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Central Alliance, Alliance House
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Attention :	Richard Hardwick
Date :	30th July, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 31
Location :	Taffs Well
Date samples received :	23rd July, 2019
Status :	Final report
Issue :	1

Six samples were received for analysis on 23rd July, 2019 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	514-522	523-531	532-540	541-549	550-558	559-567					LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210							
Depth	7.00	7.00	7.00	7.00	7.00	7.00							
COC No / misc													
Containers	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G							
Sample Date	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	31	31	31	31	31	31							
Date of Receipt	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019							
Dissolved Arsenic #	<0.0009	<0.0009	0.0010	<0.0009	<0.0009	<0.0009					<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.1312	0.1128	0.0717	0.0850	0.1418	0.1913					<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.027	0.025	0.022	0.015	0.030	0.026					<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003					<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0021	0.0101	0.0111	0.0132	0.0150	0.0069					<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.004	0.008	0.011	0.010	0.021	0.006					<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	1.1170	1.0830	0.8215	2.0140	2.1200	1.1240					<0.0047	mg/l	TM30/PM14
Dissolved Lead #	0.0028	0.0049	0.0041	0.0053	0.0044	0.0039					<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.1786	0.1688	0.1983	0.1342	1.4110	2.5190					<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0036	0.0025	0.0028	0.0034	0.0093	0.0037					<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	<0.0012	<0.0012	<0.0012	0.0080	<0.0012					<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0021	0.0021	0.0070	0.0073	0.0038	<0.0006					<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0084	0.0303	0.0299	0.0491	0.0318	0.0233					<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013					<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013					<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014					<0.000014	mg/l	TM4/PM30
Phenanthrene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011					<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013					<0.000013	mg/l	TM4/PM30
Fluoranthene #	<0.000012	<0.000012	<0.000012	0.000035	<0.000012	<0.000012					<0.000012	mg/l	TM4/PM30
Pyrene #	<0.000013	<0.000013	<0.000013	0.000046	<0.000013	<0.000013					<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	<0.000015	<0.000015	<0.000015	0.000019	<0.000015	<0.000015					<0.000015	mg/l	TM4/PM30
Chrysene #	<0.000011	<0.000011	<0.000011	0.000028	<0.000011	<0.000011					<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.000018	<0.000018	<0.000018	0.000041	<0.000018	<0.000018					<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016					<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011					<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001					<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011					<0.000011	mg/l	TM4/PM30
PAH 16 Total #	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195					<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001					<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001					<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	81	83	79	85	81	87					<0	%	TM4/PM30
VOC TICs	ND	ND	ND	ND	ND	ND						None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	514-522	523-531	532-540	541-549	550-558	559-567					LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210							
Depth	7.00	7.00	7.00	7.00	7.00	7.00							
COC No / misc													
Containers	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G							
Sample Date	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	31	31	31	31	31	31							
Date of Receipt	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019							
Surrogate Recovery Toluene D8	92	92	88	92	98	97					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90	87	86	89	92	91					<0	%	TM15/PM10
SVOC TICs	ND	ND_{AA}	ND	ND_{AB}	ND	ND						None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	<0.01	0.07					<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	<0.01	0.11					<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	2.40	<0.01	<0.01					<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	2.40	<0.01	0.18					<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	2.40	<0.01	0.18					<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	<0.005	0.014					<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	21.1	20.2	45.6	58.4	33.0	25.0					<0.5	mg/l	TM38/PM0
Chloride #	46.4	49.4	26.6	10.1	29.0	53.0					<0.3	mg/l	TM38/PM0
Nitrate as N #	2.05	1.32	0.68	0.17	<0.05	<0.05					<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	<0.01	<0.01	0.03	0.12	<0.01	<0.01					<0.01	mg/l	TM38/PM0
Free Cyanide	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM89/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.02	0.05	0.05	0.05	0.24	0.23					<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006					<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	274	244	120	128	176	162					<1	mg/l	TM75/PM0
BOD (Settled) #	<1	<1	<1	<1	1	6					<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	514-522	523-531	532-540	541-549	550-558	559-567					LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210							
Depth	7.00	7.00	7.00	7.00	7.00	7.00							
COC No / misc													
Containers	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G							
Sample Date	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	31	31	31	31	31	31							
Date of Receipt	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019							
Dissolved Oxygen	7	6	7	2	2	2					<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	60.0	64.1	34.7	32.5	44.4	43.8					<0.2	mS/m	TM76/PM0
pH #	7.59	7.62	7.48	7.29	7.20	7.19					<0.01	pH units	TM73/PM0
Redox	139.27	164.90	172.92	184.13	-9.04	149.44						mV	TM72/PM0
Total Organic Carbon #	<2	<2	2	5	2	5					<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	514-522	523-531	532-540	541-549	550-558	559-567							
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210							
Depth	7.00	7.00	7.00	7.00	7.00	7.00							
COC No / misc													
Containers	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G							
Sample Date	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	31	31	31	31	31	31							
Date of Receipt	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.03 AA	<0.01	<0.10 AB	<0.01	<0.01					<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.015 AA	<0.005	<0.050 AB	<0.005	<0.005					<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0045 AA	<0.0015	<0.0150 AB	<0.0015	<0.0015					<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0015 AA	<0.0005	<0.0050 AB	<0.0005	<0.0005					<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.003 AA	<0.001	<0.010 AB	<0.001	<0.001					<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	108	101 AA	105	83 AB	102	116					<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	104	101 AA	103	87 AB	104	111					<0	%	TM16/PM30

