





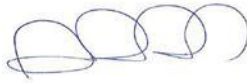
**Eastland Port Matawhero Logyard
Sampling Report – July 2015**

For Eastland Port Limited

August 2015

REPORT INFORMATION AND QUALITY CONTROL

Prepared for: Eastland Port Limited

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Document Name MLY Sampling Report July 2015 Final

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1 INTRODUCTION

Under consent DW-2011-104235-01 stormwater monitoring is required. Two monthly sampling is undertaken at three locations; the stormwater retention ponds culvert outlets, the Awapuni Drain 10 metres downstream of the confluence with the tributary drain, and 10 metres upstream of the confluence with the tributary drain. Refer to Appendix A for a plan of the sample sites.

This round of sampling was collected on 9 July 2015 and represents the May/June sampling round. A sample was attempted on 23rd May but there was insufficient rainfall to create a discharge from the stormwater ponds. No other appropriate rain event occurred. In accordance with condition 16, should environmental conditions prevail where no significant runoff is generated enabling a sample to be taken within the two month period, an additional sample shall be taken during the next sampling period.

Sampling was undertaken in accordance with the Sampling Protocols and Standard Operating Procedures prepared by 4Sight Consulting (formerly known as Andrew.Stewart Ltd). The sampling was undertaken by Logic Forest Solutions.

This report has been prepared for Gisborne District Council and provides the results and analysis of the Matawhero Logyard July 2015 sampling round. This is the second sampling report. The first report, titled "Eastland Port Sampling Results Report", was prepared for the March/April sampling round undertaken in March 2015. The first report also included sampling results for Southern Logyard and Wairakaia Bark Disposal. This report only includes the results for the Matawhero Logyard.

2 SAMPLING DETAILS

Table 1: Sample time and dates

Location	Date	Time
Stormwater retention ponds culvert outlets	9/07/2015	2:41pm
Awapuni Drain 10m downstream	9/07/2015	2:20pm
Awapuni Drain 10m upstream	9/07/2015	2:00pm

2.1 Relevant Site Information

Table 2: Sample Information

Location	Rainfall event	Number of dry days prior to sampling	Discharge/water colour	Obvious or visual features
Stormwater retention ponds culvert outlets	30.6mm	0	Brown/muddy	No debris or scums/foams present
Awapuni Drain 10m downstream	30.6mm	0	Clear/slightly yellow	No debris or scums/foams present
Awapuni Drain 10m upstream	30.6mm	0	Clear/slightly yellow	No debris or scums/foams present

3 ANALYSIS OF LABORATORY RESULTS

3.1 Results

Table 3 shows the results of the 9 July 2015 sample round. The Awapuni Drain 10 metres downstream sample (MLYSW Site 2) is the mixing zone boundary and the compliance point. Exceedances of the consent trigger limits at this location are highlighted in purple.

Table 3: July 2015 sample results

Parameter	Units	Consent trigger limits	Stormwater retention ponds culvert outlets (MLYSW Site 1)	Awapuni Drain 10m downstream (MLYSW Site 2)	Awapuni Drain 10m upstream (MLYSW Site 3)
pH	-LOG(H ⁺)	6.5 – 8.5	7.31	7.77	7.54
Total Suspended Solids	g/m ³	100 g/m ³ above background site ¹	2100	18	19
BOD ₅	g/m ³	20	7	7	7
Total Petroleum Hydrocarbons	g/m ³	15	<1.4	<0.7	<0.7
Total Nitrogen	g/m ³	0.4	3.7	2.7	2.5
Total Tannins	g/m ³	Indicator test only	<5	1.2	1.1
Dissolved Oxygen	Total saturation	Not less than 80%	82.4	81	53.9
Conductivity	mS/cm	0.3	0.40	9.28	9.15
Total Resin Acids	g/m ³	0.06	<0.0001	<0.0001	n/a

A sample was collected at the upstream site for analysis of total resin acids, however during transport to the laboratory the sample bottle broke. This was due to not enough padding being placed in the chilly bin. As such, analysis of this sample was unable to be collected. It was decided that as this was the upstream sample re-sampling of this site would not be undertaken. However, if the downstream sample results exceeded the consent trigger limit then re-sampling of all three sites was planned. Re-sampling was not necessary as results were less than the detection limit. Logic Forest Solutions will ensure that all bottles are completely padded in future.

