

## **APPENDIX C**

### **Laboratory Monitoring Results**

**Investigate**  
 C6 Wheldon Road  
 Castleford  
 WF10 2JT

For the attention of Dan Mason

Report No: B25698-2  
 Issue No 01




### LABORATORY TEST REPORT



Project Name	SAPPI		
Project Number	B25698-2	Date samples received	12/02/2021
Your Ref		Date written instructions received	15/02/2021
Purchase Order		Date testing commenced	15/02/2021
<b>Please find enclosed the results as summarised below</b>			
Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1	4	Client Specified Suite - Water	See report
2	4	PAHs (speciated) - Water	No
3	4	TPHCWG - Water	No
4	4	VPHCWG/BTEX - Water	Yes
Remarks :			
Issued by : Stephen Langman		Date of Issue : 24/02/2021	Key to symbols used in this report S/C : Testing was sub-contracted
Approved Signatories : <i>S. Langman</i> 24/02/2021			
S Langman (Laboratory Coordinator), D Bowen (Production Manager)			
<p>Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.          The results reported relate to samples received in the laboratory only.          All results contained in this report are provisional unless signed by an approved signatory          This report should not be reproduced except in full without the written approval of the laboratory.          Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.          The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw          our report if we have not received cleared funds in accordance with our standard terms and conditions  <b>Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.</b>          Feedback on the this report may be left via our website <a href="http://www.terratek.co.uk/contact-us">www.terratek.co.uk/contact-us</a></p>			







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				Site <b>SAPPI</b>																	Contract No <b>B25698-2</b>			
				Client																				
				Engineer																				
Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic µg/l	Cadmium µg/l	Chromium µg/l	Lead µg/l	Mercury µg/l	Selenium µg/l	Copper µg/l	Nickel µg/l	Zinc µg/l	Vanadium µg/l	Boron mg/l	Total Cyanide mg/l	Sulphate (as SO4) mg/l	Sulphide mg/l	Calcium hardness as Calcium carbonate mg/l	Ammoniacal Nitrogen (as N) mg/l	Chloride mg/l	pH		
SW DOWNSTREAM	0.00-0.00		W2	760865	3.7	<0.04	2.11	0.61	<0.05	1.9	5.44	2.4	3.6	5.9	<0.05	<0.01	16	<0.01	67	<0.1	18.0	7.6		
BOREHOLE	0.00-0.00		W2	760866	4.0	<0.04	3.38	0.08	<0.05	2.5	3.83	3.4	7.2	6.3	<0.05	<0.01	18	<0.01	133	0.3	25.6	7.9		
SW ONSITE	0.00-0.00		W2	760867	4.4	<0.04	3.10	0.71	<0.05	1.9	5.98	3.1	4.1	6.3	<0.05	<0.01	13	<0.01	60	0.1	18.5	7.5		
SW UPSTREAM	0.00-0.00		W2	760868	3.4	<0.04	2.18	0.63	<0.05	1.2	5.71	2.7	3.8	5.1	<0.05	<0.01	10	<0.01	49	<0.1	17.1	7.4		
Limits of Detection Terra Tek Analysis Method Accreditation U=UKAS N=No accreditation					0.2 TP156 U	0.04 TP156 U	0.04 TP156 U	0.01 TP156 U	0.05 TP156 U	0.5 TP156 U	0.03 TP156 U	0.3 TP156 U	0.3 TP156 U	0.2 TP156 U	0.05 TP054 U	0.01 TP062 U	4 TP170 U	0.01 TP066 U	1 TP117 N	0.1 TP184 N	0.1 TP184 N	~ TP020 U		
Originator	Checked & Approved	<b>RESULTS OF CHEMICAL CONTAMINATION TESTS - WATER</b>											<b>KEY</b> * - deviating result (refer to Appendix W1 for details)						 <b>Figure 1</b>					
DAB	 25/02/2021																				Sheet 1 of 1			

