Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

Waikanae River, Recharge and Borefield Annual Report 2018/19 - Consent WGN130103 [35973, 35974 & 35975]

Prepared for Greater Wellington Regional Council
by Kāpiti Coast District Council

[FINAL]

Revision History

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Action	Name	Signed	Date
Prepared by	R Millican		
Reviewed by	M Cole		27/9/19
Approved by	S Mallon		
on behalf of	*n/a*		

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1 Introduction and Compliance Summary

Kāpiti Coast District Council (Council) holds resource consents (WGN130103 [35973], [35974] and [35975])[1] to take groundwater from bores within the Waikanae Borefield for the purpose of supplementary public water supply through river recharge or emergency public water supply, to take water from the Waikanae River for public water supply and to discharge groundwater from the Waikanae Borefield to the Waikanae River for the purpose of river recharge and bore trialling.

The groundwater take consent authorises the abstraction of groundwater from eight production wells within the Waikanae Borefield. All eight of these wells were operable throughout the 2018/19 year (1 July 2018 to 30 June 2019). The locations of the eight production wells and monitoring bores are shown in Figure 1.

The consents include the requirement to monitor three ecosystems (Waikanae River, Small Coastal Streams and Wetlands) and the Waikanae Borefield. The consent requirements for annual reporting are detailed in Appendix A.

At the commencement of the 2018/19 season the Small Coastal Streams OMP was still under GWRC review and so monitoring was carried out as agreed with Greater Wellington Regional Council (GWRC) in the interim, and then as the approved Small Coastal Streams OMP, and in accordance with the approved Ongoing Mitigation Plans (OMPs).

Operation under the above consents was carried out as agreed with Greater Wellington Regional Council (GWRC) and in accordance with the approved Ongoing Mitigation Plans (OMPs). At the commencement of the 2018/19 season the Small Coastal Streams OMP was still under GWRC review and so an interim regime was agreed, and then operation was as the approved Small Coastal Streams OMP. Monitoring of the Small Coastal Streams for the 2017/18 interim period was undertaken as set out in the “River Recharge with Ground Water (RRwGW) Operations from 1 December 2018 until Small Coastal Streams OMP Approval” letter. For the 2018/19 period, monitoring continued in this fashion until the approval of the final version of the Small Coastal Streams OMP on 25 February 2019.

A Section 127 consent amendment application was made, and approved in March 2019, to reflect the completion of the operating period which included baseline monitoring and the commencement of normalised operation.

A summary of compliance for the 2018/2019 year is set out below, using the symbols shown in the following key.

[1] Consent permit numbers have been revised, associated with the approval of the S127 amendments of March 2019. Permit numbers were [34384], [34399], and [34400].

Table 1: Compliance Summary

Section	
River	River Abstraction
	River Recharge
	Downstream River Flows
	River Aquatic monitoring
Borefield	Abstraction Volumes and Rates
	Back-up wells PW1 and PW5
	Shallow Aquifer Drawdown Monitoring
	Deep Aquifer Drawdown Monitoring
	Saline Intrusion Monitoring
	Waikanae River Flow Gauging
Wetlands	Wetlands Monitoring
Small Coastal Streams	Small Coastal Streams Monitoring

Key	
	No triggers or actions needed
	Trigger or action
	Exceedance

There are a number of plans, manuals and reports required by the consent. These key documents are set out in the diagram in Appendix A.

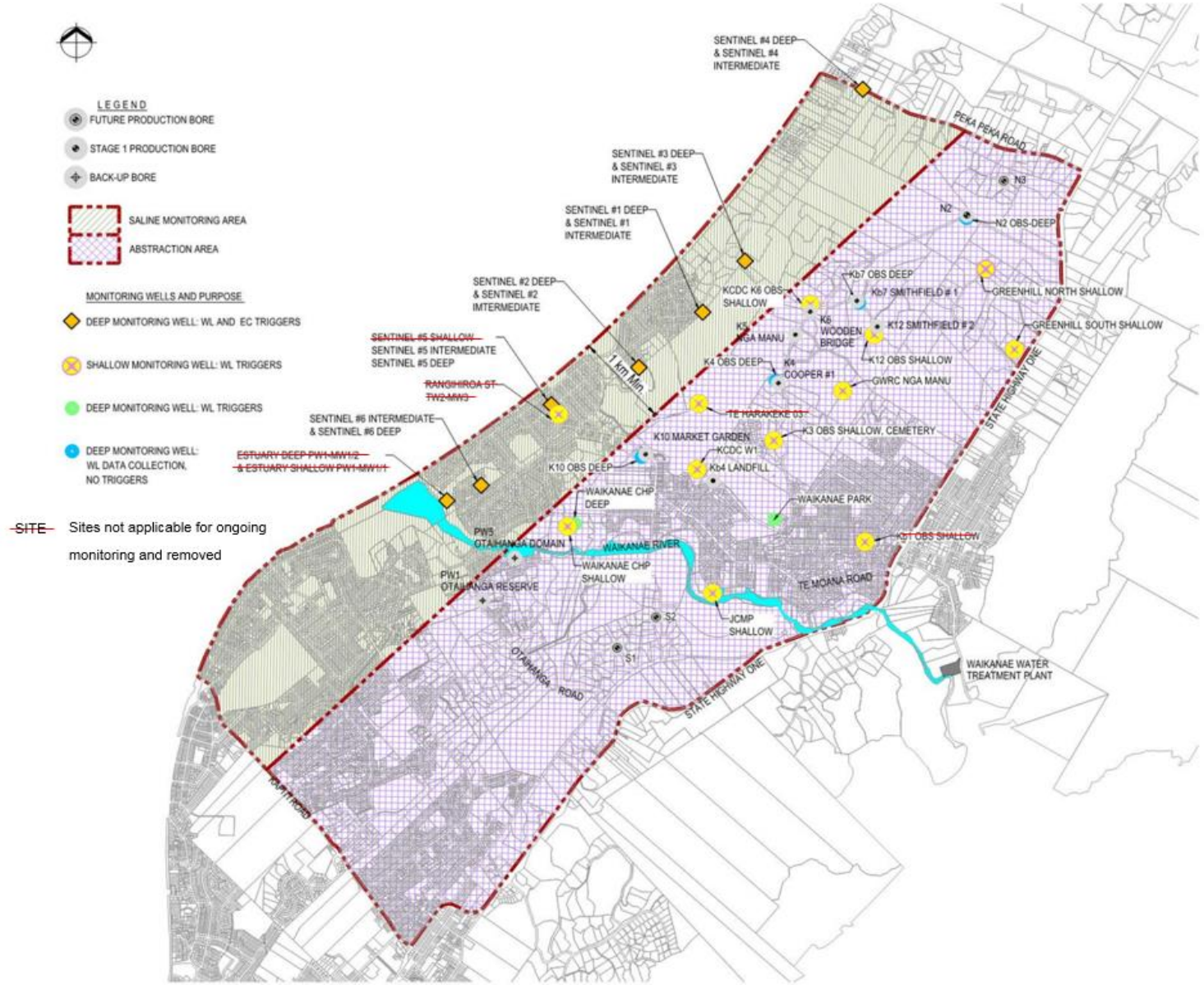

Figure 1: Location Plan - Waikanae Borefield Abstraction Wells and Monitoring Bores

2 Waikanae River

2.1 Waikanae River Flows

The Waikanae River flow is monitored by GWRC at a gauging station approximately 200m upstream of the Waikanae Water Treatment Plant (WTP) intake.

It is noted that Council's SCADA system receives river flow data from GWRC's SCADA system on an approximately 15-minute basis. The river flow data received and stored by Council is used for managing the water supply abstraction and this data is not back-corrected if GWRC subsequently updates the rating curve for the gauging station.

The upstream river flow for the 2018/19 monitoring period is displayed in Figure 2, and the peak and low flow periods are detailed in Table 2 below.

Table 2: Upstream Waikanae River Flows

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Peak flow	149,460 L/s on 22 February 2018	180,991 L/s on 8 July 2018
Minimum flow	744 L/s on 4 January 2018	878 L/s on 31 March 2019
Low flow periods when river recharge used	December, January and February	February, March and April

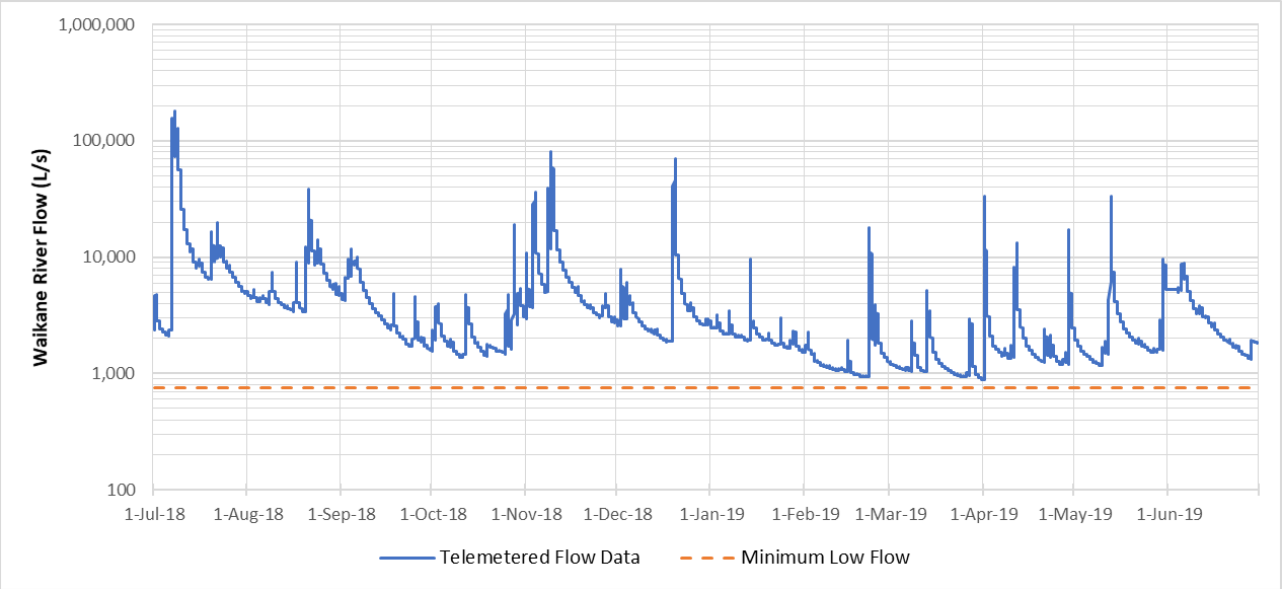

Figure 2: Waikanae River Flow at Water Treatment Plant (July 2018 – June 2019)

Upstream river flows were above 750 L/s for the monitoring period.

2.2 River Abstraction

No triggers or actions needed

Council measures and records the flow rates and volumes of water abstracted from the Waikanae River by way of a flow meter at the WTP intake. Council regularly submits its river abstraction records to GWRC, as per Condition 13 of consent WGN130103 [35974]; this is done automatically from Council's SCADA to

GWRC's Water Use Data Management System (Hydrotel). The instantaneous abstraction rate was less than consent conditions at all times.

The daily abstraction volumes for the reporting period are provided in Table 3 and plotted in Figure 3 below. The red line is the maximum allowable daily take permitted by the consent.