3.2 Findings on Consent Condition Compliance

At all locations, pH levels are within the consent range. Total petroleum hydrocarbons and total resin acids were less than detection limits. Biological oxygen demand (BOD) was below the consent trigger limits.

Total suspended solids (TSS) at the downstream sample is 1g/m³ less than the upstream sample result and is therefore compliant with the consent trigger limit (100g/m³ above background site). The TSS result for the ponds culvert outlets is 2100g/m³, however the downstream result indicates that the site is not having an adverse effect on TSS levels in the Awapuni Drain. The heavy rainfall event of 30.6mm would have also contributed to this outlet result.

¹ Background site is the Awapuni Drain 10 metres upstream

Dissolved oxygen is above the minimum 80% total saturation limit at the downstream sample. The upstream result was 53.9% indicating that the site could be having a positive effect on dissolved oxygen concentrations in the Awapuni Drain.

Conductivity at the downstream sample exceeds the consent trigger limit of 0.3mS/cm. The Awapuni Drain is tidally influenced, which is likely to be the reason for the high conductivity. Compared to the March 2015 sample result (35.81mS/cm) the conductivity result has decreased this sampling round, as shown in Figure 1.

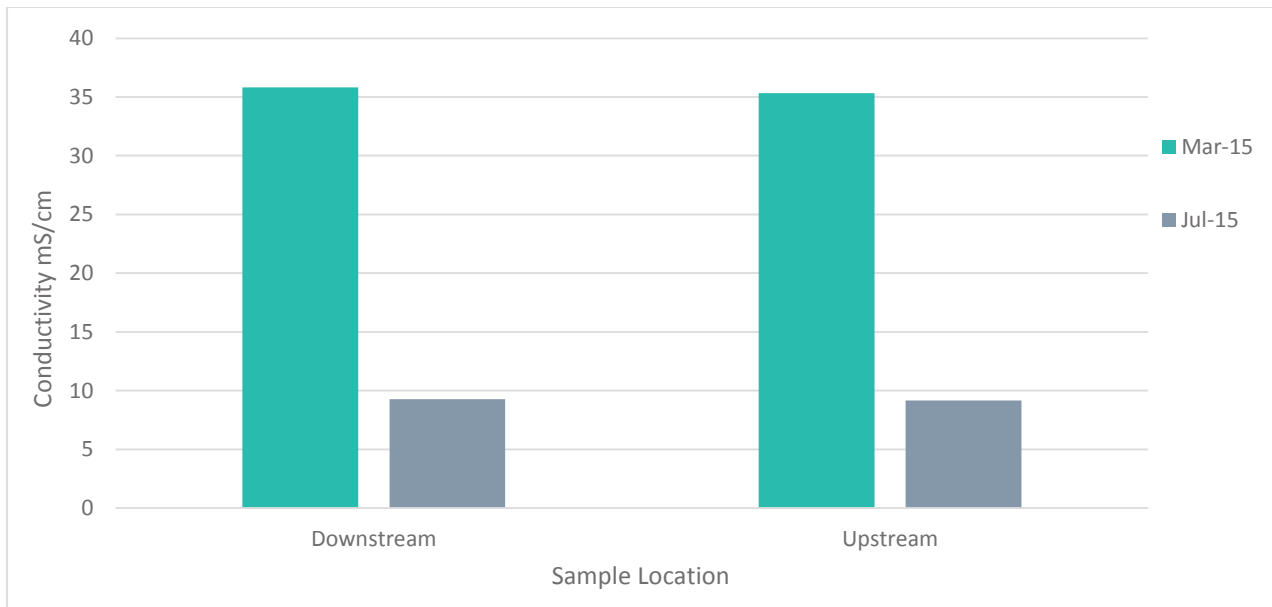


Figure 1: Conductivity results at Site 2 and 3 for March and July sample rounds

Total nitrogen is 2.7g/m³ at the downstream site and exceeds the consent trigger limit of 0.4g/m³ by 6.75 times. Total nitrogen has also increased from the March 2015 sample result (1.4g/m³), however the upstream sample also increased to 2.5 g/m³. There is a difference of 0.02g/m³ between the downstream and upstream sample, as such the exceedance of total nitrogen at the downstream site is not considered significant.