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	514-522	523-531	532-540	541-549	550-558	559-567							
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210							
Depth	7.00	7.00	7.00	7.00	7.00	7.00							
COC No / misc													
Containers	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G	V H HN N G							
Sample Date	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019	19/07/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	31	31	31	31	31	31							
Date of Receipt	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019	23/07/2019							
VOC MS													
Dichlorodifluoromethane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	0.003	0.019	<0.002	0.002					<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002	0.005	<0.002	<0.002					<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004					<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003					<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	92	92	88	92	98	97					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	90	87	86	89	92	91					<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd

Matrix : Liquid

Reference: 4376

Location: Taffs Well

Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
19/6895	31	RBBH202	7.00	514-522	BOD	Sample holding time exceeded
19/6895	31	RBBH203	7.00	523-531	BOD	Sample holding time exceeded
19/6895	31	RBBH205	7.00	532-540	BOD	Sample holding time exceeded
19/6895	31	RBBH206	7.00	541-549	BOD	Sample holding time exceeded
19/6895	31	RBBH209	7.00	550-558	BOD	Sample holding time exceeded
19/6895	31	RBBH210	7.00	559-567	BOD	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x3 Dilution
AB	x10 Dilution

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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Central Alliance Pre Construction Services Ltd
Central Alliance, Alliance House
South Park Way
Wakefield 41 Business Park
Wakefield
WF2 0XJ

Attention :	Richard Hardwick
Date :	6th August, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 32
Location :	Taffs Well
Date samples received :	30th July, 2019
Status :	Final report
Issue :	1

Three samples were received for analysis on 30th July, 2019 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	568-576	577-585	586-594								LOD/LOR	Units	Method No.
Sample ID	RBBH209	RBBH210	BH101										
Depth	7.00	7.00	3.50										
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G										
Sample Date	26/07/2019	26/07/2019	26/07/2019										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	32	32	32										
Date of Receipt	30/07/2019	30/07/2019	30/07/2019										
Dissolved Arsenic #	<0.0009	<0.0009	<0.0009								<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.1365	0.2266	0.0611								<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.042	0.028	0.034								<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003								<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0013	0.0005	0.0014								<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.007	0.004	<0.003								<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	0.7061	0.8838	0.4241								<0.0047	mg/l	TM30/PM14
Dissolved Lead #	0.0021	0.0023	0.0015								<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	1.2090	3.3880	0.0510								<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0095	0.0031	0.0006								<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	<0.0012	<0.0012								<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	<0.0006	<0.0006	<0.0006								<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0114	0.0204	0.0235								<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001								<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013								<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013								<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014								<0.000014	mg/l	TM4/PM30
Phenanthrene #	<0.000011	<0.000011	<0.000011								<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013	<0.000013								<0.000013	mg/l	TM4/PM30
Fluoranthene #	<0.000012	<0.000012	<0.000012								<0.000012	mg/l	TM4/PM30
Pyrene #	<0.000013	<0.000013	<0.000013								<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	<0.000015	<0.000015	<0.000015								<0.000015	mg/l	TM4/PM30
Chrysene #	<0.000011	<0.000011	<0.000011								<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.000018	<0.000018	<0.000018								<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016	<0.000016								<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	<0.000011	<0.000011	<0.000011								<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001								<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	<0.000011	<0.000011	<0.000011								<0.000011	mg/l	TM4/PM30
PAH 16 Total #	<0.000195	<0.000195	<0.000195								<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	<0.00001	<0.00001	<0.00001								<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	<0.00001	<0.00001	<0.00001								<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	86	67	92								<0	%	TM4/PM30
VOC TICs	ND	ND	ND									None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001								<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005								<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002								<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM15/PM10

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	568-576	577-585	586-594									
Sample ID	RBBH209	RBBH210	BH101									
Depth	7.00	7.00	3.50									
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G									
Sample Date	26/07/2019	26/07/2019	26/07/2019									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	32	32	32									
Date of Receipt	30/07/2019	30/07/2019	30/07/2019									

Please see attached notes for all abbreviations and acronyms

				LOD/LOR	Units	Method No.
Surrogate Recovery Toluene D8	112	115	113	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	106	105	<0	%	TM15/PM10
SVOC TICs	ND	ND	ND		None	TM16/PM30
TPH CWG						
Aliphatics						
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics						
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	21.7	31.3	17.0	<0.5	mg/l	TM38/PM0
Chloride #	5.0	68.2	21.3	<0.3	mg/l	TM38/PM0
Nitrate as N #	0.35	2.66	2.33	<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	<0.01	<0.01	0.01	<0.01	mg/l	TM38/PM0
Free Cyanide	<0.001	<0.001	0.025	<0.001	mg/l	TM89/PM0
Total Cyanide #	<0.01	<0.01	0.13	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.02	0.43	0.02	<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	74	172	260	<1	mg/l	TM75/PM0
BOD (Settled) #	1	<1	<1	<1	mg/l	TM58/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	568-576	577-585	586-594									
Sample ID	RBBH209	RBBH210	BH101									
Depth	7.00	7.00	3.50									
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G									
Sample Date	26/07/2019	26/07/2019	26/07/2019									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	32	32	32									
Date of Receipt	30/07/2019	30/07/2019	30/07/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Oxygen	4	3	5								<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	15.4	47.2	39.8								<0.2	mS/m	TM76/PM0
pH #	6.74	6.87	7.29								<0.01	pH units	TM73/PM0
Redox	58.51	39.71	181.78									mV	TM72/PM0
Total Organic Carbon #	5	<2	<2								<2	mg/l	TM60/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	568-576	577-585	586-594									
Sample ID	RBBH209	RBBH210	BH101									
Depth	7.00	7.00	3.50									
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G									
Sample Date	26/07/2019	26/07/2019	26/07/2019									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	32	32	32									
Date of Receipt	30/07/2019	30/07/2019	30/07/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.01	<0.01								<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.005	<0.005								<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0015	<0.0015								<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0005	<0.0005								<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.001	<0.001								<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	103	99	100								<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	120	108	104								<0	%	TM16/PM30

