TCE	LIQUID'LIQUID SHAKE	HPLC		
GLYCOLS	NONE	DIRECT NJECTION	GCMS		

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

#### **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°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 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-lsopropylphenol, 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 Adinate	-
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.



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 14 September 2015 H\_URS\_WIM 150902-38

Stag Brewery 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



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#### **CERTIFICATE OF ANALYSIS**

Validated

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:	

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11995368	BH3			01/09/2015
11995366	BH4			01/09/2015
11995367	BH5			01/09/2015
11995371	BH8			01/09/2015
11995370	BH109			01/09/2015
11995369	BH110			01/09/2015
11995372	BH111			01/09/2015
11995373	DUP01			01/09/2015

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

	0902-38	CE Location:		Sta	g Bi	rew		0						,			der					-	o=-				_
Job: H_ Client Reference:	_URS_WIM-273	Customer Attention:			CON ry M		hall										port				ort:	3:	297	13			
LIQUID							_				_				_					_							Ī
Results Legend	Lab Sam	ple No(s)					11995368				11995366				1990	11005365				11995371				11995370		- ISBOOGE	1005
X Test							368				366				507	7.96				371				370		600	200
No Determination	ı –						+				_													+			-
Possible	Cust	omer													_									в		Ū	D
	Sample F	Reference					BH3				BH4				5	D L J				BH8				BH109			140
							1				_																1
	AGS Re	eference																									
	Dent	h (m)									_																
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			250ml 0.5l gla	500ml	H2S(	HNO3	U.5I gli	250ml	Dissol 500ml	H2SC	Via	2.51 gla	500ml Plastic (ALE2 250ml ROD (ALE2	H2S(	HNO3	0.5l gli	500ml 250ml	Dissolv	HNO3	0.5l gl: Vial	250ml BOD (ALE21	Dissol	HNO3	0.5l glass bottle (AL Vial (ALE297)	250ml	Dissol	LINC
	Cont	ainer	BOD ass bc	Plasti	Ved M	Filtere	ass bo	BOD	ved M	D4 (AL	Filters	ass bo	Plasti	Ved M	Filtere	ass bo	Plastie		Filtere	ass bo	BOD	ved M	Filtere	ass bo	BOD		1/1
			(ALE2 ttle (Al	; (ALE	E244) etals P	)d (ALL	297)	ALE2	etals F	E244)	297) d (Al F	ttle (Al	AI F2	tals P	id (ALE	ttle (Al	ALE2	stals P	d (ALI	<u>ittle (A</u> 297)	ALE2	etals P	∌d (ALi E244)	ttle (A 297)	ALE2	etals P	1044
Ammoniacal Nitrogen	All	NDPs: 0	· · →	N -	-i	11			2 <sup>-</sup>	ſ	11	1 -	- N	-		-	- N	Ť	11			ד נ	Ш			) <del>-</del> ī	1
		Tests: 8			X					x				X	2			)	<mark>(</mark>				x			)	K
Anions by Kone (w)	All	NDPs: 0 Tests: 8																									
	A.H.			x					x				X				X				>	•			>	<b>(</b>	_
COD Unfiltered	All	NDPs: 0 Tests: 8	x					x					x				x				X				x		_
Dissolved Metals by ICP-MS	All	NDPs: 0	^	•			_	^	_		_	<b>′</b>	^				^				^		+		<b>^</b>		_
		Tests: 8				x					x				x				x				×				-
Dissolved W, Nb and Zr by ICF	P-MS All	NDPs: 0					+																_				-
		Tests: 8				x					x				x				X				x				
EPH (DRO) (C10-C40) Aqueou (W)	us All	NDPs: 0 Tests: 8																									
			x				X					x				x				X				X			
EPH CWG (Aliphatic) Aqueous (W)	GC All	NDPs: 0 Tests: 8																					_				
EPH CWG (Aromatic) Aqueous	s GC All	NDPs: 0	x				×					x				X				X			_	X	<u> </u>		_
(W)		Tests: 8	X				X					x				x				X			+	X	++		
GRO by GC-FID (W)	All	NDPs: 0	+		-		-	+	+		+			+			+	$\left  \right $					+	+	╋	++	-
		Tests: 8					x				x					ĸ				x				x	$\left  \right $		-
Mercury Dissolved	All	NDPs: 0 Tests: 8																							$\square$		-
					x				x					x				x				x				x	
pH Value	All	NDPs: 0 Tests: 8																									
SVOC MS (W) - Aqueous	All	NDD		x					x				x				X					•	+	$\downarrow\downarrow$		<	_
G v OG Ivið (vv) - Aquebus	All	NDPs: 0 Tests: 7	x				×	,				x				x				X			_	X	+		
Total EPH (aq)	All	NDPs: 0	^		_				+	$\parallel$		^		+	$\parallel$	^	_			×	+	+	+		╀	+	_
		Tests: 8	X				X					X				X				X				X			-
TPH CWG (W)	All	NDPs: 0					-				+			+									+	+	┿	+	-
		Tests: 8	x				X					x				x				X				X			-
VOC MS (W)	All	NDPs: 0								$\square$													+		╈	+	-
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	50902-38 _URS_WIM-273	Location Custome Attentior	r:	Stag B AECO Gary N	М						Order Number: Report Number: Superseded Report:	329713	
QUID			_			_				<u> </u>			
esults Legend	Lab Sar	mple No(s)	11995369			11995372				11995373			
X Test			69			72				73			
No Determination Possible	n												
		stomer Reference	BH1 10			BH111				DUP01			
	Sample	Kelerence	10			11	:			01			
	AGS F	Reference											
	Dep	oth (m)											
			HNO V	250 0.51	Diss	HNC	250 0.51	500r	H2	HNO			
	Cor	ntainer	'ial (AL )3 Filte	nl BOI glass l	olved	1al (AL	nl BOI glass I	nl Plas	SO4 (/	ʻial (AL )3 Filte			
			E297) red (AL	250ml BOD (ALE2 0.5l glass bottle (AL	Metals F	E297)	0 (ALE2	tic (ALE	LE244	E297) red (AL			
mmoniacal Nitrogen	All	NDPs: 0	m		<u> </u>	m		10	Υ - I	m			
		Tests: 8			×	<b>(</b>			x				
nions by Kone (w)	All	NDPs: 0 Tests: 8											
OD Unfiltered	All	NDPs: 0		<b>)</b>				x					
		Tests: 8		X			x						
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8											
			x			x				×			
Dissolved W, Nb and Zr by ICF	P-MS All	NDPs: 0 Tests: 8	x			X				x			
PH (DRO) (C10-C40) Aqueo	us All	NDPs: 0	^			^			<mark>·</mark>	^			
W)		Tests: 8		x			x						
PH CWG (Aliphatic) Aqueous W)	s GC All	NDPs: 0 Tests: 8											
PH CWG (Aromatic) Aqueou	s GC All	NDPs: 0		x			x						
W)		Tests: 8		X			x						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 8											
			x			x				x			
lercury Dissolved	All	NDPs: 0 Tests: 8			x				x				
H Value	All	NDPs: 0			^					+			
		Tests: 8		<b>)</b>	<			x					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 7											
otal EPH (aq)	All	NDPs: 0		x									
(F)		Tests: 8		X			x						
PH CWG (W)	All	NDPs: 0							+				
		Tests: 8		x			x						
OC MS (W)	All	NDPs: 0 Tests: 8											

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**(**)

### **CERTIFICATE OF ANALYSIS**

Results Legend           #         ISO17025 accredited.           M         mCERTS accredited.           aq         Aqueous / settled sample.		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) 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
check the efficiency of the method	l. The	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		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/Units	AGS Reference Method						
Ammoniacal Nitrogen as	<0.2 mg	_	<0.2	<0.2	0.508	0.619	1.23	<0.2
N	~0.2 mg	1111033	~0.Z #	~0. <b>∠</b> #	#	#	#	~0.2 #
Ammoniacal Nitrogen as	<0.3 mg	/I TM099	<0.3	<0.3	0.653	<del>،</del> 0.796	1.58	<0.3
NH4	-0.0 mg		#	#	#	#	#	#
COD, unfiltered	<7 mg/	TM107	<7	8.09	21.2	10.5		<7
	Ű		#	#	#	#	#	#
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		#	#	#	#	#	#
Barium (diss.filt)	< 0.03	TM152	64.2	22.1	47.9	83.4	18.2	40.7
	µg/l		#	#	#	#	#	#
Beryllium (diss.filt)	<0.07	TM152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Dense (dias 50)	µg/l		#	#	#	#	#	#
Boron (diss.filt)	<9.4 µg	/I TM152	152	52.7	99.2	130	107	137
On death and (dian 510)	10.4		#	#	#	#	#	#
Cadmium (diss.filt)	<0.1 µg	/I TM152	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (diag filt)	<0.00	TN450	#	#	#	#	#	#
Chromium (diss.filt)	<0.22 µg/l	TM152	3.62	1.53	2.26	3.98	3.56	3.44
Cobalt (diss.filt)	<0.06	TM152	# 2.33	# 0.594	# 3.15	# 2.77	# 9.39	4.36
Cobait (diss.iiit)	<0.00 μg/l	1101152	2.33	0.594 #	3.15	2.77	9.59 #	4.30
Copper (diss.filt)	<0.85	TM152	1.13	0.939	1.09	# 1.4	1.26	1.29
	μg/l	1111102	#	#	#	#	#	#
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
	µg/l		#	#	#	#	#	#
Thallium (diss.filt)	<0.96	TM152	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
	µg/l							
Vanadium (diss.filt)	<0.24	TM152	1.56	1.61	1.33	1.56	1.57	1.33
	µg/l	TN4450	#	#	#	#	#	#
Zinc (diss.filt)	<0.41 µg/l	TM152	8.79	12.6	5.59	9.92	27.4	4.62
EPH Range >C10 - C40	46 μg/	1 TM172	# <46	# <46	# <46	# <46	# 159	# <46
(aq)	<b>~40 μg</b> /	1 1101172	~40	-40	~40	~40 #	139 #	~+0
Total EPH (C6-C40) (aq)	<100 µg	/I TM172	<100		<100	* <100	159	<100
	100 µg		100	100	100	100	100	100
Mercury (diss.filt)	< 0.01	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	µg/l		#	#	#	#	#	#
Sulphate	<2 mg/	TM184	57.4	43	79.9	61.6	75	55.2
· · · · · · · · · · · · · · · · · · ·	Ľ		#	#	#	#	#	#
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 mg	/I TM184	5.18	21.5	6.42	4.42	0.942	5.64
			#	#	#	#	#	#
рН	<1 pH	TM256	7.45	7.1	7.39	7.38	7.49	7.52
	Units		#	#	#	#	#	#
Silver (diss.filt)	<1.5 µg	/I TM283	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
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#### **CERTIFICATE OF ANALYSIS**

Results Legend		Customer Sample R	BH111	DUP01			
# ISO17025 accredited.			Diffi	20101			
M mCERTS accredited. aq Aqueous / settled sample.		Bruth (m)					
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	Water(GW/SW)	Water(GW/SW)			
* Subcontracted test.		Date Sampled	01/09/2015	01/09/2015			
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time					
results of individual compounds w	ithin	Date Received SDG Ref	02/09/2015 150902-38	02/09/2015 150902-38			
(F) Trigger breach confirmed	covery	Lab Sample No.(s)	11995372	11995373			
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Uni				$ \rightarrow$	 	
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			
			#	7	#		
Antimony (diss.filt)	<0.16	TM152	0.199	0.816			
	µg/l						
Arsenic (diss.filt)	<0.12	TM152	22	4.8			
	µg/l		#	7	#		
Barium (diss.filt)	<0.03	TM152	104	21.4	Т		
	µg/l		#	#	#		
Beryllium (diss.filt)	<0.07	TM152	<0.07	<0.07	T		
	µg/l		#	#	#	 	
Boron (diss.filt)	<9.4 µ	g/l TM152	65.1	52.2			
			#		#		
Cadmium (diss.filt)	<0.1 µg	g/l TM152	<0.1	<0.1	1		
	^	- · ·	#		#		
Chromium (diss.filt)	<0.22	TM152	3.75	1.22	1		
	µg/l	-	#		#		
Cobalt (diss.filt)	< 0.06	TM152	1.79	0.262			
	µg/l		#		#		
Copper (diss.filt)	< 0.85	TM152	<0.85	1.13	T		
	µg/l	111102	#		#		
Lead (diss.filt)	< 0.02	TM152	<0.02	0.028	-		
	μg/l	111102	-0.02		#		
Manganese (diss.filt)	< 0.04	TM152	2270	7.19	#		
Wanganese (uiss.int)	×0.04 μg/l	1101102	#		#		
Nickel (diss.filt)	<0.15	TM152	3.85	1.81	#		
	-0.13 μg/l	1101132			4		
Selenium (diss.filt)	<0.39	TM152	# 2.87	0.897	#		
	<0.39 μg/l	1101132			ш		
Thellium (disc filt)	µg/i <0.96	TN150	# <0.96		#		
Thallium (diss.filt)		TM152	<0.90	<0.96			
Varadium (diaa filt)	µg/l	TN450	4.07	4.45	$\rightarrow$		 
Vanadium (diss.filt)	<0.24	TM152	1.07	1.45	ш		
	µg/l	T1450	#		#		
Zinc (diss.filt)	<0.41	TM152	6	5.01			
	µg/l		#		#		
EPH Range >C10 - C40	<46 µg	g/I TM172	65.8	<46			
(aq)	.105		#		#		 
Total EPH (C6-C40) (aq)	<100 µ	g/l TM172	<100	<100			
					$\downarrow$		 
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 m	g/l TM184	0.94	21.9			
			#		#		
рН	<1 pH		7.32	7.14			
	Units		#		#		
Silver (diss.filt)	<1.5 µ	g/l TM283	<1.5	<1.5			
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					T		
					T		
14:10:25 14/00/2015							

#### **CERTIFICATE OF ANALYSIS**

Validated

#### SVOC MS (W) - Aqueous

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SVOC MS (W) - Aqueous								
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. tot.unfilt Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogate standa check the efficiency of the method. results of individual compounds wi samples aren't corrected for the ret	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(GW/SW) 01/09/2015 02/09/2015 150902-38	Water(GW/SW) 01/09/2015 02/09/2015 150902-38	Water(GW/SW) 01/09/2015 02/09/2015 150902-38	Water(GW/SW) 01/09/2015 02/09/2015 150902-38
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11995368	11995366	11995367	11995371	11995370	11995369
Component	LOD/Unit							
1,2,4-Trichlorobenzene (aq)	<1 µg/	'I TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/	1 TM176	<1	<1	<1 #	<1	<2	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/	1 TM176	# <1	# <1	** <1	# <1	# <2	<1
2,4,5-Trichlorophenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/	1 TM176	<del>#</del> <1 #					
2,6-Dinitrotoluene (aq)	<1 µg/	'I TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Chlorophenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Methylphenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Nitroaniline (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Nitrophenol (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
3-Nitroaniline (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Bromophenylphenylethe r (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Chloroaniline (aq)	<1 µg/	'I TM176	<1	<1	<1	<1	<2	<1
4-Chlorophenylphenylethe r (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Methylphenol (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Nitroaniline (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Nitrophenol (aq)	<1 µg/	1 TM176	<1	<1	<1	<1	<2	<1
Azobenzene (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Acenaphthylene (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Acenaphthene (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Anthracene (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Chloroethoxy)metha ne (aq)	<1 µg/		<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/		<2 #	<2 #	<2 #	<2 #	<4 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/	1 TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #

#### **CERTIFICATE OF ANALYSIS**

Validated

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:	

### SVOC MS (W) - Aqueous

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)				· · · ·			
tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surrogate standa	ard to	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
check the efficiency of the method results of individual compounds w samples aren't corrected for the re	ithin	Date Received SDG Ref	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
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11995368	11995366		11995367	11995371	11995370	11995369
Component Benzo(a)anthracene (aq)	LOD/Un <1 µg		<1	<1	+	<1	<1	<2	<1
			#	; <1	#	=======================================	#	# <2	# <1
Benzo(b)fluoranthene (aq)	<1 µç		#		#	#	#	#	#
Benzo(k)fluoranthene (aq)	<1 µç	g∕l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Benzo(a)pyrene (aq)	<1 µç	y/I TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µç	g/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Carbazole (aq)	<1 µç	j/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Chrysene (aq)	<1 µç	j/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Dibenzofuran (aq)	<1 µç	j/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
n-Dibutyl phthalate (aq)	<1 µç	g/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Diethyl phthalate (aq)	<1 µç	g/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µç	g/l TM176	# <1 #	<1	#	<del>*</del> <1 #			
Dimethyl phthalate (aq)	<1 µg	g/l TM176	<1	<1	#	* <1 #	<1		<1
n-Dioctyl phthalate (aq)	<5 µg	g/l TM176	# <5	<5		<5	# <5	<10	# <5 #
Fluoranthene (aq)	<1 µg	g/l TM176	# <1	<1	#	# <1	# <1	# <2	# <1
Fluorene (aq)	<1 µg	g/l TM176	# <1	<1	#	# <1	# <1	# <2	# <1
Hexachlorobenzene (aq)	<1 µg	g/l TM176	# <1	<1	#	<del>#</del>	# <1	# <2	# <1
Hexachlorobutadiene (aq)	<1 µg	g/l TM176	# <1	<1	#	# <1	# <1	# <2	# <1
Pentachlorophenol (aq)	<1 µg	g/l TM176	# <1	<1	#	<u></u> <1	# <1	# <2	# <1
Phenol (aq)	<1 µç	g/l TM176	<1	<1	╈	<1	<1	<2	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg	j/l TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Hexachloroethane (aq)	<1 µç	g/l TM176	# <1 #	<1	#	* <1 #	* <1 #		# <1 #
Nitrobenzene (aq)	<1 µç	g/l TM176	# <1 #	<1	#	<del>*</del> <1 #			
Naphthalene (aq)	<1 µç	g/l TM176		<1	#		<1		
Isophorone (aq)	<1 µg	j/l TM176	#	<1	#	<del>//</del> <1 #	#		#
Hexachlorocyclopentadien e (aq)	<1 µç	g∕l TM176	<1	<1	π	<1 *1	* <1	<2	<1
Phenanthrene (aq)	<1 µç	J∕I TM176	<1 #	<1	#	<1 #	<1 #	<2 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µç	J∕I TM176	# <1 #	<1	#	* <1 #			# <1 #
Pyrene (aq)	<1 µç	g/l TM176	#	<1	#	<del>//</del> <1 #			
			<del>π</del>		#	<del></del>	<del>π</del>	π	#
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#### **CERTIFICATE OF ANALYSIS**

					Gary Marshall	Superseded Repo	
svoc	MS (W) - Aqueous	5					
	Results Legend		Customer Sample R	BH111			
	ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted test.		Depth (m) Sample Type Date Sampled	Water(GW/SW) 01/09/2015			
	% recovery of the surrogate standa check the efficiency of the method. results of individual compounds wi samples aren't corrected for the rec Trigger breach confirmed Sample deviation (see appendix)	The thin	Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	02/09/2015 150902-38 11995372			
•	Frichlorobenzene	<1 µg		<1	#		
	chlorobenzene (aq)	<1 µg	/I TM176	<1	#		
1,3-Dio	chlorobenzene (aq)	<1 µg	/I TM176	<1	#		
1,4-Dio	chlorobenzene (aq)	<1 µg	/I TM176	<1	<u>π</u>		
2,4,5-1	Frichlorophenol (aq)	<1 µg	/I TM176	<1	#		
2,4,6-1	Frichlorophenol (aq)	<1 µg	/I TM176	<1	#		
	chlorophenol (aq)	<1 µg	/I TM176	<1	#		
	methylphenol (aq)	<1 µg		<1	#		
	nitrotoluene (aq)	<1 µg		<1	#		
	nitrotoluene (aq)	<1 µg		<1	#		
	ronaphthalene (aq)	<1 µg		<1	#	 	
	rophenol (aq) nylnaphthalene (aq)	<1 µg. <1 µg		<1	#		
	nyinaphthaiene (aq)			<1	#		
	paniline (aq)	<1 µg		<1	#		
	pphenol (aq)	<1 µg		<1	#		
	paniline (aq)	<1 µg		<1	#	 	
	nophenylphenylethe	<1 µg		<1	#		
r (aq)	ro-3-methylphenol	<1 μg		<1	#		
(aq)	roaniline (aq)	<1 µg		<1	#		
4-Chlo	rophenylphenylethe	<1 µg		<1		 	
r (aq) 4-Meth	nylphenol (aq)	<1 µg	/I TM176	5.42	#		
4-Nitro	aniline (aq)	<1 µg	/I TM176	<1	#	 	
4-Nitro	phenol (aq)	<1 µg	/I TM176	<1	#		
Azobe	nzene (aq)	<1 µg	/I TM176	<1	#		
Acena	phthylene (aq)	<1 µg	/I TM176	<1	#		
Acena	phthene (aq)	<1 µg	/I TM176	<1	#		
Anthra	cene (aq)	<1 µg	/I TM176	<1	#		
bis(2-0 (aq)	Chloroethyl)ether	<1 µg	/I TM176	<1	#		
bis(2-0 ne (aq		<1 µg	/I TM176	<1	#		
bis(2-E (aq)	Ethylhexyl) phthalate	<2 µg		<2	#		
Butylb	enzyl phthalate (aq)	<1 µg	/I TM176	<1	#		

#### **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:	

SVOC MS (W) - Aqueous	s					
Results Legend		Customer Sample R	BH111			
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			
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time	02/09/2015			
results of individual compounds wind samples aren't corrected for the re-	ithin	Date Received SDG Ref	150902-38			
(F) Trigger breach confirmed	lottil	Lab Sample No.(s)	11995372			
1-5&+§@ Sample deviation (see appendix) Component	LOD/Unit	AGS Reference s Method				
Benzo(a)anthracene (aq)	<1 µg/	-	<1			
			. #			
Benzo(b)fluoranthene (aq)	<1 µg/	I TM176	<1			
			#			
Benzo(k)fluoranthene (aq)	<1 µg/	I TM176	<1			
		1 71470	#			
Benzo(a)pyrene (aq)	<1 µg/	I TM176	<1 #			
Benzo(g,h,i)perylene (aq)	<1 µg/	I TM176	<1			
Denzo(g,n,i)peryiene (uq)	1 µg/	1 111170	#			
Carbazole (aq)	<1 µg/	I TM176	<1			
			#			
Chrysene (aq)	<1 µg/	I TM176	<1			
			#	<b>↓</b>		
Dibenzofuran (aq)	<1 µg/	I TM176	<1			
n Dibutul phthalata (ag)	<1.00/	I TM176	<u></u>		 	
n-Dibutyl phthalate (aq)	<1 µg/	0 11111	<1 #			
Diethyl phthalate (aq)	<1 µg/	I TM176	<1			
			#			
Dibenzo(a,h)anthracene	<1 µg/	I TM176	<1			
(aq)			#		 	
Dimethyl phthalate (aq)	<1 µg/	I TM176	<1			
n Diastul abtheleta (an)	4 <b>5</b>	1 71470	#		 	
n-Dioctyl phthalate (aq)	<5 µg/	I TM176	<5 #			
Fluoranthene (aq)	<1 µg/	I TM176	<1 **			
	1 49		#			
Fluorene (aq)	<1 µg/	I TM176	<1			
			#			
Hexachlorobenzene (aq)	<1 µg/	I TM176	<1			
			#			
Hexachlorobutadiene (aq)	<1 µg/	I TM176	<1			
Pentachlorophenol (aq)	<1 µg/	I TM176	# <1			
r endemolophenol (dq)	1 µg/	1 111170	-1			
Phenol (aq)	<1 µg/	I TM176	<1			
n-Nitroso-n-dipropylamine	<1 µg/	I TM176	<1			
(aq)			#		 	
Hexachloroethane (aq)	<1 µg/	I TM176	<1 #			
Nitrobenzene (aq)	<1 µg/	I TM176	<u></u>	+ +		
	·· P9/		*			
Naphthalene (aq)	<1 µg/	I TM176	<1			
			#			
Isophorone (aq)	<1 µg/	I TM176	<1			
			#			
Hexachlorocyclopentadien	<1 µg/	I TM176	<1			
e (aq) Phenanthrene (aq)	<1 µg/	I TM176	<1	++	 	
i nenanunene (ay)	~ i µg/		<1 #			
Indeno(1,2,3-cd)pyrene	<1 µg/	I TM176	<1	<u> </u>		
(aq)			#			
Pyrene (aq)	<1 µg/	I TM176	<1			
		_	#	<b>↓</b>		
				++	 	
				<u> </u>		

### **CERTIFICATE OF ANALYSIS**

Validated

#### TPH CWG (W)

TPH CWG (W)									
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		00:00:00	·	· · · · ·	· · · ·		
results of individual compounds w	ithin	Date Received SDG Ref	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- (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/Uni	_							
Methyl tertiary butyl ether	<3 µg	/I TM245	<3	<3	<3	<3	<3	<3	
(MTBE)			#	#	#	#	#	#	
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	<5	<5	<5	<5	<5	<5	
	.0	1 TM045	#	#	#	#	#	#	
m,p-Xylene	<8 µg	/I TM245	<8	<8	<8	<8	<8	<8	
	<2.00	/I TM245	#	# <3	# <3	# <3	# <3	# <3	
o-Xylene	<3 µg	/1 11/1245	<3						
Sum of detected BTEX	< 20 110	a/l TM245	#	#	# <28	# <28	# <28	#	
Sum of delected DIEA	<28 µç	yn 11vi∠40	<28	<28	~20	~20	~20	<28	
Aliphatics >C12-C16 (aq)	<10 µg	a/l TM174	<10	<10	<10	<10	<10	<10	
/ mpriduos = 012-010 (dq)	<10 µg	j,, ivi1/ <del>4</del>	-10	-10	-10	-10	-10	- 10	
Aliphatics >C16-C21 (aq)	<10 µg	g/I TM174	<10	<10	<10	<10	<10	<10	
Aliphatics > C 10-C21 (aq)	<10 με	y/i iivii/4	<10	\$10	<10	\$10	~10	10	
Aliphatics >C21-C35 (aq)	<10 µg	a/l TM174	<10	<10	<10	<10	<10	<10	
	10 45	,	10	.10	10	.10	.10		
Total Aliphatics >C12-C35	<10 µg	g/I TM174	<10	<10	<10	<10	<10	<10	
(aq)	10 45	,	10		10		.10	10	
Aromatics >EC12-EC16	<10 µg	g/l TM174	<10	<10	<10	<10	<10	<10	
(aq)									
Aromatics >EC16-EC21	<10 µg	g/I TM174	<10	<10	<10	<10	<10	<10	
(aq)		,							
Aromatics >EC21-EC35	<10 µg	g/I TM174	<10	<10	<10	<10	<10	<10	
(aq)									
Total Aromatics	<10 µg	g/I TM174	<10	<10	<10	<10	<10	<10	
>EC12-EC35 (aq)									
Total Aliphatics &	<10 µg	g/l TM174	<10	<10	<10	<10	<10	<10	
Aromatics >C5-35 (aq)									
GRO >C5-C10	<10 µg	g/I TM245	<10	<10	<10	<10	<10	<10	
EPH (C6-C10)	<100 µ	g/l TM245	<100	<100	<100	<100	<100	<100	

#### **CERTIFICATE OF ANALYSIS**

Client Reference:			Attention: Ga	iry Marshall		Supers	eded Report	•		
TPH CWG (W)										
Results Legend		Customer Sample R	BH111	DUP01						
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settied sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015						
** % recovery of the surrogate stands check the efficiency of the method results of individual compounds w samples aren't corrected for the re (F) Trigger breach confirmed	. The ithin	Sampled Time Date Received SDG Ref Lab Sample No.(s)	02/09/2015 150902-38 11995372	02/09/2015 150902-38 11995373						
1-5&+§@ Sample deviation (see appendix)		AGS Reference								
Component	LOD/Uni	_								
Methyl tertiary butyl ether (MTBE)	<3 µg/		<3	<3	#					
Benzene	<7 µg/		<7 #	<7	#					
Toluene	<4 µg/	/I TM245	<4 #	<4	#					
Ethylbenzene	<5 µg/	/I TM245	<5 #	<5	#					
m,p-Xylene	<8 µg/	/I TM245	<8 #	<8	#					
o-Xylene	<3 µg/	/I TM245	<3	<3	#					
Sum of detected BTEX	<28 µg	j/l TM245	<28	<28						
Aliphatics >C12-C16 (aq)	<10 µg	j/l TM174	<10	<10						
Aliphatics >C16-C21 (aq)	<10 µg	ı/I TM174	<10	<10						
Aliphatics >C21-C35 (aq)	<10 µg	ı/I TM174	<10	<10						
Total Aliphatics >C12-C35 (aq)	<10 µg	j/l TM174	<10	<10						
Aromatics >EC12-EC16 (aq)	<10 µg	j/l TM174	<10	<10						
Aromatics >EC16-EC21 (aq)	<10 µg	j/l TM174	<10	<10						
Aromatics >EC21-EC35 (aq)	<10 µg	j/l TM174	<10	<10						
Total Aromatics >EC12-EC35 (aq)	<10 µg	ı/I TM174	<10	<10						
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg	j/l TM174	<10	<10						
GRO >C5-C10	<10 µg	j/l TM245	<10	<10						
EPH (C6-C10)	<100 µ	g/I TM245	<100	<100						