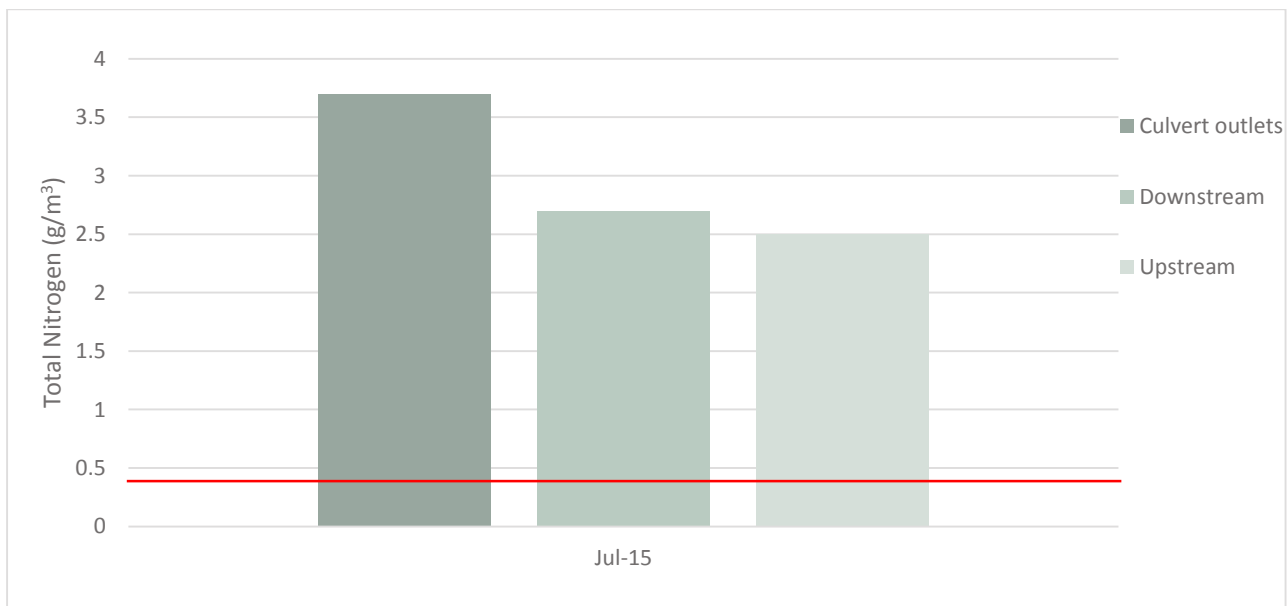


Figure 2: Total nitrogen results for July 2015 – consent trigger limit shown as red line

3.3 Further Actions Required in Light of Findings

As no significant exceedences of the trigger limits occurred no further actions are required. The next round of sampling (July/August round) is scheduled to taken by the end of August if an appropriate rain event occurs.

4 CONCLUSIONS

- Conductivity at the downstream site exceeds the consent trigger limit. The Awapuni Drain is tidally influenced which is likely to be the reason for the high conductivity.
- Total nitrogen at the downstream site exceeds the consent trigger limit, but is only 0.02g/m³ higher than the upstream site which also exceeds the trigger limit. The downstream value is not considered a significant exceedance.
- All other sample results were within the consent trigger limits.
- The next round of sampling is scheduled to be taken by the end of August.