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	568-576	577-585	586-594									
Sample ID	RBBH209	RBBH210	BH101									
Depth	7.00	7.00	3.50							Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G									
Sample Date	26/07/2019	26/07/2019	26/07/2019									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	32	32	32									
Date of Receipt	30/07/2019	30/07/2019	30/07/2019									
VOC MS										LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001							<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001							<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001							<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005							<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001							<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005							<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005							<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001							<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001							<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004							<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Naphthalene	<0.002	<0.002	<0.002							<0.002	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003							<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	112	115	113							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	106	105							<0	%	TM15/PM10

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd

Matrix : Liquid

Reference: 4376

Location: Taffs Well

Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
19/6895	32	RBBH209	7.00	568-576	BOD	Sample holding time exceeded
19/6895	32	RBBH210	7.00	577-585	BOD	Sample holding time exceeded
19/6895	32	BH101	3.50	586-594	BOD	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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Central Alliance Pre Construction Services Ltd
Central Alliance, Alliance House
South Park Way
Wakefield 41 Business Park
Wakefield
WF2 0XJ

Attention :	Richard Hardwick
Date :	12th August, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 34
Location :	Taffs Well
Date samples received :	3rd August, 2019
Status :	Final report
Issue :	1

Two samples were received for analysis on 3rd August, 2019 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	631-639	640-648											
Sample ID	SW01	SW02											
Depth	0.05	0.05											
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G											
Sample Date	31/07/2019	31/07/2019											
Sample Type	Surface Water	Surface Water											
Batch Number	34	34											
Date of Receipt	03/08/2019	03/08/2019											

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Arsenic #	0.0015	0.0012									<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.0342	0.0332									<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005									<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.042	0.039									<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003									<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0011	0.0009									<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.005	<0.003									<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	0.2635	0.2317									<0.0047	mg/l	TM30/PM14
Dissolved Lead #	<0.0004	<0.0004									<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.0295	0.0212									<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005									<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0028	0.0023									<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	<0.0012									<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0014	0.0013									<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0327	0.0293									<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001									<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013									<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013									<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014									<0.000014	mg/l	TM4/PM30
Phenanthrene #	<0.000011	<0.000011									<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013									<0.000013	mg/l	TM4/PM30
Fluoranthene #	<0.000012	<0.000012									<0.000012	mg/l	TM4/PM30
Pyrene #	<0.000013	<0.000013									<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	<0.000015	<0.000015									<0.000015	mg/l	TM4/PM30
Chrysene #	<0.000011	<0.000011									<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.000018	<0.000018									<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016									<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	<0.000011	<0.000011									<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001									<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	<0.000011	<0.000011									<0.000011	mg/l	TM4/PM30
PAH 16 Total #	<0.000195	<0.000195									<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	<0.00001	<0.00001									<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	<0.00001	<0.00001									<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	73	83									<0	%	TM4/PM30
VOC TICs	ND	ND										None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001									<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005									<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005									<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001									<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001									<0.001	mg/l	TM15/PM10

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	631-639	640-648									LOD/LOR	Units	Method No.
Sample ID	SW01	SW02											
Depth	0.05	0.05											
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G											
Sample Date	31/07/2019	31/07/2019											
Sample Type	Surface Water	Surface Water											
Batch Number	34	34											
Date of Receipt	03/08/2019	03/08/2019											
Surrogate Recovery Toluene D8	98	99									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	95									<0	%	TM15/PM10
SVOC TICs	ND	ND										None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005									<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01									<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01									<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005									<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01									<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01									<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01									<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005									<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3									<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	37.5	36.4									<0.5	mg/l	TM38/PM0
Chloride #	17.2	16.1									<0.3	mg/l	TM38/PM0
Nitrate as N #	1.39	1.44									<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	0.06	0.08									<0.01	mg/l	TM38/PM0
Free Cyanide	<0.001	<0.001									<0.001	mg/l	TM89/PM0
Total Cyanide #	<0.01	<0.01									<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.11	0.08									<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006									<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	132	128									<1	mg/l	TM75/PM0
BOD (Settled) #	<1	<1									<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	631-639	640-648									LOD/LOR	Units	Method No.
Sample ID	SW01	SW02											
Depth	0.05	0.05											
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G											
Sample Date	31/07/2019	31/07/2019											
Sample Type	Surface Water	Surface Water											
Batch Number	34	34											
Date of Receipt	03/08/2019	03/08/2019											
Dissolved Oxygen	11	11									<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	34.8	33.2									<0.2	mS/m	TM76/PM0
pH #	7.20	7.60									<0.01	pH units	TM73/PM0
Redox	300.99	279.55										mV	TM72/PM0
Total Organic Carbon #	5	4									<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	631-639	640-648											
Sample ID	SW01	SW02											
Depth	0.05	0.05									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G											
Sample Date	31/07/2019	31/07/2019											
Sample Type	Surface Water	Surface Water											
Batch Number	34	34											
Date of Receipt	03/08/2019	03/08/2019									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.001									<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.01									<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.001									<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.005									<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0015									<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.001									<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.001									<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0005									<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.001									<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	113	108									<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	114	115									<0	%	TM16/PM30

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	631-639	640-648											
Sample ID	SW01	SW02											
Depth	0.05	0.05									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G											
Sample Date	31/07/2019	31/07/2019											
Sample Type	Surface Water	Surface Water											
Batch Number	34	34											
Date of Receipt	03/08/2019	03/08/2019											
VOC MS											LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001									<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001									<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001									<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005									<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001									<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005									<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005									<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001									<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001									<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004									<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003									<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Naphthalene	<0.002	<0.002									<0.002	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003									<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	98	99									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	95									<0	%	TM15/PM10

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd

Matrix : Liquid

Reference: 4376

Location: Taffs Well

Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
19/6895	34	SW01	0.05	631-639	VOC	Analysis taken from a previously sampled container.
19/6895	34	SW02	0.05	640-648	VOC	Analysis taken from a previously sampled container.