#### **CERTIFICATE OF ANALYSIS**

Validated

#### VOC MS (W)

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	VOC MS (W)				-					
And an and an and an and an and and and a			Customer Sample R	BH3	BH4		BH5	BH8	BH109	BH110
And and any and any	aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogate standi check the efficiency of the method	. The	Sample Type Date Sampled Sampled Time	01/09/2015	01/09/2015 00:00:00		01/09/2015	01/09/2015	01/09/2015	01/09/2015
Determinancement         %         TM201         BB.B         62.5         BB.5         BB.4         BB.2         B7.5           Tousee G8"         %         TM200         B1.8         1         62.5         81.5         1	samples aren't corrected for the re (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	150902-38	150902-38		150902-38	150902-38	150902-38	150902-38
Interest         Integer	· · ·									
Talone de"         %         TM208         818         62.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         81.0         1 <th1< th="">         1         1         <t< td=""><td>Dibromofluoromethane**</td><td>%</td><td>TM208</td><td></td><td>92.5</td><td>1</td><td></td><td></td><td></td><td></td></t<></th1<>	Dibromofluoromethane**	%	TM208		92.5	1				
index         index <t< td=""><td>Toluene-d8**</td><td>%</td><td>TM208</td><td>81.8</td><td>82.6</td><td></td><td>81.9</td><td>81.5</td><td>82.2</td><td></td></t<>	Toluene-d8**	%	TM208	81.8	82.6		81.9	81.5	82.2	
Image         Image <t< td=""><td></td><td></td><td></td><td>1</td><td></td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></t<>				1		1	1	1	1	1
Chloromethane         cl 1 model	Dichlorodifluoromethane	<1 µg/	1 TM208		<1	1				
1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	Chloromethane	<1 µg/	I TM208	<1			<1	<1	<1	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				1 #		1 #	1 #	1 #	1 #	1 #
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Bromomethane	<1 µg/	I TM208			1 #				<1 1 #
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Chloroethane	<1 µg/	I TM208			1 #				<1 1 #
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Trichlorofluoromethane	<1 µg/	I TM208			1 #	-			<1 1 #
Inchoromethane         Image: constraint of the state of the st	1,1-Dichloroethene	<1 µg/	I TM208			1 #				<1 1 #
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Carbon disulphide	<1 µg/	I TM208			1 #				<1 1 #
Methy letrary buly l	Dichloromethane	<3 µg/	I TM208	<3	<3		<3	<3	<3	<3
Index		<1 µg/	I TM208	<1	<1		<1	<1	<1	
1.1-Dichloroethane       <1 µg/l       TM208       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1       <1	trans-1,2-Dichloroethene	<1 µg/	I TM208			1 #				<1 1 #
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1,1-Dichloroethane	<1 µg/	I TM208		<1		<1	<1	<1	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	cis-1,2-Dichloroethene	<1 µg/	I TM208		<1					
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	2,2-Dichloropropane	<1 µg/	I TM208	<1			<1	<1	<1	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Bromochloromethane	<1 µg/	I TM208	<1			<1		<1	
1,1,1-Trichlorogethane         <1 µg/l         TM208         <1         <1         <1         <1 $1$ <td>Chloroform</td> <td>&lt;1 µg/</td> <td>I TM208</td> <td>&lt;1</td> <td>1.57</td> <td></td> <td>&lt;1</td> <td>&lt;1</td> <td>&lt;1</td> <td></td>	Chloroform	<1 µg/	I TM208	<1	1.57		<1	<1	<1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,1,1-Trichloroethane	<1 µg/	I TM208	<1	<1		<1	<1	<1	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1,1-Dichloropropene	<1 µg/	I TM208	<1	<1		<1	<1	<1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Carbontetrachloride	<1 µg/	I TM208		<1					<1 1 #
Benzene $<1 \ yg/l$ TM208 $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$ $<1$	1,2-Dichloroethane	<1 µg/	I TM208				<1	<1	<1	<1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Benzene	<1 µg/	I TM208	<1			<1	<1	<1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Trichloroethene	<1 µg/	I TM208	<1	<1		<1	<1	<1	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1,2-Dichloropropane	<1 µg/	I TM208	<1	<1		<1	<1	<1	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Dibromomethane	<1 µg/	I TM208	<1	<1		<1	<1	<1	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Bromodichloromethane	<1 µg/	I TM208	<1	<1		<1	<1	<1	
Toluene         <1 μg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1	cis-1,3-Dichloropropene	<1 µg/	I TM208	<1	<1		<1	<1	<1	
trans-1,3-Dichloropropene         <1 μg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1	Toluene	<1 µg/	I TM208	<1	<1		<1	<1	<1	
1,1,2-Trichloroethane <1 µg/l TM208 <1 <1 <1 <1 <1 <1	trans-1,3-Dichloropropene	<1 µg/	I TM208	<1	<1		<1	<1	<1	
	1,1,2-Trichloroethane	<1 µg/	I TM208	<1	<1		<1	<1	<1	

#### **CERTIFICATE OF ANALYSIS**

Validated

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:	

#### VOC MS (W)

Image: second worker worker         Image: second worker worker         Image: second worker worker         Image: second worker worker         Image: second worker w														
Mith         Constrained water         Material water	M mCERTS accredited.		Customer Sample R	BH3	BH4		BH5		BH8		BH109		BH110	
Besize water and service	tot.unfilt Total / unfiltered sample. * Subcontracted test.	lard to	Sample Type Date Sampled		01/09/201	5								
Interview         Interview <t< td=""><td>check the efficiency of the method</td><td>d. The</td><td></td><td>02/09/2015</td><td></td><td></td><td>02/09/201</td><td>5</td><td>02/09/201</td><td>5</td><td>02/09/2015</td><td>5</td><td></td><td></td></t<>	check the efficiency of the method	d. The		02/09/2015			02/09/201	5	02/09/201	5	02/09/2015	5		
rides devine words       Lobe winder       Lobe winder <thlobe th="" winder<="">       Lobe winder       <thlobe td="" winder<<=""><td>samples aren't corrected for the n</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thlobe></thlobe>	samples aren't corrected for the n													
1.3 Dehrogrogane       c1 $\mu_0$ c1				11000000	11000000	,	11000001		11000011		11000010		1100000	5
Introduce hereIntroduce hereIntro	Component	LOD/Ur												
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	1,3-Dichloropropane	<1 µ(	g/I TM208		<1	1#	<1	1 #	<1	1#	<1	1 #	<1	1#
$ \begin{array}{c} \text{Debromobiloomethane} & < < \\ \  \  \  \  \  \  \  \  \  \  \  \  \$	Tetrachloroethene	<1 µ(	g/I TM208		<1	1#	<1	1 #	<1	1 #	<1	1 #	<1	1 #
12.Dibonocehane	Dibromochloromethane	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	1,2-Dibromoethane	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
1,1,1,2-Tetrachlorepthane       c1 µµ1       TM208       c1 1 ±	Chlorobenzene	<1 µ(	g/I TM208		<1	1#	<1	1 #	<1	1#	<1	1#	<1	1#
	1,1,1,2-Tetrachloroethane	<1 µ(	g/I TM208		<1		<1		<1	1#	<1		<1	1#
1         1	Ethylbenzene	<1 µ(	g/I TM208		<1		<1	1 #	<1		<1		<1	1#
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	m,p-Xylene	<1 µ(	g/l TM208		<1	1#	<1	1 #	<1	1 #	<1	1 #	<1	1#
Styrene	o-Xylene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Styrene	<1 µ(	g/l TM208		<1	1#	<1	1 #	<1	1 #	<1	1 #	<1	1#
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Bromoform	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Isopropylbenzene	<1 µ(	g/I TM208		<1	1#	<1	1 #	<1	1 #	<1	1 #	<1	1#
1,2,3-Trichloropropane       <1 µg/l	1,1,2,2-Tetrachloroethane	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1,2,3-Trichloropropane	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Bromobenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Propylbenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2-Chlorotoluene	<1 µ(	g/l TM208		<1	1#	<1		<1	1 #	<1	1 #	<1	1#
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1,3,5-Trimethylbenzene	<1 µ(	g/I TM208		<1	1#	<1		<1	1 #	<1	1 #	<1	1 #
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	4-Chlorotoluene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	tert-Butylbenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1,2,4-Trimethylbenzene	<1 µ(	g/I TM208		<1	1#	<1		<1		<1	1 #	<1	1 #
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	sec-Butylbenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4-iso-Propyltoluene		-	<1	<1		<1		<1		<1		<1	1 #
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1,3-Dichlorobenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	1,4-Dichlorobenzene	<1 µ(	g/l TM208	<1	<1		<1		<1		<1		<1	1#
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	n-Butylbenzene	<1 µ(	g/l TM208	<1	<1		<1		<1		<1		<1	1#
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1,2-Dichlorobenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1
1,2,4-Trichlorobenzene         <1 µg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1		<1 µ	g/I TM208	<1	<1		<1		<1		<1		<1	1
Hexachlorobutadiene         <1 µg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 <t< td=""><td>1,2,4-Trichlorobenzene</td><td>&lt;1 µ(</td><td>g/I TM208</td><td>&lt;1</td><td>&lt;1</td><td></td><td>&lt;1</td><td></td><td>&lt;1</td><td></td><td>&lt;1</td><td></td><td>&lt;1</td><td>1#</td></t<>	1,2,4-Trichlorobenzene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1#
tert-Amyl methyl ether (TAME)         <1 μg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1	Hexachlorobutadiene	<1 µ(	g/I TM208	<1	<1		<1		<1		<1		<1	1 #
Naphthalene         <1 µg/l         TM208         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 <td></td> <td>&lt;1 µ</td> <td>g/I TM208</td> <td>&lt;1</td> <td>&lt;1</td> <td></td> <td>&lt;1</td> <td></td> <td>&lt;1</td> <td></td> <td>&lt;1</td> <td></td> <td>&lt;1</td> <td>1#</td>		<1 µ	g/I TM208	<1	<1		<1		<1		<1		<1	1#
	· · · · · ·	<1 µş	g/I TM208		<1	1#	<1	1#	<1	1#	<1	1#	<1	1 #

#### **CERTIFICATE OF ANALYSIS**

Validated

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:	

#### VOC MS (W)

VOC MS (W)				_				
Results Legend           #         ISO17025 accredited.           M         mCERTS accredited.           aq         Aqueous / settled sample.		Customer Sample R	ВНЗ	BH4	BH5	BH8	BH109	BH110
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.		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
check the efficiency of the meth	od. The	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 samples aren't corrected for the	recovery	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) AGS Reference	11995368	11995366	11995367	11995371	11995370	11995369
Component	LOD/Uni							
1,2,3-Trichlorobenzene	<1 µg	/I TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,3,5-Trichlorobenzene	<1 µg	/I TM208	<1 1	<1 1	<1 1	<1	<1	<1
						· · · · ·		
			L					

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#### **CERTIFICATE OF ANALYSIS**

Client Reference:			Attention: Ga	ary Marshall		Superseded Repo	ort:	
VOC MS (W)								
Results Lege	nd	Customer Sample R	BH111	DUP01				
# ISO17025 accredited. M mCERTS accredited.								
aq Aqueous / settled samp		Depth (m)						
diss.filt Dissolved / filtered sam tot.unfilt Total / unfiltered sampl		Sample Type	Water(GW/SW)	Water(GW/S	W)			
* Subcontracted test.		Date Sampled	01/09/2015	01/09/2015				
** % recovery of the surro		Sampled Time	·	· · · ·				
check the efficiency of results of individual co		Date Received	02/09/2015	02/09/2015				
samples aren't correcte	ed for the recovery	SDG Ref	150902-38 11995372	150902-38 11995373				
(F) Trigger breach confirm 1-5&+§@ Sample deviation (see a		Lab Sample No.(s) AGS Reference	11000012					
Component	LOD/U							
			01.7	00.5				
Dibromofluoromethane	e** %	TM208	91.7	90.5				
			1		1			
Toluene-d8**	%	TM208	80.4	80.1				
			1		1			
4-Bromofluorobenzene	e** %	TM208	77.9	78				
			1		1			
Dichlorodifluorometha	ne <1 µ	g/l TM208	<1	<1				
Dichiorodinuorometha	ie <1µ	g/i i wizuo						
			1		1			
Chloromethane	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
Vinyl chloride	<1 µ	g/l TM208	<1	<1				
-		-	1 #		1 #			
Bromomethane	<1 µ	g/l TM208	<1	<1				
Diomoniculanc	ν μ	9'' ' IVIZUU			<b>4</b> ـ ـ			
Oblass of the state			1#		1 #			
Chloroethane	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
Trichlorofluoromethan	e <1 µ	g/l TM208	<1	<1				
			1 #		1 #			
1,1-Dichloroethene	<1 µ	g/l TM208	<1	<1				
r, i Dichiorocalerie	114	9/1 11/1200			1 #			
		# <b>T</b> 14000	1#		1 #			
Carbon disulphide	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
Dichloromethane	<3 µ	g/l TM208	<3	<3				
			1#		1 #			
Methyl tertiary butyl et	her <1 µ	g/l TM208	<1	<1				
(MTBE)		9/1 111200			1 #			
<u> </u>		// Th (000	1#		1#			
trans-1,2-Dichloroethe	ne <1 µ	g/l TM208	<1	<1				
			1 #		1 #			
1,1-Dichloroethane	<1 µ	g/l TM208	<1	<1				
			1#		1 #			
cis-1,2-Dichloroethene	e <1μ	g/l TM208	<1	<1				
,	r	5	1 #		1 #			
2,2-Dichloropropane	<1 µ	g/l TM208	<1	<1	1 #			
2,2-Dichloroproparie	~ιμ	g/i 110200						
			1		1			
Bromochloromethane	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
Chloroform	<1 µ	g/l TM208	<1	1.41				
		°	1 #		1 #			
1,1,1-Trichloroethane	<1 µ	g/l TM208	<1	<1				
	ι - i μ	9'' ' IVI200			A 11			
4.4 Diablement		n/l ■ TM0000	1#		1 #			
1,1-Dichloropropene	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
Carbontetrachloride	<1 µ	g/l TM208	<1	<1				
			1#		1 #			
1,2-Dichloroethane	<1 µ	g/l TM208	<1	<1				
,	1 · · P		1		1			
Benzene	<1 µ	g/l TM208	<1	<1	I			
Benzene	<1µ	yn Tivi∠08			<b>.</b>			
		_	1 #		1 #			
Trichloroethene	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
1,2-Dichloropropane	<1 µ	g/l TM208	<1	<1				
		-	1#		1 #			
Dibromomethane	<1 µ	g/l TM208	<1	<1	iπ			
Distomotheulane	~ · µ	g/1 111200						
<b></b>			1 #		1 #			
Bromodichloromethan	e <1 µ	g/l TM208	<1	<1				
			1 #		1 #			
cis-1,3-Dichloroproper	ne <1 µ	g/l TM208	<1	<1				
,	- F		. 1#		1 #			
Toluene	<1 µ	g/l TM208	<1	<1	ι <i>π</i>			
IUIUEIIE	<\µ	yn 11vi∠00			<b>.</b>			
			1 #		1 #			
trans-1,3-Dichloroprop	ene <1 µ	g/l TM208	<1	<1				
			1 #		1 #			
1,1,2-Trichloroethane	<1 µ	g/l TM208	<1	<1				
			1 #		1 #			
			. "					

#### **CERTIFICATE OF ANALYSIS**

Validated

### VOC MS (W)

	sulta Logond		Customer Comple D	DUILL	DUDA			1	
# ISO17025 ac M mCERTS ac			Customer Sample R	BH111	DUP0	1			
diss.filt Dissolved / f tot.unfilt Total / unfilte * Subcontract	itered sample. ared sample. ad test.		Depth (m) Sample Type Date Sampled	Water(GW/SW) 01/09/2015	Water(GW 01/09/20				
check the ef	of the surrogate standa iciency of the method.	The	Sampled Time Date Received	02/09/2015	02/09/20	)15			
samples are	lividual compounds wi n't corrected for the rec		SDG Ref	150902-38 11995372	150902- 119953				
(F) Trigger brea 1-5&+§@ Sample devi			Lab Sample No.(s) AGS Reference	11993372	119955	15			
Component		LOD/Un							
1,3-Dichloropro	pane	<1 µg	j/l TM208	<1 1	<1 ¢	1 #			
Tetrachloroethe	ne	<1 μς	j/l TM208	<1 1 #	<1 #	1 #			
Dibromochloror	nethane	<1 μς	j/l TM208	<1 1 ‡	<1 ¢	1 #			
1,2-Dibromoeth	ane	<1 μς		<1 1 ‡	<1 ¢	1 #			
Chlorobenzene		<1 µç		<1 1 #	<1 ¢	1 #			
1,1,1,2-Tetrach	oroethane	<1 µç		<1 1 #	<1 ¢	1 #			
Ethylbenzene		<1 µç		<1 1 ‡		1 #			
m,p-Xylene		<1 µç		<1 1		1 #			
o-Xylene		<1 µç		<1 1		1 #			
Styrene		<1 µç		<1 1 ‡		1 #			
Bromoform		<1 µç		<1 1 ‡		1 #			
Isopropylbenze		<1 µg		<1 1 ‡		1 #			
1,1,2,2-Tetrach	loroethane	<1 µg		<1 1	<1	1			
1,2,3-Trichlorop	ropane	<1 µç		<1 1 ‡		1 #			
Bromobenzene		<1 µç		<1 1 ‡		1 #			
Propylbenzene		<1 µç		<1 1 #		1 #			
2-Chlorotoluene		<1 µç		<1 1 #		1 #			
1,3,5-Trimethyl		<1 µç		<1		1 #			
4-Chlorotoluene		<1 µç		<1		1 #			
tert-Butylbenze		<1 µç		<1		1 #			
1,2,4-Trimethyl		<1 µç		<1		1 #			
sec-Butylbenze		<1 µç		<1	¢ <1	1 #			
4-iso-Propyltolu		<1 µç		<1	ŧ	1 #			
1,3-Dichlorober		<1 µg		<1 1		1 #			
1,4-Dichlorober		<1 µç		<1		1 #			
n-Butylbenzene		<1 µç		<1		1 #			
1,2-Dichlorober		<1 µç		<1		1			
1,2-Dibromo-3- ane		<1 µç		<1		1			
1,2,4-Trichlorot		<1 µç		<1		1 #			
Hexachlorobuta		<1 µç		<1		1 #			
tert-Amyl methy (TAME)	'l ether	<1 µç		<1		1 #			
Naphthalene		<1 µç	j/l TM208	<1 1 ‡	<1 #	1 #			

### **CERTIFICATE OF ANALYSIS**

Validated

#### VOC MS (W)

VOC MS (W)					_		
Results Legend           #         ISO17025 accredited.           M         mCERTS accredited.           aq         Aqueous / settled sample.           diss.filt         Dissolved / filtered sample.		Customer Sample R Depth (m)	BH111	DUP01			
tot.unfilt 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 stand check the efficiency of the metho results of individual compounds	d. The	Sampled Time Date Received	02/09/2015	02/09/2015			
samples aren't corrected for the r (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	150902-38 11995372	150902-38 11995373			
1-5&+§@ Sample deviation (see appendix) Component	LOD/Unit	AGS Reference s Method					
1,2,3-Trichlorobenzene	<1 µg/	I TM208	<1 1 #	<1 1 #			
1,3,5-Trichlorobenzene	<1 µg/	I TM208	<1 1	<1 1			

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#### **CERTIFICATE OF ANALYSIS**

Validated

 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:
 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		

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

SDG:

Job:

CERTIFICATE	OF ANALYSIS
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Stag Brewery AECOM 150902-38 Location: Order Number: H\_URS\_WIM-273 Customer: **Report Number:** Client Reference: Attention: Gary Marshall Superseded Report:

329713

# **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

150902-38

H\_URS\_WIM-273

**CERTIFICATE OF ANALYSIS** 

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: 329713 Superseded Report:

# ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Client Reference:

(

SDG:

Job:

Component	Method Code	QC 1224	QC 1233	QC 1270
Ammoniacal Nitrogen as	TM099	<b>96.0</b>	<b>102.8</b>	<b>102.0</b>
N		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	<b>100.57</b> 95.90 : 102.57	<b>100.19</b> 95.90 : 102.57	<b>99.43</b> 95.90 : 102.57

#### Dissolved Metals by ICP-MS

Component	Method Code	QC 1270	QC 1278
· · · · · · · · · · · · · · · · · · ·		QC 1270	QC 1270
Aluminium	TM152	106.13	104.93
		88.58 : 117.87	88.58 : 117.87
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		
Danum	1101152	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		
Caumum	1101132	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
Connor	TM152		
Copper	11/152	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

#### **CERTIFICATE OF ANALYSIS**

Stag Brewery

Gary Marshall

AECOM

Location:

Customer:

Attention:

 SDG:
 150902-38

 Job:
 H\_URS\_WIM-273

 Client Reference:
 Image: Client Reference

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#### Dissolved Metals by ICP-MS

Order Number: Report Number: 329713 Superseded Report:

Validated

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

### **CERTIFICATE OF ANALYSIS**

Validated

#### 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	TM183	<b>98.5</b>	<b>95.5</b>
(CVAF)		73.51 : 120.83	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

### **CERTIFICATE OF ANALYSIS**

SDG:	150902-38	Location:	Stag Brewery	Order Number
Job:	H_URS_WIM-273	Customer:	AECOM	Report Numbe
Client Refere	nce:	Attention:	Gary Marshall	Superseded R

nber: ımber: 329713 ed Report:

### SVOC MS (W) - Aqueous

4-Bromophenylphenyleth er         TM176         87.2 55.04 : 128.00         82.4 65.62 : 120.95           Benzo(a)anthracene         TM176         87.2 52.64 : 123.68         82.4 62.83 : 114.26           Benzo(a)pyrene         TM176         79.68 49.60 : 114.40         80.8 54.19 : 105.67           Butylbenzyl phthalate         TM176         93.6 49.04 : 127.76         82.4 62.83 : 114.26           Hexachlorobutadiene         TM176         77.52 42.80 : 108.20         61.28 43.12 : 110.32           Naphthalene         TM176         92.0 47.20 : 116.80         85.6 69.48 : 118.94           Nitrobenzene         TM176         88.8 58.70 : 110.90         69.48 : 118.94           Phenol         TM176         50.08         49.12	Component	Method Code	QC 1208	QC 1247
District (a) and (b) and (c) an		TM176		
Naphthalene         TM176         93.6 49.60 : 114.40         60.3 54.19 : 105.67           Butylbenzyl phthalate         TM176         93.6 49.04 : 127.76         82.4 45.10 : 118.90           Hexachlorobutadiene         TM176         77.52 42.80 : 108.20         61.28 43.12 : 110.32           Naphthalene         TM176         92.0 47.20 : 116.80         85.6 69.48 : 118.94           Nitrobenzene         TM176         88.8 58.70 : 110.90         79.52 69.13 : 107.62	Benzo(a)anthracene	TM176		
Despine in the second	Benzo(a)pyrene	TM176		
Naphthalene         TM176         92.0 47.20 : 116.80         85.6 69.48 : 118.94           Nitrobenzene         TM176         88.8 58.70 : 110.90         79.52 69.13 : 107.62	Butylbenzyl phthalate	TM176		
TM176         88.8 58.70 : 110.90         79.52 69.13 : 107.62	Hexachlorobutadiene	TM176		
80.0         79.52           58.70 : 110.90         69.13 : 107.62	Naphthalene	TM176		
Phenol TM176 50.08 49.12	Nitrobenzene	TM176		
30.25 : 79.75 30.92 : 74.19	Phenol	TM176		-

#### VOC MS (W)

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

p/m-Xylene

Tert-butyl methyl ether

Tetrachloroethene

Toluene

Trichloroethene

Vinyl Chloride

TM208

TM208

TM208

TM208

TM208

TM208

samples contained in this report for the different methods of analysis. The figure detailed is the percentage recovery result for the AQC.

### **CERTIFICATE OF ANALYSIS**

QC 1162

**92.75** 82.25 : 112.25

93.0

76.57 : 125.98

93.5

84.88 : 110.14

93.0

85.71:113.18

94.0

87.32 : 112.88

88.0

67.57 : 130.24

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The

		CERTIFICATE OF ANALTS		
SDG:	150902-38	Location:	Stag Brewery	
Job:	H_URS_WIM-273	Customer:	AECOM	
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VOC MS (W)				

QC 1188

89.25

80.94 : 113.51

98.0

59.77 : 129.51

91.0

83.21 : 115.40

90.0

86.02 : 114.04

91.0

83.50 : 113.50

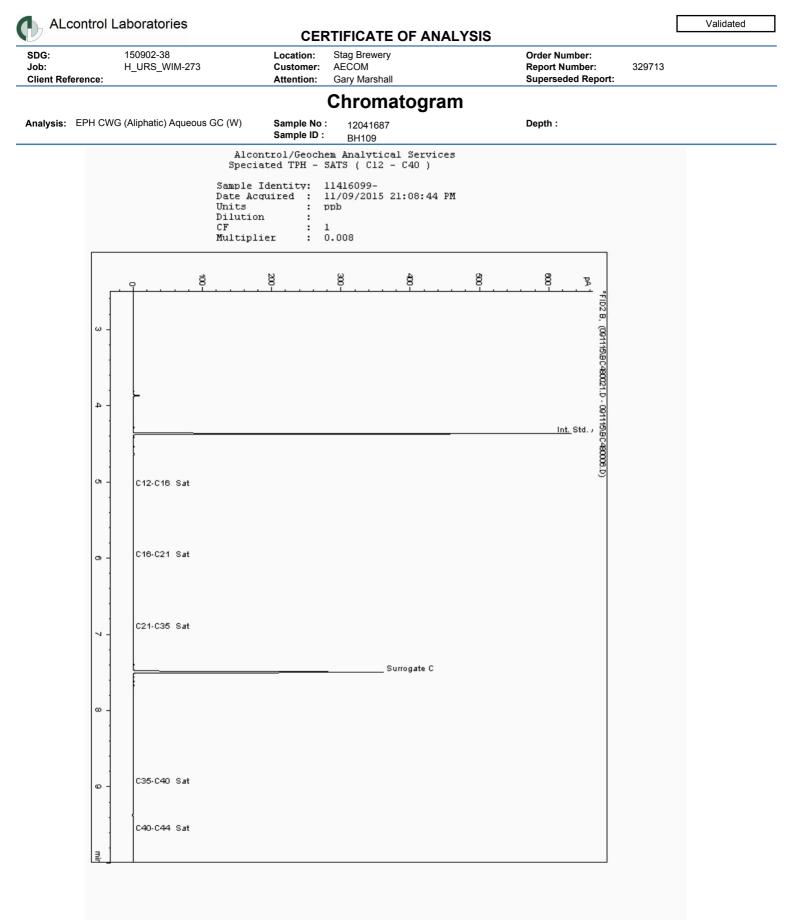
92.5

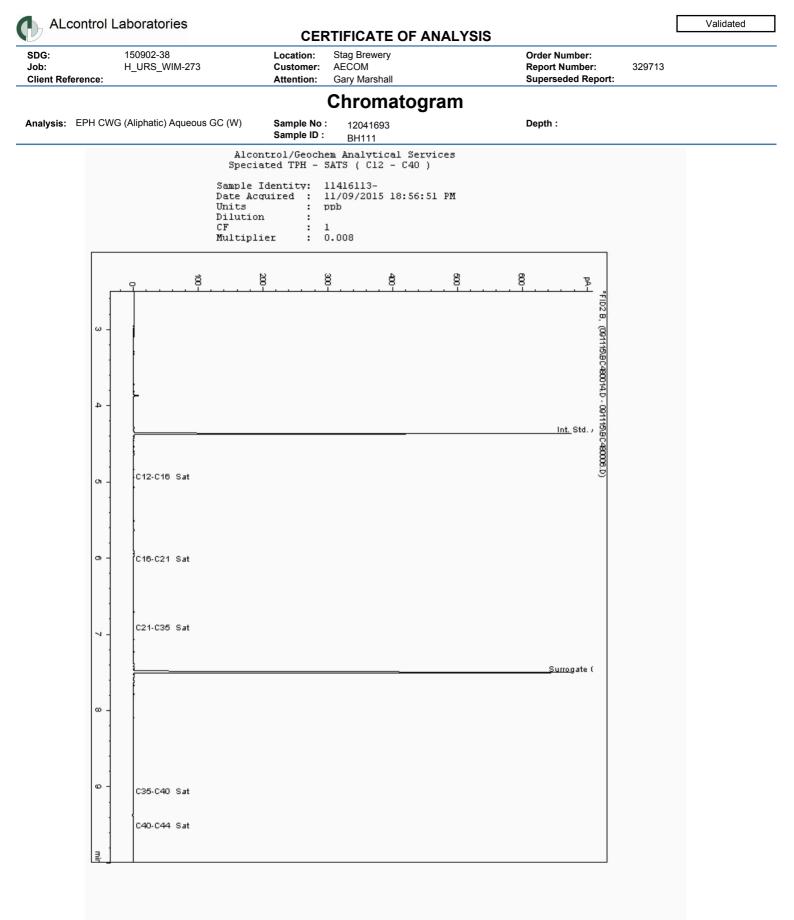
63.71 : 124.88

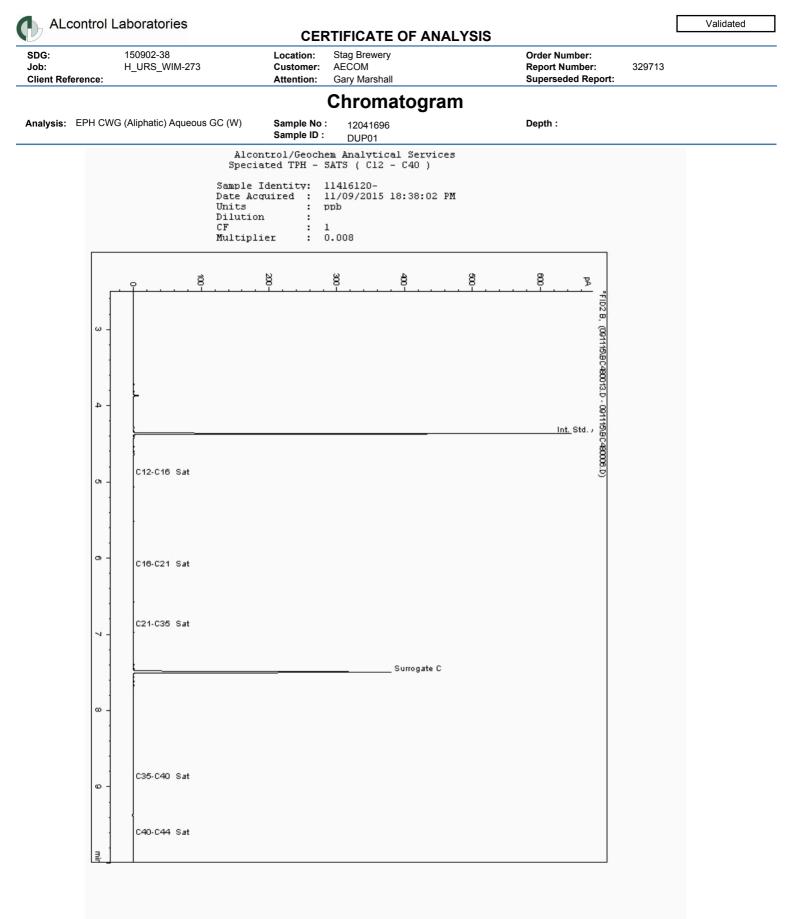
percentage recovery result for the AQC should be between these limits to be statistically in control.