Appendix A:

Sampling Locations

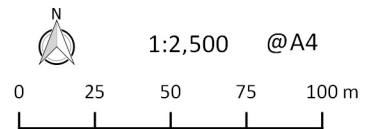
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Monitoring Sites

- Groundwater
- Stormwater
- Surfacewater

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AA1146 EASTLAND PORT COMPLIANCE PROGRAMME
Matawhero Logyard (Dunstan Rd) Monitoring Sites
Plan prepared for Eastland Port Ltd. by 4Sight Consulting Ltd.

Date: 01/04/2015
Version: 1.0
Author: Paul Sorensen
Checked: Christine Oakey
Approved: Christine Oakey





Appendix B:

Laboratory Analysis Reports



ANALYSIS REPORT

Client:	4SIGHT Consulting	Lab No:	1448839	SPV1
Contact:	Kim Wepasnick C/- 4SIGHT Consulting PO Box 25356 Featherston Street WELLINGTON 6146	Date Registered:	10-Jul-2015	
		Date Reported:	17-Jul-2015	
		Quote No:	66824	
		Order No:		
		Client Reference:	Eastland Port-Dunstan Rd Surface Water	
		Submitted By:	Kim Wepasnick	

Sample Type: Aqueous

Sample Name:	MLYSW Site 1 09-Jul-2015 2:41 pm	MLWSW Site 2 09-Jul-2015 2:20 pm	MLYSW Site 3 09-Jul-2015 2:00 pm		
Lab Number:	1448839.1	1448839.2	1448839.3		
Individual Tests					
Total Suspended Solids	g/m ³	2,100	18	19	-
Total Nitrogen	g/m ³	3.7	2.7	2.5	-
Nitrate-N + Nitrite-N	g/m ³	0.66	0.141	0.148	-
Total Kjeldahl Nitrogen (TKN)	g/m ³	3.0	2.6	2.3	-
Carbonaceous Biochemical Oxygen Demand (cBOD ₅)	g O ₂ /m ³	7	7	7	-
Tannin	g/m ³	< 5 #1	1.2 #1	1.1 #1	-
Total Petroleum Hydrocarbons in Water					
C7 - C9	g/m ³	< 0.15	< 0.10	< 0.10	-
C10 - C14	g/m ³	< 0.4	< 0.2	< 0.2	-
C15 - C36	g/m ³	< 0.8	< 0.4	< 0.4	-
Total hydrocarbons (C7 - C36)	g/m ³	< 1.4	< 0.7	< 0.7	-

Analyst's Comments

#1 Severe matrix interferences required that a dilution be performed prior to analysis of this sample, resulting in a detection limit higher than that normally achieved for the Tannin analysis.

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Total Petroleum Hydrocarbons in Water	Hexane extraction, GC-FID analysis US EPA 8015B/MfE Petroleum Industry Guidelines [KBIs:2803,10734]	0.10 - 0.7 g/m ³	1-3
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-3
Total Kjeldahl Digestion	Sulphuric acid digestion with copper sulphate catalyst.	-	1-3
Total Suspended Solids	Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. APHA 2540 D 22 nd ed. 2012.	3 g/m ³	1-3
Total Nitrogen	Calculation: TKN + Nitrate-N + Nitrite-N. Please note: The Default Detection Limit of 0.05 g/m ³ is only attainable when the TKN has been determined using a trace method utilising duplicate analyses. In cases where the Detection Limit for TKN is 0.10 g/m ³ , the Default Detection Limit for Total Nitrogen will be 0.11 g/m ³ .	0.05 g/m ³	1-3
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO ₃ -I 22 nd ed. 2012 (modified).	0.002 g/m ³	1-3
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. APHA 4500-N _{org} D. (modified) 4500 NH ₃ F (modified) 22 nd ed. 2012.	0.10 g/m ³	1-3



Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Carbonaceous Biochemical Oxygen Demand (cBOD ₅)	Incubation 5 days, DO meter, nitrification inhibitor added, dilutions, seeded. Analysed at Hill Laboratories - Microbiology; 1 Clow Place, Hamilton. APHA 5210 B (modified) 22 nd ed. 2012.	2 g O ₂ /m ³	1-3
Tannin	Colorimetric with Folin phenol reagent, tannic acid used for calibration. APHA 5550 B 22 nd ed. 2012.	0.10 g/m ³	1-3

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Carole Rodgers-Carroll BA, NZCS
Client Services Manager - Environmental Division

Wednesday, 29 July 2015

Kaiti Beach Road
PO Box 1048
Gisborne 4040

Attn: Christine Oakey

TRACE RESIN ACID ANALYSIS:

Resin Acids (incl. DHA) analysis for Christine Oakey (Eastland Port Ltd).