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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Central Alliance Pre Construction Services Ltd
Central Alliance, Alliance House
South Park Way
Wakefield 41 Business Park
Wakefield
WF2 0XJ

Attention :	Richard Hardwick
Date :	9th August, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 35
Location :	Taffs Well
Date samples received :	3rd August, 2019
Status :	Final report
Issue :	1

Seven samples were received for analysis on 3rd August, 2019 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	649-657	658-666	667-675	676-684	685-693	694-702	703-711				LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210	BH101						
Depth	7.0	7.0	7.0	7.0	7.0	7.0	7.0						
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G						
Sample Date	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	35	35	35	35	35	35	35						
Date of Receipt	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019						
Dissolved Arsenic #	0.0012	<0.0009	0.0011	<0.0009	0.0024	0.0015	0.0013				<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.1082	0.0929	0.1037	0.1115	0.1351	0.2500	0.0577				<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.030	0.028	0.028	0.029	0.040	0.035	0.035				<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003				<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0074	0.0011	0.0021	0.0094	0.0070	0.0075	0.0012				<0.0002	mg/l	TM30/PM14
Dissolved Copper #	<0.003	<0.003	0.007	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	0.1126	0.0807	0.4945	0.1661	0.2272	0.7451	0.1327				<0.0047	mg/l	TM30/PM14
Dissolved Lead #	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004				<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.0294	0.0204	0.2251	0.0416	1.1860	3.9420	0.0208				<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0006	0.0004	0.0023	0.0002	0.0092	0.0022	0.0003				<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012				<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0009	0.0013	0.0016	0.0018	<0.0006	0.0012	0.0010				<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0030	0.0072	0.0224	0.0133	0.0113	0.0250	0.0111				<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013				<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013				<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014				<0.000014	mg/l	TM4/PM30
Phenanthrene #	<0.000011	<0.000011	0.000015	0.000017	<0.000011	<0.000011	0.000081				<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013				<0.000013	mg/l	TM4/PM30
Fluoranthene #	<0.000012	<0.000012	0.000016	0.000034	<0.000012	<0.000012	0.000179				<0.000012	mg/l	TM4/PM30
Pyrene #	<0.000013	<0.000013	0.000015	0.000030	<0.000013	<0.000013	0.000149				<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	0.000050				<0.000015	mg/l	TM4/PM30
Chrysene #	<0.000011	<0.000011	<0.000011	0.000023	<0.000011	<0.000011	0.000096				<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.000018	<0.000018	<0.000018	0.000028	<0.000018	<0.000018	0.000106				<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	0.000038				<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	0.000027				<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001				<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	0.000027				<0.000011	mg/l	TM4/PM30
PAH 16 Total #	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	0.000753				<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	0.00008				<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003				<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	83	76	70	82	74	86	77				<0	%	TM4/PM30
VOC TICs	ND	ND	ND	ND	ND	ND	ND					None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	649-657	658-666	667-675	676-684	685-693	694-702	703-711				LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210	BH101						
Depth	7.0	7.0	7.0	7.0	7.0	7.0	7.0						
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G						
Sample Date	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	35	35	35	35	35	35	35						
Date of Receipt	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019						
Surrogate Recovery Toluene D8	100	102	102	99	95	102	107				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	101	100	98	95	101	101				<0	%	TM15/PM10
SVOC TICs	ND	ND	ND	ND	ND	ND	ND					None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3				<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	22.5	17.2	19.8	45.4	23.5	25.3	17.5				<0.5	mg/l	TM38/PM0
Chloride #	41.5	43.8	32.2	16.9	21.6	74.0	21.3				<0.3	mg/l	TM38/PM0
Nitrate as N #	1.96	1.43	1.23	0.85	0.31	2.21	1.98				<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM38/PM0
Free Cyanide	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013				<0.001	mg/l	TM89/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.13				<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.14	0.02	0.05	0.07	0.02	0.44	0.02				<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006				<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	290	238	192	216	188	158	246				<1	mg/l	TM75/PM0
BOD (Settled) #	<1	<1	<1	<1	<1	<1	<1				<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	649-657	658-666	667-675	676-684	685-693	694-702	703-711				LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210	BH101						
Depth	7.0	7.0	7.0	7.0	7.0	7.0	7.0						
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G						
Sample Date	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	35	35	35	35	35	35	35						
Date of Receipt	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019						
Dissolved Oxygen	11	11	10	9	10	9	10				<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	64.1	59.4	46.4	47.0	43.3	60.3	53.4				<0.2	mS/m	TM76/PM0
pH #	7.83	7.28	7.23	7.19	6.89	6.87	7.19				<0.01	pH units	TM73/PM0
Redox	291.42	292.12	290.25	289.50	299.37	298.49	249.39					mV	TM72/PM0
Total Organic Carbon #	3	3	3	3	4	2	3				<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	649-657	658-666	667-675	676-684	685-693	694-702	703-711						
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210	BH101						
Depth	7.0	7.0	7.0	7.0	7.0	7.0	7.0						
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G						
Sample Date	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	35	35	35	35	35	35	35						
Date of Receipt	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019						