Table 3: Daily and Annual Waikanae River Abstractions

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Maximum daily abstraction	17,361 m^3/day (on 26 May 2017)	16,179 m^3/day (on 16 January 2018)	18,203 m^3/day (on 11 July 2018)
Maximum allowable daily volume permitted by Condition 5 of consent WGN130103 [35974]	30,700 m^3/day	30,700 m^3/day	30,700 m^3/day
Total annual abstraction volume	4,300,806 m^3	4,234,839 m^3	4,205,329 m^3
Equivalent average daily abstraction	11,783 m^3/day	11,602 m^3/day	11,521 m^3/day
Maximum total abstraction volume permitted by Condition 5 of consent WGN130103 [35974]	11,174,800 m^3/year	11,174,800 m^3/year	11,174,800 m^3/year

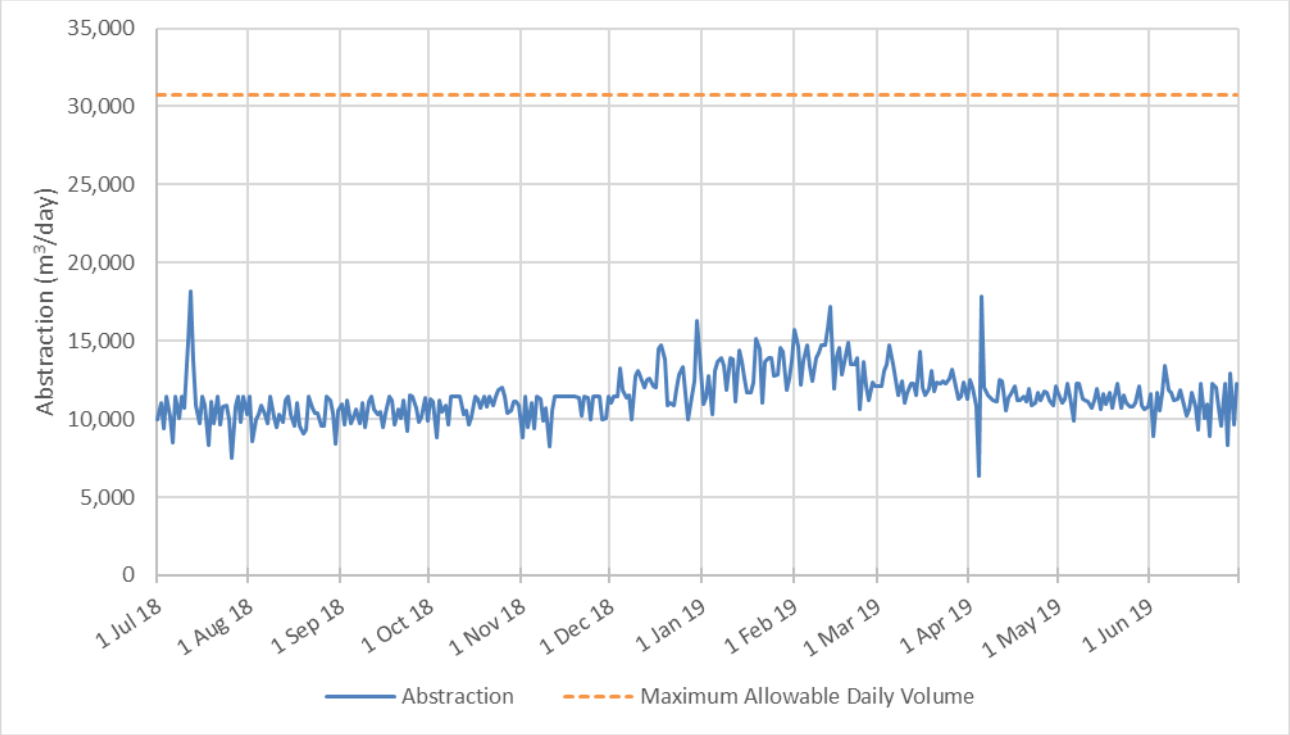

Figure 3: Waikanae WTP River Abstraction Volumes (m^3/day)

No daily abstraction volumes exceeded the consent conditions in the 2018/19 period.

The instantaneous rates of abstraction (recorded at 15-minute intervals) for the reporting period are shown in Table 4 and Figure 4 below.

Table 4: Instantaneous rates of abstraction from Waikanae River

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	
Maximum abstraction rate	244 L/s on 18 July 2016	240 L/s on 24 July 2018	250 L/s on 10 July 2019
Maximum abstraction rate at time of maximum abstraction permitted by Condition 5 [35974]*	463 L/s	463 L/s	463 L/s

** 355 L/s when the flows in the river are below 1,400 L/s and 463 L/s when the flows in the river are above 1,400 L/s. This is adjustment to maximum abstraction rate is also expressed in Figure 4.*

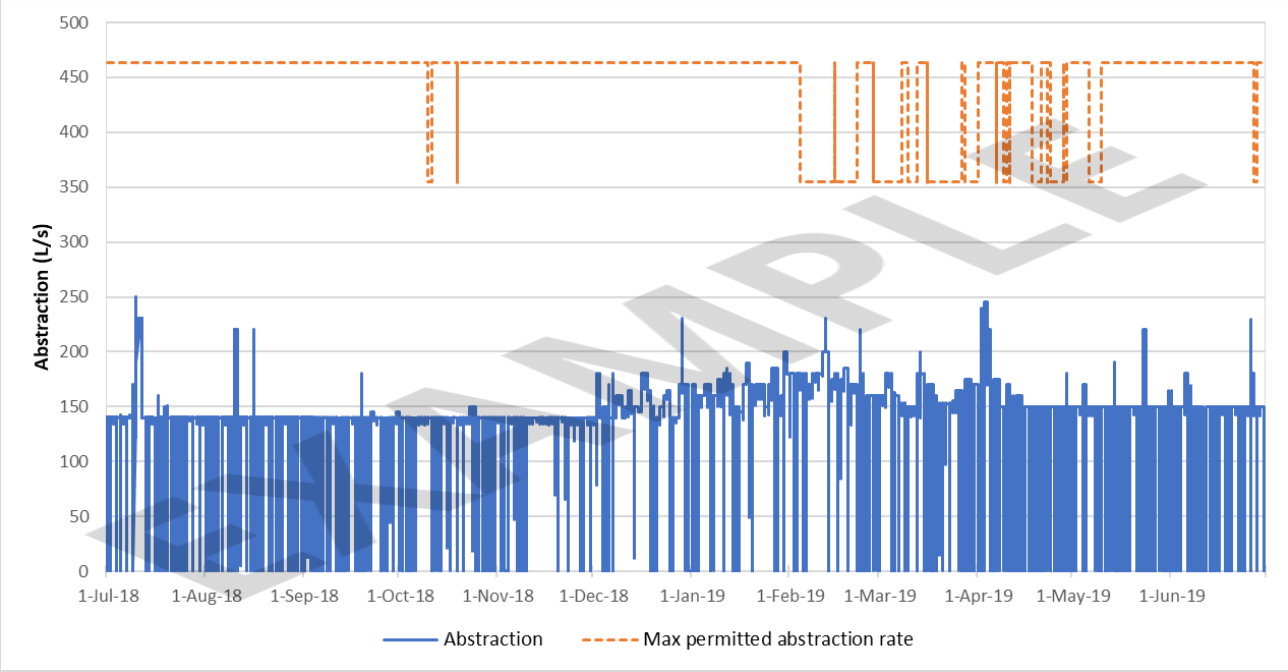

Figure 4: Waikanae WTP River Abstraction Rates (L/s)

2.3 River Recharge

No triggers or actions needed

River recharge must be used when required by the notification of low flows in the Waikanae River, to maintain the downstream river flow at 750 L/s, or at its natural upstream flow rate if less than 750 L/s. The recharge is undertaken in accordance with the approved Bore Preference Hierarchy Plan and approved River OMP.

The trigger for periphyton monitoring and water quality sampling in the river is when discharge of bore water to the river exceeds 225 L/s for at least 48 hours. This trigger was not exceeded during this period.

The daily and instantaneous discharge of groundwater from the borefield to the river are outlined in Table 5 and plotted in Figure 5 and Figure 6 below.

Table 5: River recharge discharges into the Waikanae River

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Number of days of river recharge	0 days	26 days in December, January and February	10 days in February, March & April @
Maximum river recharge	0 m^3/day	17,657 m^3/day on 3 January 2018	7,639 m^3/day on 31 March 2019
Ecological monitoring trigger exceeded? *	N/A	Trigger not exceeded	Trigger not exceeded
Number of days of short duration discharges #	12 days	17 days	12 days
Total volume of bore water discharged to the Waikanae River (river recharge and additional short-term discharges)	19,950 m^3	255,978 m^3	47,029 m^3

**recharge exceeds 225L/s for 48 hours or greater.*

#*discharge from the Waikanae borefield to the Waikanae River of less than six hours, up to maximum consented take, for bore maintenance, testing and stakeholder consultation (max. cumulative duration is 24 hours over a 30-day period).*

@*falling on dates: 19-22 February, 28 February, 25-26 March, 30 March to 1 April.*

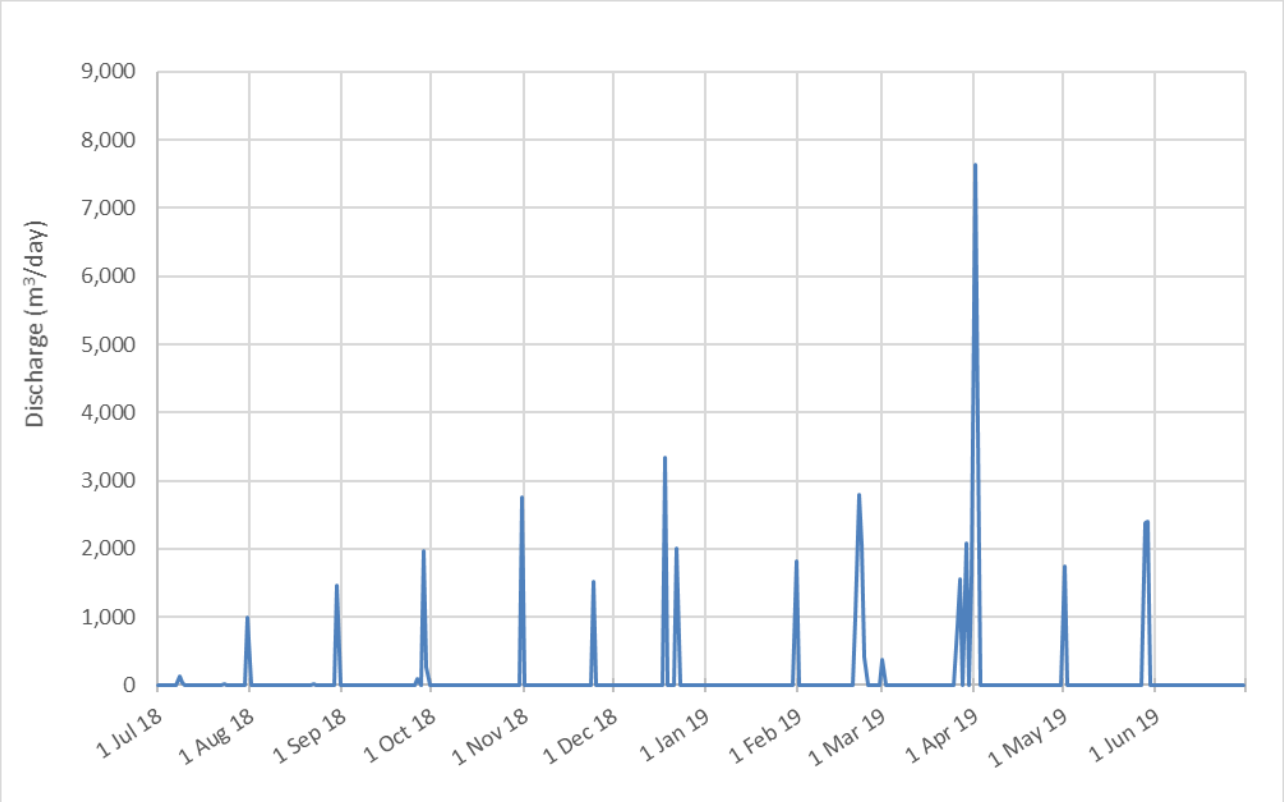

Figure 5: Daily Waikanae River Recharge (and Short Duration Discharges) for 2017/18 (m^3/day)

The Figure 5 chart depicts a notable peak in discharge rate at the end of March 2019. This relates to the coincidental operation of the recharge system in automatic river recharge mode, but overlapping with entry to bore testing mode. This bore test was also longer than usual.