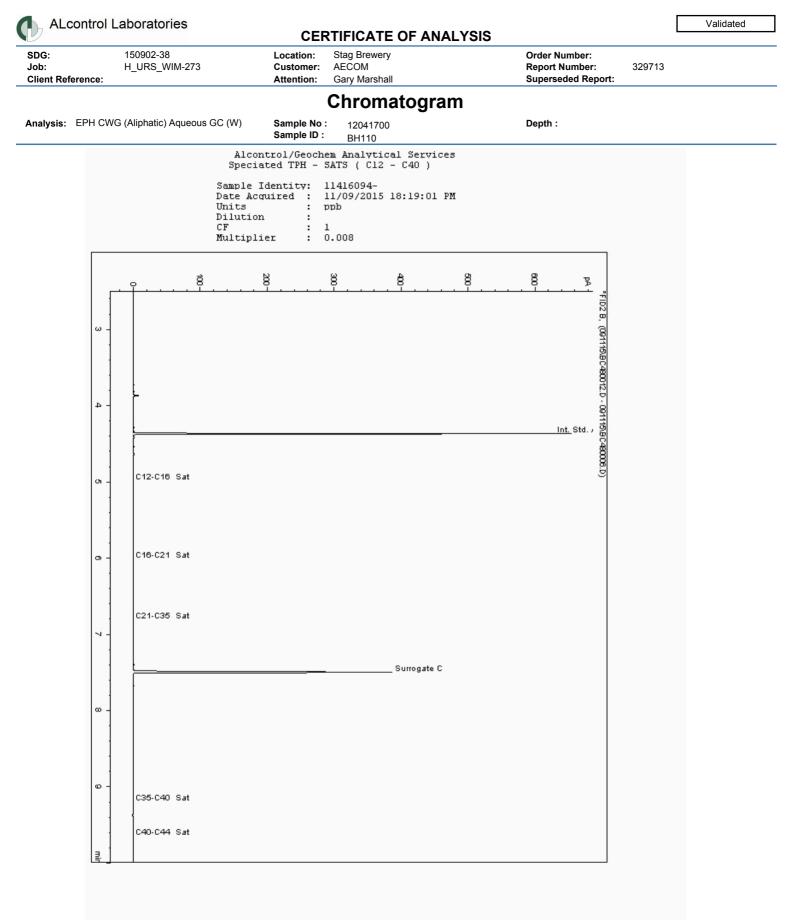
Order Number: Report Number: 329 Superseded Report:

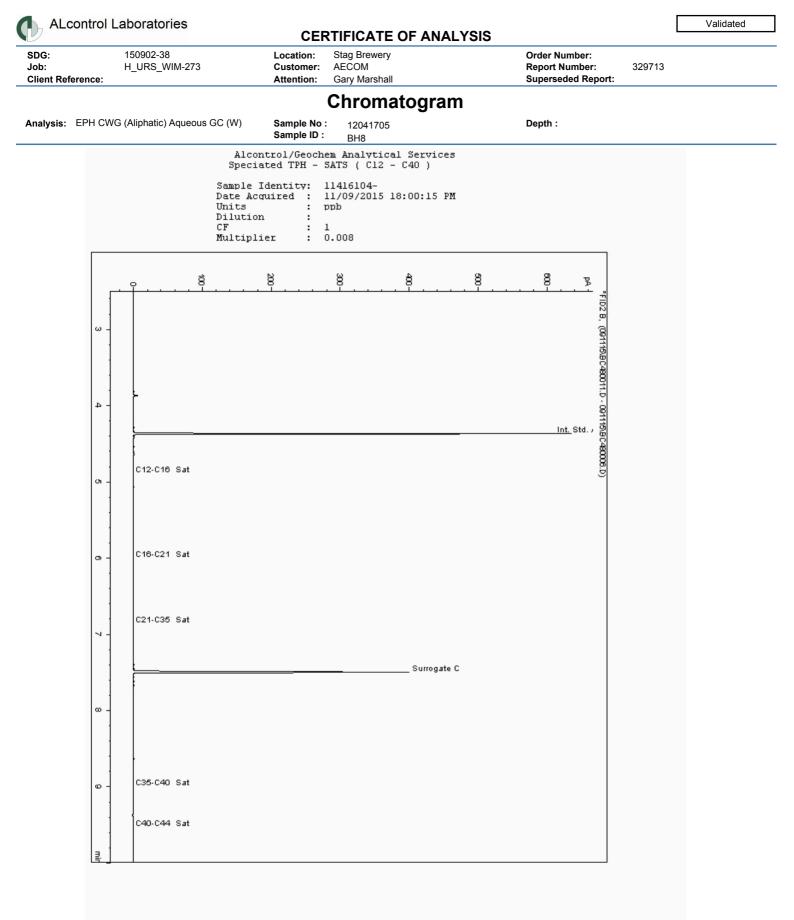
329713

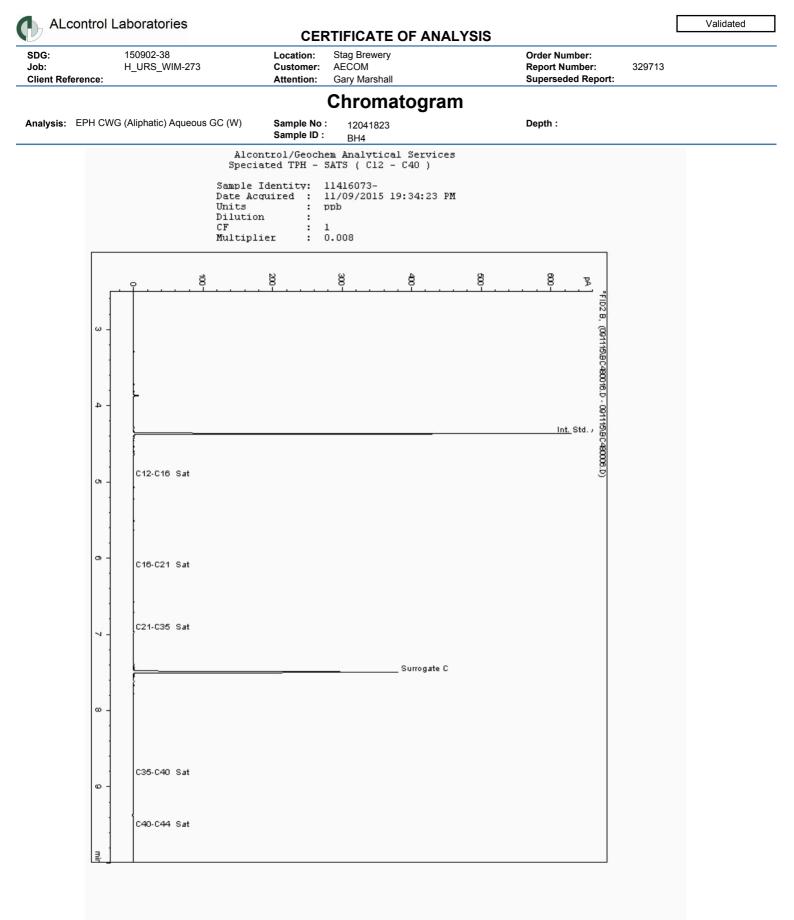


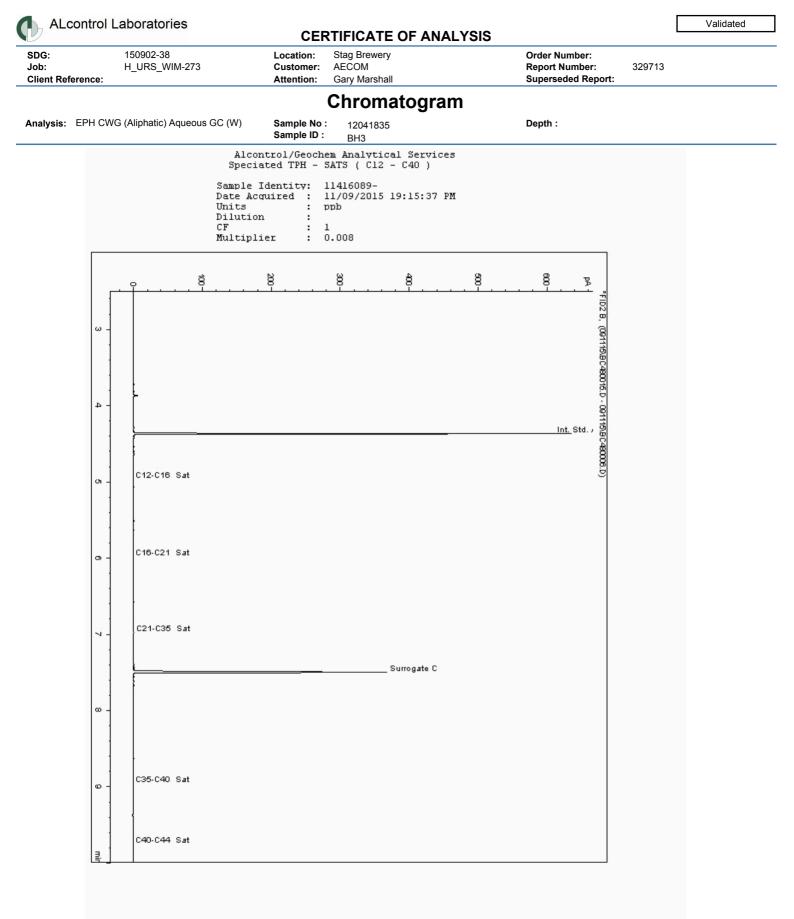


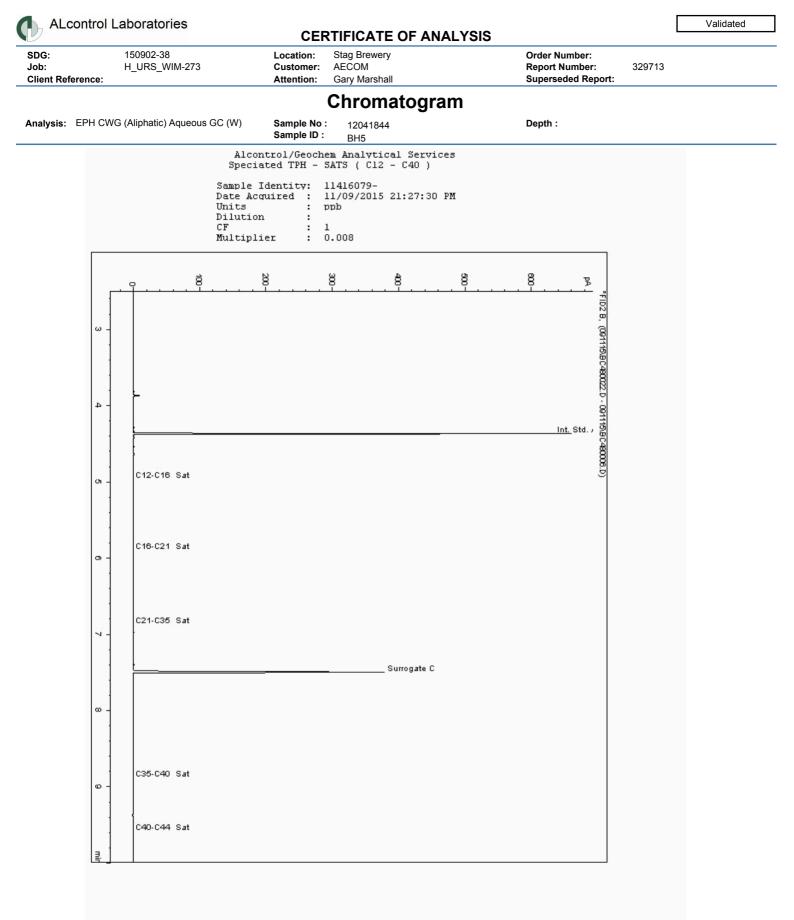


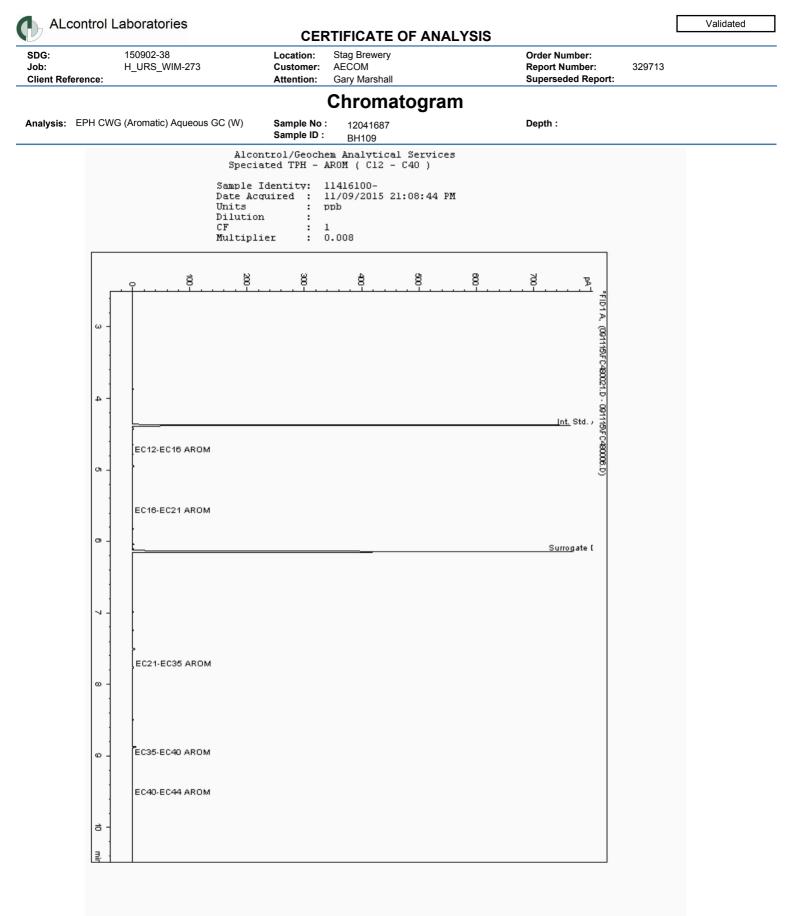


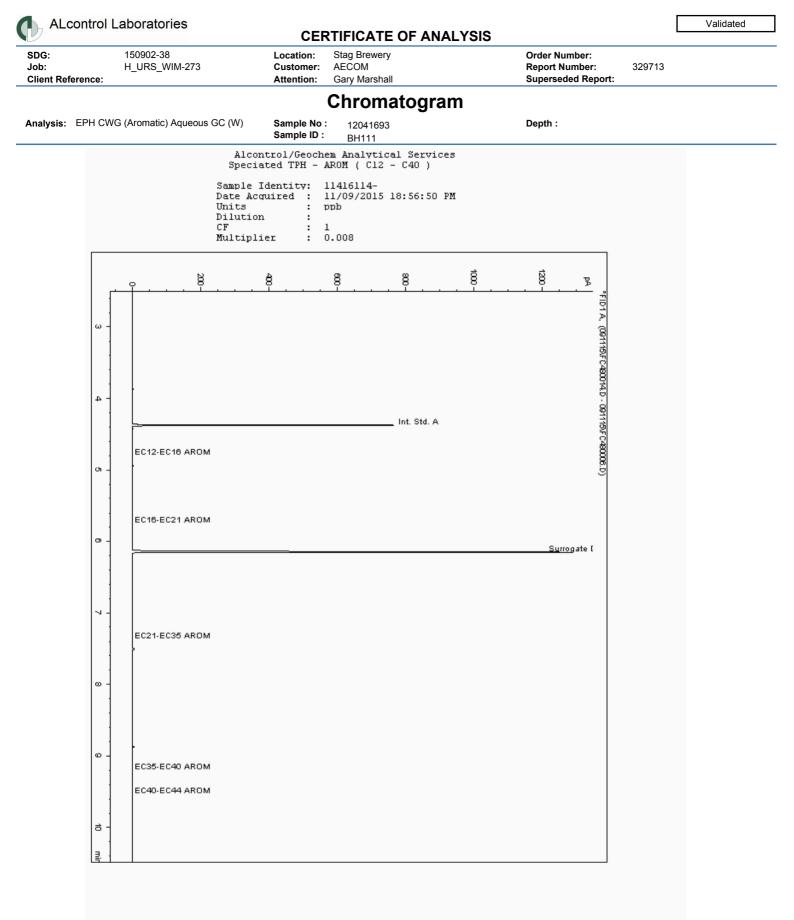


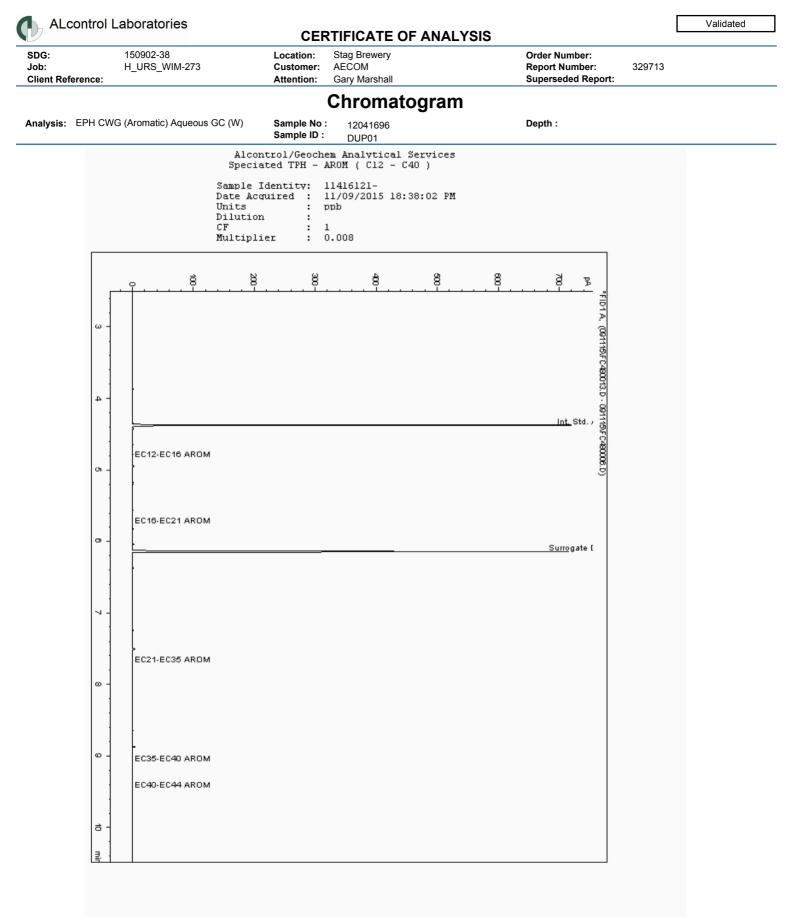


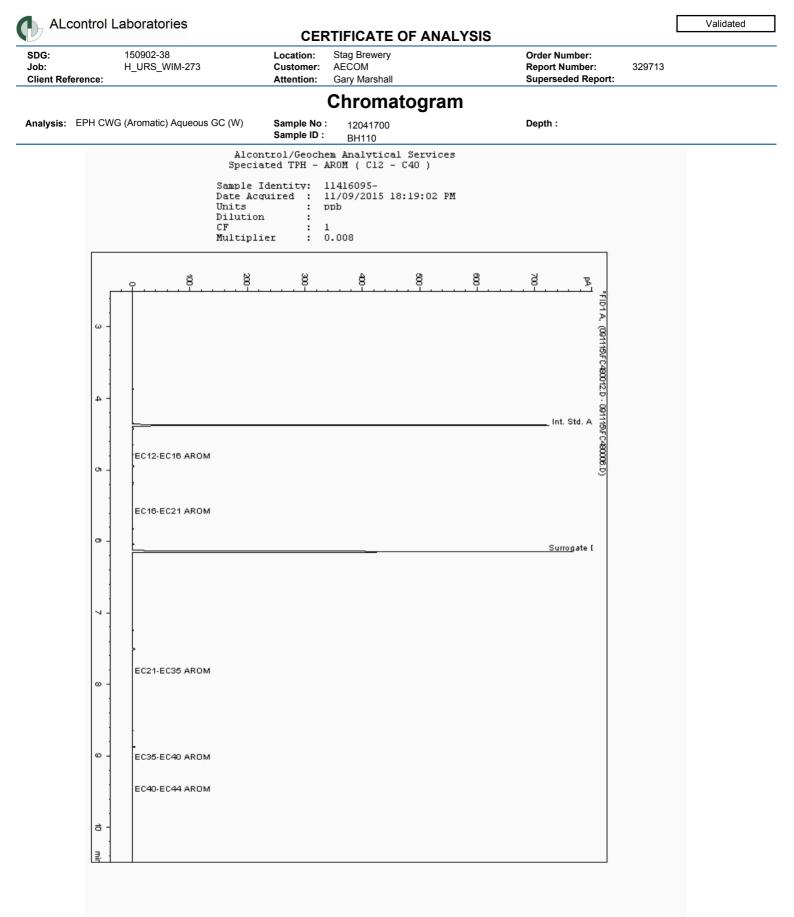


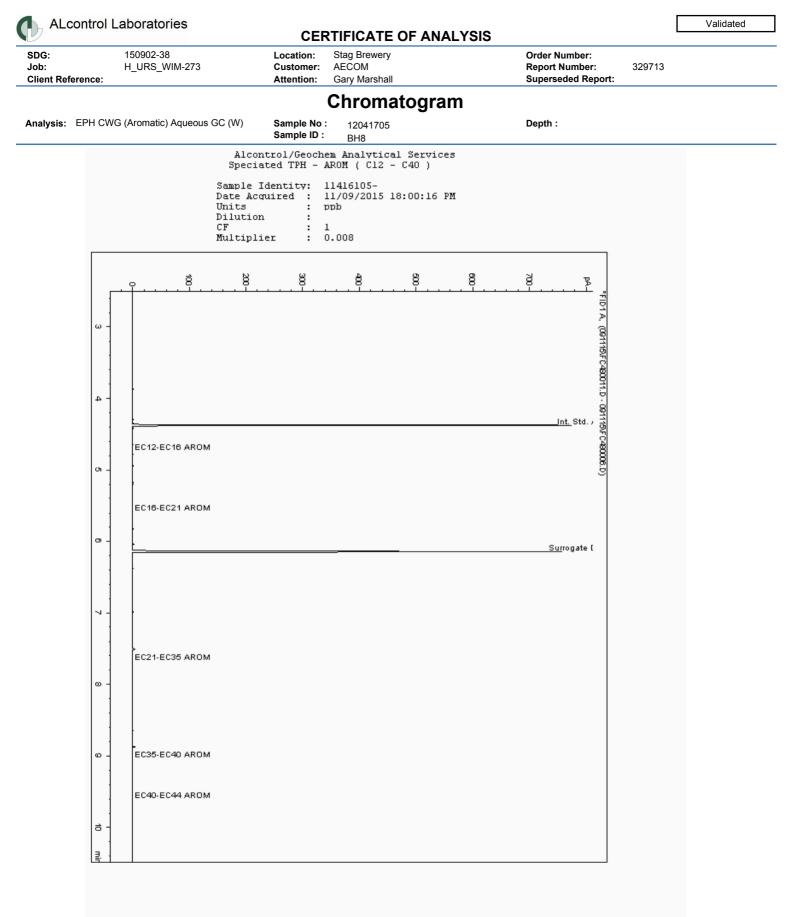


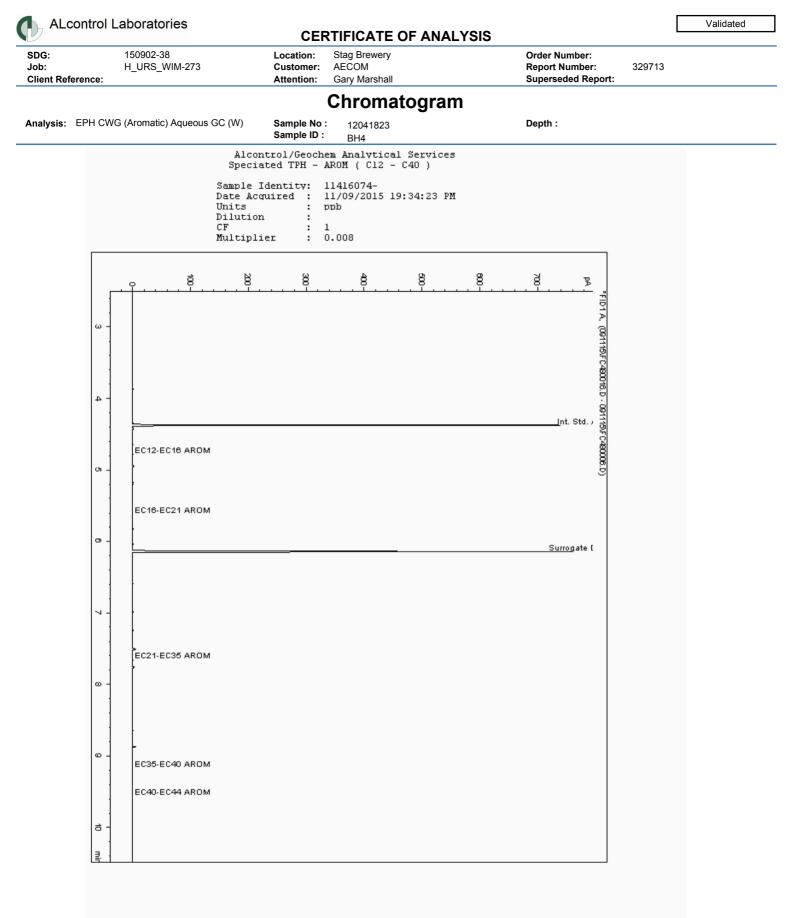


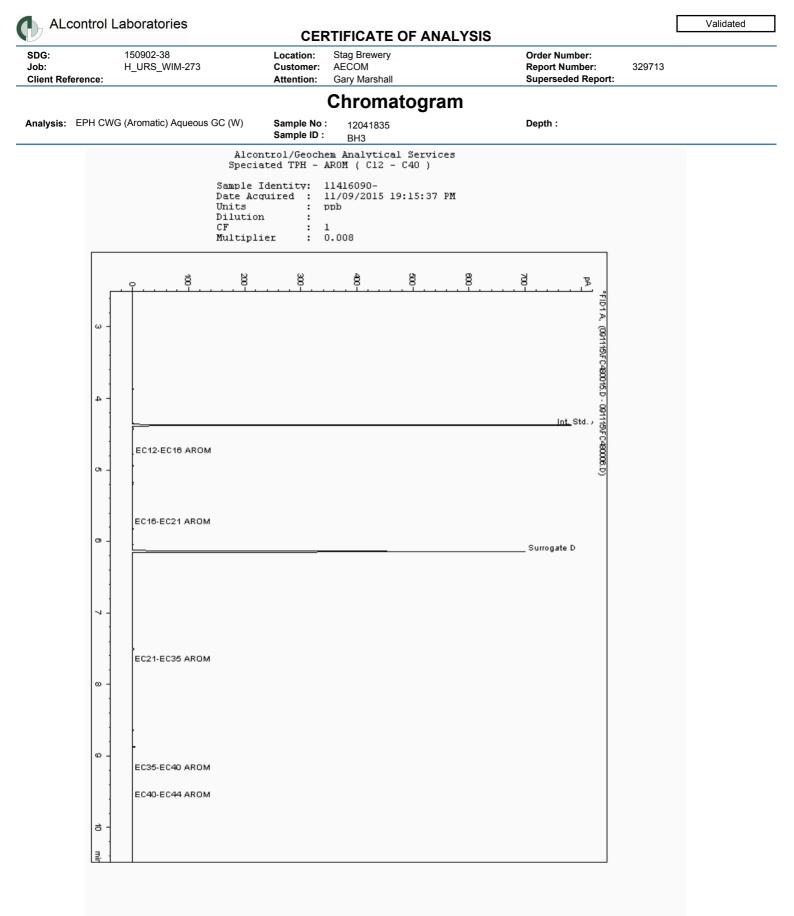


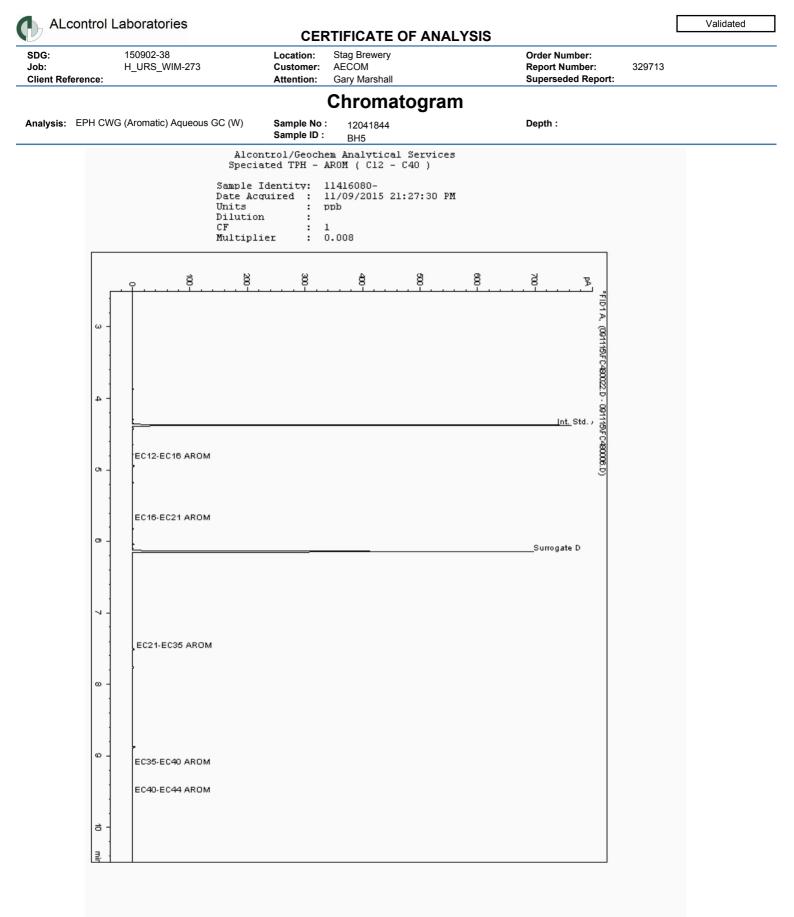


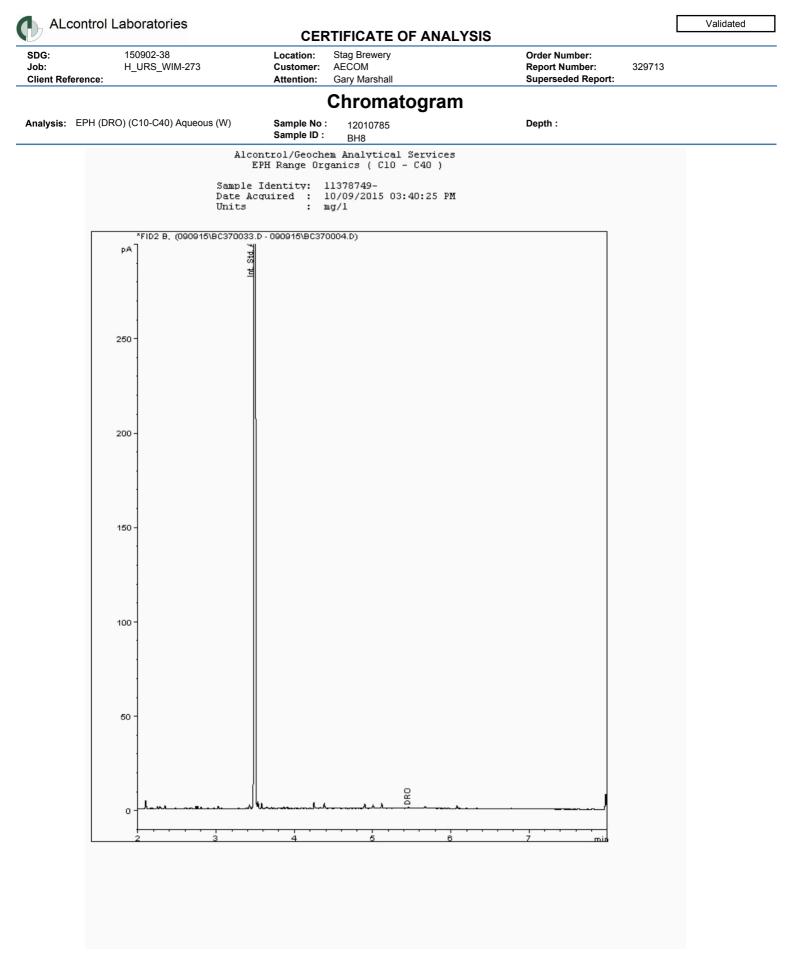


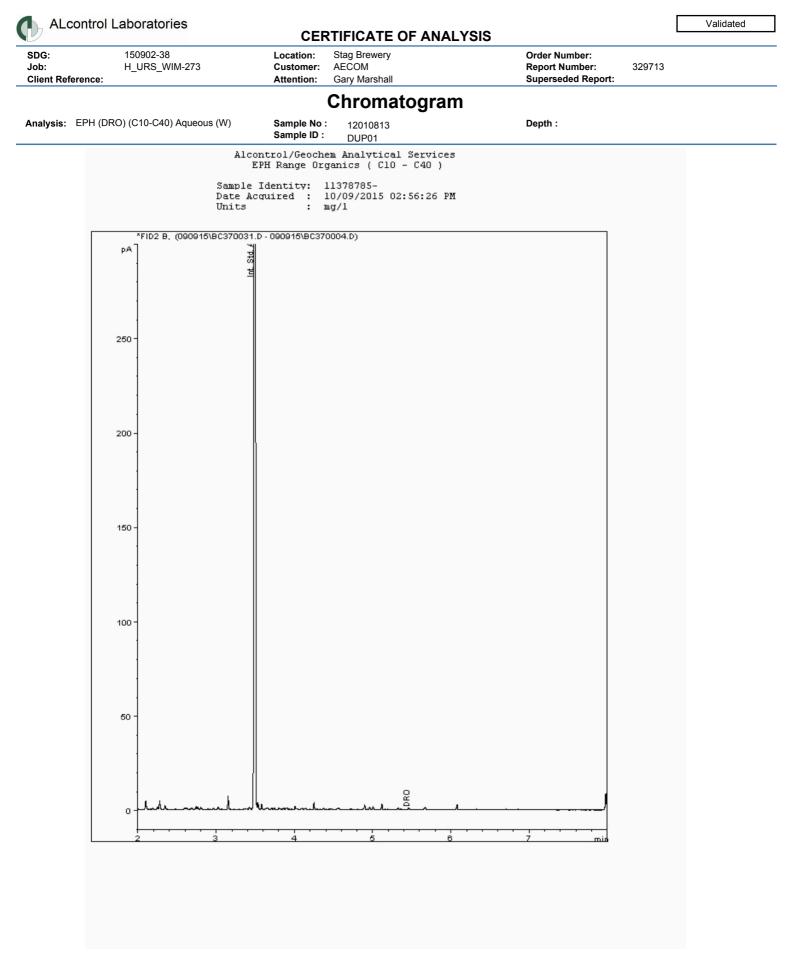




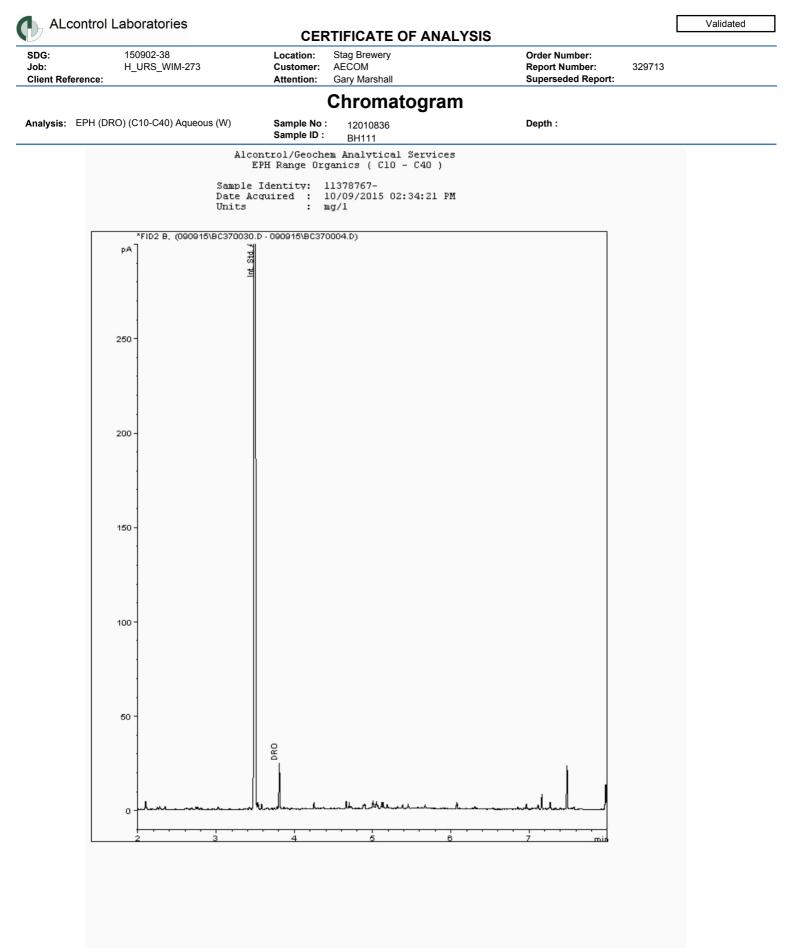


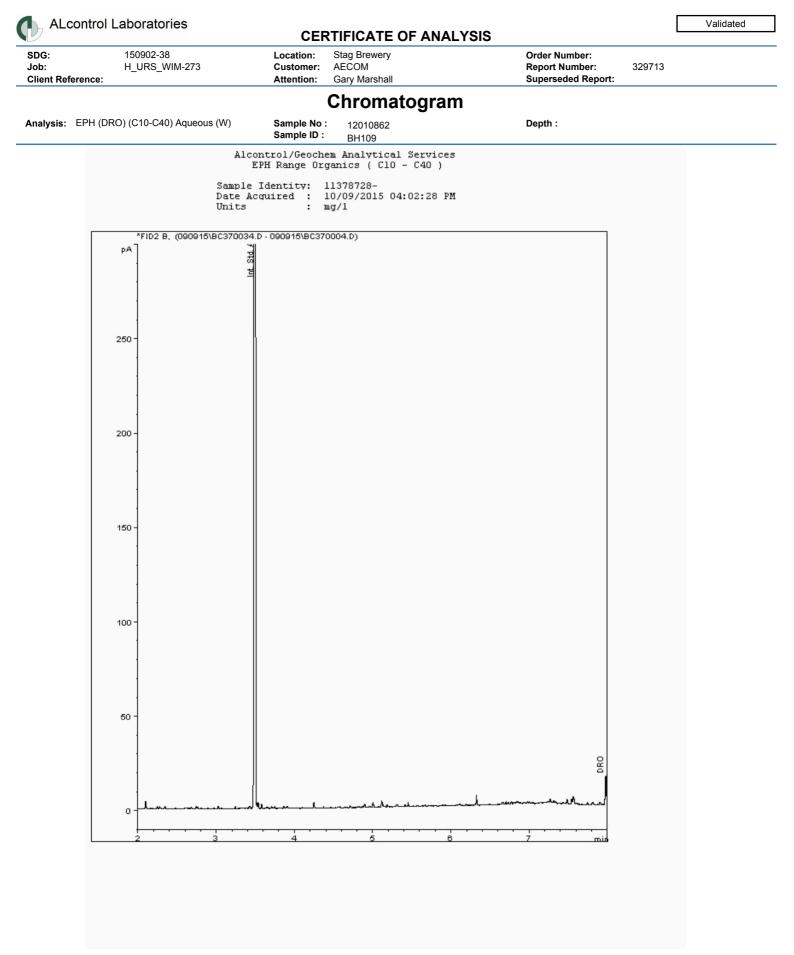


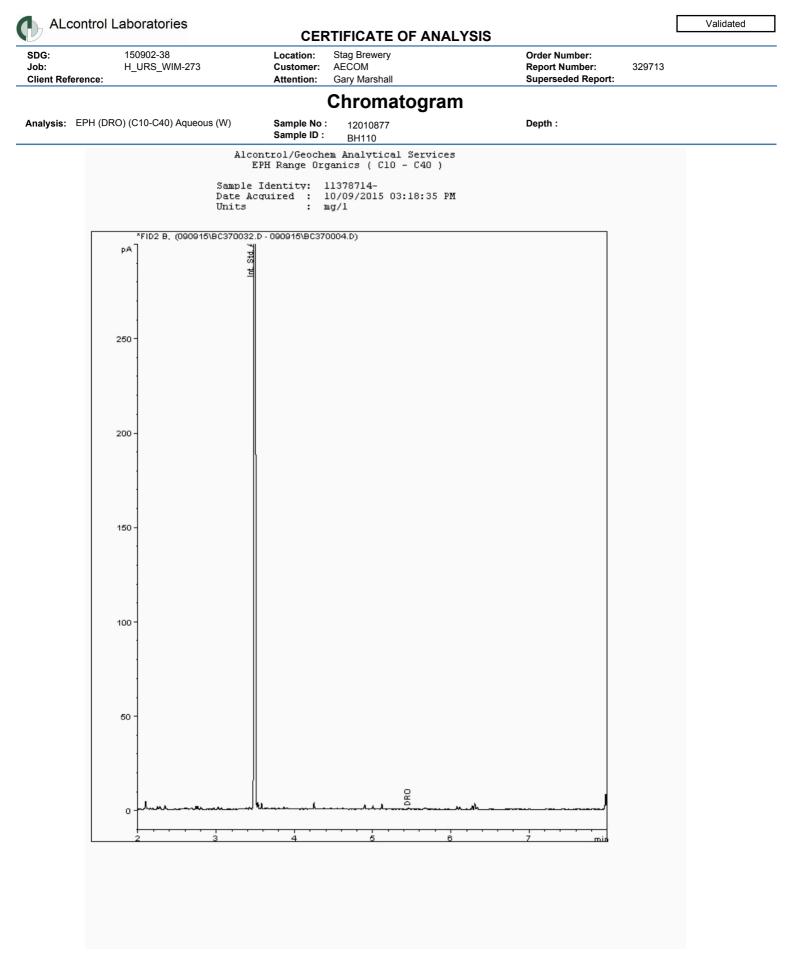


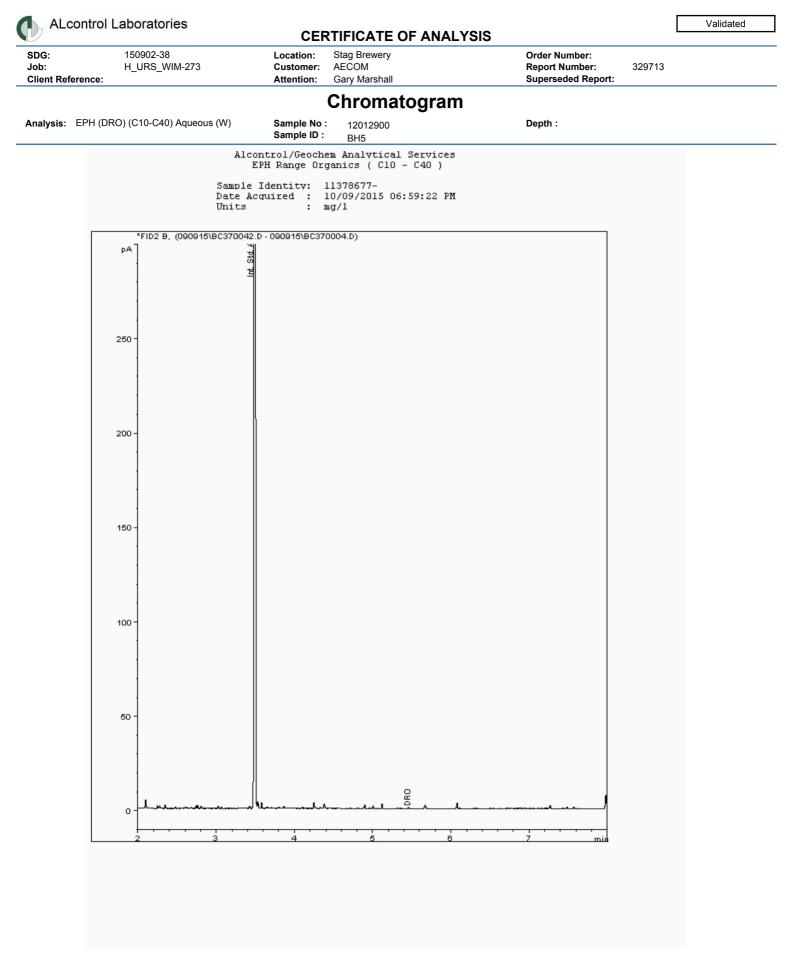


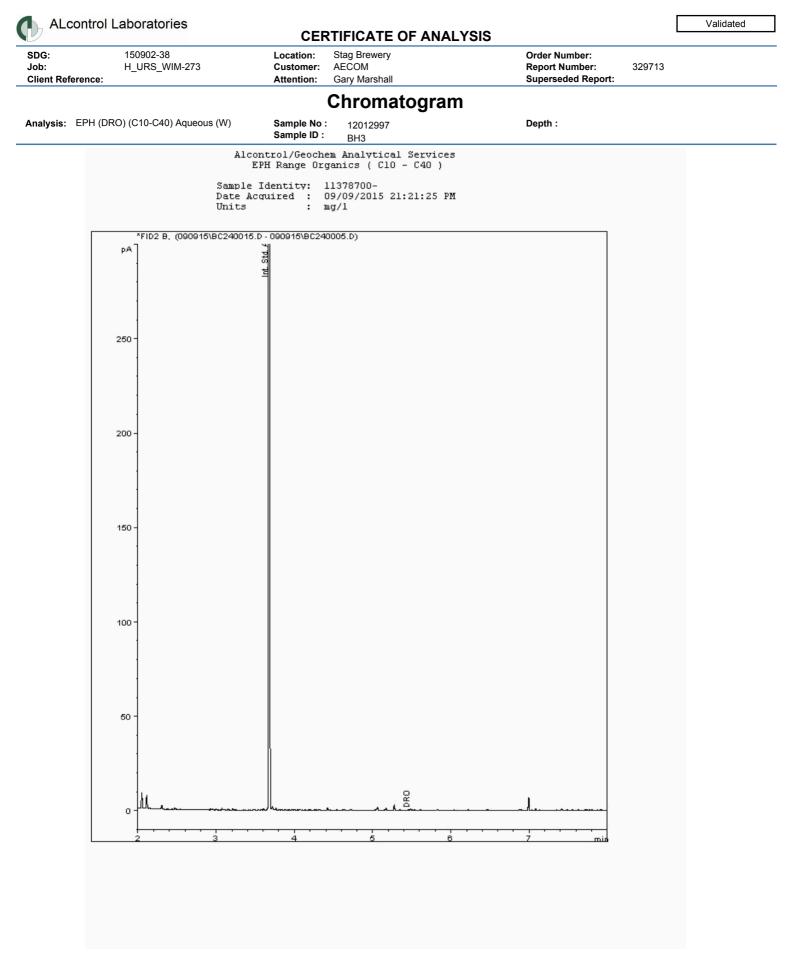
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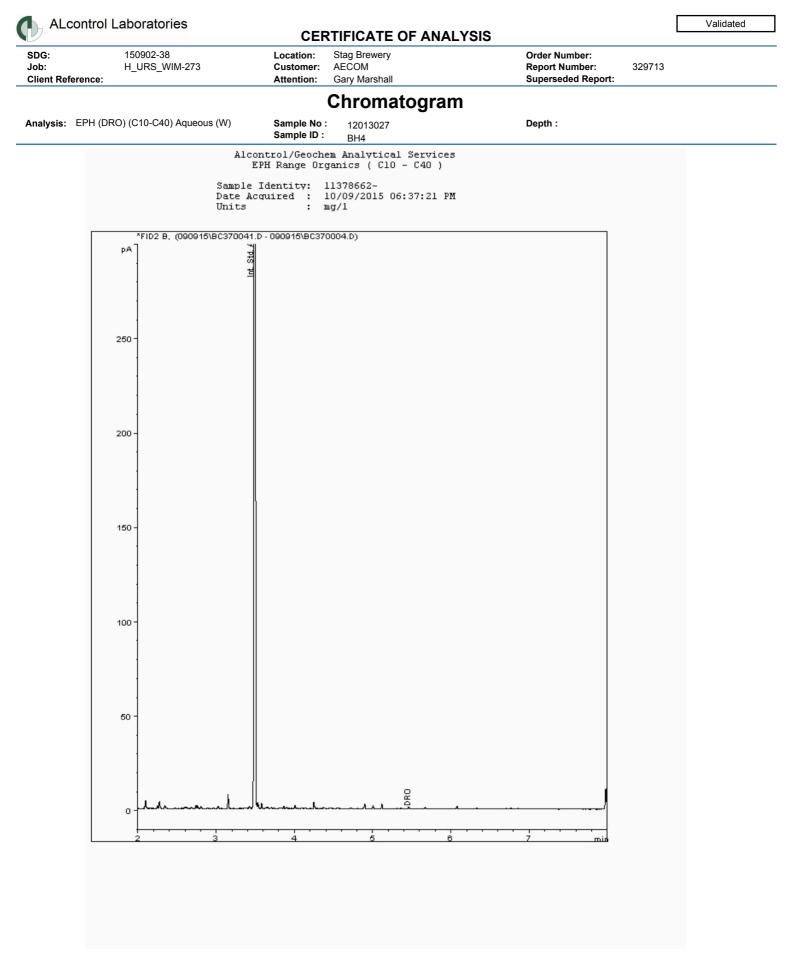