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015				<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	103	116	122	105	99	126	88				<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	106	122	122	118	119	127	103				<0	%	TM16/PM30

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	649-657	658-666	667-675	676-684	685-693	694-702	703-711				LOD/LOR	Units	Method No.
Sample ID	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210	BH101						
Depth	7.0	7.0	7.0	7.0	7.0	7.0	7.0						
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G						
Sample Date	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	35	35	35	35	35	35	35						
Date of Receipt	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019	03/08/2019						
VOC MS													
Dichlorodifluoromethane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004				<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003				<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	102	99	95	102	107				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	101	100	98	95	101	101				<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 19/6895						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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Central Alliance Pre Construction Services Ltd
Central Alliance, Alliance House
South Park Way
Wakefield 41 Business Park
Wakefield
WF2 0XJ

Attention :	Richard Hardwick
Date :	19th August, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 36
Location :	Taffs Well
Date samples received :	10th August, 2019
Status :	Final report
Issue :	1

Eight samples were received for analysis on 10th August, 2019 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Lucas Halliwell
Project Co-ordinator

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	712-720	721-729	730-738	739-747	748-756	757-765	766-774	775-783			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	36	36	36	36	36	36	36	36					
Date of Receipt	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019					
Dissolved Arsenic #	<0.0009	<0.0009	0.0009	<0.0009	0.0009	<0.0009	0.0025	0.0019			<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.0653	0.0590	0.1084	0.0923	0.0981	0.1170	0.0974	0.2440			<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.036	0.036	0.030	0.025	0.025	0.030	0.030	0.034			<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003			<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0014	0.0007	0.0023	0.0014	0.0013	0.0035	<0.0002	0.0007			<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.004	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	<0.003			<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	0.1869	0.0112	0.0317	<0.0047	0.0115	0.3525	0.0286	0.1544			<0.0047	mg/l	TM30/PM14
Dissolved Lead #	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.1679	0.0062	0.0077	0.0061	0.0081	0.0412	0.5968	3.9370			<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0015	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	0.0091	0.0016			<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	0.0025	0.0047	0.0023	0.0014	0.0021	0.0017	0.0014	0.0024			<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0009	0.0007	0.0017	<0.0006	<0.0006	0.0033	<0.0006	<0.0006			<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0218	0.0022	0.0020	0.0027	0.0079	0.0217	0.0051	0.0073			<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014			<0.000014	mg/l	TM4/PM30
Phenanthrene #	0.000027	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluoranthene #	0.000068	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012			<0.000012	mg/l	TM4/PM30
Pyrene #	0.000050	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	0.000019	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			<0.000015	mg/l	TM4/PM30
Chrysene #	0.000031	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	0.000034	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018			<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016			<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
PAH 16 Total #	0.000229	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195			<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	85	82	83	83	93	85	83	90			<0	%	TM4/PM30
VOC TICs	ND	ND	ND	ND	ND	ND	ND	ND				None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	712-720	721-729	730-738	739-747	748-756	757-765	766-774	775-783			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	36	36	36	36	36	36	36	36					
Date of Receipt	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019					
Surrogate Recovery Toluene D8	99	105	101	106	108	106	103	107			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	102	105	104	103	103	99	102			<0	%	TM15/PM10
SVOC TICs	ND	ND	ND	ND	ND	ND	ND	ND				None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	17.6	19.0	24.8	16.9	17.7	45.6	21.9	25.2			<0.5	mg/l	TM38/PM0
Chloride #	20.5	32.3	43.9	45.2	46.5	20.3	27.8	75.9			<0.3	mg/l	TM38/PM0
Nitrate as N #	2.08	2.78	1.74	1.38	1.45	1.11	0.33	1.96			<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM38/PM0
Free Cyanide	0.023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM89/PM0
Total Cyanide #	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.02	0.03	<0.01	0.02	0.03	0.08	0.02	0.42			<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006			<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	260	214	278	246	268	244	246	178			<1	mg/l	TM75/PM0
BOD (Settled) #	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	712-720	721-729	730-738	739-747	748-756	757-765	766-774	775-783			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	36	36	36	36	36	36	36	36					
Date of Receipt	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019					
Dissolved Oxygen	5	6	7	7	7	5	5	5			<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	52.9	50.9	62.0	55.4	62.5	57.0	54.2	61.5			<0.2	mS/m	TM76/PM0
pH #	7.16	6.91	7.27	7.24	7.24	7.39	6.94	6.84			<0.01	pH units	TM73/PM0
Redox	238.58	236.85	239.73	239.58	240.25	243.60	248.23	255.11				mV	TM72/PM0
Total Organic Carbon #	5	4	4	4	4	6	5	3			<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	712-720	721-729	730-738	739-747	748-756	757-765	766-774	775-783			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	36	36	36	36	36	36	36	36					
Date of Receipt	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019					
SVOC MS													
Phenols													
2-Chlorophenol #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015			<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	86	98	83	88	90	84	80	93			<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	95	93	91	96	91	89	88	99			<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	712-720	721-729	730-738	739-747	748-756	757-765	766-774	775-783			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	36	36	36	36	36	36	36	36					
Date of Receipt	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019	10/08/2019					
VOC MS													
Dichlorodifluoromethane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004			<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	99	105	101	106	108	106	103	107			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	102	105	104	103	103	99	102			<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd