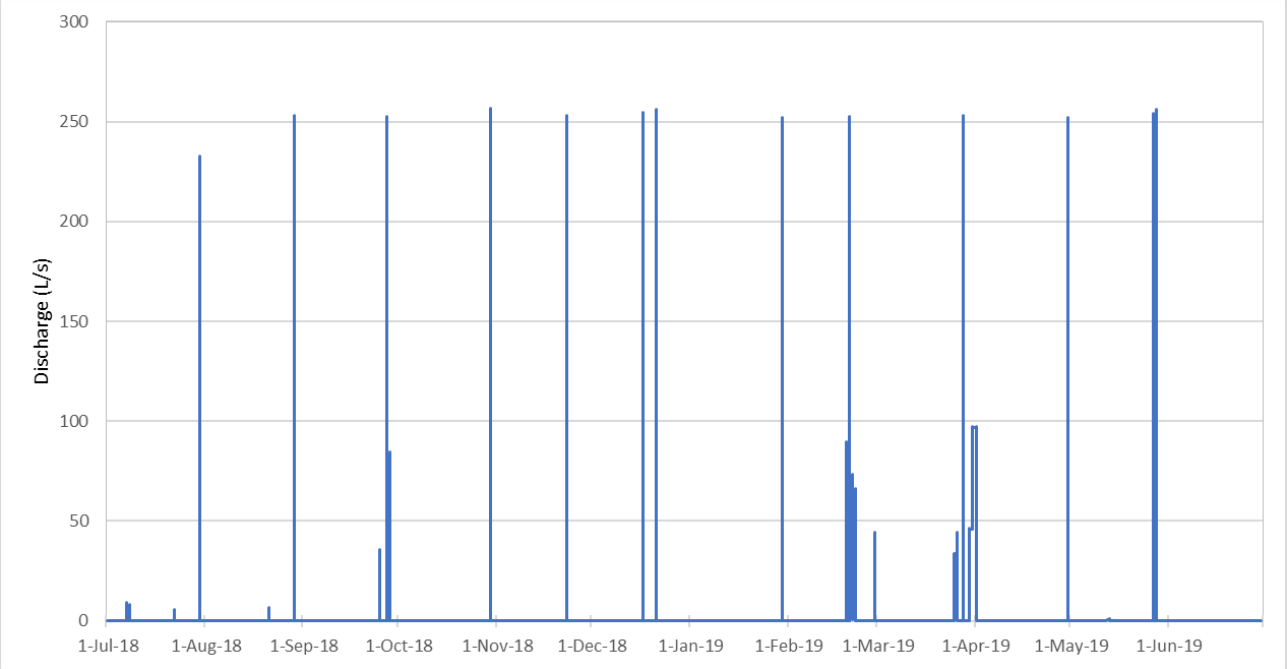

Figure 6: Instantaneous Waikanae River Recharge (and Short Duration Discharges) 2018/19 (L/s)

Due to low river flows during the 2018/19 period, river recharge was used for 10 days over January through to early April. The total volume of bore water discharged to the river included recharge and an additional 12 days of short duration discharges for routine bore testing and maintenance. The discharges in relation to testing and maintenance of the bores fell within the constraints for Short Duration Discharges as defined by Consent WGN130103 [35975]].

2.4 Downstream River Flows

No triggers or actions needed

Due to low river flows in the Waikanae River during December 2018 to April 2019, Council abstracted water from the Waikanae Borefield for river recharge for a total of 10 days. Following the full detailed review of the data for the preparation of this Annual Report it was identified that the 750 L/s downstream flow requirement was maintained on all occasions during this period.

The flow immediately downstream of the Waikanae Water Treatment Plant river recharge discharge structure is calculated as required by Condition 6 of consent WGN130103 [35974] and condition 12 of WGN130103 [35975]. During low flow periods, a minimum flow of 750 L/s is to be maintained downstream of the WTP unless the river naturally falls below this level upstream of the river intake to the WTP. The low downstream Waikanae River Flow data is detailed in Table 6 below.

Figure 7 shows the river flow at the GWRC gauging site upstream of the WTP (grey line), the WTP abstraction (yellow line), the river recharge (purple line; these are all as 15-minute readings taken from Council's SCADA) and the resulting calculated flow immediately downstream of the WTP (blue line) during the period of low river flows in 2018/19.

Table 6: Downstream Waikanae River Flows

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Lowest downstream river flow	1439 L/s on 7 December 2016. Recharge not required	596 L/s on 30 January 2018**	777 L/s on 19 February 2019
Minimum flow of downstream river in accordance with Condition 6 of consent WGN130103 [35974] and condition 12 of WGN130103 [35975]*	750 L/s	750 L/s	750 L/s
Maximum percentage recharge flow of river flow downstream	N/A	30%	24%

***river re-gauging undertaken on this date by GWRC*

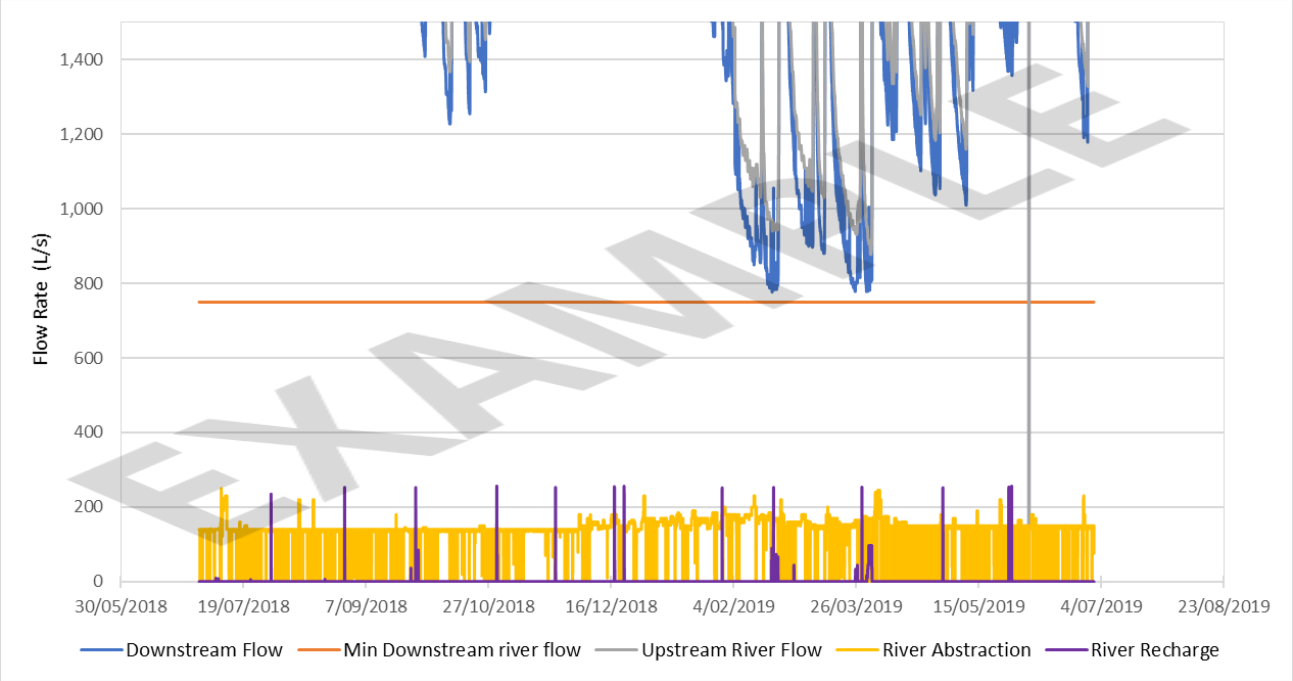

Figure 7: River flow upstream and downstream of WTP during low flow period December 2017 to February 2018.

2.5 River Aquatic Monitoring

No triggers or actions needed

Since the recharge of bore water did not exceed 225L/s for 48 hours, periphyton and water quality monitoring was not required over the 2018/19 period.

Periphyton and water quality monitoring in the Waikanae River is required when recharge of bore water exceeds 225L/s for 48 hours. Macroinvertebrates samples are taken when the level of periphyton in the river reaches high or very high levels as defined in the agreed letter. Section 2.3 Table 5 details if the ecological monitoring trigger was reached for the period, which it was not.

Table 7: River aquatic monitoring undertaken

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Periphyton monitoring	Not required	Not required
Water Quality Sampling- DRP	Not required	Not required
Water Quality Sampling- Conductivity	Not required	Not required
Temperature	Not required	Not required

River Aquatic monitoring was carried out in accordance with the 2017 alternative fish monitoring methodology, and as set out in the approved River OMP. Going forward, fish monitoring is no longer required. Surveys were undertaken in the river above and below the Waikanae WTP; the results of this monitoring are documented in the report “Waikanae River Riffle Fishing Report” of 2 May 2019 by Boffa Miskell, which is included as Appendix B and summarised in Table 9 below.

See section 7 for notes on the outcomes of AMG Meeting (held 29/8/19) with regard to this OMP.

Table 8: Fish Surveys undertaken

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Fish Monitoring	4 surveys undertaken February to March 2018.	4 surveys undertaken February to March 2019.

3 Waikanae Borefield

3.1 Abstraction Volumes and Rates

No triggers or actions needed

All individual bore abstractions were below the Stage 1 maximum yield values in Condition 8 of WGN130103 [35973].

Abstraction from each production well (L/s and m³/day) is measured and recorded in accordance with Conditions 13, 14 and 20 of consent WGN130103 [35973]. Council submits full abstraction records automatically via SCADA to GWRC as required by Condition 18. A summary of the abstraction for this reporting period is provided below. The total daily abstraction from the Waikanae Borefield is plotted in Figure 8.