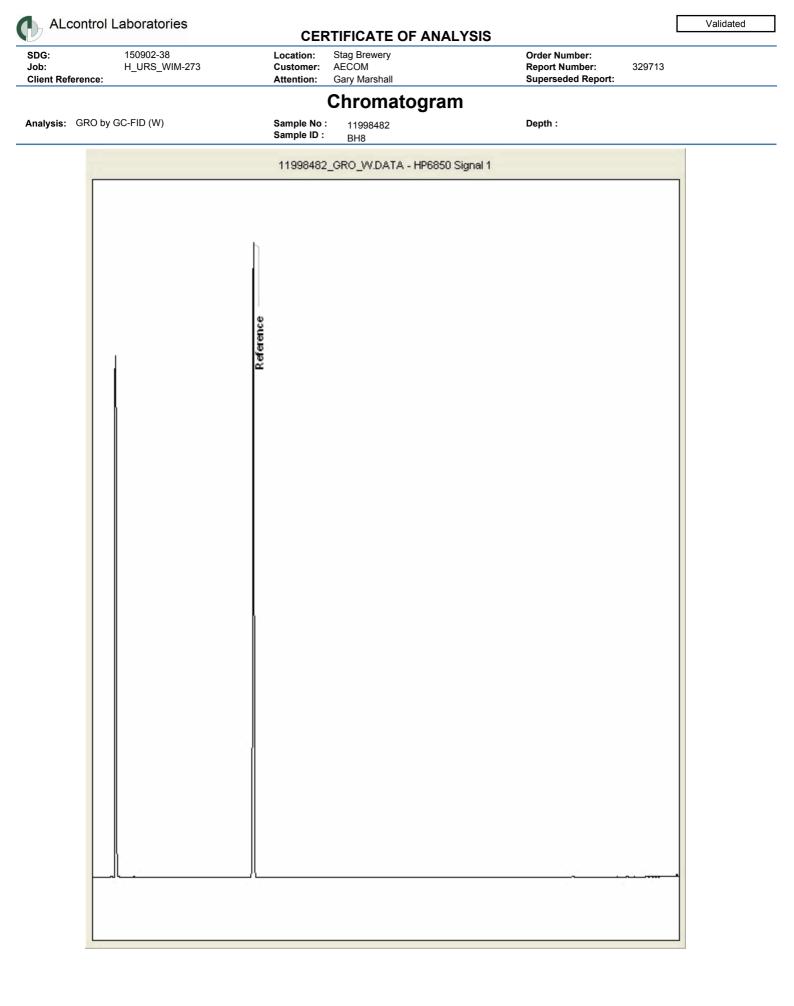


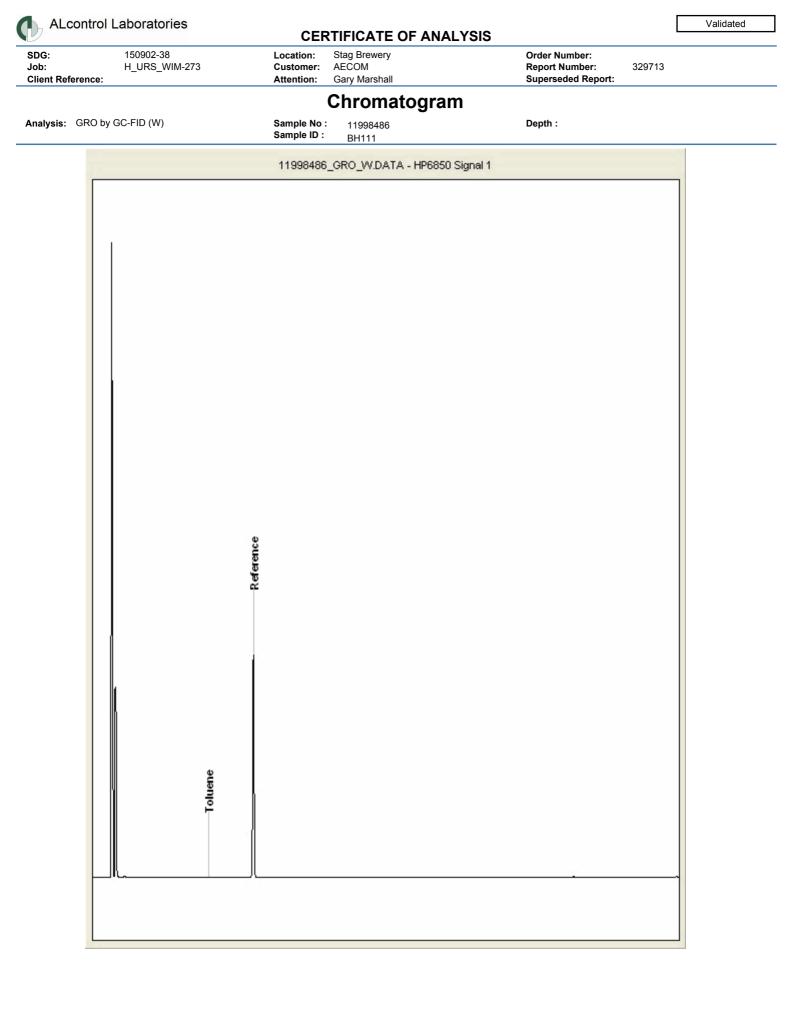


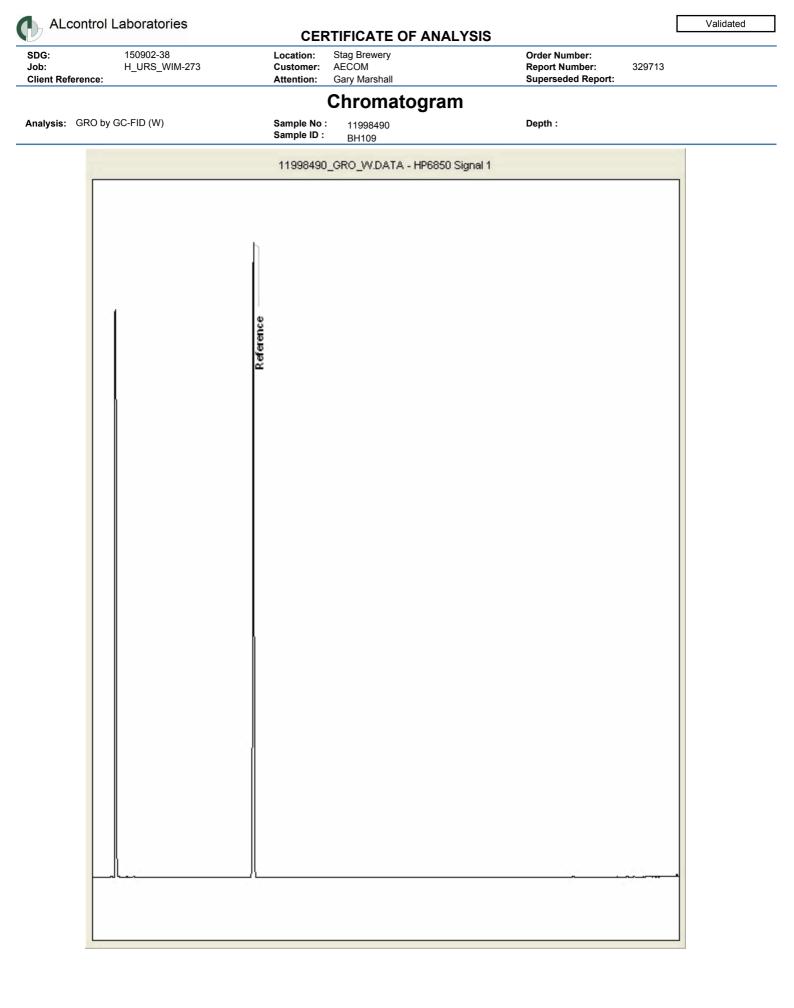


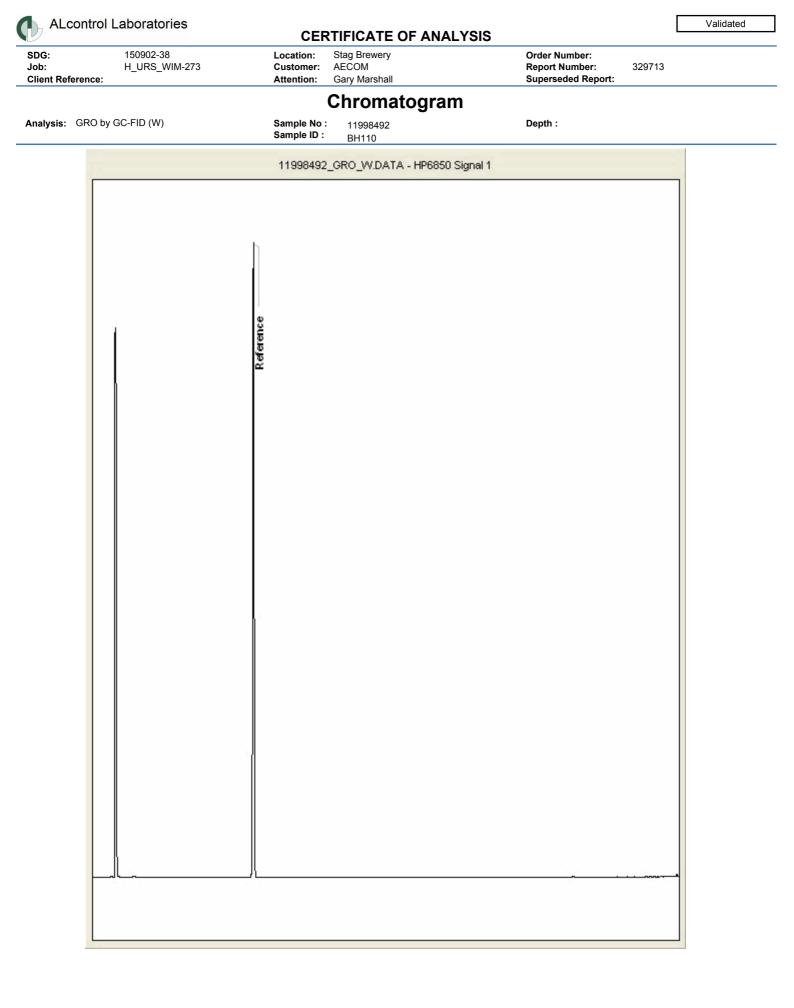


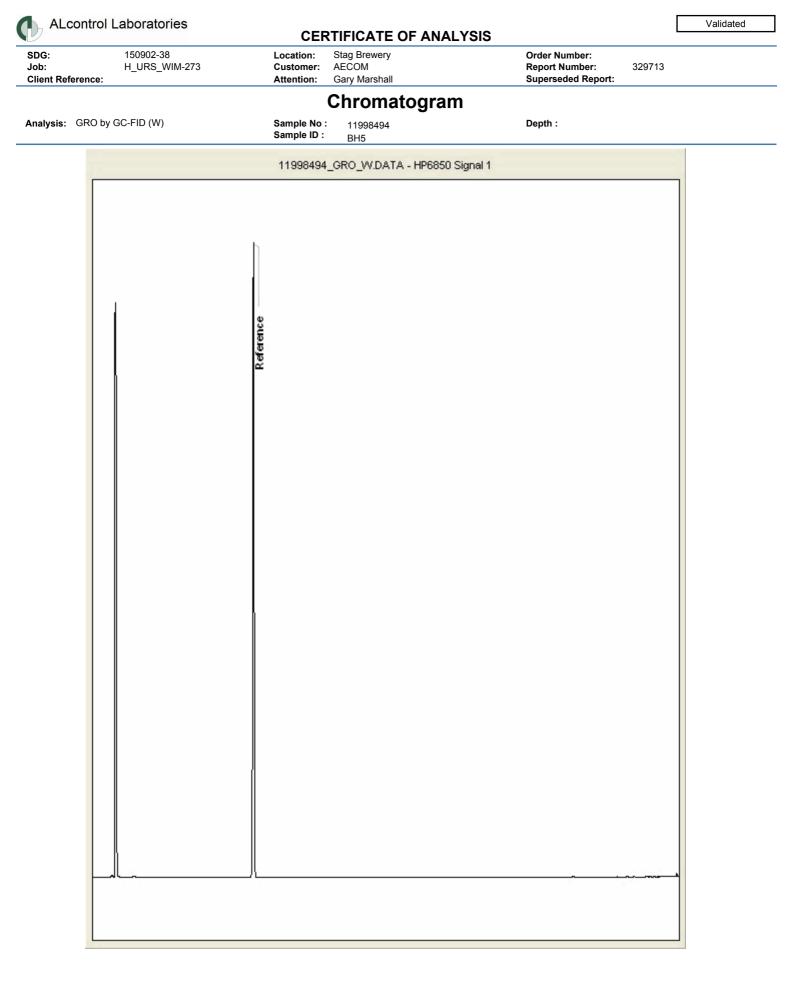


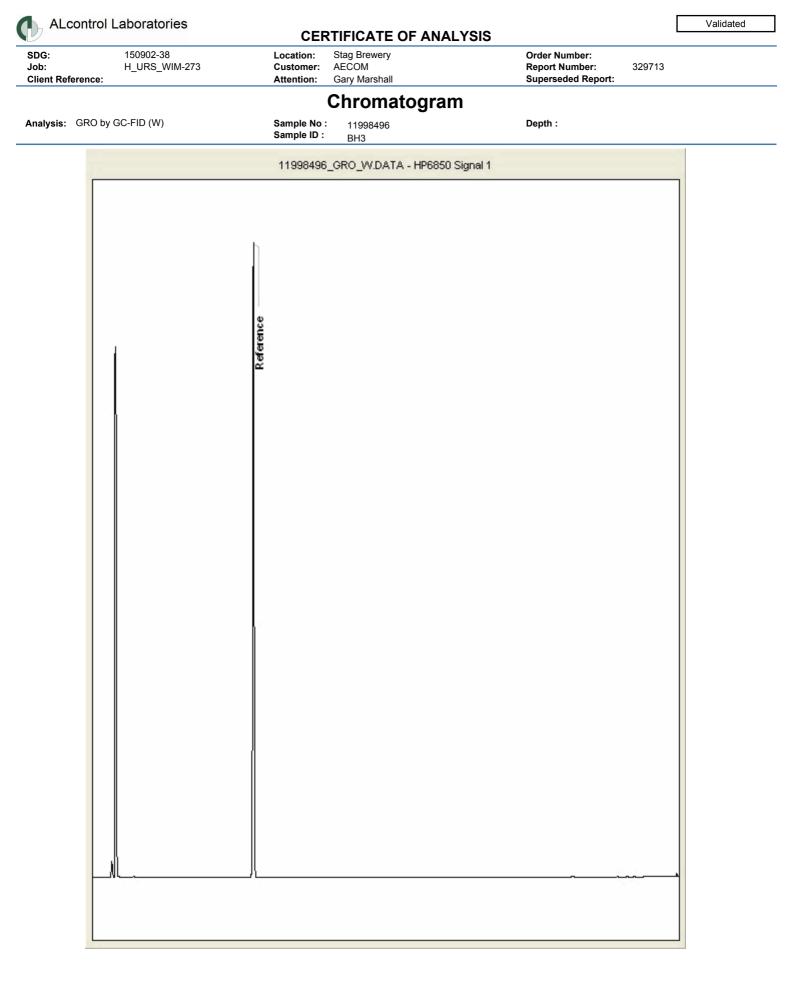


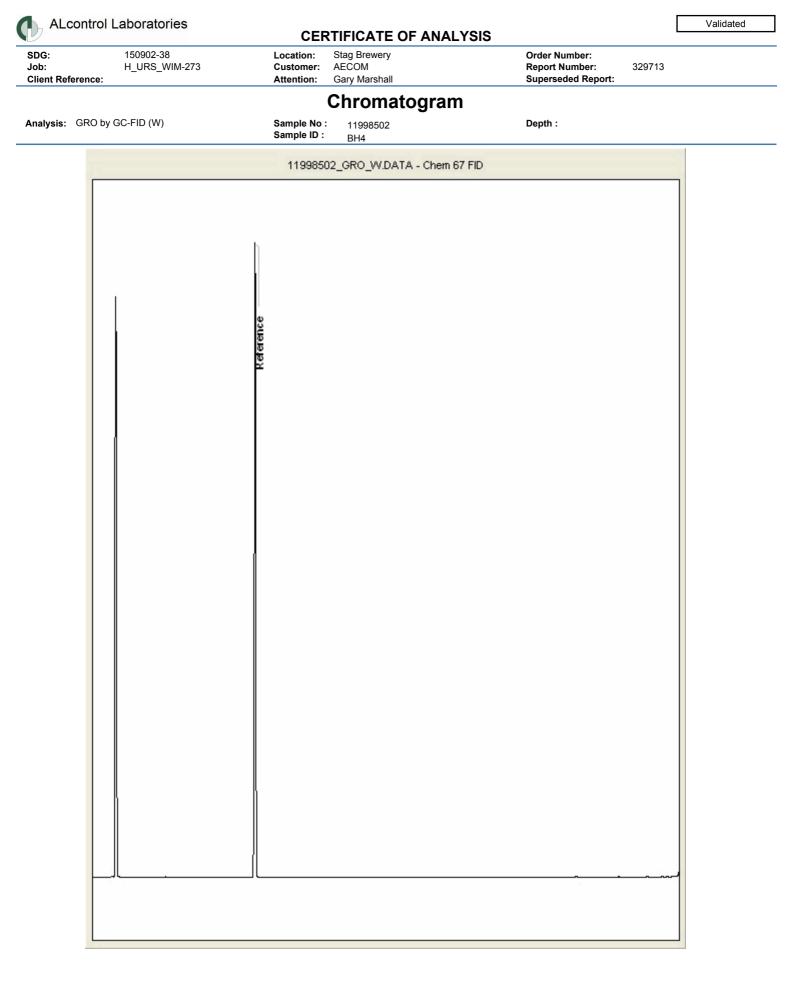


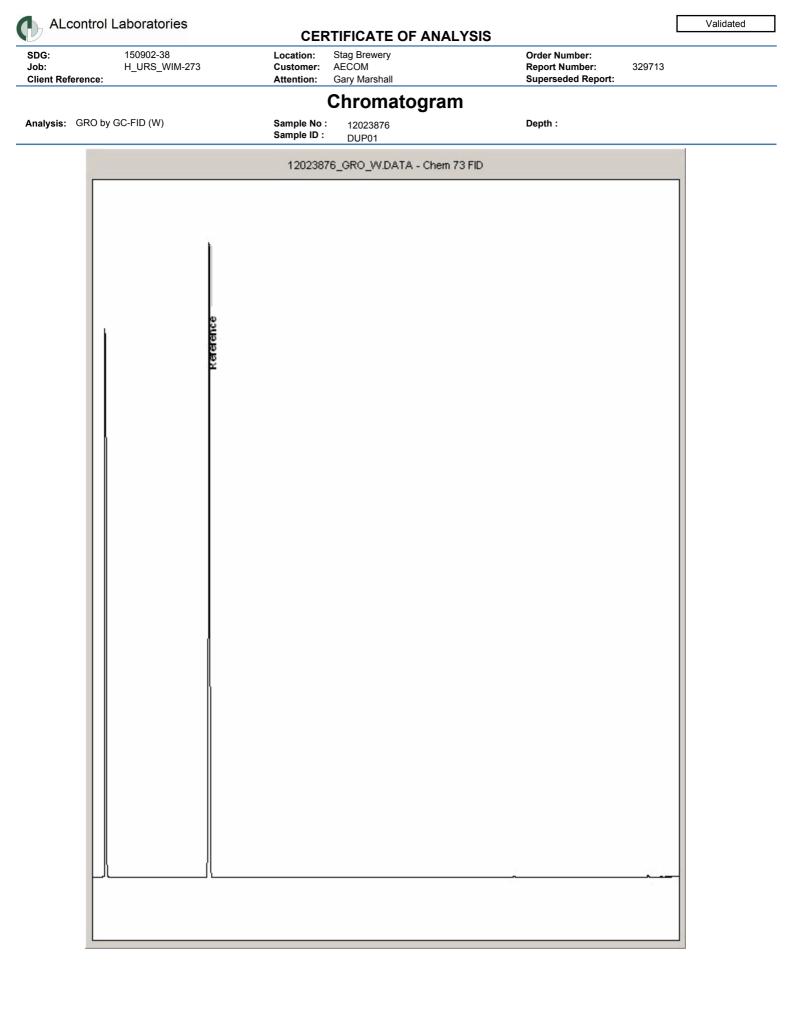












#### **CERTIFICATE OF ANALYSIS**

SDG:	150902-38	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

# 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 -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.

Order Number: Report Number: Superseded Report:

329713

#### SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	d/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS		
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	GC-MS		
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS		
PESTICIDES	D&C	HEXANEACETONE	GCMS			
EPH (DRO)	D&C	HEXANE/ACETONE	ENDOVEREND	GCFD		
EPH (MNOL)	D&C	HEXANEACETONE	END OVER END	GCFD		
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVER END	GCFD		
EPH CWG BYGC	D&C	HEXANEACETONE	END OVER END	GCFID		
PCB TOT / PCB CON	D&C	HEXANEACETONE	ENDOWEREND	GC-MS		
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS		
08-040(06-040)EZ FLASH	WET	HEXANEACETONE	SHAVER	GCEZ		
POL VAROMATIC HYDROCARBONS RAPID GC			SHAVER	6CEZ		
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMAGETONE	SONICATE	GCMS		

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCMG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
PCB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
PCB 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
TIH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID'LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adindite	-
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.

Validated

#### **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°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 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-lsopropylphenol, 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
Chrysolie	White Asbestos
Amoste	BrownAsbestos
Oroddalte	Blue Asbestos
Fibrous Adinate	-
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.



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

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

Date: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 September 2015 H\_URS\_WIM 150903-66

Stag Brewery 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



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#### **CERTIFICATE OF ANALYSIS**

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:

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
12003516	BH2 BH7			02/09/2015
12003512	BH9			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.

	50903-66 _URS_WIM-273	Location: Custome Attention	r:	AE	ČOI	rewe M Iarsl	-									Ord Rep Sup	ort	Nu	mbe	er:	ort:	:	329 <i>°</i>	161			
LIQUID Results Legend	Lab Sa	mple No(s)					12003516				12003511				12003512					12003513				12003515			12003514
No Determination Possible	Cu	Customer Sample Reference				<u>r</u> ī	BH2				BH7				BH9					BH10				BH201A			BH104B
	AGS	Reference																									
	De	pth (m)																									
	Co	ntainer	0.51 glass bottle (AL	500ml Plastic (ALE2	H2SO4 (ALE244) Dissolved Metals P	HNO3 Filtered (ALE	0.5I glass bottle (AL Vial (AI E297)	250ml BOD (ALE2	Dissolved Metals P	HNO3 Filtered (ALE H2SO4 (ALE244)	Vial (ALE297)	250ml BOD (ALE21	500ml Plastic (ALE2	H2SO4 (ALE244)	Vial (ALE297)	0.51 glass bottle (AL	500ml Plastic (ALE)	Dissolved Metals P	HNO3 Filtered (ALE	Vial (ALE297)	250ml BOD (ALE2)	500ml Plastic (ALE2	H2SO4 (ALE244)	Vial (ALE297)	0.51 glass bottle (AL	500ml Plastic (ALE2	H2SO4 (ALE244) Dissolved Metals P
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6			×					×				×				_ _ >					X				×
nions by Kone (w)	All	NDPs: 0 Tests: 6		X				X					X				x					X				X	
COD Unfiltered	All	NDPs: 0 Tests: 6		<hr/>				X				X				<b>&gt;</b>	Contraction (1998)				X					×	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6				X				×					×				X					×			
Dissolved W, Nb and Zr by ICI	P-MS All	NDPs: 0 Tests: 6				x				x					×				X					×			
EPH (DRO) (C10-C40) Aqueo W)	us All	NDPs: 0 Tests: 6	X				x					×				X					<pre>c</pre>				X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6					X				X				X					X				X			
Mercury Dissolved	All	NDPs: 0 Tests: 6			X				x					<pre></pre>				X				×					X
oH Value	All	NDPs: 0 Tests: 6		X				<u> </u>					X				X					X				X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 6	X				x					×				X				)	<pre></pre>				x		
Fotal EPH (aq)	All	NDPs: 0 Tests: 6	X				X					×				X				 					X		
VOC MS (W)	All	NDPs: 0 Tests: 6					x				x				X			+		x				x			

ALcontrol Laborat	ories	CE	RTIFICATE OF ANAL	Veic		Validate
SDG:         150903-           Job:         H_URS_           Client Reference:         150903-	66 _WIM-273	Location: Customer: Attention:	Stag Brewery	Order Number: Report Number: Superseded Report:	329161	
LIQUID Results Legend X Test	Lab Sample	No(s)	12003514			
No Determination Possible	Custome Sample Refe		BH104B			
	AGS Refere	ence				
	Depth (n	ו)				
	Containe	er eed	Vial (ALE297)			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6				
Dissolved W, Nb and Zr by ICP-MS	All	NDPs: 0 Tests: 6				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6	x			
VOC MS (W)	All	NDPs: 0 Tests: 6	x			

## **CERTIFICATE OF ANALYSIS**

Validated

Results Legend # ISO17025 accredited. M mCERTS accredited.	C	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. * % recovery of the surrogate standa	urd to	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 wi samples aren't corrected for the ree (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	The ithin covery	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 Ammoniacal Nitrogen as	LOD/Units		0.268	0.707	5.66	<0.2	<0.2	<0.2
N Ammoniacal Nitrogen as	<0.3 mg	/I TM099	# 0.345	# 0.909	#	# <0.3	# <0.3	# <0.3
NH4			#	#	#	#	#	#
COD, unfiltered	<7 mg/l	TM107	<7 #	10.1 #	3330 #	<7 #	<7 #	7.65 #
Antimony (diss.filt)	<0.16 µg/l	TM152	0.171	0.681	2.06	0.27	0.306	0.172
Arsenic (diss.filt)	<0.12 µg/l	TM152	39.4 #	45.4 #	14.4 #	3.79 #	6.51 #	17.3 #
Barium (diss.filt)	<0.03 µg/l	TM152	116 #	73.4 #	39.9	15.4 #	79.1 #	66 #
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07 #
Boron (diss.filt)	- μg/i <9.4 μg/	1 TM152	# 133 #	# 138 #	# 27.8 #	# 82.3 #	# 106 #	#
Cadmium (diss.filt)	<0.1 µg/	1 TM152	<0.1	<0.1	0.228	<0.1	<0.1	<0.1
Chromium (diss.filt)	<0.22	TM152	# 2.23	# 5.24	# 7.52	# 1.21	# 2.27	# 1.71
Cobalt (diss.filt)	μg/l <0.06	TM152	# 0.3	# 3.29	# 9.27	# 0.337	# 11.8	# 1.25
Copper (diss.filt)	µg/l <0.85	TM152	# 1.95	# 1.59	# 61.3	# 1.16	#	#
Lead (diss.filt)	µg/l <0.02	TM152	# 0.059	# 0.072	# 22.8	#	# 0.098	# 0.057
. ,	µg/l		#	#	#	#	#	#
Manganese (diss.filt)	<0.04 µg/l	TM152	772 #	1200 #	983 #	23 #	1180 #	665 #
Nickel (diss.filt)	<0.15 µg/l	TM152	6.63 #	8.43 #	12.3 #	2.26 #	18.4 #	8.43 #
Selenium (diss.filt)	<0.39 µg/l	TM152	9.71 #	1.13 #	1.87	1.86 #	1.76 #	7.19 #
Thallium (diss.filt)	<0.96 μg/l	TM152	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
Vanadium (diss.filt)	<0.24 µg/l	TM152	0.657	2.35	7.67	0.759 #	0.941	0.67 #
Zinc (diss.filt)	<0.41 µg/l	TM152	15.7 #		280 #	1.27 #	17.5 #	11.9 #
EPH Range >C10 - C40	×46 μg/	I TM172	<46	<46	1430	<46	<46	<46
(aq) Total EPH (C6-C40) (aq)	<100 µg	/I TM172	# <100	# <100	# 1430	# <100	# <100	# <100
Mercury (diss.filt)	<0.01	TM183	<0.01	<0.01	0.0171	<0.01	<0.01	<0.01
Sulphate	µg/l <2 mg/l	TM184	# 457	# 74.5	# <2	# 70.1	# 82.2	# 287
Phosphate (ortho) as PO4	<0.05 mg/l	TM184	# <0.05	# 0.07	# 14.1	# 4.46	# 0.056	# <0.05
Nitrate as NO3	<0.3 mg	/I TM184	# <0.3	# 0.926	# <0.3	# 18.7	# 9.17	# 2.01
рН	<1 pH Units	TM256	# 7.59 #	# 7.9 #	# 7.55 #	# 7.56 #	# 8.09 #	# 7.22 #
Silver (diss.filt)	<1.5 µg/	1 TM283	# <1.5	# <1.5	# <1.5	# <1.5	# <1.5	# <1.5

## **CERTIFICATE OF ANALYSIS**

Validated

GRO by GC-FID (W) Results Legend Customer Sample R BH2 BH7 BH9 BH10 BH201A BH104B										
Results Legend # ISO17025 accredited.	C	Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B		
M mCERTS accredited. aq Aqueous / settled sample. diss.fit Dissolved / filtered sample. tot.unfit Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogate standa	ard to	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)	. The ithin covery	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/Units									
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #		
Benzene	<7 µg/l	TM245	<7 #	<7 #	<7 #	<7 #		<7 #		
Toluene	<4 µg/l	TM245	<4 #	<4 #	<4 #	<4 #	<4 #	<4 #		
Ethylbenzene	<5 µg/l	TM245	# <5 #	<del>#</del> <5 #		# <5 #				
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8		
o-Xylene	<3 µg/l	TM245	# <3 #	# <3 #	<3	# <3 #	# <3 #	# <3 #		
Sum of detected BTEX	<28 µg/	I TM245	<28	<28	<28	<28	<28	<28		
GRO >C5-C10	<10 µg/	I TM245	<10	<10	281	<10	<10	<10		
EPH (C6-C10)	<100 µg	/I TM245	<100	<100	<100		<100	<100		

## **CERTIFICATE OF ANALYSIS**

Validated

#### SVOC MS (W) - Aqueous

**(**)

SVOC MS (W) - Aqueous									
Results Legend           # ISO17025 accredited.           M mCERTS accredited.           ag Agueous / settled sample.		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. ** % recovery of the surrogate standa	urd to	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 wi samples aren't corrected for the red (F) Trigger breach confirmed	. The ithin	Date Received SDG Ref Lab Sample No.(s)	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	
1-5&+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference							
1,2,4-Trichlorobenzene (aq)	<1 µg/l		<1 #	<1 #	<4	<1 #	<1 #	<1 #	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		#	#		#	~1 #	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	 <4 #	<1 #	<1 #	<1 #	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<4	<1	<1	<1	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2,6-Dinitrotoluene (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
2-Nitrophenol (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
3-Nitroaniline (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
4-Bromophenylphenylethe r (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
4-Chloro-3-methylphenol (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
4-Chloroaniline (aq)	<1 µg/l		<1	<1	<4	<1	<1	<1	
4-Chlorophenylphenylethe r (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
4-Methylphenol (aq)	<1 µg/l		<1 #	<1 #	172 #	<1 #	<1 #	<1 #	
4-Nitroaniline (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
4-Nitrophenol (aq)	<1 µg/l		<1	<1	<4	<1	<1	<1	
Azobenzene (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
Acenaphthylene (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
Acenaphthene (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
Anthracene (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
bis(2-Chloroethyl)ether (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
bis(2-Chloroethoxy)metha ne (aq)	<1 µg/l		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l		<2 #	<2 #	<8 #	<2 #	<2 #	<2 #	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #	

#### **CERTIFICATE OF ANALYSIS**

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:	

# SVOC MS (W) - Aqueous

Results Legend		Out to a complete						
# 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. ** < recovery of the surrogate stands		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 Date Received	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015
results of individual compounds wind samples aren't corrected for the re-		SDG Ref	150903-66	150903-66	150903-66	150903-66	150903-66	150903-66
(F) Trigger breach confirmed	covery	Lab Sample No.(s)	12003516	12003511	12003512	12003513	12003515	12003514
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Un	its Method						
Benzo(a)anthracene (aq)	<1 µg	ı/I TM176	<1	<1	<4	<1	<1	<1
			#	#	#	#	#	#
Benzo(b)fluoranthene (aq)	<1 µg	µ/I TM176	<1	<1	6.42	<1	<1	<1
			#	#	#	#	#	#
Benzo(k)fluoranthene (aq)	<1 µg	J/I TM176	<1	<1	<4	<1 "	<1	<1
			#	#	#	#	#	#
Benzo(a)pyrene (aq)	<1 µg	µ∕I TM176	<1	<1	4.69	<1 "	<1	<1
Denne (a h i) ann dene (en)			#	#	#	#	#	#
Benzo(g,h,i)perylene (aq)	<1 µg	J/I TM176	<1	<1	4.05	<1 "	<1	<1
Carbazala (ag)	<1 µg	/l TM176	# <1	# <1	# <4	# <1	# <1	# <1
Carbazole (aq)	×τμο	/1 11/170						
Chrysene (aq)	<1 µg	/l TM176	# <1	# <1	# <4	# <1	# <1	# <1
Chilyselle (aq)	<1 µg			#	#			~ I #
Dibenzofuran (aq)	<1 µg	/l TM176	<1 **	<1 **		<del>*</del>	<1 **	<1 #
Dibenzolulari (aq)	~ 1 µg		#	#	#		#	*'
n-Dibutyl phthalate (aq)	<1 µg	/l TM176	<1 **	<1 **	# <4	* <1	# <1	<1
	<1 µg			#				×1 #
Diethyl phthalate (aq)	<1 µg	I/I TM176	<1	<1 **		<del>*</del>	# <1	<1 **
Dictify philadice (uq)	1 45	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	#	#		#	#	#
Dibenzo(a,h)anthracene	<1 µg	/l TM176	<1	<del>π</del> <1		<del>π</del> <1	<del>//</del> <1	<1
(aq)	1 49		#	#	#	#	#	#
Dimethyl phthalate (aq)	<1 µg	/l TM176	<1		π <4	<del>π</del> <1	<del>//</del> <1	<1
		,	. #	. #		. #	. #	. #
n-Dioctyl phthalate (aq)	<5 µg	I/I TM176	<5	<5	<20	<5	<5	<5
		,	#	#		#	- #	#
Fluoranthene (aq)	<1 µg	I/I TM176	<1	<1	6.12	<1		<1
			#	#	#	#	#	#
Fluorene (aq)	<1 µg	/l TM176	<1	<1	<4	<1	<1	<1
			#	#	#	#	#	#
Hexachlorobenzene (aq)	<1 µg	/l TM176	<1	<1	<4	<1	<1	<1
			#	#	#	#	#	#
Hexachlorobutadiene (aq)	<1 µg	J/I TM176	<1	<1	<4	<1	<1	<1
			#	#	#	#	#	#
Pentachlorophenol (aq)	<1 µg	J/I TM176	<1	<1	<4	<1	<1	<1
Phenol (aq)	<1 µg	J/I TM176	<1	<1	10.7	<1	<1	<1
n-Nitroso-n-dipropylamine	<1 µg	j/l TM176	<1	<1	<4	<1	<1	<1
(aq)			#	#		#	#	#
Hexachloroethane (aq)	<1 µg	ı/l TM176	<1	<1	<4	<1	<1	<1
			#	#		#	#	#
Nitrobenzene (aq)	<1 µg	j/l TM176	<1	<1	<4	<1	<1	<1
		_	#	#		#	#	#
Naphthalene (aq)	<1 µg	ı∕l TM176	<1	<1	<4	<1	<1	<1
			#	#		#	#	#
Isophorone (aq)	<1 µg	/l TM176	<1	<1	<4	<1	<1	<1
			#	#		#	#	#
Hexachlorocyclopentadien	<1 µg	J/I TM176	<1	<1	<4	<1	<1	<1
e (aq)			-11	<1	<4	<1	- 11	-14
Phenanthrene (aq)	<1 µg	J/I TM176	<1				<1	<1
Indona (1.2.2. ad) nurana	<1.00	/l TM176	# <1	# <1	# <4	# <1	# <1	# <1
Indeno(1,2,3-cd)pyrene	<1 µg	/1 11/170						
(aq)	24	/l TM176	# <1	# <1	# 4.78	# <1	# <1	# <1
Pyrene (aq)	<1 µg	/1 IVI1/0						
			#	#	#	#	#	#
L								

## **CERTIFICATE OF ANALYSIS**

Validated

SDG:	
Job:	

	50903-66  _URS_WIM-2	73	Location: S Customer: A	tag Brewery ECOM ary Marshall		Order Number: Report Number: Superseded Repo	329161 ort:	
VOC MS (W) Results Legend		Customer Sample R	<b>B</b> UO	DUZ	PUIO	DUIA	DUDDAA	DUI404D
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	BH2 Water(GW/SW)	BH7 Water(GW/SW)	BH9 Water(GW/SW)	BH10 Water(GW/SW)	BH201A Water(GW/SW)	BH104B Water(GW/SW)
<ul> <li>Subcontracted test.</li> <li>** % recovery of the surrogate check the efficiency of the m results of individual compou samples aren't corrected for</li> </ul>	ethod. The nds within	Date Sampled Sampled Time Date Received SDG Ref	02/09/2015 03/09/2015 150903-66	01/09/2015 03/09/2015 150903-66	02/09/2015 03/09/2015 150903-66	01/09/2015 03/09/2015 150903-66	02/09/2015 03/09/2015 150903-66	02/09/2015 03/09/2015 150903-66
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appen		Lab Sample No.(s) AGS Reference	12003516	12003511	12003512	12003513	12003515	12003514
Component Dibromofluoromethane**	LOD/Unit	ts Method TM208	89.4	87.9	83	117	90.6	119
Toluene-d8**	%	TM200	80.2	80.5	81.6	99.4	81.4	99.8
4-Bromofluorobenzene**	%	TM208	78.8	78.1	78.6	96.2	80.2	97.4
Dichlorodifluoromethane	<1 µg/	1 TM208	<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/	/I TM208	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/	1 TM208	# <1	<1	<1	# <1	# <1	<1
Bromomethane	<1 µg/	/I TM208	<1	<1	<1	# <1	# <1	<1
Chloroethane	<1 µg/	1 TM208	# <1	<1	<1	# <1	# <1	<1
Trichlorofluoromethane	<1 µg/	/I TM208	# <1 #	<1	<1	# <1 #	# <1 #	<1
1,1-Dichloroethene	<1 µg/	/I TM208		<1	<1	# <1 #		<1
Carbon disulphide	<1 µg/	1 TM208		<1	2.28	<1 #		<1
Dichloromethane	<3 µg/	1 TM208	<3 #	<3	<3			<3
Methyl tertiary butyl ether (MTBE)	<1 µg/	1 TM208	<1 #	<1	<1	<1 #	" <1 #	<1
trans-1,2-Dichloroethene	<1 µg/	1 TM208	<1 #	<1	<1	<1 #	<1 #	<1
1,1-Dichloroethane	<1 µg/	/I TM208	<1 #	<1	<1	<1 #	<1 #	<1
cis-1,2-Dichloroethene	<1 µg/	1 TM208	<1 #	<1	<1 #	<1 #	<1 #	<1
2,2-Dichloropropane	<1 µg/	1 TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/	1 TM208	<1 #	<1	<1 #	<1 #	<1 #	<1
Chloroform	<1 µg/	1 TM208	<1 #	<1	<1 #	<1 #	<1 #	<1
1,1,1-Trichloroethane	<1 µg/		<1			<1 #	<1 #	<1
1,1-Dichloropropene	<1 µg/		<1 #			<1 #	<1 #	<1
Carbontetrachloride	<1 µg/		<1 #			<1 #	<1 #	<1
1,2-Dichloroethane	<1 µg/		<1	<1	<1	<1	<1	<1
Benzene	<1 µg/		<1 #			<1 #	<1 #	<1
Trichloroethene	<1 µg/		<1 #			<1 #	<1 #	<1
1,2-Dichloropropane	<1 µg/		<1			<1 #	<1 #	<1
Dibromomethane	<1 µg/		<1 #			<1 #	<1 #	<1
Bromodichloromethane	<1 µg/		<1 #			<1 #	<1 #	<1
cis-1,3-Dichloropropene	<1 µg/		<1 #			<1 #	<1 #	<1
Toluene	<1 µg/		<1 #			<1 #	<1 #	<1
trans-1,3-Dichloropropene			<1 #			<1 #	<1 #	<1
1,1,2-Trichloroethane	<1 µg/	1 TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1

#### **CERTIFICATE OF ANALYSIS**

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:	