Matrix : Liquid

Reference: 4376

Location: Taffs Well

Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
19/6895	36	BH101	7.00	712-720	BOD	Sample holding time exceeded
19/6895	36	CPBH212	7.00	721-729	BOD	Sample holding time exceeded
19/6895	36	RBBH202	7.00	730-738	BOD	Sample holding time exceeded
19/6895	36	RBBH203	7.00	739-747	BOD	Sample holding time exceeded
19/6895	36	RBBH205	7.00	748-756	BOD	Sample holding time exceeded
19/6895	36	RBBH206	7.00	757-765	BOD	Sample holding time exceeded
19/6895	36	RBBH209	7.00	766-774	BOD	Sample holding time exceeded
19/6895	36	RBBH210	7.00	775-783	BOD	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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South Park Way
Wakefield 41 Business Park
Wakefield
WF2 0XJ

Attention :	Richard Hardwick
Date :	2nd September, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 38
Location :	Taffs Well
Date samples received :	17th August, 2019
Status :	Final report
Issue :	1

Eight samples were received for analysis on 17th August, 2019 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	793-801	802-810	811-819	820-828	829-837	838-846	847-855	856-864			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G					
Sample Date	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	38	38	38	38	38	38	38	38					
Date of Receipt	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019					
Dissolved Arsenic #	0.0010	0.0016	<0.0009	<0.0009	0.0020	0.0012	0.0020	0.0021			<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.1542	0.1141	0.0313	0.1086	0.0333	0.0242	0.0509	0.2398			<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.024	0.032	0.016	0.021	0.018	<0.012	0.034	0.036			<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003			<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0054	0.0024	0.0033	0.0011	0.0033	0.0056	0.0004	0.0007			<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.022	<0.003	<0.003	<0.003	0.006	0.012	0.003	<0.003			<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	1.6770	0.4375	0.6239	0.0523	0.5869	0.4021	0.0938	0.1398			<0.0047	mg/l	TM30/PM14
Dissolved Lead #	0.0524	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.2261	0.0451	0.0480	0.0151	0.0648	0.0328	0.0299	3.8750			<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0038	0.0017	0.0015	<0.0002	0.0014	0.0014	0.0011	0.0031			<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012			<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0044	0.0023	0.0075	0.0006	0.0057	0.0131	0.0008	0.0012			<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.1485	0.0126	0.0063	0.0045	0.0107	0.0190	0.0090	0.0068			<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014			<0.000014	mg/l	TM4/PM30
Phenanthrene #	0.000052	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Anthracene #	0.000015	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluoranthene #	0.000148	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012			<0.000012	mg/l	TM4/PM30
Pyrene #	0.000116	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	0.000041	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			<0.000015	mg/l	TM4/PM30
Chrysene #	0.000063	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	0.000084	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018			<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	0.000030	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016			<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	0.000020	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	0.000016	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
PAH 16 Total #	0.000585	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195			<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	0.00006	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	84	91	92	88	89	86	87	89			<0	%	TM4/PM30
VOC TICs	ND	ND	ND	ND	ND	ND	ND	ND				None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	793-801	802-810	811-819	820-828	829-837	838-846	847-855	856-864			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G					
Sample Date	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	38	38	38	38	38	38	38	38					
Date of Receipt	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019					
Surrogate Recovery Toluene D8	102	105	105	105	102	106	106	108			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	103	101	105	105	103	103	105	106			<0	%	TM15/PM10
SVOC TICs	ND	ND	ND	ND	ND	ND	ND	ND				None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	<0.005	0.438	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	0.53	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	<0.01	<0.01	0.53	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	16.0	18.0	20.7	20.0	20.3	31.1	11.5	48.7			<0.5	mg/l	TM38/PM0
Chloride #	17.7	28.4	41.8	44.8	34.7	2.6	2.4	75.5			<0.3	mg/l	TM38/PM0
Nitrate as N #	1.74	2.63	1.56	1.76	1.40	0.07	<0.05	1.93			<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	0.02	<0.01	<0.01	<0.01	<0.01	0.05	0.02	<0.01			<0.01	mg/l	TM38/PM0
Free Cyanide	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM89/PM0
Total Cyanide #	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.02	<0.01	0.05	0.02	0.14	0.16	0.02	0.37			<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006			<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	206	234	242	254	224	90	66	170			<1	mg/l	TM75/PM0
BOD (Settled) #	1	2	<1	<1	<1	<1	1	<1			<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	793-801	802-810	811-819	820-828	829-837	838-846	847-855	856-864			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G					
Sample Date	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	38	38	38	38	38	38	38	38					
Date of Receipt	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019					
Dissolved Oxygen	8	8	9	8	9	8	9	8			<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	48.7	56.9	63.7	67.4	56.4	23.8	12.5	63.7			<0.2	mS/m	TM76/PM0
pH #	7.32	7.65	7.34	7.46	7.35	8.58	6.68	6.86			<0.01	pH units	TM73/PM0
Redox	257.48	258.61	256.25	256.95	257.52	211.19	237.06	274.47				mV	TM72/PM0
Total Organic Carbon #	<2	<2	<2	<2	2	5	4	<2			<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	793-801	802-810	811-819	820-828	829-837	838-846	847-855	856-864					
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00			Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G					
Sample Date	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	38	38	38	38	38	38	38	38					
Date of Receipt	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019					
SVOC MS											LOD/LOR	Units	Method No.
Phenols													
2-Chlorophenol #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Phenol	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015			<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Carbazole #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Isophorone #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	106	127	128	124	105	117	106	110			<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	110	129	122	123	108	125	119	119			<0	%	TM16/PM30

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	793-801	802-810	811-819	820-828	829-837	838-846	847-855	856-864			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G	V H HN N P BOD G					
Sample Date	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	38	38	38	38	38	38	38	38					
Date of Receipt	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019					
VOC MS													
Dichlorodifluoromethane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004			<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	102	105	105	105	102	106	106	108			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	103	101	105	105	103	103	105	106			<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 19/6895						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				