Table 9: Total daily and annual volumes pumped from the production bores

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Total annual volume pumped	28,759 m³	245,941 m³*	43.818 m³
Annual permitted volume (Condition 8 of WGN130103 [35973])	2,300,000 m³/year	2,300,000 m³/year	2,300,000 m³/year
Maximum total daily take volume and date	4,489 m³/day on 31 May 2017	Before 31 Dec 17: 13,325 m³/day* on 13 December 2017 After 31 Dec 17: 16,707 m³/day on 1 February 2018	6,631 m³/day on 31 March 2019
Maximum daily take permitted by Condition 6 of WGN130103 [35973]**	23,600 m³/day	Before 31 Dec 17: 21,000 m³/day After 31 Dec 17: 23,600 m³/day	23,600 m³/day

** These values exclude the anomaly on 13 December 2017 as a result of meter calibration works.*

*** For the latter part year 2017/18 and the former part of year 2018/19 the maximum daily take was set at 21,000 m³/day, pending approval of all OMPs. This is now 23,600 m³/day, following the approval of the Borefield, Wetland and Small Coastal Streams OMPs.*

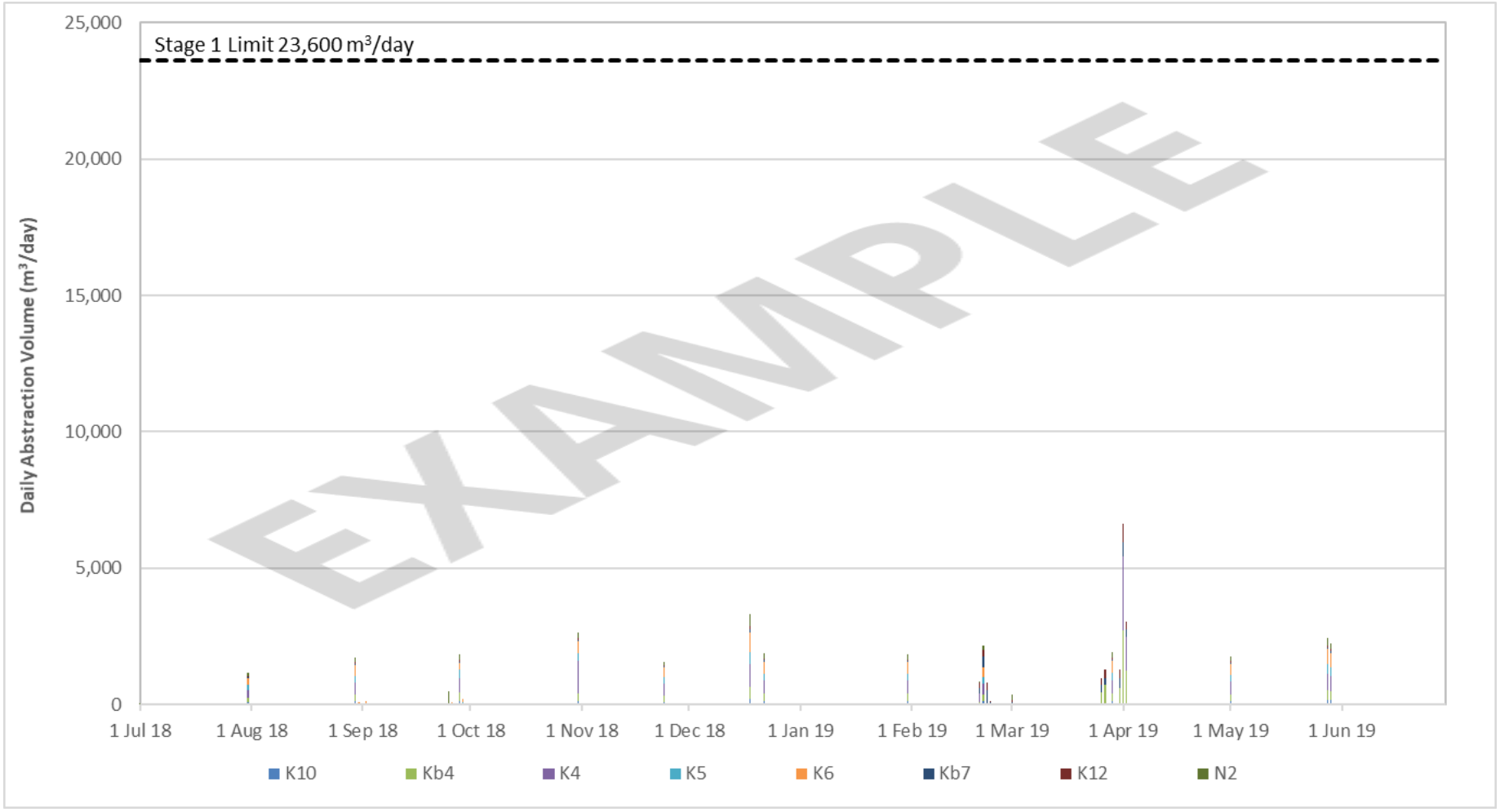

Figure 8: Daily Abstraction Volumes from Production Wells

The total instantaneous abstraction rate from the production wells is shown in Table 11 and plotted in

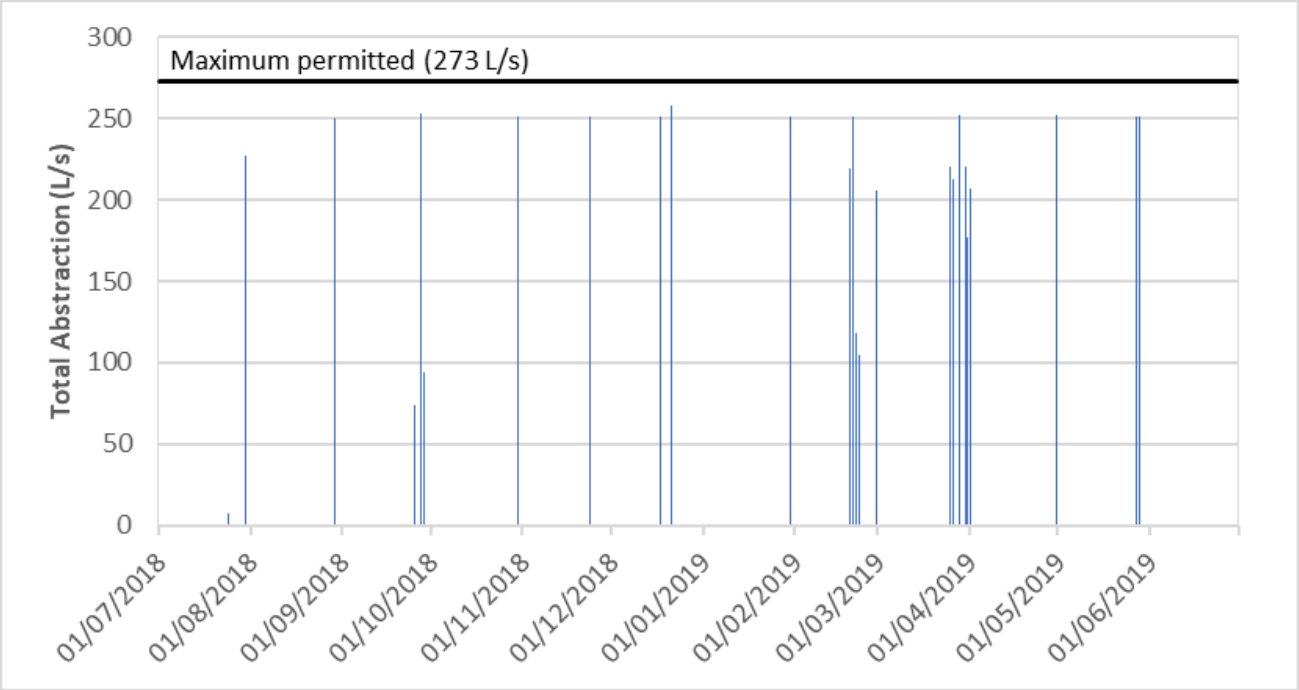

Figure 9 below.

Table 10: Total instantaneous abstraction rate from production wells

Period	1 July 2016 - 30 June 2017	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Maximum combined abstraction	244 L/s for 4 hours on 31 May 2017	272 L/s for 30 minutes on 29 November 2017	258 L/s for 15 minutes on 21 December 2018.
Maximum instantaneous abstraction permitted by Condition 8 of WGN130103 [35973].	273 L/s	273 L/s	273 L/s

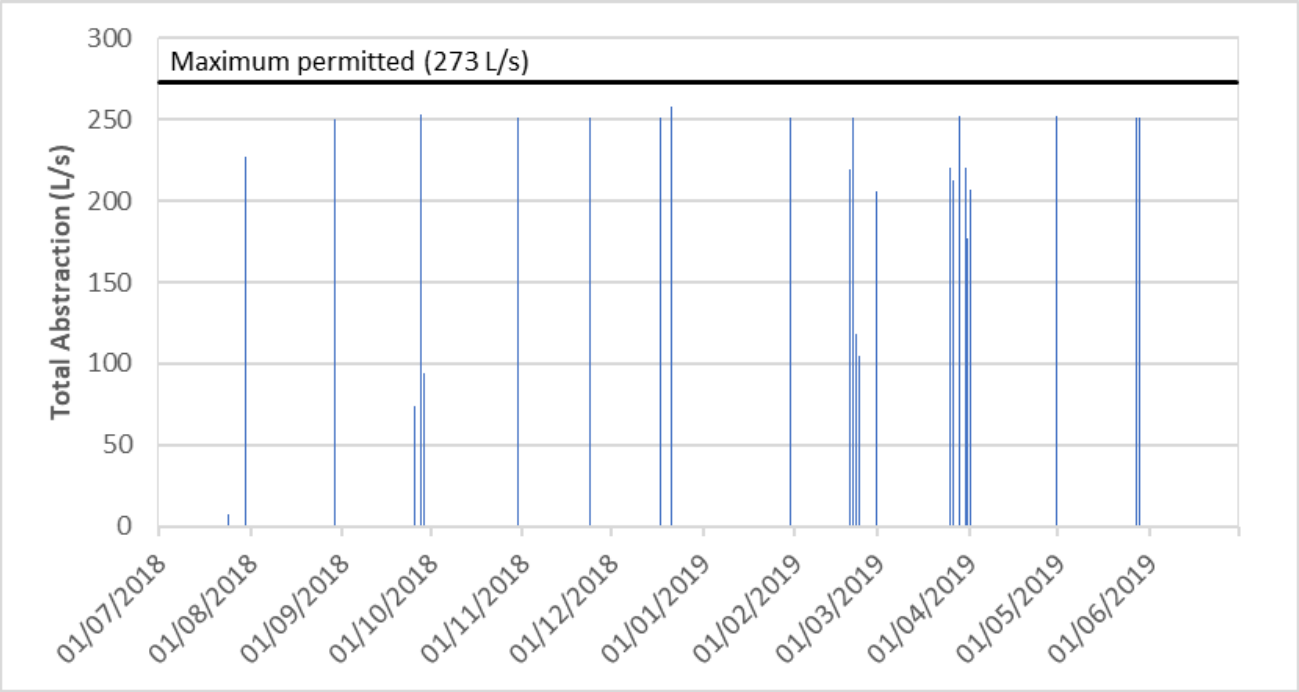

Figure 9: Total Instantaneous Abstraction from Production Wells

The combined instantaneous abstraction from the Borefield was below the maximum abstraction permitted by Condition 8 of WGN130103 [35973] during the 2018/19 period. The maximum instantaneous abstraction rates for the individual production bores are detailed in Table 12 below.

Table 11: Maximum Instantaneous abstraction rates for the individual production bores

Maximum instantaneous abstraction	Stage 1 Maximum yield (Condition 8 of WGN130103 [35973])	1 July 2017 - 30 June 2018 *	1 July 2018 - 30 June 2019 *
K10	36 L/s	17 L/s	17 L/s
Kb4	35 L/s	35 L/s	35 L/s
K4	65 L/s	65 L/s	65 L/s
K5	36 L/s	36 L/s	36 L/s
K6	58 L/s	58 L/s	58 L/s
Kb7	8 L/s	6 L/s	6 L/s
K12	10 L/s	8 L/s	8 L/s
N2	25 L/s	25 L/s	25 L/s

* The apparently identical nature of values shown for 2017/18 and 2018/19 seasons is due to rounding; it correctly reflects historic data.

3.2 Flow Gauging

No triggers or actions needed

This trigger for additional flow monitoring was not reached during the 2018/19 period.