## VOC MS (W)

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. ** % recovery of the surrogate stand	lard to	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	d. The	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 Lab Sample No.(s)	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)		AGS Reference						
Component	LOD/Un	its Method						
1,3-Dichloropropane	<1 µg	g/l TM208	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1 µg	g/l TM208	# <1	# <1	# <1	# <1	# <1	# <1
			#	#	#	#	#	#
Dibromochloromethane	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg	g/l TM208	1.7 #	1.77 #	1.89 #	<1 #	1.8 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg	g/l TM208	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1 µg	a/I TM208	# <1	# <1	# <1	# <1	# <1	# <1
			#	#	#	#	#	#
m,p-Xylene	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg	g/l TM208	<1	<1	<1	<1 "	<1	<1
Styrene	<1 µç	g/I TM208	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #
Bromoform	<1 µg	g/l TM208	<1	<1 #	# <1		# <1	<1 #
Isopropylbenzene	<1 µg	a/l TM208	# <1	# <1	#	#	#	# <1
			#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µç		<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µç	g/I TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µç	g/l TM208	<1 #	<1	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µç	g/l TM208			<del>#</del>	<del></del> <1 #		<del>"</del> <1 #
1,2,4-Trimethylbenzene	<1 µç	g/l TM208		<del>/</del> <1 #	<del>#</del>		<del>"</del> <1 #	<del>#</del>
sec-Butylbenzene	<1 µç	g/l TM208	<1	<1	<1	<1	<1	<1
4-iso-Propyltoluene	<1 µç	g/I TM208	# <1	# <1	# <1	# <1	# <1	# <1
1,3-Dichlorobenzene	<1 µç	g/l TM208	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #
1,4-Dichlorobenzene	<1 µg	g/l TM208	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #
n-Butylbenzene	<1 µç	g/l TM208	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #	# <1 #
1,2-Dichlorobenzene	<1 µç	g/l TM208	# <1	# <1	# <1	# <1	# <1	# <1
1,2-Dibromo-3-chloroprop ane	<1 µç	g/l TM208	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µç	g/l TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µç	g/l TM208	<1	<1	<1	<1	<1	<1
tert-Amyl methyl ether	<1 µg	g/l TM208	# <1	# <1	# <1	# <1	# <1	# <1
(TAME) Naphthalene	<1 µg	a/l TM208	# <1	#	# <1	#	#	#
	- 146		#	#	*1	1#	#	*1

## **CERTIFICATE OF ANALYSIS**

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:	

## VOC MS (W)

VOC I					-	-			
# M aq	Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample.	C	Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B
diss.filt tot.unfilt *	Dissolved / filtered sample. 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.	rd to The	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 rec	covery	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		LOD/Units							
1,2,3-	Frichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-	Frichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1

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### **CERTIFICATE OF ANALYSIS**

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:

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

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SDG:

Job:

# **CERTIFICATE OF ANALYSIS**

150903-66 Location: Stag Brewery Order Number: H\_URS\_WIM-273 Customer: AEČOM 329161 Report Number: 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

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H\_URS\_WIM-273

**CERTIFICATE OF ANALYSIS** 

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 3 Superseded Report:

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Validated

# ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Client Reference:

(

SDG:

Job:

Component	Method Code	QC 1214	QC 1207
Ammoniacal Nitrogen as	TM099	<b>102.8</b>	<b>104.4</b>
N		91.84 : 108.16	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
		QC 1202	QC 1270
Aluminium	TM152	103.33	100.53
		88.58 : 117.87	88.58 : 117.87
Antimony	TM152	100.4	100.53
		87.01 : 109.33	87.01 : 109.33
Arsenic	TM152	99.87	100.67
		89.45 : 113.51	89.45 : 113.51
Barium	TM152	99.33	98.53
		90.47 : 113.85	90.47 : 113.85
Beryllium	TM152	102.13	102.4
		84.68 : 120.26	84.68 : 120.26
Boron	TM152	98.93	99.73
		82.95 : 121.47	82.95 : 121.47
Cadmium	TM152	102.93	101.73
		90.40 : 113.29	90.40 : 113.29
Chromium	TM152	102.27	102.27
		90.01 : 114.05	90.01 : 114.05
Cobalt	TM152	102.0	100.8
		87.14 : 117.85	87.14 : 117.85
Copper	TM152	97.6	100.53
		88.43 : 114.27	88.43 : 114.27
Lead	TM152	96.67	96.53
		89.53 : 109.90	89.53 : 109.90

# **CERTIFICATE OF ANALYSIS**

Stag Brewery

Gary Marshall

AECOM

Location:

Customer:

Attention:

 SDG:
 150903-66

 Job:
 H\_URS\_WIM-273

 Client Reference:

### Dissolved Metals by ICP-MS

Order Number:	
Report Number:	329161
Superseded Report:	

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		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)

# **CERTIFICATE OF ANALYSIS**

Validated

SDG:	150903-66	Location:	Stag Brewery	Order Number:	
Job:	H_URS_WIM-273	Customer:	AECOM	Report Number:	329161
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# 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	TM183	<b>108.0</b>	<b>96.1</b>
(CVAF)		73.51 : 120.83	73.51 : 120.83

# pH Value

Component	Method Code	QC 1280	QC 1258
рН	TM256	<b>101.62</b> 99.37 : 102.65	<b>101.08</b> 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

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SDG: Job: Client Reference:

VOC MS (W)

### CERTIFICATE OF ANALYSIS

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall

Order Number: Report Number: 3 Superseded Report:

329161

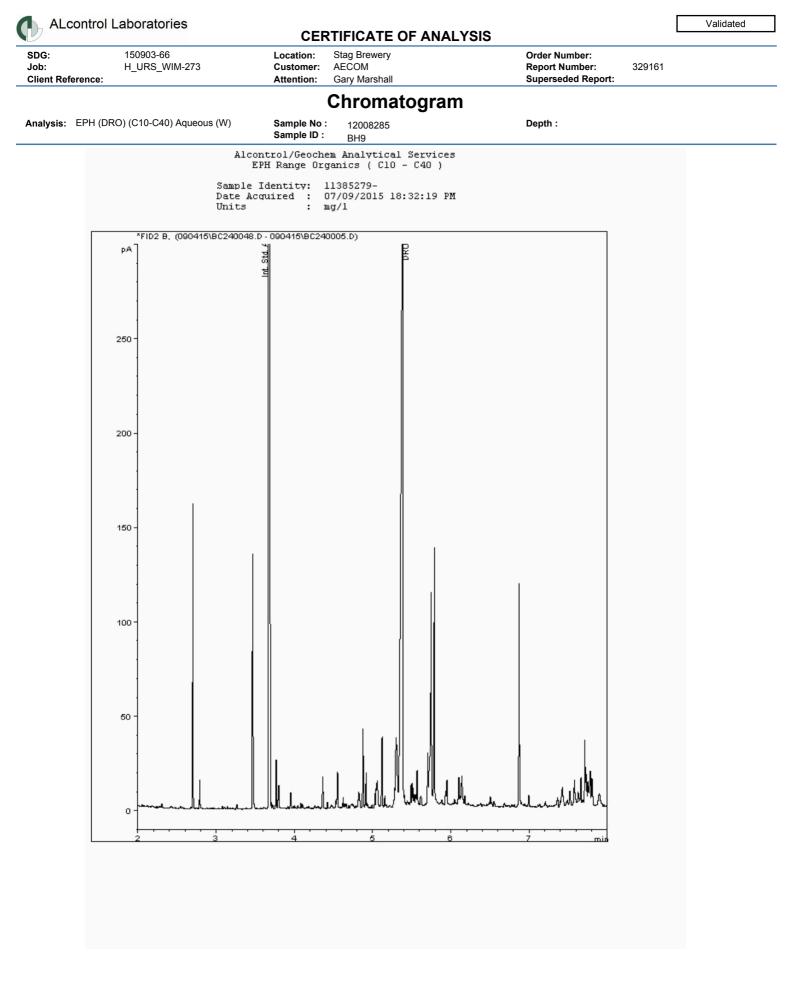
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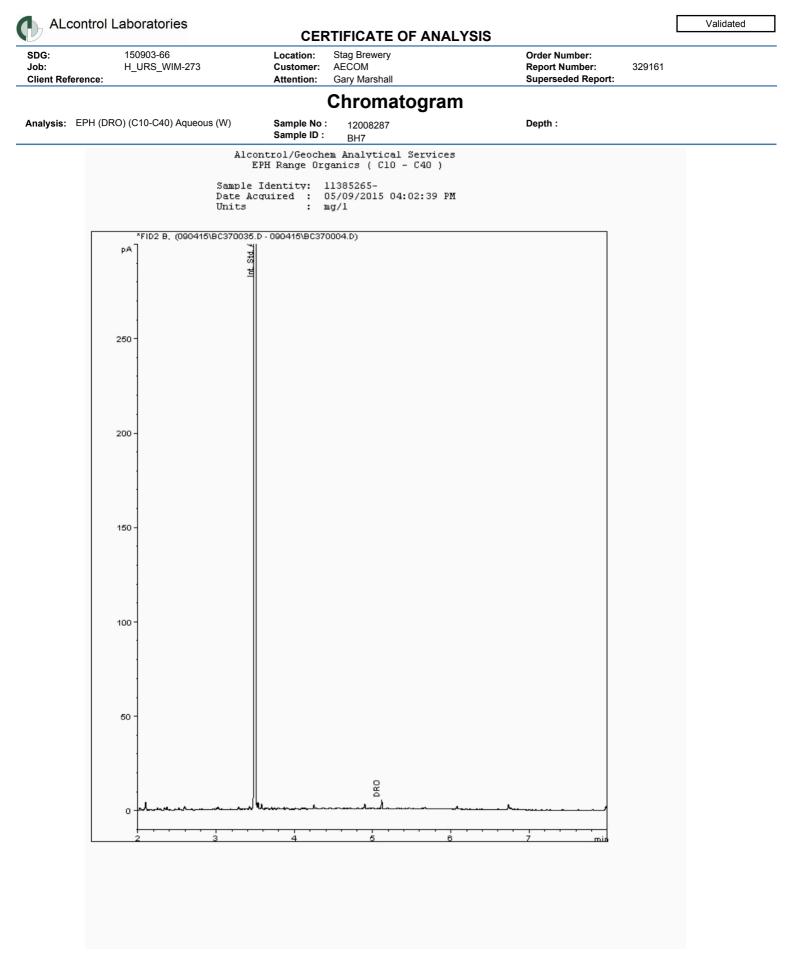
Component	Method Code	QC 1272	QC 1223	QC 1239
1,1,1,2-Tetrachloroethan e	TM208	91.5	94.5	100.5
e		84.25 : 114.84	77.50 : 122.50	84.25 : 114.84
1,1,1-Trichloroethane	TM208	90.0	96.5	96.0
4.4 Disklass these	Th 4000	84.67 : 111.97	77.50 : 122.50	84.67 : 111.97
1,1-Dichloroethane	TM208	<b>92.0</b> 80.19 : 121.45	<b>107.0</b> 77.50 : 122.50	<b>99.5</b> 80.19 : 121.45
1,2-Dichloroethane	TM208	93.0	98.0	99.0
		77.68 : 127.05	77.50 : 122.50	77.68 : 127.05
2-Chlorotoluene	TM208	93.0	97.0	99.0
		85.81 : 116.77	77.50 : 122.50	85.81 : 116.77
4-Chlorotoluene	TM208	92.5	97.5	100.0
		87.22 : 115.45	77.50 : 122.50	87.22 : 115.45
Benzene	TM208	90.5	103.0	101.0
		82.30 : 120.49	77.50 : 122.50	82.30 : 120.49
Bromomethane	TM208	99.0	104.0	90.0
		76.16 : 123.35	75.87 : 132.10	76.16 : 123.35
Carbontetrachloride	TM208	92.5	98.5	99.5
		83.96 : 117.98	77.50 : 122.50	83.96 : 117.98
Chlorobenzene	TM208	94.5	99.5	100.0
		85.75 : 114.88	77.50 : 122.50	85.75 : 114.88
Chloroform	TM208	94.0	103.0	104.5
		84.84 : 119.97	77.50 : 122.50	84.84 : 119.97
Chloromethane	TM208	96.0	131.0	113.5
		53.63 : 141.38	77.12 : 138.43	53.63 : 141.38
Cis-1,2-Dichloroethene	TM208	102.5	111.0	111.0
		81.65 : 120.44	77.50 : 122.50	81.65 : 120.44
Dichloromethane	TM208	93.5	113.0	104.0
		79.31 : 122.56	77.50 : 122.50	79.31 : 122.56
Ethylbenzene	TM208	89.5	96.0	94.0
		80.74 : 110.74	78.88 : 104.73	80.74 : 110.74
Hexachlorobutadiene	TM208	101.5	81.5	91.5
		68.91 : 121.59	72.12 : 118.38	68.91 : 121.59
o-Xylene	TM208	91.0	96.0	95.0
		85.43 : 113.21	82.27 : 108.61	85.43 : 113.21
p/m-Xylene	TM208	90.0	97.0	95.0
		80.94 : 113.51	74.83 : 118.29	80.94 : 113.51
Tert-butyl methyl ether	TM208	102.5	87.0	88.5
		59.77 : 129.51	75.13 : 130.32	59.77 : 129.51
Tetrachloroethene	TM208	91.5	95.0	101.5
		83.21 : 115.40	<b>95.0</b> 82.93 : 109.54	83.21 : 115.40
Toluene	TM208	90.0	96.5	98.5
		<b>90.0</b> 86.02 : 114.04	<b>90.5</b> 80.95 : 110.35	<b>90.5</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
		00.71.124.00	07.00.120.34	00.71.124.00

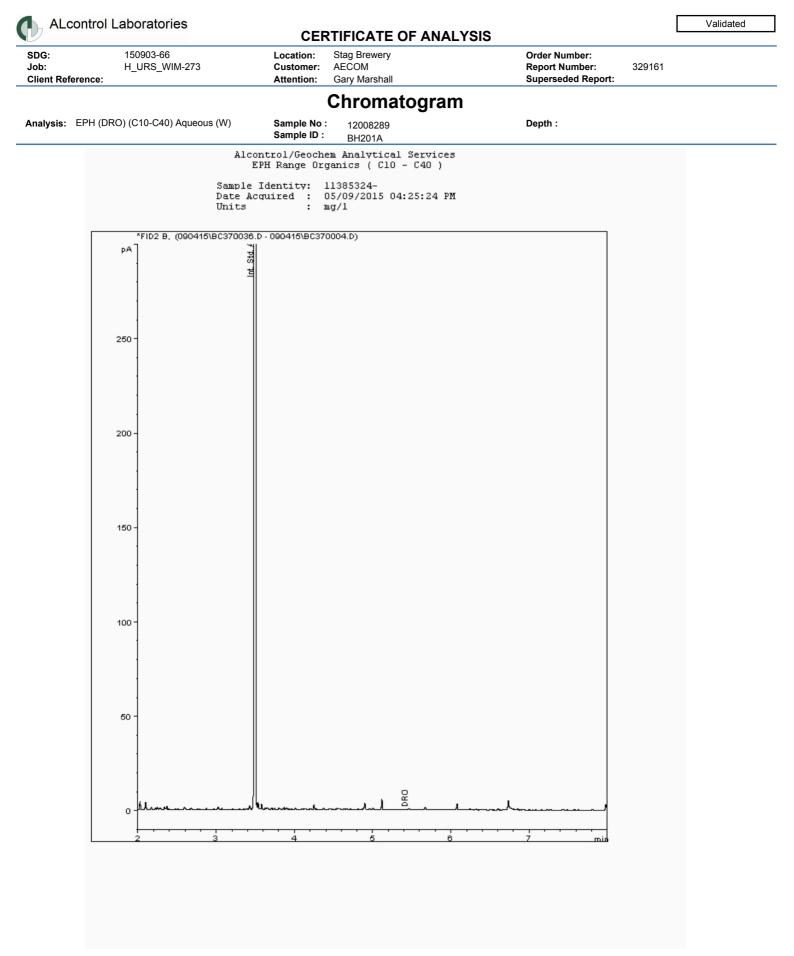
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

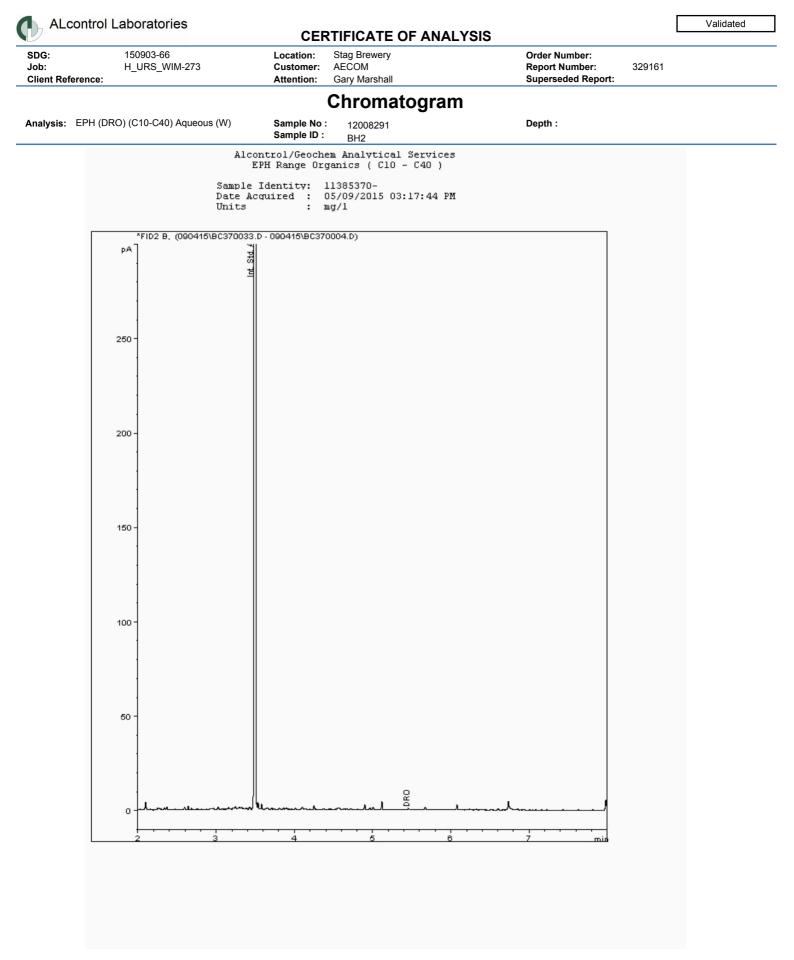
The figure detailed is the percentage recovery result for the AQC.

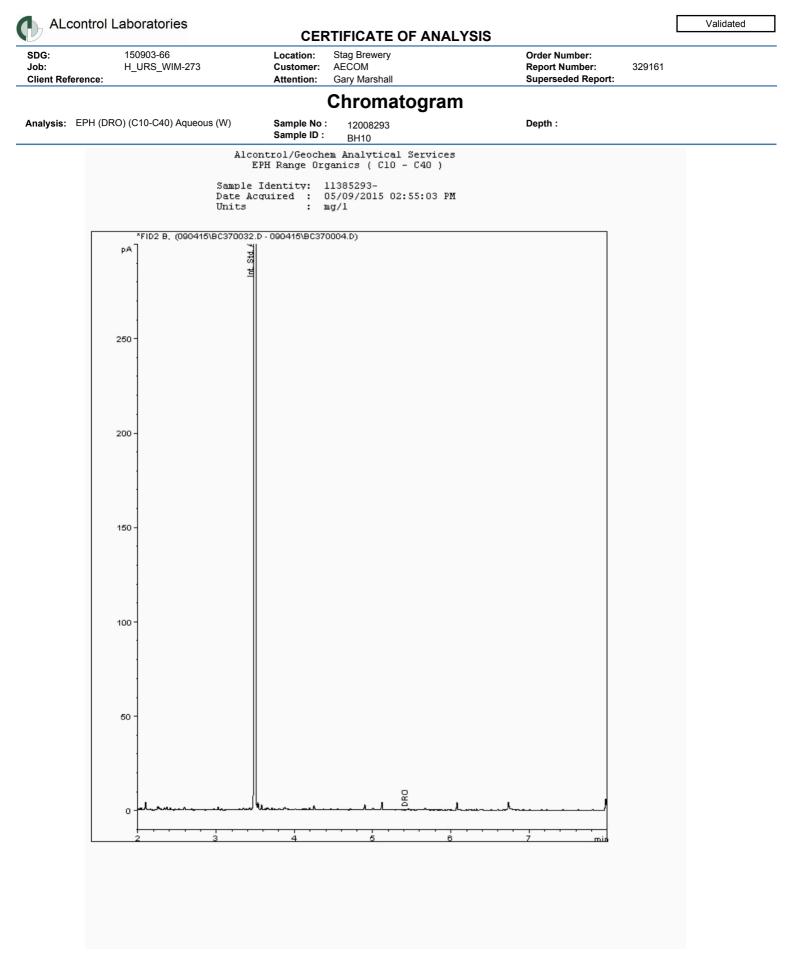
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

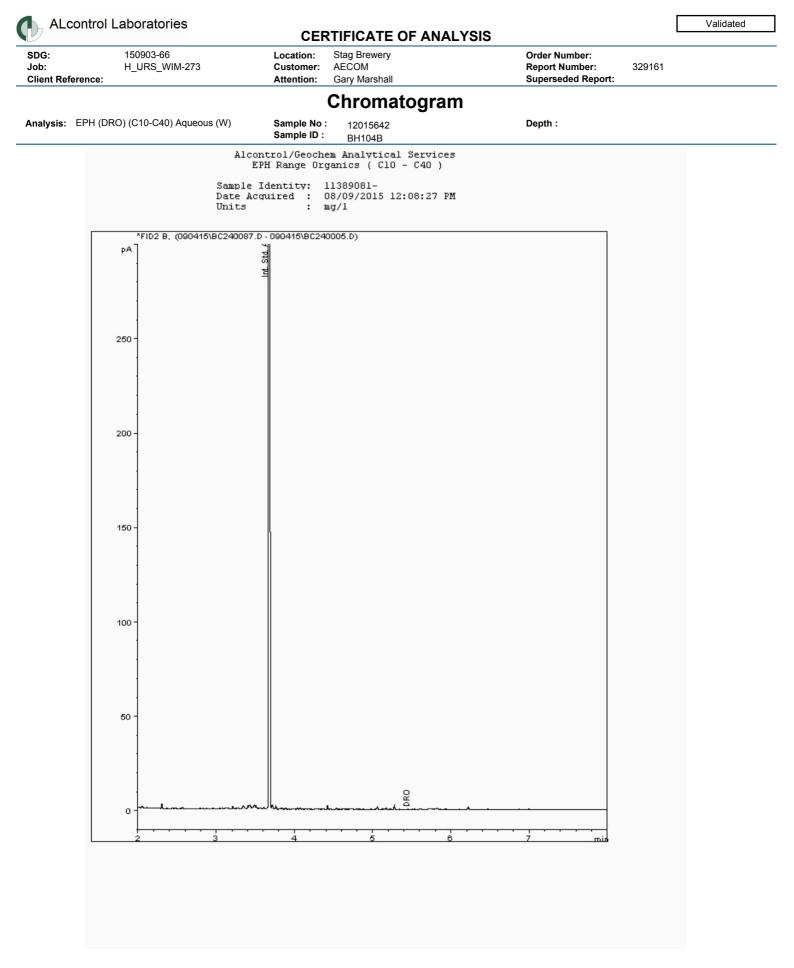


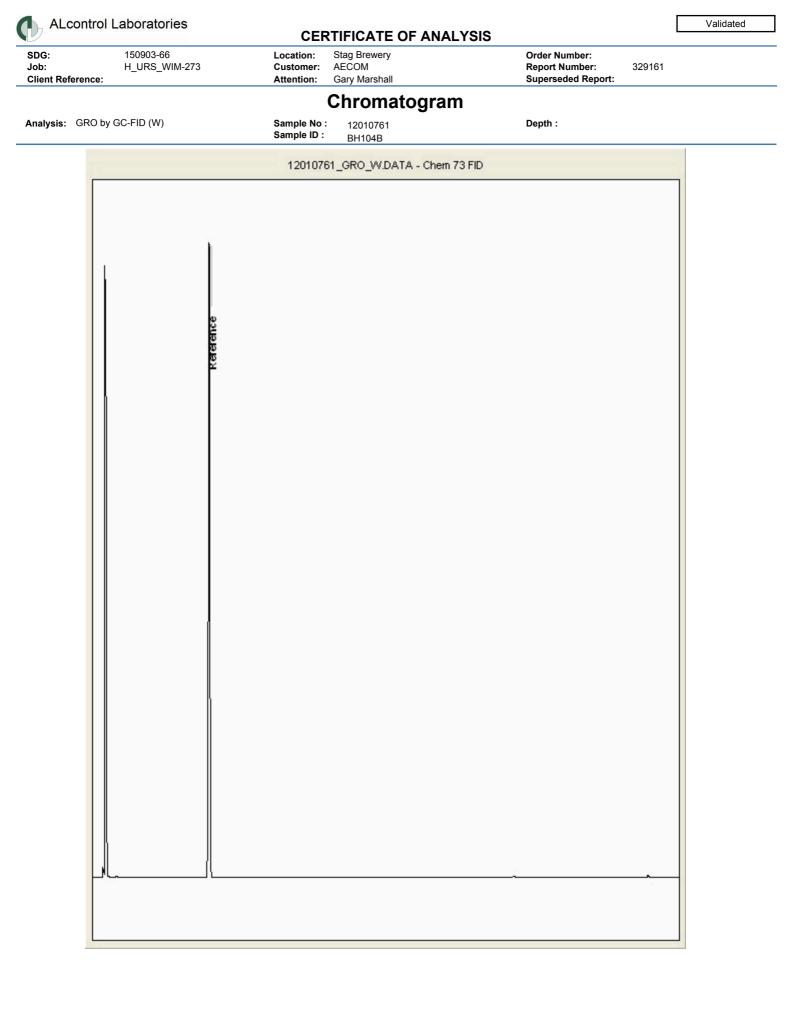




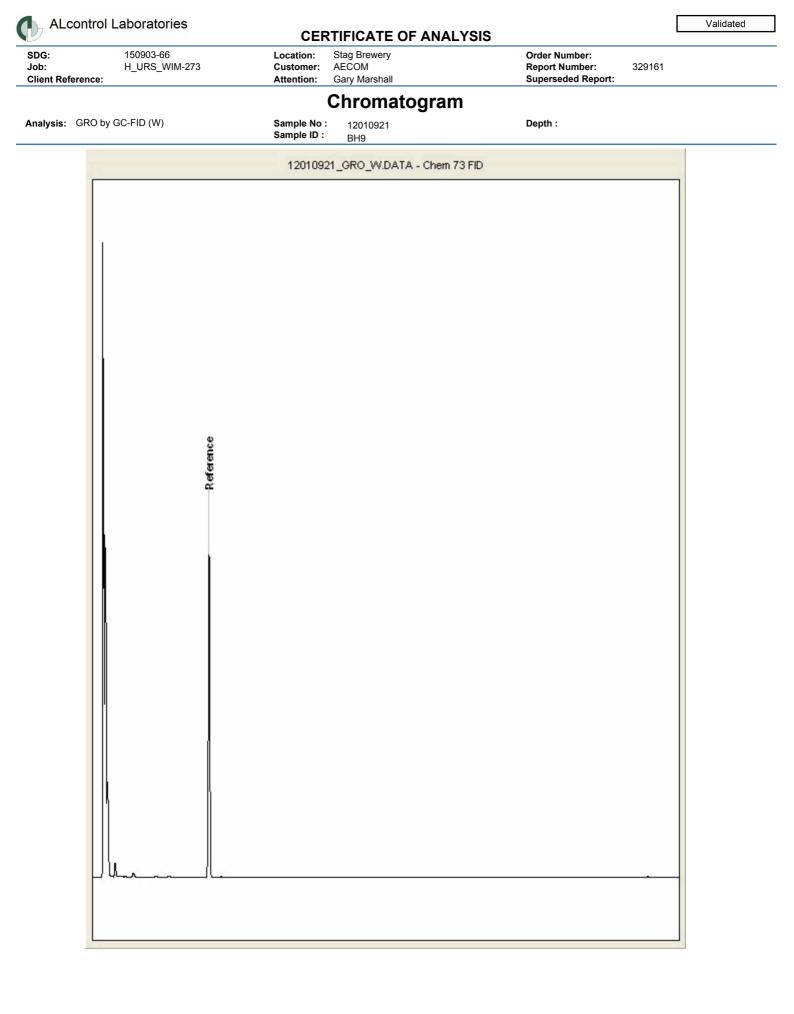


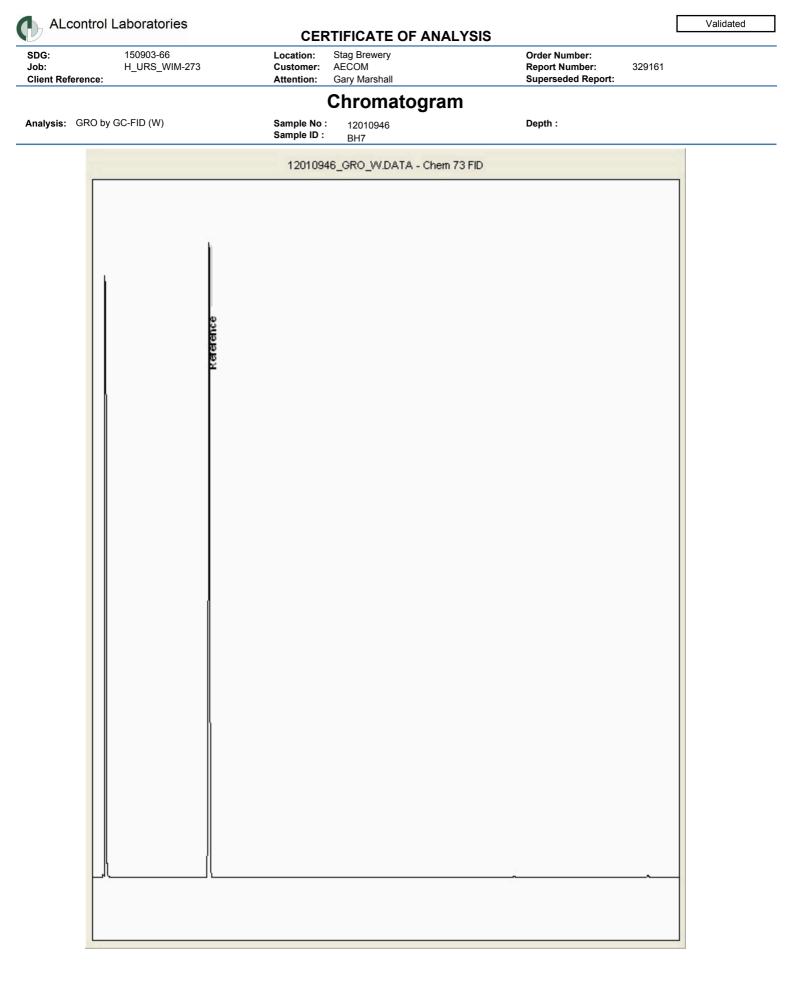




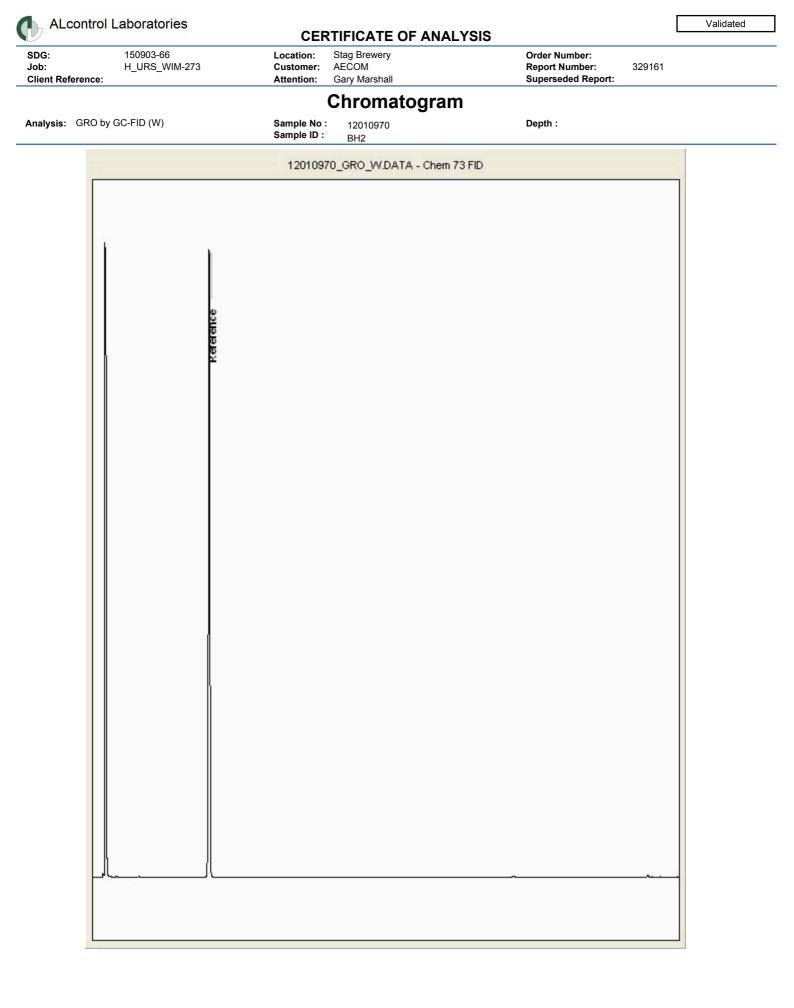


G:	150903-66	Location:	Stag Brewery	Order Number:		
b: ent Reference	H_URS_WIM-273	Customer: Attention:	AECOM Gary Marshall	Report Number: Superseded Report:	329161	
			Chromatogra			
alvsis: GRO	by GC-FID (W)	Sample No :		Depth :		
	-) ()	Sample ID :	BH10	- • p		
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DG:	150903-66	Location:	Stag Brewery	Order Number:		
b: ient Reference	H_URS_WIM-273	Customer: Attention:	AECOM Gary Marshall	Report Number: Superseded Report:	329161	
			Chromatogra			
alvsis: GRO	by GC-FID (W)	Sample No :	-	Depth :		
	,	Sample ID :	BH201A			
		120109	54_GRO_VV.DATA - Che	m 73 FID		
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#### **CERTIFICATE OF ANALYSIS**

SDG:	150903-66	Location:	Stag Brewery
Job:	H_URS_WIM-273	Customer:	AECOM
Client Reference:		Attention:	Gary Marshall

# Appendix

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

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

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

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

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

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

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

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

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

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

11. 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 -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.