				Site <b>SAPPI</b>																	Contract No <b>B25698-2</b>					
				Client																						
				Engineer																						
Sample Identification																										
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene ng/l	Acenaphthylene ng/l	Acenaphthene ng/l	Fluorene ng/l	Phenanthrene ng/l	Anthracene ng/l	Fluoranthene ng/l	Pyrene ng/l	Benzo (a) anthracene ng/l	Chrysene ng/l	Benzo (b) fluoranthene ng/l	Benzo (k) fluoranthene ng/l	Benzo (a) pyrene ng/l	Indeno (1,2,3 - cd) pyrene ng/l	Dibenzo (ah) anthracene ng/l	Benzo (ghi) perylene ng/l	Polynuclear Aromatic Hydrocarbons (total) ng/l			Sample received in appropriate container		
SW DOWNSTREAM	0.00-0.00		W2	760865	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	Yes	
BOREHOLE	0.00-0.00		W2	760866	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	Yes	
SW ONSITE	0.00-0.00		W2	760867	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	Yes	
SW UPSTREAM	0.00-0.00		W2	760868	<10	<10	<10	<10	<10	<10	194	194	47	359	446	179	161	186	<10	275	2,043			Yes		
Limits of Detection Terra Tek Analysis Method Accreditation U=UKAS N=No accreditation					10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	10 TP112 N	160 TP112 N			
Originator	Checked & Approved	<b>POLYAROMATIC HYDROCARBONS (USEPA 16) - WATER</b>											<b>KEY</b> * - deviating result (refer to Appendix W1 for details)										 <b>Figure 2</b>  Sheet 1 of 1			
DAB	<i>S. Langren</i> 24/02/2021																									

				Site <b>SAPPI</b>												Contract No <b>B25698-2</b>								
				Client																				
				Engineer																				
Sample Identification					TPH (Aliphatics C8-C10)	TPH (Aliphatics >C10-C12)	TPH (Aliphatics >C12-C16)	TPH (Aliphatics >C16-C21)	TPH (Aliphatics >C21-C35)	TPH (Aliphatics >C35-C40)	TPH (Aromatics >C10-C12)	TPH (Aromatics >C12-C16)	TPH (Aromatics >C16-C21)	TPH (Aromatics >C21-C35)	TPH (Aromatics >C35-C40)									Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l									
SW DOWNSTREAM	0.00-0.00		W2	760865	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10									Yes
BOREHOLE	0.00-0.00		W2	760866	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10									Yes
SW ONSITE	0.00-0.00		W2	760867	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10									Yes
SW UPSTREAM	0.00-0.00		W2	760868	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10									Yes
Limits of Detection Terra Tek Analysis Method Accreditation U=UKAS N=No accreditation					10	10	10	10	10	10	10	10	10	10	10									
					TP130	TP130	TP130	TP130	TP130	TP130	TP130	TP130	TP130	TP130	TP130									
					N	N	N	N	N	N	N	N	N	N	N									
Originator	Checked & Approved	<b>TPHCWG - WATER</b>										<b>KEY</b> * - deviating result (refer to Appendix W1 for details)										 <b>Figure 3</b>		
DAB	<i>S. Langren</i> 24/02/2021																							Sheet 1 of 1



				Site <b>SAPPI</b>												Contract No <b>B25698-2</b>							
				Client																			
				Engineer																			
Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/l	TPH (Aliphatics C6-C8) µg/l	TPH (Aromatics C6-C7) µg/l	TPH (Aromatics C7-C8) µg/l	TPH (Aromatics C8-C10) µg/l	Benzene µg/l	Ethylbenzene µg/l	m & p - Xylene µg/l	o - Xylene µg/l	Toluene µg/l	MTBE µg/l								
SW DOWNSTREAM	0.00-0.00		W2	760865	<10	<10	<10	<10	<10	<1	<1	<2	<1	<1	<1								
BOREHOLE	0.00-0.00		W2	760866	<10	<10	<10	<10	<10	<1	<1	<2	<1	<1	<1								
SW ONSITE	0.00-0.00		W2	760867	<10	<10	<10	<10	<10	<1	<1	<2	<1	<1	<1								
SW UPSTREAM	0.00-0.00		W2	760868	<10	<10	<10	<10	<10	<1	<1	<2	<1	<1	<1								
Limits of Detection Terra Tek Analysis Method Accreditation U=UKAS N=No accreditation					10 TP155 U	10 TP155 U	10 TP155 U	10 TP155 U	10 TP155 U	1 TP155 U	1 TP155 U	2 TP155 U	1 TP155 U	1 TP155 U	1 TP155 U								
Originator	Checked & Approved	<b>VPHCWG - WATER</b>										<b>KEY</b> * - deviating result (refer to Appendix W1 for details)				 <b>Figure 4</b> Sheet 1 of 1							
DAB	<i>S. Langren</i> 24/02/2021																						



 <b>TERRA TEK</b> <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>				Site <b>SAPPI</b>		Contract No <b>B25698-2</b>					
				Client							
				Engineer							
Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions					Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximum holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container	
SW DOWNSTREAM	0.00-0.00		W2	760865	Deviating						
BOREHOLE	0.00-0.00		W2	760866	Deviating						
SW ONSITE	0.00-0.00		W2	760867	Deviating						
SW UPSTREAM	0.00-0.00		W2	760868	Deviating						