Measurement of Waikanae River flows at Jim Cooke Memorial Park are undertaken when the borefield abstraction exceeds 23,000 m³/day for a three-day period as outlined in approved River and Borefield OMPs.

Table 12: Flow gauging of the Waikanae River

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Flow Gauging Trigger Status	Borefield abstraction of 23,000 m³/day for a three-day period was not exceeded.	Borefield abstraction of 23,000 m³/day for a three-day period was not exceeded.

3.3 Back-up Wells PW1 and PW5

No triggers or actions needed

The Back-up wells PW1 and PW5 were not connected to the reticulation and therefore were not used for back up water supply in the 2018/19 period.

Council holds a separate resource consent WGN050025 [33147] for two groundwater bores in Otaihanga (PW1 and PW5) for back up water supply.

Table 13: Combined abstraction from wells PW1 and PW5 for back up public water supply to the surrounding communities

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Combined abstraction from wells PW1 and PW5	Wells not used for back up water supply	Wells not used for back up water supply
Maximum combined abstraction permitted by Consent WGN050025 [33147].	7,000 m³/day	7,000 m³/day

3.4 Borefield Monitoring Programme

The Borefield Monitoring Programme is set out in the approved Borefield OMP.

3.4.1 Shallow Aquifer Drawdown Monitoring

No triggers or actions needed

Table 14 below lists the shallow aquifer monitoring sites, the applicable trigger levels and the minimum water level (daily average) recorded during the reporting period compared to last year.

A review of level measurement values has not indicated the need to amend the trigger levels currently in use.

Table 14: Shallow Aquifer Drawdown Monitoring Wells and Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Min level last reporting period 2016/17 (mm AMSL)	Min level this reporting period 2017/18 (mm AMSL)	Min level this reporting period 2018/19 (mm AMSL
		Alert (mm AMSL)	Action (mm AMSL)	Cease (mm AMSL)			
KCDC K6 Obs Shallow	R26/6992	2180	1980	1780	3373	3234	3188
GWRC Nga Manu	R26/6991	7138	6938	6738	8100	7917	7883
KCDC W1	R26/7025	4350	4150	3950	4321	4945	5025
Waikanae CHP Shallow	R26/6916	1445	1245	1045	1684	1981	2226

Well Name	GWRC Bore Number	Trigger Level			Min level last reporting period 2016/17 (mm AMSL)	Min level this reporting period 2017/18 (mm AMSL)	Min level this reporting period 2018/19 (mm AMSL
		Alert (mm AMSL)	Action (mm AMSL)	Cease (mm AMSL)			
K12 Obs Shallow, Smithfield Rd	R26/6300	5035	4835	4635	3931	5617	5631
JCMP Shallow, Jim Cooke Memorial Park	N/A	6641	6441	6241	7443	7397	7439
K3A Obs Shallow, Cemetery	R26/6290	6964	6764	6564	7963	7903	6998
Greenhill North Shallow, Greenhill Rd North	N/A	6387	6187	5987	7341	6933	6979
Greenhill South Shallow, Greenhill Rd South	N/A	11829	11629	11429	13318	12344	12538

Minor component failures, operations and maintenance activities caused a small number of alarm notifications which were automatically repeated to GWRC and followed up on during the year. Table 15 below summarises trigger and notification information.

Table 15: Shallow Aquifer Triggers

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Total number of notifications	7	5
Total number of actual triggers	0	0

Notifications of trigger values were received for 5 March and 29 April 2019 from K6 Shallow observation bore. GWRC were notified. Both events were due to monitoring system anomalies. On 29 April 2019 (11:41pm) the notification triggered a visit from Council's technician who, planning to replace the level monitor (based on anomalous values seen on SCADA), found sensor signal cable damage similar to rodent interference. This false data has been excluded from the trigger calculation.

3.4.2 Deep Aquifer Drawdown Monitoring

No triggers or actions needed

There were no alarm triggers during this monitoring period for Intermediate or Deep monitoring bore levels.

Table 17 lists the deep aquifer monitoring sites, the applicable trigger levels and the minimum water level (daily average) recorded during this year's reporting period compared to last year.

Table 16: Deep Aquifer Drawdown Monitoring Wells and Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Min level reporting period 2016/17 (mm AMSL)	Min level last reporting period 2017/18 (mm AMSL)	Min level this reporting period 2018/19 (mm AMSL)
		Alert [mm AMSL]	Action [mm AMSL]	Cease [mm AMSL]			
Sentinel #1 Deep, Rutherford Drive	R26/6378	-1537	-3787	-5475	3449	1988	3324

Well Name	GWRC Bore Number	Trigger Level			Min level reporting period 2016/17 (mm AMSL)	Min level last reporting period 2017/18 (mm AMSL)	Min level this reporting period 2018/19 (mm AMSL)
		Alert [mm AMSL]	Action [mm AMSL]	Cease [mm AMSL]			
Sentinel #1 Intermediate, Rutherford Drive	N/A	-2526	-4776	-6463	2172	1554	1876
Sentinel #2 Deep, Hodgkins Rd	N/A	-898	-2698	-4048	3030	2214	2891
Sentinel #2 Intermediate, Hodgkins Rd	N/A	-1757	-3557	-4907	1961	1336	1683
Sentinel #3 Deep, Old WWTP	R26/6776	-2090	-4490	-6290	3287	1354	3188
Sentinel #3 Intermediate, Old WWTP	N/A	-2547	-4947	-6747	2338	1841	2348
Sentinel #4 Deep, Peka Peka Rd	N/A	1832	932	257	4090	3650	3958
Sentinel #4 Intermediate, Peka Rd	N/A	284	-616	-1291	2262	2098	2085
Sentinel #5 Intermediate, Taiata St	R26/6955	-393	-1443	-2231	1847	1794	1825
Sentinel #5 Deep, Taiata St	N/A	19	-1031	-1819	2239	1922	2124
Sentinel #6 Deep, Tamati Place	N/A	560	-190	-752	2225	2041	2107
Sentinel #6 Intermediate, Tamati Place	N/A	599	-151	-714	2184	2069	2073
Waikanae CHP Deep	R26/6594	540	-510	-1298	1994	2432	2681
Waikanae Park	R26/6284	4611	2511	936	9093	8678	8662

Table 17: Deep Aquifer Triggers

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Total number of notifications	18	0
Total number of actual triggers	0	0

3.4.3 Saline Intrusion Monitoring

No triggers or actions needed

Table 18 lists the saline intrusion monitoring sites, the applicable trigger levels and the maximum electrical conductivity (daily average) recorded during this year's reporting period compared to last year.

Table 18: Saline Intrusion Monitoring Wells Electrical Conductivity Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Max last reporting period 2016/17	Max this reporting period 2017/18	Max this reporting period 2018/19
		Alert (µS/cm)	Action (µS/cm)	Cease (µS/cm)	(µS/cm)	(µS/cm)	(µS/cm)
Sentinel #1 Deep, Rutherford Drive	R26/6378	1500	1875	2188	997	1496	986
Sentinel #1 Intermediate, Rutherford Drive	N/A	521	651	760	486	485	462
Sentinel #2 Deep, Hodgkins Rd	N/A	1532	1915	2234	1201	1217	1226
Sentinel #2 Intermediate, Hodgkins Rd	N/A	1699	2124	2478	1305	1034	925
Sentinel #3 Deep, Old WWTP	R26/6776	1342	1677	1956	1061	1060	1025
Sentinel #3 Intermediate, Old WWTP	N/A	2789	3486	4067	1088	889	699
Sentinel #4 Deep, Peka Peka Rd	N/A	866	1082	1262	736	720	710
Sentinel #4 Intermediate, Peka Peka Rd	N/A	761	951	1110	645	794	719
Sentinel #5 Intermediate, Taiata St	R26/6955	3642	4553	5311	3042	3186	3162
Sentinel #5 Deep, Taiata St	N/A	5818	6518	7218	5062	5249	5761
Sentinel #6 Deep, Tamati Place	N/A	8693	9393	10093	8018	8116	8700
Sentinel #6 Intermediate, Tamati Place	N/A	1684	2105	2455	1419	1440	1835

Operations and maintenance activities caused alarm notifications which were automatically repeated to GWRC and followed up on during the year. The number of actual triggers from the alarm notifications are shown in Table 19 below.

Table 19: Saline Intrusion Monitoring Triggers

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Total number of notifications	7	2
Total number of actual triggers	1	0

The above depicted alert levels are coincident at Sentinel #6 Deep and Intermediate sensor placings with sensor performance issues, including ongoing calibration problems. Importantly, however, no event coincided with River Recharge bore abstraction. The official Notification on conductivity level occurred in November 2018, resulting in replacement of Sentinel #6 Intermediate sensor (NB: the last use of the bore for river recharge was in February 2018). Notably, a number of events automatically notified by the SCADA system are “cascade” events, where the three alarm levels (Alert, Action, Cease) have the same date-stamp, and so are assumed one notification.

3.5 Bore Water Quality Monitoring

No triggers or actions needed

3.5.1 Production Bores

Bore water quality samples were taken from production bores at the start of the abstraction season on 17 December 2018.

Water quality sampling is compulsory at the conclusion of the monitoring season if the abstraction from the borefield reaches 23,000m³/day for three consecutive days or reaches a volumetric measure of 540,000m³ or more, or if end of season sampling has not taken place in the last two years, as defined by the approved Borefield OMP.

Bore Water Quality Sampling results taken on 17 December and 28 May 2019 can be found in Appendix D. No non-compliance indicators are noted.

3.5.2 Blended Bore Water

Blended Bore Water sampling is no longer required going forward, as per the approved Borefield OMP.

3.6 Potentially Affected Existing Private Wells

GWRC confirmed on 21 July 2016 that Council has met all requirements of Condition 7 for Stage 1.

Condition 7 of consent WGN130103 [35973] requires work to be undertaken to identify potentially affected existing authorised wells (and also actions (b)-(d) listed in the condition) prior to implementing each stage of the project as referenced in Condition 6.

A website provides groundwater level monitoring information as well as contact details if well users wish to discuss issues arising or make complaints. Refer to the web pages found at the following address: Kāpiti Coast DC - River Recharge & Private Bores.

3.7 Complaints

There were no complaints received alleging adverse effects from, or related to, abstraction from the Waikanae Borefield in the 2018/19 year.

Condition 45 of consent WGN130103 [35973] requires Council to maintain an on-going record of any complaints received alleging adverse effects from, or related to, abstraction from the Waikanae Borefield, including complaints of any adverse effects on private bores. The Complaints Record is attached in Appendix E. This Appendix is empty if there were no complaints.

Table 20: Complaints Record

Period	1 July 2017 - 30 June 2018	1 July 2018 - 30 June 2019
Number of complaints	0	0

4 Wetlands Monitoring

No triggers or actions needed

As required by the approval of the Wetland OMP, wetland triggers are applicable to Nga Manu wetland for Stage 1. No trigger was reached in the 2018/19 period for the wetlands.

A graph presenting the Nga Manu wetland groundwater levels for the 2018/19 year (including the monitoring period Dec 2018 - May 2019) is presented in Figure 10, below, which includes regression analysis of the trigger levels, based on district-wide shallow groundwater effects.