Order Number: Report Number: Superseded Report:

#### SOLID MATRICES EXTRACTION SUMMARY

329161

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	ATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGONS	WET	DOM	SOXTHERM	GC/MS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GC/MS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GC/MS
EPH (DRO)	D&C	HEXANE/ACETONE	END OVEREND	GCFD
EPH (MINOL)	D&C	HEXANEACETONE	ENDOWEREND	GCFD
EPH (OLEANED UP)	D&C	HEXANEACETONE	ENDOWEREND	GCFD
EPH CWG BYGC	D&C	HEXANEACETONE	ENDOWEREND	GCFD
PCB TOT / PCB CON	D&C	HEXANEACETONE	END OVEREND	GC-MS
POL VAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
08-040(06-040)EZ FLASH	WET	HEXANEACETONE	SHAVER	GCEZ
POL VAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAVER	6CEZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCFID
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 0CP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk Materials

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Croddalte	Blue Asbestos
Fibrous Adinatie	-
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.

#### **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°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 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-lsopropylphenol, 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 Adinate	-
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.



C. Ground level plans current and proposed



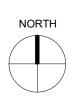
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DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ALL OMISSIONS AND DISCREPANCIES TO BE REPORTED TO THE ARCHITECT IMMEDIATELY.

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LBRUT 2 APPLICATION Revision description

25/02/22 BJ Date Check Rev

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Project

Stag Brewery Richmond

# Drawing EXISTING SITE SURVEY

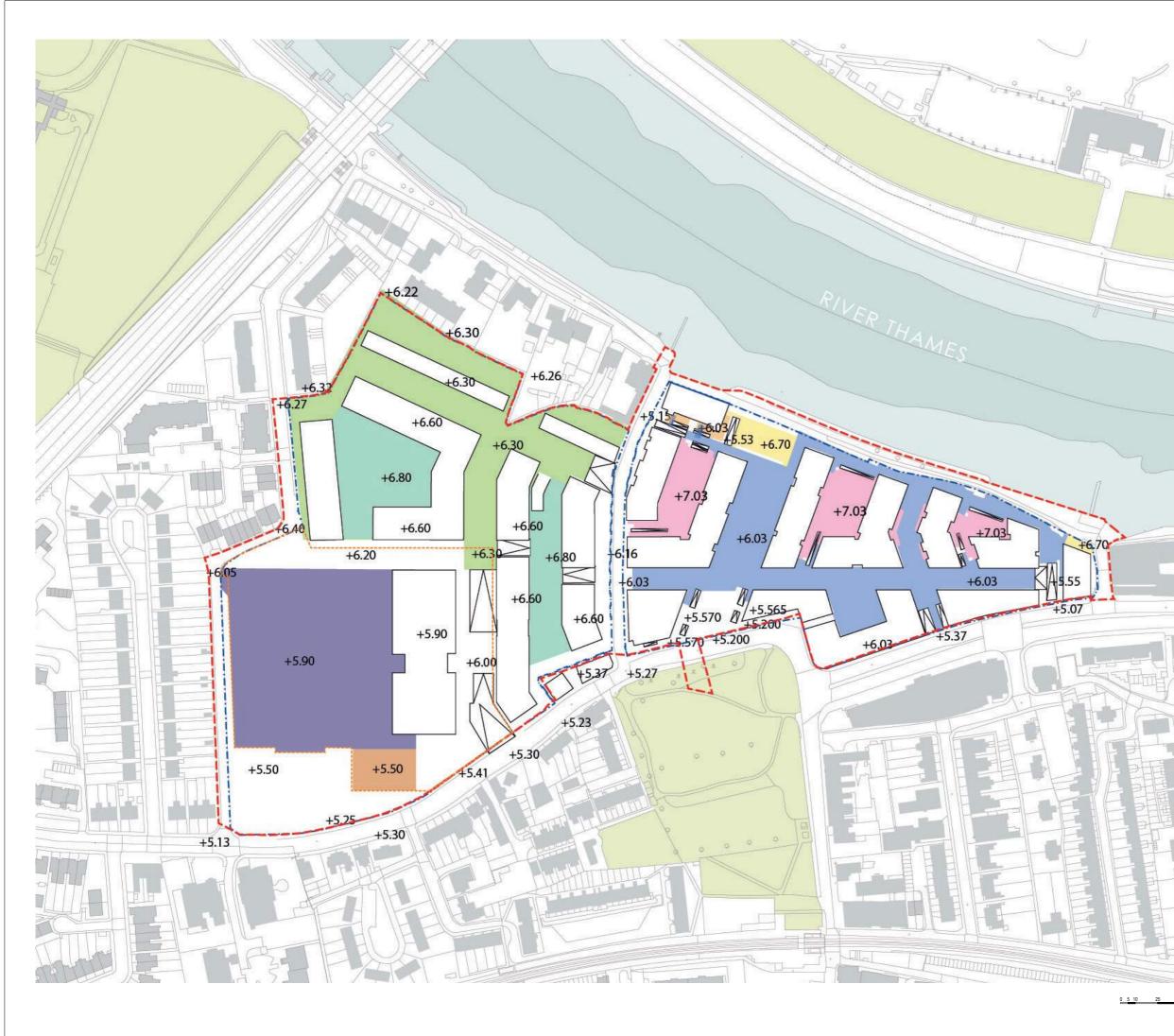
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 Date

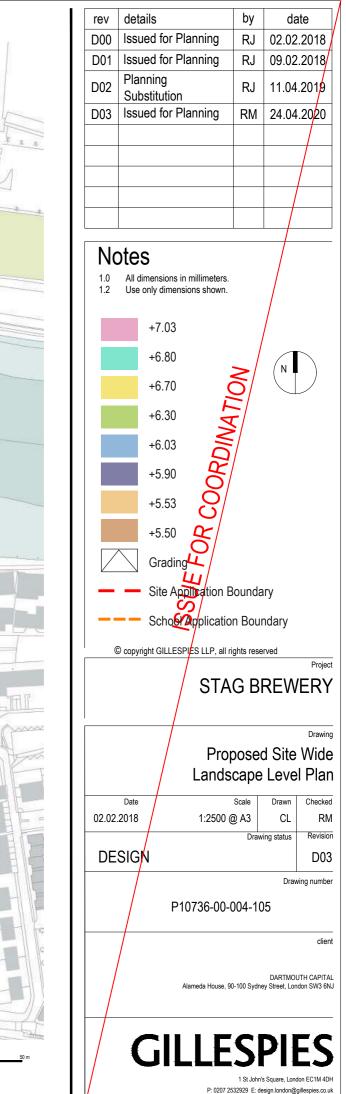
 RKB
 08/03/22

 Job Number
 Drawing number

 18125
 JA12\_Z0\_P\_00\_009

Scale 1 : 1250 @ A0 1 : 2500 @ A2 Revision -





<sup>32929</sup> E: design.londo



D. Drainage Strategy

Superseded - refer to Appendix E of Basement Impact Assessment for updated Drainage Strategy dated April 2023.



# UK and Ireland Office Locations





# C. Flood Risk Assessment

Appendices Basement Impact Assessment Document Reference: WIE18671 WIE18671-100.R.24.2.2.BIA



APPENDIX 12.1 FLOOD RISK ASSESSMENT





# Stag Brewery, Mortlake

# **Flood Risk Assessment**

For Reselton Properties

March 2022

# EXECUTIVE SUMMARY OF REPORT

This report documents work undertaken by Hydro-Logic Services for Reselton Properties Limited between 2016 and 2022 in relation to the proposed redevelopment of the former Stag Brewery site at Mortlake. The latter stages of this work have been undertaken through Corylus Planning and Environmental Ltd.

The purpose of the work was to:

- Provide guidance to the Project team on the issues of flood risk and drainage
- Prepare a Flood Risk Assessment (FRA) suitable for submission with the Planning Applications

The key outcomes of the work are summarised in Section 5 of this Report.

The work delivered the following outputs:

- This report, including
- Flood Emergency Plan (Appendix G)
- Drainage Strategy (submitted under separate cover).

This is Revision 5 of the FRA and reflects changes to the layout of the revised Hybrid Scheme that have been finalised in 2022.

## **Contributors:**

Alan Corner	Project Director, SUDS Specialist & Reviewer
Dr Paul Webster	Project Manager & Flood Risk Specialist
Rodrigo Magno	Hydraulic modeller
Phil Cannard	Hydrologist

## **Document Status and Revision History:**

Version	Date	Author(s)	Authorisation	Status/Comment
3 issue	Oct 2019	P Webster	A Corner	Issue version for Original Scheme
4 issue	May 2020	P Webster	A Corner	Issue version for Revised Scheme
5 issue	Feb 2022	P Webster	A Corner	Issue version for hybrid development

# Limitation of liability and use

The work described in this report was undertaken for the party or parties stated; for the purpose or purposes stated; to the time and budget constraints stated. No liability is accepted for use by other parties or for other purposes, or unreasonably beyond the terms and parameters of its commission and its delivery to normal professional standards.

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# 1. Introduction

# 1.1 Planning Background

This Flood Risk Assessment (FRA) has been prepared by Hydro-Logic Services (through Corylus) on behalf of Reselton Properties Limited ("the Applicant") in support of two linked planning applications ("the Applications") for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ("the Site") within the London Borough of Richmond upon Thames (LBRuT).

# The Proposals

The Applications seek planning permission for:

**Application A:** "Hybrid application to include the demolition of existing buildings to allow for comprehensive phased redevelopment of the site:

Planning permission is sought in detail for works to the east side of Ship Lane which comprise:

- Demolition of existing buildings (except the Maltings and the façade of the Bottling Plant and former Hotel), walls, associated structures, site clearance and groundworks
- b) Alterations and extensions to existing buildings and erection of buildings varying in height from 3 to 9 storeys plus a basement of one to two storeys below ground
- c) Residential apartments
- d) Flexible use floorspace for:
  - i. Retail, financial and professional services, café/restaurant and drinking establishment uses
  - ii. Offices
  - iii. Non-residential institutions and community use
  - iv. Boathouse
- e) Hotel / public house with accommodation
- f) Cinema
- g) Offices
- h) New pedestrian, vehicle and cycle accesses and internal routes, and associated highway works
- i) Provision of on-site cycle, vehicle and servicing parking at surface and basement level
- j) Provision of public open space, amenity and play space and landscaping
- k) Flood defence and towpath works
- I) Installation of plant and energy equipment

Planning permission is also sought in outline with all matters reserved for works to the west of Ship Lane which comprise:

- a) The erection of a single storey basement and buildings varying in height from 3 to 8 storeys
- b) Residential development
- c) Provision of on-site cycle, vehicle and servicing parking
- d) Provision of public open space, amenity and play space and landscaping
- e) New pedestrian, vehicle and cycle accesses and internal routes, and associated highways works"

**Application B:** "Detailed planning permission for the erection of a three-storey building to provide a new secondary school with sixth form; sports pitch with floodlighting, external MUGA and play space; and associated external works including landscaping, car and cycle parking, new access routes and other associated works"

Together, Applications A and B described above comprise the 'Proposed Development'.

# 1.2 Background to Submission

The current applications follow earlier planning applications which were refused by the Greater London Authority and the GLA. The refused applications were for:

a) Application A – hybrid planning application for comprehensive mixed use redevelopment of the former Stag Brewery site consisting of:

- i. Land to the east of Ship Lane applied for in detail (referred to as 'Development Area 1' throughout); and
- ii. Land to the west of Ship Lane (excluding the school) applied for in outline (referred to as 'Development Area 2' throughout).
- b) Application B detailed planning application for the school (on land to the west of Ship Lane).
- c) Application C detailed planning application for highways and landscape works at Chalkers Corner.

The London Borough of Richmond (the Council) originally resolved to grant planning permission for Applications A and B but refuse Application C.

Following the LBRuT's resolution to approve the Applications A and B, the Mayor called-in the Applications and became the determining authority. The Mayor's reasons for calling in the Applications were set out in his Stage II letter (dated 4 May 2020) but specifically related to concerns regarding what he considered was a low percentage of affordable housing being proposed for the Site and the need to secure a highways solution for the scheme following the LBRuT's refusal of Application C.

Working with the Mayor's team, the Applicant sought to meaningfully respond to the Mayor's concerns on the Applications. A summary of the revisions to the scheme made and submitted to the GLA in July 2020 is as follows:

- i. Increase in residential unit provision from up to 813 units to up to 1,250 units;
- ii. Increase in affordable housing provision from (up to) 17%, to 30%;
- iii. Increase in height for some buildings of up to three storeys;
- iv. Change to the layout of Blocks 18 and 19, conversion of Block 20 from a terrace row of housing to two four storey buildings;
- v. Reduction in the size of the western basement, resulting in an overall car parking spaces reduction of 186 spaces and introduction of an additional basement storey under Block 1;
- vi. Internal layout changes and removal of the nursing home and assisted living in Development Area 2;
- vii. Landscaping amendments, including canopy removal of four trees on the north west corner of the Site; and
- viii. Alternative options to Chalkers Corner in order to mitigate traffic impacts through works to highway land only and allow the withdrawal of Application C.

The application was amended to reflect these changes.

Notwithstanding this, and despite GLA officers recommending approval, the Mayor refused the applications in August 2021.

The Mayor's reasons for refusal in respect of Application A were:

- height, bulk and mass, which would result in an unduly obtrusive and discordant form of development in this 'arcadian' setting which would be harmful to the townscape, character and appearance of the surrounding area;
- (ii) heritage impact. The proposals, by reason of its height, scale, bulk and massing would result in less than substantial harm to the significance of several listed buildings and conservation areas in the vicinity. The Mayor considered that the less than substantial harm was not clearly and convincingly outweighed by the public benefits, including Affordable Housing, that the proposals would deliver;
- (iii) neighbouring amenity issues. The proposal, by reason of the excessive bulk, scale and siting of Building 20 and 21 in close proximity to the rear of neighbouring residential properties in Parliament Mews and the rear gardens of properties on Thames Bank, would result in an unacceptable overbearing an unneighbourly impact, including direct overlooking of private amenity spaces. The measures in the Design Code would not sufficiently mitigate these impacts; and
- (iv) no section 106 agreement in place.

Application B was also refused because it is intrinsically linked with Application A and therefore could not be bought forward in isolation.

### 1.3 The Proposed New Scheme

This 3<sup>rd</sup> iteration of the scheme seeks to respond directly to the Mayor's reasons for refusal and in doing so also addresses a number of the concerns raised by the LBRuT.

The amendments can be summarised as follows:

- i. A revised energy strategy is proposed in order to address the London Plan (2021) requirements;
- ii. Several residential blocks have been reduced in height to better respond to the listed buildings along the Thames riverfront and to respect the setting of the Maltings building, identified as a Building of Townscape Merit (BTM) by the LBRuT;
- iii. Reconfiguration of layout of Buildings 20 and 21 has been undertaken to provide lower rise buildings to better respond to the listed buildings along the Thames riverfront; and
- iv. Chalkers Corner light highways mitigation works.

The school proposals (submitted under 'Application B') are unchanged. The Applicant acknowledges LBRuT's identified need for a secondary school at the Site and the applications continue to support the delivery of a school. It is expected that the principles to be agreed under the draft Community Use Agreement (CUA) will be the same as those associated with the refused school application (LBRuT ref: 18/0548/FUL, GLA ref: GLA/4172a/07).

Overall, it is considered that together, the Applications respond successfully to the concerns raised by stakeholders in respect of the previous schemes and during pre-application discussions on the revised Proposed Development. As a result, it is considered that the scheme now represents a balanced development that delivers the principal LBRuT objectives from the Site.

# 1.4 Purpose of this Report

This Report presents a Flood Risk Assessment (FRA) for the Site. The FRA includes the development of a Drainage Strategy. The development of the Drainage Strategy has been undertaken by Waterman Infrastructure & Environment Limited ('Waterman IE'), in conjunction with Hydro-Logic Services and is summarised within this FRA.

The National Planning Policy Framework (NPPF) was published on 2012, revised most recently in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied. Flooding is addressed, principally in paragraphs 159 to 169 of the NPPF. These seek to avoid inappropriate development in areas at risk of flooding by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

A site-specific flood risk assessment is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency); and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding.

A site-specific flood risk assessment must demonstrate the following:

- that the development will be safe for its lifetime taking account of the vulnerability of its users;
- it should not increase flood risk elsewhere;
- it should if possible, reduce flood risk overall.

# 1.5 Sources of Information and Consultation

A Scoping (Level 1) Flood Risk Assessment was prepared for the site in July 2016 (Appendix B). This was submitted to the Environment Agency and London Borough of Richmond upon Thames (LBRuT). Useful responses were obtained from both organisations, as shown in Appendix C. In particular, these have helped to Scope the requirements for this full FRA.

This Report has also been informed by:

- Product 4 flood data provided by the Environment Agency to Waterman IE in February 2016 (Ref KSL 2030);
- Product 7 flood data (The Lower Thames Model) provided to Hydro-Logic Services in January 2017 (Ref KSL 24434);
- Product 4 & 8 flood data, provided by the Environment Agency to Hydro-Logic in July 2017 (Ref KSL 52746);
- Development proposals provided by Squire and Partners throughout the project;
- Landscaping and River wall proposals provided by Gillespies LLP;
- Site visit by Dr Paul Webster on 16<sup>th</sup> June 2016.

### 1.6 Structure of Report

The Report has been structured in order to deal with key flood related issues of the NPPF Practice Guide, for which a checklist has been reproduced as Appendix A of this Report. The principal sections of the Report are as follows:

- Section 2 refers to spatial planning considerations by reference to the proposed land use and flood zoning;
- Section 3 presents an assessment of the existing flood risk at the application sites;
- Section 4 presents an assessment of flood risks associated with the proposed development along with any mitigation that may be required;
- Section 5 presents a summary of the main findings.

Additional Appendices are provided that deal with the following:

- Appendix B is the Scoping Level FRA submitted by Hydro-Logic Services to the Environment Agency and LBRuT;
- Appendix C provides the responses of the Environment Agency and LBRuT to the Scoping Level FRA;
- Appendix D is a Breach Analysis;
- Appendix E shows extracts from sewer maps provided by Thames Water;
- Appendix F provides the Environment Agency Climate Change Allowances (at February 2016);
- Appendix G is the Flood Emergency Plan
- Appendix H provides drawings of the proposed passive defence for Ship Lane;
- Appendix I is the Environment Agency response to tidal defence proposals.

# 2. Spatial Planning Considerations

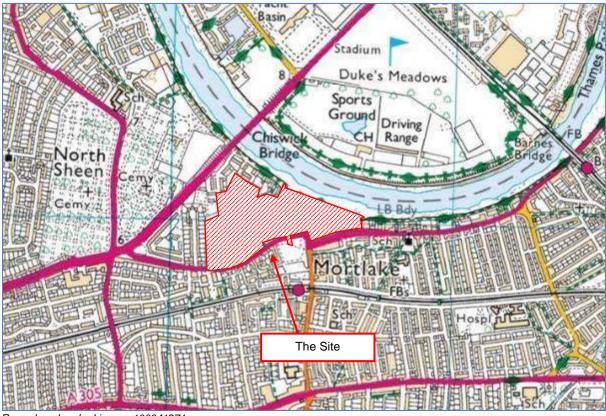
## 2.1 Location Plan and Site Plan

The "Site" is the former location of the Stag Brewery, located at Mortlake in the London Borough of Richmond upon Thames (LBRuT) plus some surrounding areas, as described in this Section. It is located south west of a large meander on the River Thames which flows to the east. Its general location is shown in Figure 2-1 and an aerial photo of the site is shown in Figure 2-2.

The Site comprises of a parcel of land extending to approximately 9.25 hectare (ha) predominantly occupied by the former Stag Brewery, as well as surrounding highways land including Chalkers Corner junction with the A316 (Clifford Avenue), A3003 (Lower Richmond Road) and A205 (South Circular), Mortlake High Street, and Sheen Lane. The proposed highways works are to be delivered by Section 278 works. There would be no change of land-use or impact on ground levels in this part of the Site. There are, accordingly, no flood risk implications of this part of the Site and it is not considered further in this FRA. The geographical coverage of this FRA covers the parcel of land predominantly occupied by the former Stag Brewery which is considered to be appropriate and robust for the purposes of the assessment.

Reference	Value
OS X (Eastings)	520341
OS Y (Northings)	176027
Nearest Post Code	SW14 7ET
Lat (WGS84)	N51:28:14 (51.470421)
Long (WGS84)	W0:16:08 (-0.268803)
Nat Grid	TQ203760 / TQ2034176027

#### Table 2-1 Grid reference details for the site (www.streetmap.co.uk)



### Figure 2-1 General location of the proposed Development

Reproduced under Licence 100041271

Figure 2-2 Aerial photo of the Site



# 2.2 Environment Agency Flood Zone

The definitions of flood zones adopted by PPS25/NPPF are as follows:

- **Zone 1: 'Low Probability'** This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
- Zone 2: 'Medium Probability' This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%-0.1%) in any year.
- **Zone 3a:** 'High Probability' This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- Zone 3b: 'The Functional Floodplain' This zone comprises land where water has to flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes).

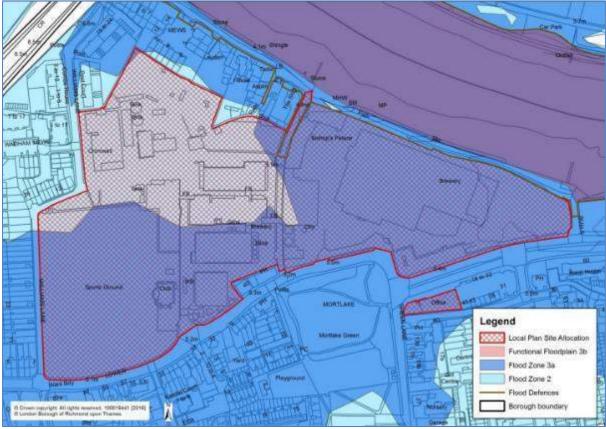
The Environment Agency have provided maps of the flood zones (Figure 2-3). This shows that the east and south of the Site is in flood zone 3 within the 0.5% Annual Exceedance Probability (AEP) flood event. The north east of the Site is located in flood zone 2 in the 0.1% AEP flood event.



### Figure 2-3 Environment Agency Flood Zones Map

Copyright Environment Agency. Note that identical maps were provided in Product 4 data sets in 2016 and 2017. This map shows a site boundary that has now been superseded.

It is also important for planning purposes, to establish if any of the site lies in the functional flood plain (termed flood zone 3b). The Flood Risk Sequential Test (LBRuT Council, 2016a) focuses on the Stag Brewery site and confirms that the site is not located in flood zone 3b (Figure 2-4).



### Figure 2-4 Stag Brewery Flood Zone Map (LBRuT Council, 2016a)

This map shows a site boundary that has now been superseded.

# 2.3 The Strategic Flood Risk Assessment and Sequential Test

The Strategic Flood Risk Assessment (SFRA) has been prepared by the London Borough of Richmond upon Thames (LBRuT) Council (2016c). This has provided a useful source of information to guide this FRA. Mortlake is specifically mentioned as having a tidal and fluvial flood risk from the nearby River Thames. Other flood risks are also covered in this SFRA (see section 3.2).

The NPPF includes a table to highlight whether particular types of development are appropriate in each flood zone. This is reproduced as Table 2-2. The proposed development would be classed as a more vulnerable development in accordance with the classification in Table 2-2, since the **most vulnerable use classification class** is used across the development site. More vulnerable developments are considered to be appropriate in flood zone 2 but are subject to the exception test in flood zone 3a (Table 2-3).

#### Table 2-2 Flood risk vulnerability classification

#### More Vulnerable (MV)

#### Hospitals.

Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.

Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels.

Non-residential uses for health services, nurseries and educational establishments.

Landfill and sites used for waste management facilities for hazardous waste.

Sites used for holiday or short-let caravans and camping, **subject to a specific warning and evacuation** plan.

#### Less Vulnerable (LV)

Police, ambulance and fire stations which are not required to be operational during flooding

Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non–residential institutions not included in 'more vulnerable'; and assembly and leisure.

Land and buildings used for agriculture and forestry.

Waste treatment (except landfill and hazardous waste facilities).

Minerals working and processing (except for sand and gravel working).

Water treatment works which do not need to remain operational during times of flood

Table 2 from NPPF Technical Guide (Paragraph 066)

Text in bold italics denotes all land uses proposed for the Site

Flood Zone	Definition	Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
1	T>1,000	>	~	~	~	>
2	100 <t<sub>fluv&lt;1,000 200<t<sub>tidal&lt;1,000</t<sub></t<sub>	>	~	Exc	~	>
3a	T <sub>fluv</sub> <100 T <sub>tidal</sub> <200	Exc.	~	×	Exc	>
3b (functional floodplain)	T <sub>fluv</sub> <20	Exc	~	×	×	×

#### Table 2-3 Flood risk vulnerability and flood zone compatibility

Based on Table 3 from the NPPF Technical Guide (Paragraph 067)

#### Notes:

development is appropriate
 development should not be permitted

T return period (fluv = fluvial)

Exc exception test should be applied

The overall aim of decision-makers should be to steer new development away from Flood Zone 3, ideally to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, then sites would be considered in Flood Zone 2 and then 3. The Sequential Test requires an assessment of available and equivalent sites in the LBRuT area to ascertain if others are available that are at lower risk of flooding. The Stag Brewery site has been commented on in the LBRuT council's Flood Risk Sequential Test (2016a) which states that:

"This is a site for major redevelopment and regeneration as the brewery has closed, and as such, it is not appropriate / possible to accommodate the proposed uses on an alternative site in the borough at lower probability of flooding. The sequential approach should be applied on the site and a site-specific FRA will be required. Flood Hazard and TE2100 levels will need to be taken into account."

The Sequential Test is therefore deemed to have been satisfied, and is confirmed in the preapplication advice from LBRuT subject to review by the Environment Agency (Appendix C.2). The Exception Test now has two parts and the extent to which it satisfies these elements is described below:

(a) That the development supports wider sustainability benefit to the community that outweigh flood risk, informed by the SFRA.

This development meets this criterion, as confirmed from the pre-application advice from LBRuT which states:

"...the Council can confirm that development of this site in line with the draft Local Plan proposal site (SA23), as supported by the Flood Risk Sequential Test, will provide wider sustainability benefits because it is now a derelict site that is in need of regeneration, and the proposal will create a new village heart for Mortlake with a mix of uses, including enlivening the riverside frontage." (Appendix C.2)

(b) that the site can be safely developed without increasing flood risk elsewhere

This FRA provides the confirmation in Section 4 that there is no increase in flood risk elsewhere and can be made safe for residents.

Evidence is thus provided, or referred to in this FRA, to demonstrate that both the Sequential and Exception Tests have been satisfied.

### 2.4 Other relevant policies

The **LBRuT Local Development Framework Core Strategy** (LBRuT, 2009) sets out the key planning policies of the borough council. Policy CP3 focusses on climate change and states that this must be accounted for within the development. This includes accounting for climate change in the drainage strategy and the flood risk posed by the River Thames.

The **Local Development Management Plan** (LBRuT, 2011) expands on the policies from the LBRuT Local Development Framework Core Strategy and includes a focus on sustainability. Policy DM SD 6 sets out the flood risk requirements which includes mitigation measures and states that a Flood Warning and Evacuation Plan would be required. Policy DM SD 7 focusses on Sustainable Drainage and states that wherever possible, Sustainable Drainage Systems (SuDS) must be used and surface water discharge from the site should be reduced to greenfield rates. Policy DM SD 8 considers flood defences and states that flood defences must be maintained and that any development within 16 m of the tidal River Thames will require consent from the Environment Agency.