NOTES		<p>1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.</p> <p>2 The absence of "X" or "Yes" in the table above indicates no reported deviations.</p> <p>3 Deviations due to use of incorrect sample container are shown on result tables.</p> <p>4 Deviating results are indicated within result tables.</p>
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Originator	Checked & Approved	<b>DEVIATING SAMPLES - WATER</b>	 <b>Appendix W1</b>  Sheet 1 of 1
TGH	 24/02/2021		

 <b>TERRA TEK</b> <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>		Site SAPPI	Contract No <b>B25698-2</b>	
		Client		
		Engineer		
Method Code	Reference	Description of Method	ISO17025 Accredited	
TP020	APHA/AWWA, 19th edition	Determination of pH using pH meter	Yes	
TP035	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of dissolved solids by gravimetry	Yes	
TP054	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of boron by ICP-OES	Yes	
TP057	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry	Yes	
TP060	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	
TP061	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by colorimetry	Yes	
TP062	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry	Yes	
TP063	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes	
TP064	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	
TP066	MEWAM method: Sulphide in Waters and Effluents, Tentative Methods: 1983	Determination of sulphides by colorimetry	Yes	
TP068	APHA/AWWA, 19th edition: Method 4500-Cl-D	Determination of chlorides by titrimetry	Yes	
TP078	APHA/AWWA, 18th edition: Method 4500C	Determination of ammoniacal nitrogen by colorimetry		
TP079	In-house documented method	Determination of anionic detergent (MBAS) by colorimetry		
TP080	APHA/AWWA, 19th edition: Method 4500-F-C	Determination of fluoride by ion selective electrode	Yes	
TP081	APHA/AWWA, 19th edition: Method 2540D	Determination of suspended solids by gravimetry	Yes	
TP102	APHA/AWWA, 19th edition: Method 6640B USEPA Method 610	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	
TP103	Texas Natural Resource Conservation Commission Method 1005 & USEPA Method 3510C	Determination of Extractable Petroleum Hydrocarbons (>C8 - C40) by GC/FID		
TP108	APHA/AWWA, 19th edition: Method 2510B	Determination of electrical conductivity by electrode	Yes	
TP112	USEPA Method 8100	Determination of polyaromatic hydrocarbons extractable in dichloromethane/hexane, by GC/MS		
TP113	APHA/AWWA, 19th edition: Method 6410 USEPA Method 2870D	Determination of phenol by GC/MS		
<b>Notes</b> 1. The laboratory records the date of analysis of each parameter. This information is available on request. 2. Where a parameter cannot be determined in house it is our policy to use a UKAS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.				
Originator	Checked & Approved	<b>SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (WATER)</b>		 <b>Appendix W2</b>  Sheet 1 of 2
N/A	N/A			



 <b>TERRA TEK</b> <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>		Site SAPPI	Contract No <b>B25698-2</b>	
		Client		
		Engineer		
Method Code	Reference	Description of Method	ISO17025 Accredited	
TP117	APHA/AWWA, 19th edition: Method 2340B	Determination of hardness of water (calculation)	Yes	
TP118	APHA/AWWA, 19th edition: Method 2320B	Determination of total alkalinity by titration	Yes	
TP128	APHA/AWWA, 19th edition: Method 6410 USEPA Method 2870D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	
TP130	Texas Natural Resource Conservation Commission Method 1005 & 1006	Determination of Extractable Petroleum Hydrocarbons (EPH-CWG C8-C40) by GC/FID		
TP132	APHA/AWWA, 19th edition: Method 4500-NO2-B	Determination of nitrite by colorimetry	Yes	
TP133	In-house documented method	Determination of chemical oxygen demand by colorimetry		
TP146	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM		
TP149	USEPA Methods 8082A & 3665A	Determination of Total & Speciated WHO 12 PCB Congeners by GC/MS SIM		
TP155	USEPA method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in water by GC/MS headspace	Yes	
TP156	APHA/AWWA, 19th edition: Method 3030B (filtration)	Determination of dissolved metals by ICP-MS	Selected	
TP159	USEPA Method 1671	Determination of glycols in water by GC/FID DI		
TP160	USEPA Method 556	Determination of formaldehyde in water by GC/MS		
TP162	USEPA Method 9060A	Determination of TOC/DOC in water by HT Combustion/NDIR		
TP170	In-house documented method	Determination of sulphate by ICP-OES spectroscopy	Yes	
TP179	In-house documented method	Determination of nitrate by ion selective electrode		
TP184	In-house documented method	Analysis of water by discrete analyser		
<p>Notes</p> <ol style="list-style-type: none"> <li>The laboratory records the date of analysis of each parameter. This information is available on request.</li> <li>Where a parameter cannot be determined in house it is our policy to use a UKAS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.</li> </ol>				
Originator	Checked & Approved	<b>SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (WATER)</b>		 <b>Appendix W2</b>  Sheet 2 of 2
N/A	N/A			