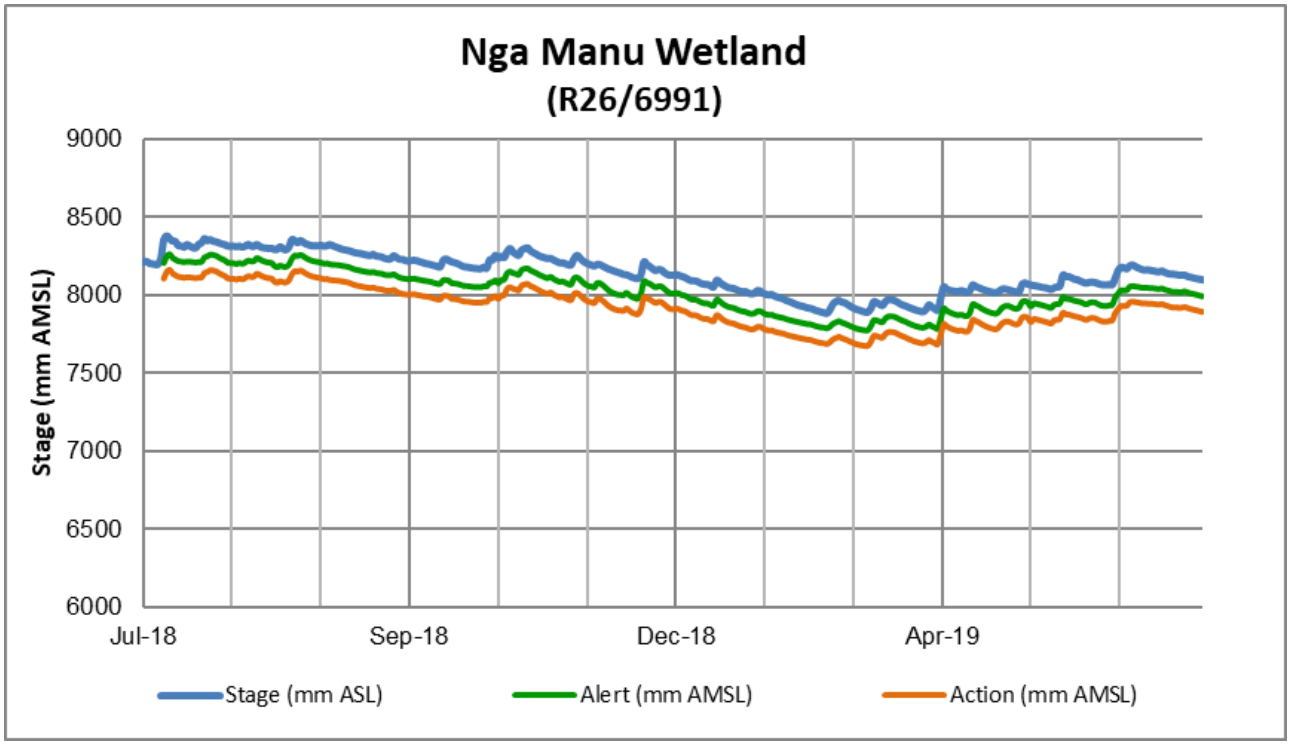

Figure 10: Nga Manu Wetland Levels and Trigger Regression Analysis

Te Harakeke wetland is to be included in an updated Wetland OMP if access can be regained. GWRC is to be advised when access is regained and Council will implement triggers and environmental monitoring in accordance with requirements at the stage when access is regained.

5 Small Coastal Streams Monitoring

No triggers or actions needed

There were no triggers notified for the Ngarara coastal stream in this period.

One small coastal stream site, Ngarara Stream has been monitored this year as defined in the "RRwGW - Operations from 1 December 2018 until Small Coastal Streams OMP Approval" letter. This approach has been superseded by the Small Coastal Stream OMP, now approved by GWRC. The required monitoring period is from 1 December 2018 to 1 May 2019. The ground water and stream level for the small coastal stream are shown in Figures 11 and 12, below.

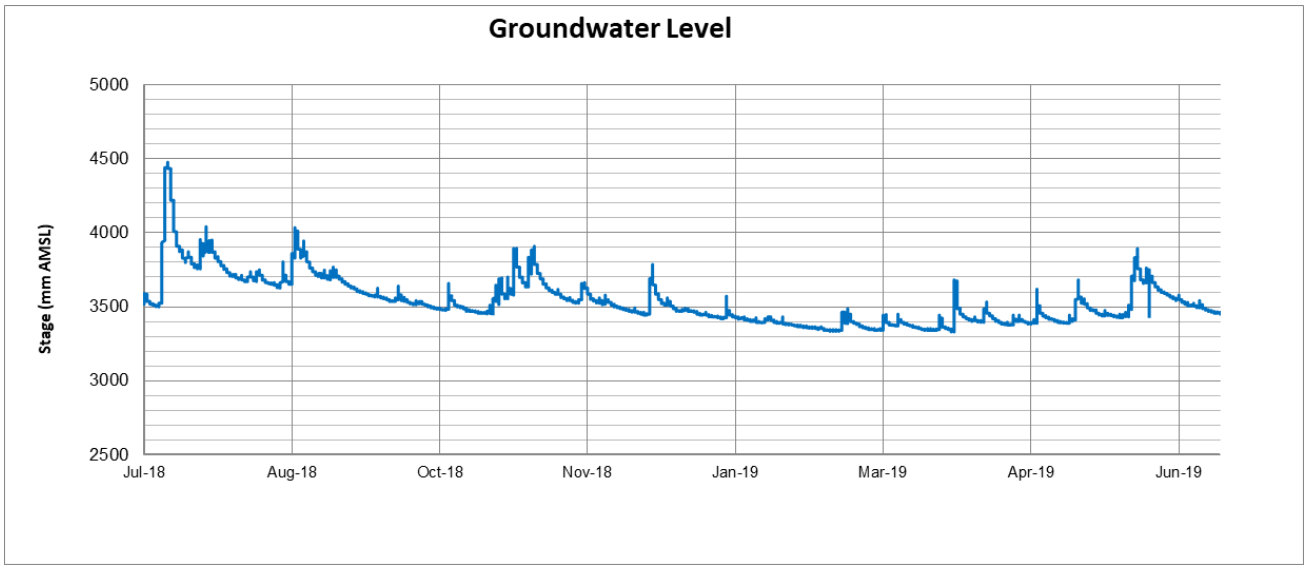

Figure 11: Ground water levels for Ngarara Small Coastal Stream

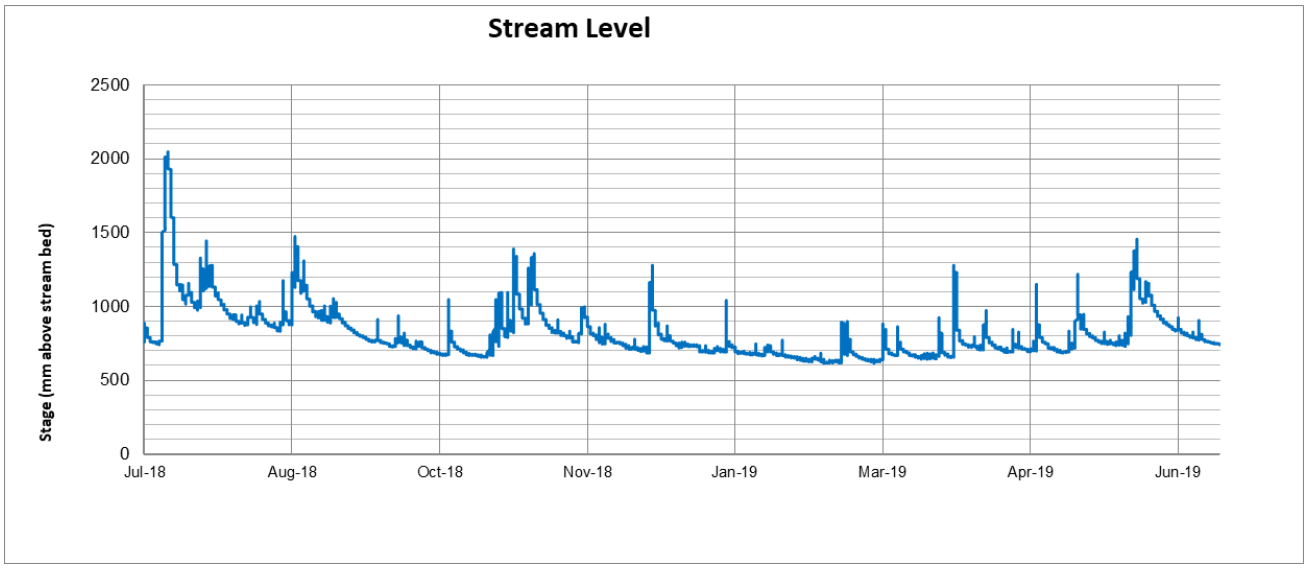

Figure 12: Stream levels for Ngarara Small Coastal Stream

Trigger levels apply from the 25 February 2019 approval of the Small Streams OMP. These are outlined below in Table 21. Triggers use data from both the stream and groundwater measurement points. The notes to Table 21 indicate that statistical conditioning, based on historical data, is to apply to the measured values.

For ‘Action’ and ‘Cease’ levels the caveat “assuming at least one correlation exercise has been undertaken for the current “event” with the measured 35th percentile depth” is noted.

Table 21 Trigger Levels for Small Coastal Streams

Location	Trigger Level			Min this reporting period 2018/19
	Alert (mm -)	Action (mm -)	Cease (mm -)	(mm -)
Ngarara Groundwater Level (mm AMSL)	2500 *			3,330
Ngarara Stream Level (mm above stream bed)		300 #	150 +	615

* and 200mm below the lowest recorded shallow groundwater level for historic monitoring results minus 15% of the range in water levels recorded.

35th percentile stream depth is less than 300mm determined from staff gauge measurement.

+ 35th percentile stream depth is less than 150mm determined from static staff gauge measurement.

The approved OMP indicates an adaptive management approach to assessment of applicable triggers. For this reporting period the interim trigger levels will be used when compared with current data. A more detailed analysis will be presented in the 2019/20 period report, using the historic data then available, and trigger levels will be considered further given more extensive deployment of the Borefield.

6 Operations

6.1 Operations Log and Maintenance Undertaken

Council has confirmed that its existing SCADA system together with the NCS system are an 'electronic data management system' which records and stores the information required by Condition 20 of consent WGN130103 [35973] and Condition 18 of consent WGN130103 [35974]. Borefield abstraction, river abstraction and river recharge data is automatically transmitted from Council's SCADA system to GWRC's Water Use Data Management System. Council has implemented WaterOutlook as a system to store and report data and operational information relating to the Waikanae Borefield. Council is also using WaterOutlook to store and report data and operational information relating to the Waikanae River take and recharge.

A copy of the site logs for each production bore is included in Appendix C. Appendix C also includes the Waikanae River take and recharge operational records.

6.2 Operation and Maintenance Manuals

The Waikanae Borefield Operation and Maintenance Manual (BOMM) and current Waikanae River Take Operations and Maintenance Manual (ROMM) have been approved by GWRC and were last updated on 19 December 2018. The following have also been approved by GWRC: Borefield Ongoing Mitigation Plan (OMP; dated 29 November 2018), Wetland OMP (dated 9 March 2018), SCS OMP (dated 21 February 2019), and River OMP (dated 15 October 2018).

7 Mitigation/Adaptive Management

The 2018/19 year monitoring activities have been completed in accordance with the recently approved OMPs. The annual AMG Meeting was held in August 2019 to discuss the operation of the RRwGW for the year. The following notes reflect the minutes of the AMG Meeting where adaptive management of mitigation plans was discussed. At this stage other triggers, that might initiate changes to mitigation plans, have not been identified.