The **LBRuT Local Plan** (LBRuT, 2018) supersedes the policies in the two preceding documents. The new policies for flood risk and sustainable drainage are covered in policy LP 21.

The tidal areas of the Thames Estuary are covered by the **Thames Estuary 2100** (TE2100) plan. This aims to manage and reduce the tidal flood risk from the estuary over the next 100 years. The site is located within action zone 1 under the Barnes and Kew policy unit. Within this area, the policy is to keep take action to reduce flood risk beyond that predicted by climate change. For the proposed development, it is indicated the floodplain management actions to be taken should be a combination of priority evacuation and building resilience and resistance. This is illustrated for the relevant Flood Plain Management Unit (Barnes and Kew) in Figure 2-5.

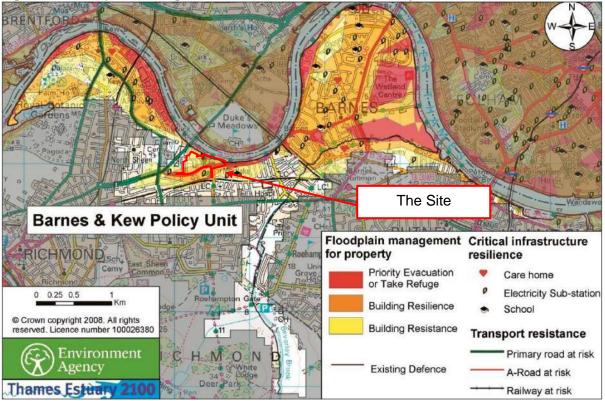


Figure 2-5 Floodplain Management for the Barnes and Kew Policy Unit of the TE2100 Plan

Environment Agency (2012)

The **London Plan** was published in 2021. Through Policy SI 12 (Flood Risk Management), "Current and expected flood risk from all sources (as defined in paragraph 9.2.12) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers. .". Through Paragraph 9.12.3, the Plan endorses the Thames Estuary 2100 plan. However, of greatest relevance to this FRA is Policy SI 13 (Sustainable Drainage). This states that:

[B] Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

- 1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- 2. rainwater infiltration to ground at or close to source
- 3. rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
- 4. rainwater discharge direct to a watercourse (unless not appropriate)
- 5. controlled rainwater discharge to a surface water sewer or drain
- 6. controlled rainwater discharge to a combined sewer.

[C] Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.

[D] Furthermore, drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

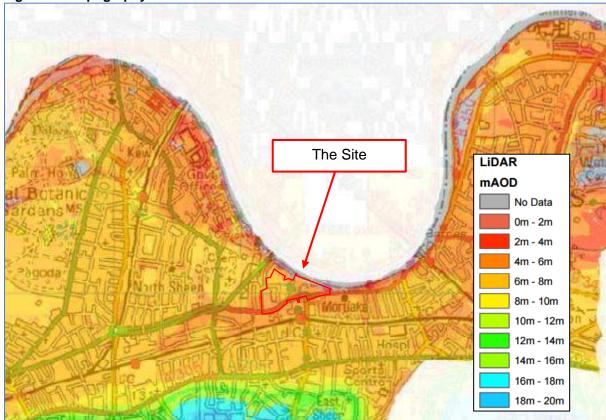
# 3. Flood Hazard for Existing Site

This Section reviews the characteristics of the catchment area that affect the Site. This provides the context for reviewing the sources of flooding to the site and the flood risk.

## 3.1 Site and Catchment Characteristics

### 3.1.1 Topography

The topography of the Site is relatively flat and is located on low lying land. The LiDAR map (Figure 3-1) indicates that it is lowest to the east of the Site (4 to 6 mAOD) and highest in the north west of the Site (8 to 10 mAOD).



### Figure 3-1 Topography of the Site

#### 3.1.2 Geology and soils

According to the Preliminary Environmental Risk Assessment (PERA) undertaken by Waterman IE, the geology throughout the Site is composed of Hardstanding, underlain by Made Ground, Alluvium, Kempton Park Gravel Formation, London Clay Formation, Lambeth Group, Thanet Formation and Chalk Group (Figure 3-2 shows Kempton Park Gravel as the main superficial deposit). It is anticipated shallow groundwater in the Alluvium and Kempton Park Gravel Formation is in hydraulic continuity with the River Thames directly adjacent to the Site. This presents a risk to the Site of water finding a pathway through the gravel when the River Thames is at a high water level, which could cause groundwater flooding. The Site is located on soils described as Soilscapes 6 which are "*Freely draining, slightly acid loamy soils*" (Figure 3-3). While this indicates that infiltration drainage techniques could be used, the Site's

proximity to the River Thames indicates that infiltration could be inappropriate due to a high groundwater table.

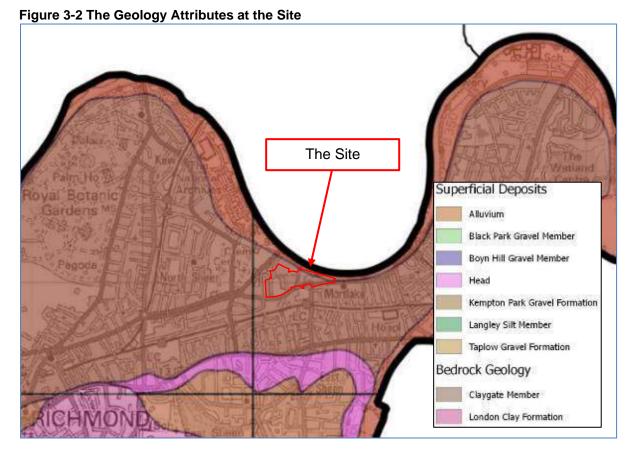
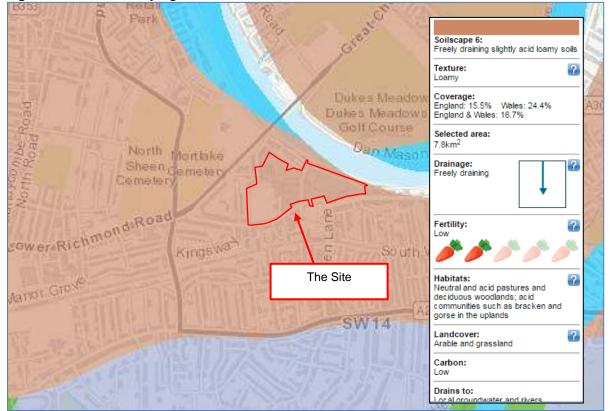


Figure 3-3 Soils underlying the Site



# 3.2 Sources of Flood Risk

The principal sources of flood risk are shown in Table 3-1. More detailed consideration is given in Section 3.3

Key sources of flooding	Possibility at Site
Fluvial (Rivers)	Very low risk as fluvial levels would not overtop defences
Tidal	Moderate risk since it is located in the River Thames flood zones 3a and 2
Groundwater	Possible risk from its proximity to the River Thames
Sewers	Very low risk; No historical records
Surface water	Very low risk
Infrastructure failure	Very low risk associated with reservoirs located to west of London, namely Queen Elizabeth II and Queen Mary Reservoirs.

### Table 3-1 Possible sources of flood risk

Based on NPPF Practice Guide

### 3.3 Flood Mechanisms

#### 3.3.1 Tidal

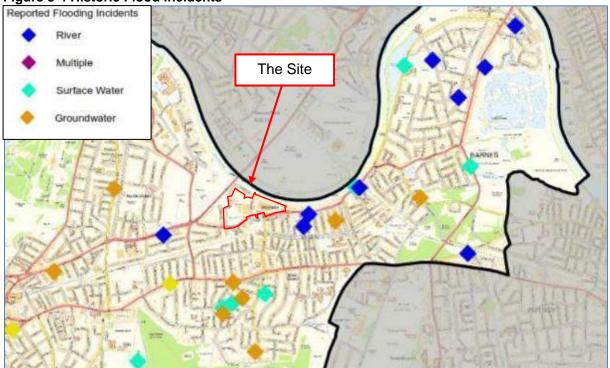
The dominant flood risk to the Site comes from the tides on the River Thames. This can occur from high tides combined with storm surges.

The Site is protected by formal Thames Tidal Flood defences, including the Thames Barrier. This controls the tidal water levels and, in combination with other defences, should limit flooding up to the 0.1% Annual Exceedance probability (AEP) flood event. Apart from the Thames Barrier, these defences are privately owned and it is the responsibility of the riparian owner to manage and maintain them. The boundary wall on the site of the Stag Brewery forms part of the flood defence at this location. In the cases that these defences were breached, different parts of the site would exhibit different hazards, ranging from low to extreme (see section 3.5).

The nearest tidal level station to the site is at Kew, as documented by the Port of London Authority (2016). This shows the following level information:

- Chart datum is 1.07 m below Ordnance Datum
- HAT (Highest astronomical tide) = 5.9 mACD = 4.8 mAOD
- MHWS (Mean High Water Springs) = 5.2 mACD = 4.1 mAOD
- MHWN (Mean High Water Neaps) = 4.2 mACD = 3.1 mAOD

While there are no reported historic flood incidents at the site (LBRuT, 2016a), there have been several flood incidents from the river near to the site (Figure 3-4).



### **Figure 3-4 Historic Flood Incidents**

### 3.3.2 Groundwater

The BGS susceptibility to groundwater flooding map (Figure 3-5) indicates that the eastern and southern areas of the Site are susceptible to groundwater flooding at the surface. The remaining areas of the Site are susceptible to groundwater flooding below the ground. While no groundwater flood incidents have been recorded at the Site, there have been several groundwater flood incidents near the Site (Figure 3-4).

The mechanism for groundwater flooding could occur from two sources and the associated pathways. The first source is from high water levels in the River Thames. Since the Site is located on Kempton Gravel Formation, this could allow water to find a pathway through the gravel into the Site.

A second mechanism is from the minor aquifer over which the Site is located (Figure 3-6). This indicates a risk from groundwater flooding that could be caused by high seasonal rainfall which increases the groundwater levels in the aquifer. Since some areas of the Site have a low elevation (Figure 3-1), this could increase its susceptibility to groundwater flooding from a high water table.

AECOM was commissioned in 2015 to undertake an Environmental Site Assessment Report in preparation for the proposed planning application (AECOM 2015a and 2015b). This included a collation of available groundwater monitoring information and a new set of observations in September 2015.

The main findings of their investigations were:

• Observed water levels vary over the site from around 2 mAOD in the east of the Site to 1.3 mAOD in the west. The hydraulic gradient is thus downwards to the west in the western part of the Site. However, in the centre, the gradient is downwards to the south-west (Figure 3-7).



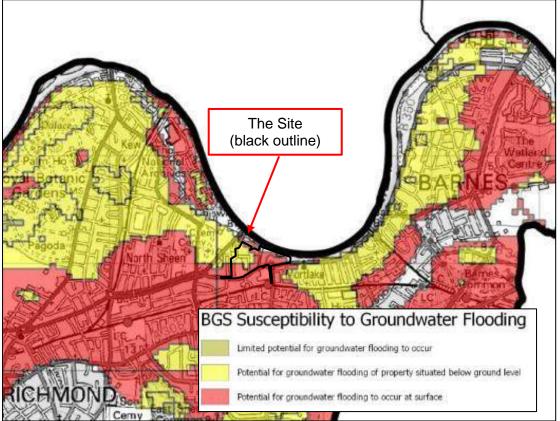
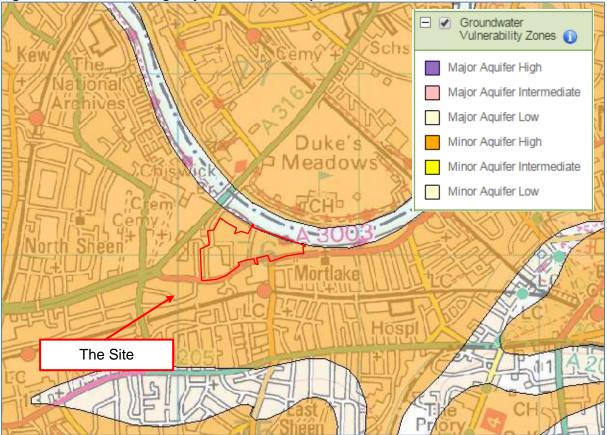


Figure 3-6 Environment Agency Groundwater Map



- The hydraulic gradient therefore contrasts with the topographic gradient which is downwards to the east across the Site.
- A review of water levels over time confirms that they vary systematically across the Site, with a typical range of about 0.5 m between the highest and lowest values (Figure 3-8).
- The influence of the tidal variation in the Thames was investigated through deployment of monitors at three of the boreholes. The closest borehole to the Thames that was monitored was BH201a, located approximately 20 m from the southern bank of the Thames. The record from BH201A shows a very subdued response to tidal variation centred around 2 mAOD over the time of observations (Figure 3-9), as expected because the borehole is located in the inter-tidal zone.

As part of their Environmental Risk Assessment in 2016 for the east part of the Site (east of Ship Lane), Waterman IE also made measurements of groundwater levels at a new set of boreholes. The locations of the additional boreholes are shown in Figure A.4 and the observations in Appendix D of Waterman IE (2016b). The observed water levels have been annotated in red on Figure 3-7. Based on the findings by AECOM and the observations by Waterman IE (2016b), the following hydrogeological interpretation can be made about the Site:

- Since the hydraulic gradient slopes downwards away from the river, the river appears to be acting as a "source" of groundwater flow when considered together with flows from existing surface water drainage arrangement (see Section 3.4) under wet weather conditions.
- Although the river levels are subject to tidal variation, the effects diminish with distance from the river, such that at 20 m for Borehole 201A, they are very subdued. The head boundary condition imposed by the Thames will therefore approximate to the average recorded water levels. This is logically around 2 mAOD (based on Figure 3-9) and which is consistent with the closest available water level recorders at Richmond (Figure 3-10) and Chelsea (Figure 3-11), for which average water levels are around 2.4 mAOD and 0.7 mAOD respectively.
- AECOM sought to investigate the hydrogeology of the east of the Site by drilling boreholes BH203 and BH203A. The borehole logs show that these had limited success since they encountered concrete (Figure 3-12 and Figure 3-13). The investigations by Waterman IE also sought to better understand the east of the Site through the drilling of additional boreholes, though these also encountered obstructions. These undermine any strong inferences about the hydrogeology of this part of the site.
- The general observations by Waterman IE are broadly consistent with the interpretation by AECOM. However, the picture is varied with some dry wells and other wells showing water levels within 2 to 3 m of the ground level. It seems likely that this variation reflects the complexity of the east of the Site and the numerous anthropogenic and building work interventions over a long period. It is possible (rather than probable) that the observed water levels of around 3 mAOD which were obtained in February 2016 and similar values obtained by Waterman IE in October 2016 represent a perched water table associated with the underlying Palaeogene minor aquifer. However, the relationship between the Palaeogene minor aquifer and the Kempton gravel formation does not support the assumption of a perched water table. The

presence of building work artefacts in the eastern part of the Site may be responsible for the impermeable concrete encountered at various depths through the drilling of BH203 and BH203A as recorded in their borehole logs.

It is therefore concluded that the risk to the Site and the surrounding area from groundwater is low over the majority of the Site. However, in the extreme east, there is some uncertainty over the relative influence of the mechanisms controlling groundwater flow through the Site: flows through the high permeability Kempton gravels and / or groundwater flows in the underlying minor aquifer. The possible impacts of the proposed Development on groundwater risk are reviewed in Section 4. The investigations were commissioned at an early stage in the planning process. The findings have not demonstrated a need for further monitoring and none has been conducted.

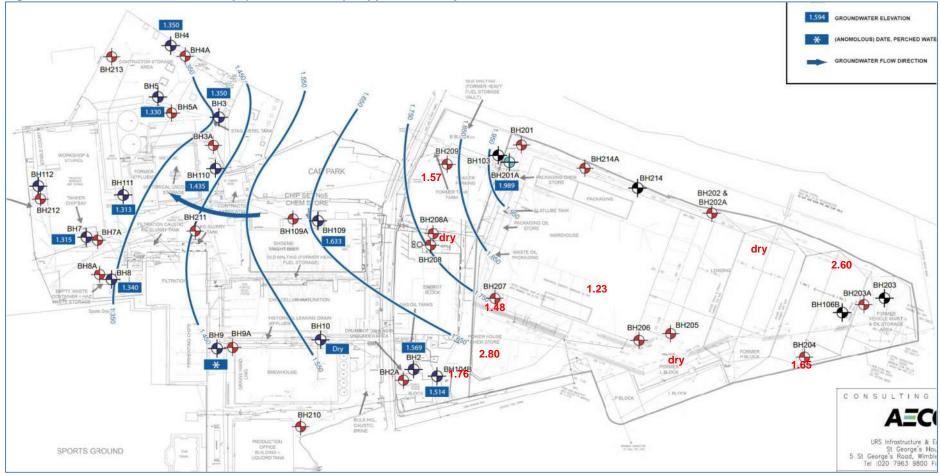
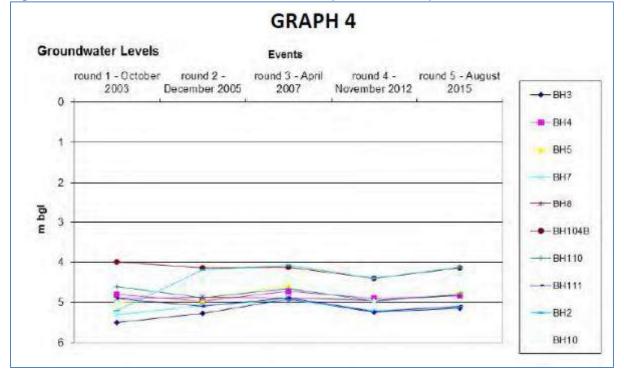
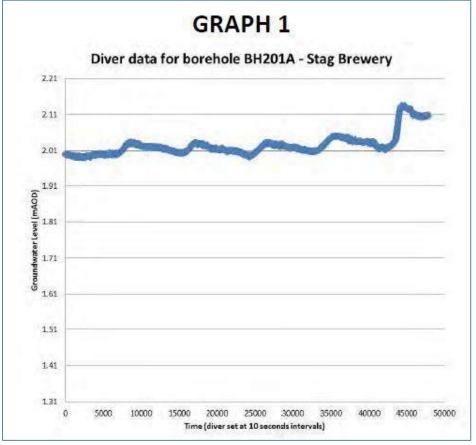


Figure 3-7 Groundwater Contour Map (AECOM, 2015b) supplemented by Waterman IE's observations on 27 October 2016 in red

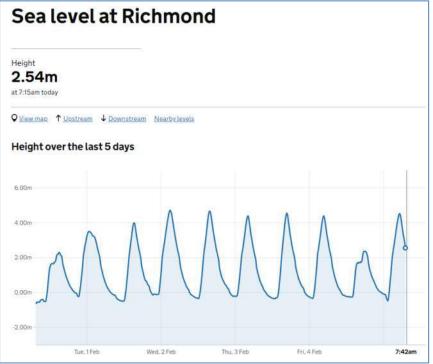


#### Figure 3-8 Selected Groundwater Levels over time (AECOM, 2015b)













AECOM						Borehole	Log			
Project Name and Site						Client		BOREHOLE No		
Stag Brewery	y, Mo	ortla	ke, Lon	idon SW	14		AB Inbev		BH203	
Job No 47075502	5	Date itart Da ind Da	ue 20-0 te 20-0	8-15 8-15	Groun	Ground Level (m) Co-Ordinates ()			DH203	
Contractor					Meth	od / Plant Used	1		Sheet	
ESL						Concrete Corer	and Solid Stem Auger		1 of 1	
	Î						STRATA		•	
Depth Sample / Test BGL Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DESCRIPT	TION	COMMENT	S	
-0.5	⊲0.1			0.20	MADE ( fine-med yellow a	AC over CONCRE GROUND: Very d fitum, angular-subs and red brick, grani e / possible granite very.	ense, sandy, ngular gravel of ite and concrete.	Dry NVO		

# Figure 3-12 Borehole Log BH203 (AECOM, 2015b)

# Figure 3-13 Borehole Log BH203A (AECOM, 2015b)

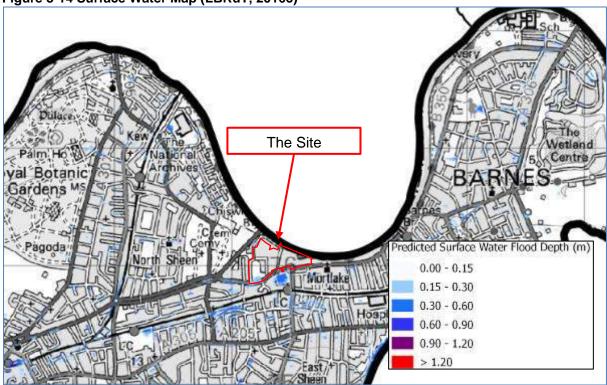
							Borehol	IC LUS		1	
Project Name and Site Location Chient								BOREHOLE No			
Stag Brewery, Mortlake, London SW14 AB Inbev										BH203A	
Job No Date Start Tate 20-08-15 47075502 End Date 20-08-15						Grou	nd Level (m)	Co-Ordinates ()		DIIZOUA	
Contr		3				Meth	Method / Plant Used Concrete Corer and Solid Stem Auger.			Sheet	
	ESL		_	-		1	Concrete Core	-		1 of 1	
		(md	1	8				STRATA			
Depth BGL	Sample / Test Details	(mqq) (TH	Water	Legend (Thick- ness)			DESCRI	PTION	COMMENT	rs	
		1			0.20		AC over CONCR			8	
-0.5	BH203A_0.5	<0.1			(0.70)	MADE angular and con	GROUND: Very to sub-angular gr crete	dense, sandy, avel of brick, granite	Dry NVO		
				$\boxtimes$	0.90	Concret	e / granite slab.				
1.0		-0.1			E	No reco			Damp, NVO.		
							00000				
13		<0.1									
2.0		-0.1			-						
10°5.		13565			(2.50)						
2.5		-0.1			(arroy E						
atta 1		-5.5.5									
3.0											
					3.50						
35				6.5.7. A	3.50	Concret	te / granite slab.				
					Ē	No reco	wery.		Damp, NVO.	100	
4.0					(1.20)						
					(1.20)						
45					Ē						
					4.80	Possibh	CLAY (no reco	uerv)	Wet. NVO.		
-5.0					5.00		le terminated at 5				

### 3.3.3 Sewers

Although surface water and foul sewers are laid under the Site, Thames Water have confirmed that there are no recorded historic sewer flooding records at the Site (Reference to their response to Waterman IE dated January 2016), extracts from which are shown in Appendix E

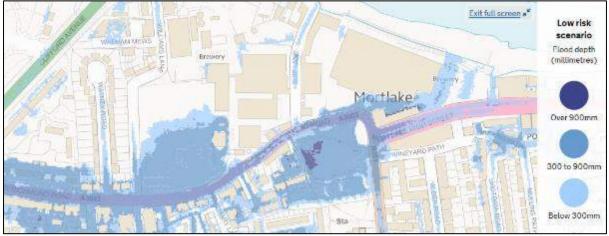
### 3.3.4 Surface Water

Surface water flooding can occur with ponding in low areas of the Site and surrounding area where the drainage is unable to deal with the incident rainfall. Surface water flood risk is available in the SFRA (LBRuT, 2016c) (Figure 3-14) and from the Environment Agency Web site (Figure 3-15). The latter shows that, for the low-risk scenario, the depths vary from 0 to about 300 mm along the Lower Richmond Road and Mortlake High Street to the east of the existing Sports Ground, as indicated on the map. Greater depths of surface water flooding are predicted in Lower Richmond Road adjacent to the Sports Ground (300 to 900 mm) and in the park, south of the Lower Richmond Road (in excess of 900 mm). Some of the surface water flooding on Lower Richmond Road may be linked to the blocked gully incidents (Figure 3-16). For the high-risk scenario, predicted surface water flooding is restricted to the carriageway of the Upper Richmond Road and the adjacent park and is of shallow depth.



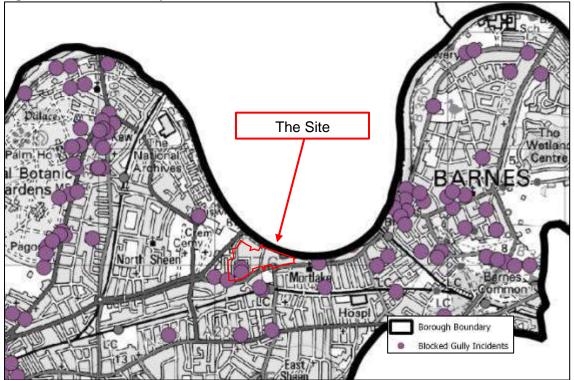
#### Figure 3-14 Surface Water Map (LBRuT, 2016c)

### Figure 3-15 Surface Water Flood Depth Map



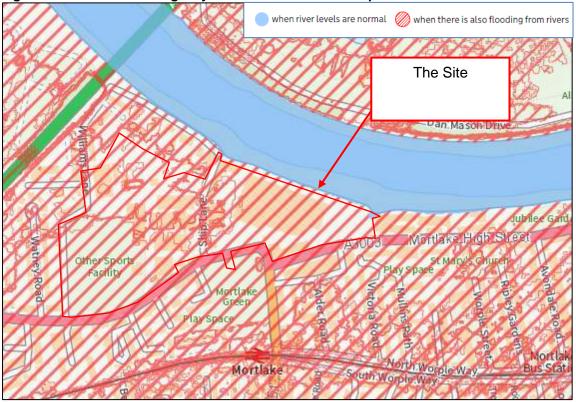
Environment Agency Web Site (Accessed 23<sup>rd</sup> October 2017 and identical on 7<sup>th</sup> December 2021))

# Figure 3-16 Blocked Gully Locations



#### 3.3.5 Infrastructure

The Site has a potential risk of flooding from the Queen Elizabeth II reservoir and the Queen Mary reservoir in Surrey (Figure 3-17). This could occur if the reservoirs were to fail, causing water to flood over the western and southern parts of the Site. However, these reservoirs located over 20 km upstream of the Site, they are managed and maintained by Thames Water and the risk of reservoir flooding is considered to be very low.



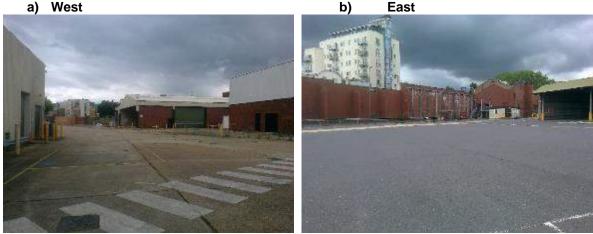
### Figure 3-17 Environment Agency Reservoir Flood Risk Map

### 3.4 Existing Surface Water Drainage Arrangements

During the preliminary investigations for this Site, Waterman IE made a Developer Enquiry to Thames Water in respect of sewers and water mains. Extracts from the response in January 2016 are provided in Appendix E. These drawings show a variety of combined, surface and foul sewers around the Site. Whilst sewers traverse the Site along both Ship Lane and Bull's Alley, none are shown on the operational area of the former brewery.

The on-site drainage measures were inspected during the site visit in 16<sup>th</sup> June 2016. Virtually the entire Site comprises either rooves or hard standing (Figure 3-18). Roof drainage was via downpipes that are believed to outfall to the Thames whilst hard standing drains (Figure 3-19). runoff calculations are presented in the Drainage Strategy (Waterman IE, 2022).

Figure 3-18 General views of The Site a) West



b)

Hard standing



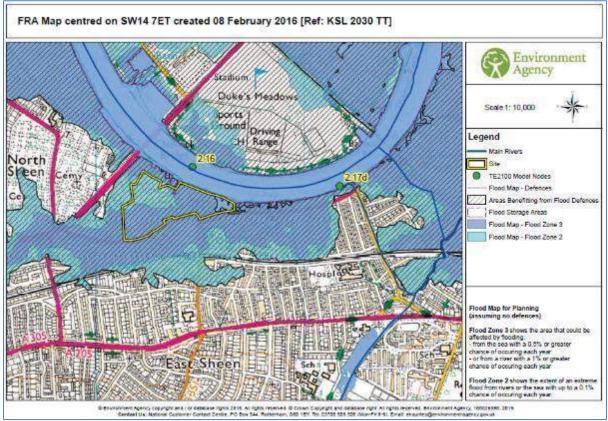


### 3.5 Probability of Site Flooding

The assumed tidal water levels of the River Thames are based on the TE2100 model node 2.16 (Figure 3-20) which is adjacent to the Site. The modelled levels for node 2.16 are assumed to apply along the entire river frontage due to the river's shallow gradient.

The probability of the Site flooding due to the tides is limited by the tidal defences to protect up to a 0.1% Annual Exceedance Probability (AEP) event. However, there remains a risk from flood defences failing, with the outcomes being modelled on behalf of the Environment Agency, which has been provided as Product 4 data. This provides flood levels for the floodplain nodes in Figure 3-21 for different scenarios of flood defence failure.

### Figure 3-20 Product 4 FRA data (source: Environment Agency)



An identical map was provided with the July 2017 Product 4 data set This map shows a site boundary that has now been superseded.

The relevant levels have been provided by the Environment Agency for a range of return periods and projections. The most recent levels provided by the Environment Agency are from the following sources:

- TE2100 modelled node 2.16;
- Thames Breach Modelling; and
- Thames Tidal Upstream Inundation Modelling.

The TE2100 levels result from a large body of work commissioned by the Environment Agency in relation to flood risk management of the Thames Estuary. The operation of the Thames Barrier is critical in this strategy and the recent modelling addresses the frequency of Thames Barrier operation. The Thames Barrier manages tidal flood events up to a 0.1% AEP event. These TE2100 levels recently provided do not have return periods. The Environment Agency present them as "absolute maximum levels" and clarify this as follows:

"The levels upstream of the barrier are the highest levels permitted by the operation of the Thames Barrier. If levels and flows are forecast to be any higher, the Thames Barrier would shut, ensuring that the tide is blocked and the river maintained to a low level. For this reason, the probability of any given water level upstream of the Barrier is controlled and therefore any associated return period becomes irrelevant. The Thames Barrier and associated defence system has a 1 in 1000 year standard which means it ensures that flood risk is managed up to an event that has a 0.1% annual probability. The probability of water levels upriver is ultimately controlled by the staff at the Thames Barrier."