CLIENT'S ORDER NUMBER: AA 1146 EPL Compliance Programme - Eastland Port

WORK PERFORMED BY: Murray Robinson and Suzanne Gallagher

WORK CHECKED BY: Kim McGrouther

APPROVED BY:  (SIGN)

DATE OF ISSUE: 29 July 2015

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DATE SAMPLES RECEIVED

10.07.2015

SAMPLE DESCRIPTION

Three samples in 1L glass bottles (450°C muffled Scion sample bottles we sent over) – One sample arrived here in a broken bottle so was not analysed. The MLY SW Site 1 sample contained a high level of pale sediment and the MLY SW Site 2 sample was pale yellow but clear with no sediment.

SAMPLE IDENTIFICATION

MLY SW Site 1
MLY SW Site 2
MLY SW Site 3 – this glass bottle arrived broken – Email from James Isaac (Logic Forest Solutions) 14/07/2015 - advised us not to wait for a replacement sample, but to go ahead analyse the two samples that had arrived intact.

SAMPLING PROCEDURE

This report relates only to the items tested as received and therefore does not necessarily represent the sample from which it was taken.

DATE OF TESTING

22.07.2015

METHODS

In-house method, involving unfiltered pH9 liquid/liquid extraction with dichloromethane (DCM), followed by gas chromatography - mass spectrometry (GC/MS) analysis.

RESULTS:**RESIN ACIDS ($\mu\text{g/L}$)**

Sample name	MLY SW Site 1	MLY SW Site 2
Pimaric acid	n.d.	n.d.
Sandaracopimaric acid	n.d.	n.d.
Isopimaric acid	n.d.	n.d.
Palustric acid	n.d.	n.d.
Levopimaric Acid	n.d.	n.d.
Dehydroabietic acid	n.d.	n.d.
Abietic acid	n.d.	n.d.
Neoabietic acid	n.d.	n.d.
Pimarenic acid	n.d.	n.d.
Sandaracopimarenic acid	n.d.	n.d.
Isopimarenic acid	n.d.	n.d.
13-Abietenic acid	n.d.	n.d.
Pimaranic acid	n.d.	n.d.
Isopimaranic acid	n.d.	n.d.
Abietanic acid	n.d.	n.d.
Seco-1-dehydroabietic acid	n.d.	n.d.
Seco-2-dehydroabietic acid	n.d.	n.d.
12-Chlorodehydroabietic acid	n.d.	n.d.
14-Chlorodehydroabietic acid	n.d.	n.d.
12,14-Dichlorodehydroabietic	n.d.	n.d.
7-Oxodehydroabietic acid	n.d.	n.d.
Total Resin Acids	n.d.	n.d.

n.d. = not detected, method detection limit is 0.1 $\mu\text{g/L}$

All results presented are from duplicate sample analysis and concentrations are in $\mu\text{g/L}$. Compounds are quantified if they have a response 2.5 times higher than the average blank.



Appendix C:

Field Form

Surface Water Sampling Form

Job Information		Equipment	
Date: 9/7/15	Time: Arrive 13:50pm	Water quality equipment description: YSI water Meter Calibration Records Filed?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Project Name: Epsom outboard	Depart: 14:50	Interface Probe Number: AA1146	Calibration Records Filed?
Site Location: Matawhero Leyyard.	Operator: James Isaac.	Sampling Equipment Type: Bucket.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Weather:	Rainfall Event Start Time/Date: 22:00 7/7/15	Event Rainfall Depth: 30.6 mm.	Number of Dry days Prior to Sampling: 0
Reason for sampling: Standard Compliance Programme (Circle frequency) (2 Monthly) Quarterly) or Additional Monitoring (describe):			