7.1 Mitigation Plan Considerations

7.1.1 Waikanae River Ongoing Mitigation Plan

Section 5.2 of the approved OMP covers the reporting of monitoring data, including the fish monitoring programme that was completed this year. Assessment of the results is published in this annual report in Appendix B. The fish monitoring report concluded that the results of the three years of fish monitoring (2017-2019) do not support an effect of the recharge, and do not, and cannot, be used to set any meaningful measurement trigger of fish species densities or numbers which might relate to a water discharge effect of the recharge programme

Based on the results and analysis the AMG considered fish monitoring be re-considered at a future time, and proposed the following for GWRC consideration:

- The AMG re-consider the inclusion of a fish survey in the years following the triggering of river monitoring activities by river recharge flow and duration events (e.g. high flow &/or long duration).
- The AMG re-consider the inclusion of a fish survey from year 10 to inform the Performance Assessment Report requirement in the 15th anniversary of the consent.

GWRC sought to review the full three years of fish monitoring, in detail, before endorsing the proposed changes to the OMP.

7.1.2 Borefield Ongoing Mitigation Plan

No changes are required at this stage.

7.1.3 Wetlands Ongoing Mitigation Plan

No changes are required at this stage.

7.1.4 Small Coastal Streams Ongoing Mitigation Plan

The Small Coastal Streams OMP was approved on the 5th of February 2019. No changes are required at this stage.

7.2 Recommendations of the Adaptive Management Group

The Adaptive Management Group (AMG) for the RRwGW scheme comprises members who include representatives of GWRC, Council, and Te Āti Awa ki Whakarongotai.

Council held the annual meeting with the AMG and key stakeholders on 29 August 2018. Representatives of Friends of the Waikanae River, Te Āti Awa ki Whakarongotai and Regional Public Health were present at the meeting. The purpose of this meeting was to provide an overview of the year's activities, discuss the draft version of the Waikanae River Recharge and Borefield Annual Report 2018/19 (this report) and the Kāpiti

Coast Water Conservation Report 2018/19, and reflect on the approved Ongoing Mitigation Plans and so collate AMG recommendations.

Prior to the meeting two submissions were made regarding questions about specific aspects of the first draft of this report, and the Water Conservation Report. The questions were discussed at the meeting and changes have been made in this report to reflect that discussion.

The meeting discussed that conductivity (salinity) monitoring data anomalies at the Sentinel monitoring borefield were still being reviewed by KCDC and GWRC; with KCDC commencing a trial programme to see if a different monitoring method will add resilience to data points collected for long-term study.

Based on the results and analysis the AMG considered fish monitoring be re-considered at a future time, and proposed the following for GWRC consideration:

- The AMG re-consider the inclusion of a fish survey in the years following the triggering of river monitoring activities by river recharge flow and duration events
- The AMG re-consider the inclusion of a fish survey from year 10 to inform the Performance Assessment Report requirement in the 15th anniversary of the consent.

Appendix A

Consent Requirements and Documents

An annual Waikanae River, Recharge and Borefield report is required by Condition 42 of consent WGN130103 [35973], Condition 24 of consent WGN130103 [35974] and Condition 26 of consent WGN130103 [35975]. This report to Greater Wellington Regional Council (GWRC) covers the period from 1 July 2017 through to 30 June 2018. The requirements of these conditions are listed in the tables below (Table 23, Table 24, and Table 25) with cross-references to the relevant sections in this report.

Table 22: Requirements for Annual Waikanae River report

Condition 24 of Consent WGN130103 [35974]	Section in this Annual Report
The consent holder shall, by 30th September each year, submit an Annual Waikanae River report to the Manager, or by another date as agreed with the Manager. The annual Waikanae River report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) Records of the instantaneous rate of take (L/s), and total daily volumes (m^3);	Section 2.2
b) Flow and river recharge information to demonstrate compliance with Condition 6 (Waikanae River low flow);	Sections 2.1, 2.3 and 2.4
c) Provide information to demonstrate compliance with Condition 18 of this consent	Sections 2.1, 2.2 and Section 6.1
d) Results of all monitoring undertaken that year required by Conditions 19, 20 and 21 of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis);*	Section 2.5 and Section 3.2
e) Details of any trigger levels or compliance limits that were reached (if occurred that year);	Section 2.5
f) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management;	Section 2.5 and Section 3.2
g) Any recommendations for changes to the Waikanae River Baseline Monitoring Plan or the On-going Mitigation Plan (as relevant), including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, including recommendations of the Adaptive Management Group (referred to in Condition 26 of this consent);	Section 6.2 and Section 7, 7.1.1 and 7.2
h) A discussion on any mitigation/adaptive management that may be required in the coming year;	Section 7
i) Summary of any maintenance undertaken.	Section 6.1
The annual Waikanae River report can be combined with the annual River Recharge report required by the conditions of discharge permit WGN130103 [35975]. The annual Waikanae River report shall be made available to the public on the Kāpiti Coast District Council website no later than 30 September each year, or by another date as agreed with the Manager. Note: The consent holder is only required to report on the listed requirements of this condition if they have occurred during that compliance year (1 July to 30 June inclusive). Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (g) of this condition.	Refer www.kapiticoast.govt.nz

**Conditions 19 and 20 due to completion of Baseline monitoring*

Table 23: Requirements for Annual River Recharge report

Condition 26 of Consent WGN130103 [35975]	Section in this Annual Report
The consent holder shall, no later than 30 September each year that a discharge to the River occurs, submit an annual River Recharge report to the Manager, or by another date as agreed with the Manager. The annual River Recharge report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) Records of the instantaneous rate of discharge (L/s), and total daily volumes (m^3) of discharge	Section 2.3
b) Dates, times and duration of discharge	Section 2.3
c) Information to demonstrate compliance with the rate of discharge specified in Condition 5	Section 2.3
d) Flow and river recharge information to demonstrate compliance with the Waikanae River low flow specified in Condition 12 of this consent	Section 2.4
e) Results of all monitoring undertaken that year required by Conditions 22* or 23 of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis)	Section 2.5 and Section 3.2
f) Details of any trigger levels or compliance limits that were reached (if occurred that year)	Section 2.5
g) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management	Section 2.5 and Section 3.2
h) Any recommendations for changes to the Waikanae River Baseline Monitoring Plan or the On-going Mitigation Plan as relevant), including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, required by Condition 17 to be discussed with the Adaptive Management Group (as required by Condition 27 of this consent)	Section 6.2 and Section 7, 7.1.1 and 7.2
i) A discussion on any mitigation/adaptive management that may be required in the coming year	Section 7
j) Summary of any maintenance undertaken	Section 6.1
The annual River Recharge report may be combined with the annual Waikanae River report required by consent WGN130103 [35974]. The annual River Recharge River report shall be made available to the public on the Kāpiti Coast District Council website by 30 September each year, or by another date as agreed with the Manager. Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (g) of this condition.	Refer www.kapiticoast.govt.nz

**Condition 22 is not applicable due to completion of Baseline monitoring.*

Table 24: Requirements for Annual Waikanae Borefield report

Condition 42 of Consent WGN130103 [35973]	Section in this Annual Report
The consent holder shall, by 30 September each year, submit an annual Waikanae Borefield report to the Manager, or by another date as agreed with the Manager. The annual Waikanae Borefield report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) A copy of the records to demonstrate compliance with Condition 20 of this consent;	Sections 3.1 and 3.3
b) Details of the use (including daily and total volumes of groundwater abstracted) and reasons for that use of the water from the Borefield;	Section 3.1
c) A summary of Waikanae River flow gauging required by Condition 25 of this consent, if undertaken that year; *	Section 3.2
d) Results of all monitoring undertaken that year required by conditions of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis);	Sections 3, 4 and 5
e) Results or evidence to demonstrate compliance with Condition 7 of this consent	Section 3.6
f) Details of any trigger levels or compliance limits that were reached (if occurred that year) and specifically the findings of saline monitoring compared with the 'alert', 'action' or 'cease' triggers;	Sections 3 and 4
g) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management;	Sections 3, 4 and 5
h) Any recommendations for changes to the monitoring plan required by conditions of this consent, including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, required by Condition 19 of this consent, including any recommendations of the Adaptive Management Committee (referred to in Condition 43 of this consent);	Section 6.2, Section 7.1.2, 7.1.3, 7.1.4, and 7.2
i) A discussion on any mitigation/adaptive management that may be required in the coming year;	Section 7
j) A copy of the complaints record required by Condition 45 of this consent;	Section 3.7
k) Summary of any maintenance undertaken.	Section 6.1
The annual Waikanae Borefield report shall be made available to the public on the Kāpiti Coast District Council website by 30 September each year, or by another date as agreed with the Manager. Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (h) of this condition.	Refer www.kapiticoast.govt.nz

** Condition that may change following S127*

In addition to the above consents, Council holds resource consent WGN050025 [33147] to abstract groundwater from two wells (PW1 and PW5) for the purpose of back up water supply for the communities of Waikanae, Paraparaumu and Raumati. Requirements of Condition 15 are discussed in Section 4.6

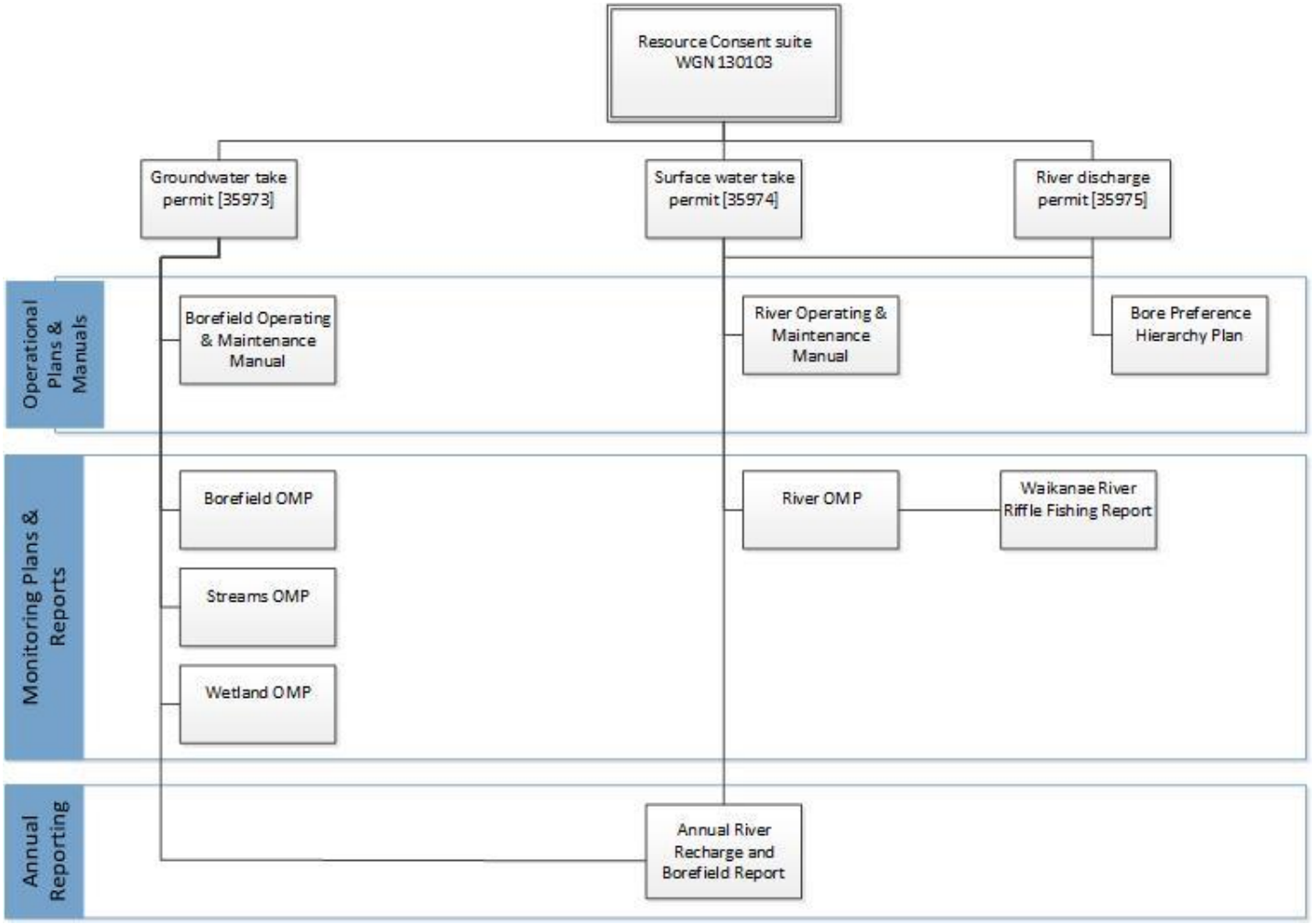

Figure 13: Key documents for RRwGW consent and ongoing monitoring

Appendix B

Waikanae River Riffle Fishing Report

Waikanae River Riffle Fishing Report

A River Recharge monitoring component
Prepared for Kāpiti Coast District Council
18 June 2019