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Attention :	Richard Hardwick
Date :	4th September, 2019
Your reference :	4376
Our reference :	Test Report 19/6895 Batch 40
Location :	Taffs Well
Date samples received :	22nd August, 2019
Status :	Final report
Issue :	2

Eight samples were received for analysis on 22nd August, 2019 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	874-882	883-891	892-900	901-909	910-918	919-927	928-936	937-945			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	40	40	40	40	40	40	40	40					
Date of Receipt	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019					
Dissolved Arsenic #	0.0041	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009			<0.0009	mg/l	TM30/PM14
Dissolved Barium #	0.0658	0.0842	0.1047	0.0523	0.0505	0.0111	0.0600	0.2378			<0.0018	mg/l	TM30/PM14
Dissolved Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Boron	0.024	0.037	0.015	0.014	0.016	<0.012	<0.012	0.026			<0.012	mg/l	TM30/PM14
Dissolved Cadmium #	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003			<0.00003	mg/l	TM30/PM14
Total Dissolved Chromium #	0.0013	0.0010	0.0011	0.0010	0.0008	0.0046	0.0007	0.0007			<0.0002	mg/l	TM30/PM14
Dissolved Copper #	0.003	<0.003	<0.003	<0.003	<0.003	0.007	<0.003	<0.003			<0.003	mg/l	TM30/PM14
Total Dissolved Iron #	0.0158	0.0503	0.0406	<0.0047	<0.0047	0.0984	0.0371	0.0973			<0.0047	mg/l	TM30/PM14
Dissolved Lead #	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			<0.0004	mg/l	TM30/PM14
Dissolved Manganese #	0.0189	0.0227	0.0120	<0.0015	<0.0015	0.0065	0.0192	3.7630			<0.0015	mg/l	TM30/PM14
Dissolved Mercury #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM14
Dissolved Nickel #	0.0003	0.0012	0.0003	0.0003	<0.0002	0.0008	0.0011	0.0032			<0.0002	mg/l	TM30/PM14
Dissolved Selenium #	<0.0012	0.0044	0.0016	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012			<0.0012	mg/l	TM30/PM14
Dissolved Vanadium #	0.0015	<0.0006	<0.0006	<0.0006	<0.0006	0.0158	<0.0006	<0.0006			<0.0006	mg/l	TM30/PM14
Dissolved Zinc #	0.0223	0.0091	0.0025	0.0024	<0.0015	0.0070	0.0351	0.0081			<0.0015	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM4/PM30
Acenaphthylene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Acenaphthene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluorene #	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014	<0.000014			<0.000014	mg/l	TM4/PM30
Phenanthrene #	0.000069	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Anthracene #	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Fluoranthene #	0.000061	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012	<0.000012			<0.000012	mg/l	TM4/PM30
Pyrene #	0.000051	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013	<0.000013			<0.000013	mg/l	TM4/PM30
Benzo(a)anthracene #	0.000023	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			<0.000015	mg/l	TM4/PM30
Chrysene #	0.000037	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Benzo(bk)fluoranthene #	0.000046	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018	<0.000018			<0.000018	mg/l	TM4/PM30
Benzo(a)pyrene #	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016	<0.000016			<0.000016	mg/l	TM4/PM30
Indeno(123cd)pyrene #	0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(ghi)perylene #	0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011	<0.000011			<0.000011	mg/l	TM4/PM30
PAH 16 Total #	0.000309	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195	<0.000195			<0.000195	mg/l	TM4/PM30
Benzo(b)fluoranthene	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
Benzo(k)fluoranthene	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			<0.00001	mg/l	TM4/PM30
PAH Surrogate % Recovery	83	86	88	86	89	76	74	87			<0	%	TM4/PM30
VOC TICs	ND	ND	ND	ND	ND	ND	ND	ND				None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	874-882	883-891	892-900	901-909	910-918	919-927	928-936	937-945			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	40	40	40	40	40	40	40	40					
Date of Receipt	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019					
Surrogate Recovery Toluene D8	106	110	101	103	113	105	108	100			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	96	92	100	102	109	109	98			<0	%	TM15/PM10
SVOC TICs	ND_{AA}	ND_{AA}	ND_{AA}	ND	ND_{AA}	ND_{AA}	ND_{AA}	ND_{AA}				None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C6-C8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C8-C10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>C10-C12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>C12-C16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C16-C21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>C21-C35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC7-EC8 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC8-EC10 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM36/PM12
>EC10-EC12 #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM5/PM16/PM30
>EC12-EC16 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC16-EC21 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
>EC21-EC35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/PM16/PM30
Total aromatics C5-35 #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/l	TM173/PM0
Sulphate as SO4 #	54.3	51.0	19.8	9.5	9.5	25.0	5.7	23.2			<0.5	mg/l	TM38/PM0
Chloride #	15.8	23.9	49.3	22.7	22.4	2.8	1.1	73.8			<0.3	mg/l	TM38/PM0
Nitrate as N #	2.18	10.69	1.59	0.76	0.79	0.08	<0.05	2.18			<0.05	mg/l	TM38/PM0
Ortho Phosphate as P	0.02	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01			<0.01	mg/l	TM38/PM0
Free Cyanide	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM89/PM0
Total Cyanide #	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.02	<0.01	<0.01	<0.01	<0.01	0.15	0.02	0.35			<0.01	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006			<0.006	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	172	214	256	160	176	112	54	162			<1	mg/l	TM75/PM0
BOD (Settled) #	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/l	TM58/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	874-882	883-891	892-900	901-909	910-918	919-927	928-936	937-945			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	40	40	40	40	40	40	40	40					
Date of Receipt	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019					
Dissolved Oxygen	7	8	8	9	9	8	8	6			<1	mg/l	TM58/PM0
Electrical Conductivity @25C #	46.0	64.8	61.3	39.1	38.5	21.9	8.1	59.7			<0.2	mS/m	TM76/PM0
pH #	7.15	6.90	7.41	7.15	6.93	9.22	6.29	6.74			<0.01	pH units	TM73/PM0
Redox	175.72	182.22	178.42	179.78	186.97	144.48	181.58	217.44				mV	TM72/PM0
Total Organic Carbon #	<2	2	<2	<2	<2	3	2	<2			<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