Sample ID	Sample Details			Water Quality Parameters				Observations				
	Sample Time	Approx. Depth (m)	Approx. Stream Flow Rate	Temp. (°C)	DO (%)	EC (µS/cm)	pH	Water colour	Debris	Foams / scums	Sediment plumes observable?	Photos Taken?
MLY SW Site 3	14:00	0.5m	80L/m	8	53.9	9,150	7.54	Clear / slightly yellow	No	No	No	Y
MLY SW Site 2	14:20	0.5m	80L/m	8	81.0	9,280	7.77	Clear / slightly yellow	No	No	No	Y
MLY SW Site 1	14:41	0.2m	10L/m	8.2	82.4	395.5	7.31	Brown / muddy	No	No	No	Y

Additional Comments:

No odour from any sample.

Field Quality Control Checks					
Was pre-cleaning sampling equipment used for these samples?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Were gas bubbles present in vials at time of collection?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Consistent with COC form?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Was pre-cleaning sampling equipment properly protected from contamination?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Was sample filtered for metals prior to preservations?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	COC Filled out?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Site Name: <i>Matawhero hogyard.</i>		Project Number: <i>AA1146</i>	
Operator: <i>James Isaacs</i>		Date: <i>9/7/15</i>	
Reason for Visit: <i>Standard Compliance</i>		Weather Conditions: <i>Wet.</i>	
Time	Comments		
<i>13:50</i>	<i>Arrived at site (MLY)</i>		
<i>14:00</i>	<i>Took sample for MLY SW site 3.</i>		
	<i>Took photo, DO / Temp / EC and PH</i>		
	<i>with YSI water quality meter.</i>		
<i>14:20</i>	<i>Took sample for MLY SW site 2.</i>		
<i>14:41</i>	<i>Took sample for MLY SW site 1.</i>		
<i>15:30</i>	<i>Sent samples to Hills and</i>		
	<i>Seion with NZ couriers.</i>		
	<i>Samples sent with ice in spaplock</i>		
	<i>bags and appropriate C.O.C</i>		
	<i>forms.</i>		



Appendix D:

Matawhero Logyard Stormwater Results

D.1 Matawhero Logyard Stormwater Results

Summary table of results starting in March 2015. Exceedance of the consent trigger limits at the downstream site are shown in purple.

Parameter	Units	Consent trigger limits	March/April			May/June		
			2 March 2015			9 July 2015		
			Stormwater retention ponds culvert outlets (MLYSW Site 1) ¹	Awapuni Drain 10m downstream (MLYSW Site 2)	Awapuni Drain 10m upstream (MLYSW Site 3)	Stormwater retention ponds culvert outlets (MLYSW Site 1)	Awapuni Drain 10m downstream (MLYSW Site 2)	Awapuni Drain 10m upstream (MLYSW Site 3)
pH	-LOG(H ⁺)	6.5 – 8.5	n/a	8.17	8.17	7.31	7.77	7.54
Suspended Solids	g/m ³	100 mg/L above background site ²	n/a	20	22	2100	18	19
BOD ₅	g/m ³	20	n/a	7	7	7	7	7
Total Petroleum Hydrocarbons	g/m ³	15	n/a	< 0.7	< 0.7	<1.4	<0.7	<0.7
Total Nitrogen	g/m ³	0.4	n/a	1.4	1.4	3.7	2.7	2.5
Total Tannins	g/m ³	Indicator test only	n/a	1.5	1.3	<5	1.2	1.1
Dissolved Oxygen	Total saturation	Not less than 80%	n/a	n/a	n/a	82.4	81	53.9
Conductivity	mS/cm	0.3	n/a	35.81	35.329	0.40	9.28	9.15
Total Resin Acids	g/m ³	0.06	n/a	<0.0001	<0.0001	<0.0001	<0.0001	n/a ³

1 - No sample was collected as no discharge from the ponds was occurring

2 - No sample was collected as no discharge from the ponds was occurring

3 - Sample bottle broke during transport to the lab so no analysis for this site was able to be collected