SVOC Report : **Liquid**

EMT Sample No.	874-882	883-891	892-900	901-909	910-918	919-927	928-936	937-945			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	40	40	40	40	40	40	40	40					
Date of Receipt	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019					
SVOC MS													
Phenols													
2-Chlorophenol #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
2-Methylphenol #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
2-Nitrophenol	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
2,4-Dichlorophenol #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
2,4-Dimethylphenol	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
2,4,6-Trichlorophenol	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
4-Methylphenol	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Nitrophenol	<0.03 AA	<0.03 AA	<0.03 AA	<0.01	<0.03 AA	<0.03 AA	<0.03 AA	<0.03 AA			<0.01	mg/l	TM16/PM30
Pentachlorophenol	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Phenol	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
2-Methylnaphthalene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.015 AA	<0.015 AA	<0.015 AA	<0.005	<0.015 AA	<0.015 AA	<0.015 AA	<0.015 AA			<0.005	mg/l	TM16/PM30
Butylbenzyl phthalate	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Di-n-butyl phthalate #	<0.0045 AA	<0.0045 AA	<0.0045 AA	<0.0015	<0.0045 AA	<0.0045 AA	<0.0045 AA	<0.0045 AA			<0.0015	mg/l	TM16/PM30
Di-n-Octyl phthalate	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Diethyl phthalate #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Dimethyl phthalate	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
1,2,4-Trichlorobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
1,3-Dichlorobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
1,4-Dichlorobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
2-Nitroaniline	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
2,4-Dinitrotoluene #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
2,6-Dinitrotoluene	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
3-Nitroaniline	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Bromophenylphenylether #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Chloroaniline	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Chlorophenylphenylether #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
4-Nitroaniline	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Azobenzene #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Bis(2-chloroethyl)ether #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Carbazole #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Dibenzofuran #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Hexachlorobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Hexachlorobutadiene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Hexachlorocyclopentadiene	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Hexachloroethane #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Isophorone #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0005	<0.0015 AA	<0.0015 AA	<0.0015 AA	<0.0015 AA			<0.0005	mg/l	TM16/PM30
Nitrobenzene #	<0.003 AA	<0.003 AA	<0.003 AA	<0.001	<0.003 AA	<0.003 AA	<0.003 AA	<0.003 AA			<0.001	mg/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	125 AA	114 AA	127 AA	128	126 AA	116 AA	120 AA	124 AA			<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	128 AA	127 AA	104 AA	126	128 AA	129 AA	130 AA	130 AA			<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Central Alliance Pre Construction Services Ltd
Reference: 4376
Location: Taffs Well
Contact: Richard Hardwick
EMT Job No: 19/6895

VOC Report : **Liquid**

EMT Sample No.	874-882	883-891	892-900	901-909	910-918	919-927	928-936	937-945			LOD/LOR	Units	Method No.
Sample ID	BH101	CPBH212	RBBH202	RBBH203	RBBH205	RBBH206	RBBH209	RBBH210					
Depth	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00					
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G					
Sample Date	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	40	40	40	40	40	40	40	40					
Date of Receipt	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019					
VOC MS													
Dichlorodifluoromethane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Chloromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Vinyl Chloride #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l	TM15/PM10
Bromomethane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Chloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Trichlorofluoromethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Dichloromethane (DCM) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1-Dichloroethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
cis-1-2-Dichloroethene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2,2-Dichloropropane	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Bromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chloroform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1-Dichloropropene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Carbon tetrachloride #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Benzene #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM15/PM10
Trichloroethene (TCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromomethane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Bromodichloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
cis-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Toluene #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM15/PM10
trans-1-3-Dichloropropene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,2-Trichloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Tetrachloroethene (PCE) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichloropropane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Dibromochloromethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2-Dibromoethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Chlorobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Ethylbenzene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
m/p-Xylene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
o-Xylene #	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	mg/l	TM15/PM10
Styrene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Bromoform #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
Isopropylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004			<0.004	mg/l	TM15/PM10
Bromobenzene #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,3-Trichloropropane #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Propylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
2-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3,5-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Chlorotoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
tert-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2,4-Trimethylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
sec-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
4-Isopropyltoluene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,3-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,4-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
n-Butylbenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dichlorobenzene #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM15/PM10
1,2,4-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Hexachlorobutadiene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
1,2,3-Trichlorobenzene	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM15/PM10
Surrogate Recovery Toluene D8	106	110	101	103	113	105	108	100			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	96	92	100	102	109	109	98			<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Central Alliance Pre Construction Services Ltd

Matrix : Liquid

Reference: 4376

Location: Taffs Well

Contact: Richard Hardwick

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
19/6895	40	BH101	7.00	874-882	Mercury, Metals	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/6895

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x3 Dilution

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

EMT Job No: 19/6895

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.				
TM58	APHA Standard Methods for the extraction of water and waste water (SMEWW) 5210B. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach HQ30D Oxygen Meter.	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.				