Document Quality Assurance

Bibliographic reference for citation:
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Reviewed by:	Vaughan Keesing Senior Ecologist Boffa Miskell Limited	
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Cover photograph: Waikanae River © Boffa Miskell 2018

CONTENTS

Appendices

1 Introduction

This work relates to the Kāpiti Coast District Council's River Recharge with Groundwater Project (RRwGW Project). The RRwGW Project required comparative fishing to be undertaken above and below the recharge location to ascertain if the recharge project is having an adverse effect to migrating freshwater fishes, in accordance with the Waikanae River Ongoing Mitigation Plan (River OMP).

After consultation between councils, the Adaptive Management Group, and various experts it was concluded fish surveys will occur via surveying riffles above and below the recharge location (this differs from the consented method (monitoring upstream tributaries) as detailed in the GWRC issued *Alternative 2016-2017 Fish Monitoring Methodology for the Waikanae River* memorandum (Appendix 2)). Of concern during these discussions was the impact recharge episodes may have on migrating fish; however, recharges are highly unlikely to occur during any peak migration period(s). Therefore, a series of 4 EFM surveys (ideally between February and March) in riffle-only habitat at each of the monitoring sites (where flows allowed) was settled upon to illustrate the species present with a focus on young fish (which are potentially moving). We note, these data will not form any sort of metric to indicate adverse effects and will simply provide information on fish presence at the time of survey.

In 2017, 2018, and 2019, when flows allowed, data was collected from the two upstream "control" and all three (only two in 2017) downstream "receiving" monitoring sites on the Waikanae River. This report presents the findings from 10 monitoring dates (2017-2019), two dates were not completed in 2017 due to persistent rain and flow issues within the river.

2 Methods

2.1 Site Location

The monitoring locations have been determined in the River OMP which include two 'control' sites, (C1 and C2) located upstream of the Waikanae Water Treatment Plant (WTP); and three 'receiving' sites, located at predetermined intervals downstream of the Waikanae WTP (R1, R2, and R3) (Figure 1). R2 was not required to be surveyed by the OMP, however it has been surveyed when possible.

Figure 1: Waikanae River Monitoring locations (C1, C2, R1 and R3).

2.2 Fish Surveys

Fish surveys commenced in February each year, proceeding fortnightly, for a total of four survey occasions. Due to untimely high-flow conditions, a fortnight break between surveys was not always achievable, as flows in the Waikanae River had to be below 4 cumecs (m^3/s) to be fishable. An absence of rain was typically required to ensure water clarity did not disrupt EFM surveying. Additionally, high flows and H&S concerns rendered site R2 unfishable in 2017.

A standard EFM single pass was undertaken from bank-to-bank across the riffle habitat. At each stop-net placement the EFM operator fished a 3 m run upstream. Once complete, the stop-net was moved the width of the stop-net across and reset. The process was then repeated until the transect was complete. The EFM team then moved 3 m upstream and the transect process was repeated. This was done until the all discernible riffle habitat was fished (i.e. sufficient transects were undertaken to cover all or most of the fishable riffle). The total area fished at each riffle was recorded. Fish caught were measured for size and released at least 3 m downstream of the active fishing zone.

2.3 Analyses

2.3.1 Fish abundances

Raw fish abundance data can be misleading making it unsuitable for this project because the area fished varied between sites, dates, and years. Additionally, for most of the surveys, all three 'receiving' sites were surveyed compared with only two 'control' sites. Therefore, we have placed more emphasis on density data to allow for a standardised metric to be compared (fish/m^2).

2.3.2 Fish densities

A focus of this project is the potential for recharge activities to impede fish passage for migrating juvenile fish. Therefore, only data pertaining to the target fish taxa densities is used. Data used in this instance included all eel (shortfin and longfin combined), bully (all *Gobiomorphus spp.* combined), and torrentfish data. Furthermore, juvenile sizes were determined to represent the size range of each notable taxa that is most likely to be migrating at the time of survey (February-March). For this project, the following size ranges were used:

- Juvenile eels - ≤150 mm
- Juvenile bullies - ≤40 mm
- Juvenile torrentfish - ≤60 mm

2.3.3 Statistical analysis

Using excel – statistical analyses were performed. A two-tailed two sample for means t-test was used to determine if there were statistical differences between average fish densities between sites.

3 Results

3.1 Survey occasions

Fish surveys occurred only twice during the 2017 monitoring period due to persistent high-flow conditions in Waikanae River. Furthermore, site R2 was deemed unsafe to fish because of water depths during 2017 meaning it was not surveyed until 2018. All monitoring was achieved during the 2018 and 2019 monitoring periods, including at site R2. For three of the four 2018 surveys, flows in Waikanae River were at least 2.0 cumecs (m^3/s) compared with 2019 where flows remained below 1.3 cumecs. The low-flow conditions throughout the 2019 monitoring period resulted in long stretches of what could be perceived as riffle habitat at site R1. This was because of the low flows rather than an increase in suitable riffle habitat (for fish); therefore, as close as possible, the same area as 2018 was fished. A summary of dates, sites, and flow conditions is provided in Table 1.

Table 1: Dates when fish surveys in the Waikanae River occurred, including the sites fished and flow conditions at the time of survey. Cumecs is synonymous with m^3/s.

Survey date	Sites fished	Average flow (cumecs) on day of survey	Flush (>10 cumecs) or higher flow within the previous 2 days
17/02/2017	R1, R3, C1, C2	4.0	No
09/03/2017	R1, R3, C1, C2	1.6	No
05/02/2018	R1, R2, R3, C1, C2	1.1	No
14/02/2018	R1, R2, R3, C1, C2	3.9	Yes
15/03/2018	R1, R2, R3, C1, C2	2.4	No
19/03/2018	R1, R2, R3, C1, C2	2.0	No
07/02/2019	R1, R2, R3, C1, C2	1.2	No
20/02/2019	R1, R2, R3, C1, C2	1.0	No
05/03/2019	R1, R2, R3, C1, C2	1.1	No
22/03/2019	R1, R2, R3, C1, C2	1.0	No

3.2 Overall fish abundances (2019)

Abundance data pertaining to the 2017 and 2018 monitoring periods are presented in previously issued reports and not repeated here. A total of 484 fish were caught during the 2019 monitoring period (Table 2). The majority of these were torrentfish (*Cheimarrichthys fosteri*; 278), followed by longfin eels (*Anguilla dieffenbachia*; 87) and redfin bullies (*Gobiomorphus huttoni*; 57). Also present were elver (juvenile eels), unidentified bullies (*Gobiomorphus spp.*), inanga (*Galaxias maculatus*), and brown trout (*Salmo trutta*).

Table 2: Fish abundance by species for each fishing occasion during the 2019 monitoring period.

Fish taxa abundance by date (2019)					
	07.02.19	**20.02.19**	**05.03.19**	**22.03.19**	**Total**
Torrent fish	50	71	92	65	278
Longfin eel	19	31	17	20	87
Redfin bully	22	21	4	10	57
Un ID Bully	0	17	4	14	35
Elver	7	3	10	4	24
Inanga	0	2	0	0	2
Brown trout	0	0	0	1	1
Total	98	145	127	114	**484**

Taxa richness at each site varied between three and five species for the 2019 monitoring period (not including unidentified fish or elver). R3 had the greatest taxa richness (5), followed by R1 (4). The remaining sites each had three taxa. It should be noted that the additional taxa observed at R1 and R3 were represented by a single individual.

Table 3: Taxa richness at each site during the 2019 monitoring period. Unidentified bullies and elver were omitted.

Fish taxa richness by site (2019)					
	C2	C1	R1	R2	R3
Torrent fish	✔	✔	✔	✔	✔
Longfin eel	✔	✔	✔	✔	✔
Redfin bully	✔	✔	✔	✔	✔
Inanga	✘	✘	✔	✘	✔
Brown trout	✘	✘	✘	✘	✔
Total	3	3	4	3	5

3.3 Fish densities

3.3.1 Densities between years

Overall fish densities (i.e. the averaged density from all sampling of the year) were lowest in 2018 (0.1 fish/m^2) which coincided with persistent high flow rates (refer Figure 2). Fish densities were comparable between 2017 and 2019 (noting surveys occurred on only 2 occasions, and site R2 was not surveyed, in 2017).

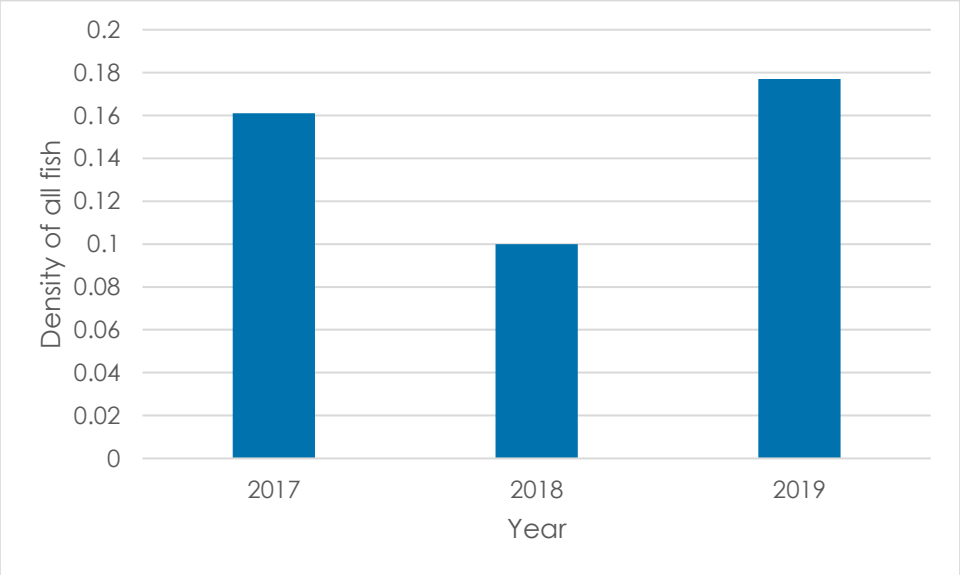

Figure 2: Averaged fish densities from all sites and species for each year of monitoring.

3.3.2 Densities of target fish taxa between sites in 2019

Overall, site R3 had the greatest average densities of fish across all surveys (0.3 fish/m^2), which were more than double the densities at the remaining sites (Figure 3). Overall densities between all sites excluding R3 were comparable.

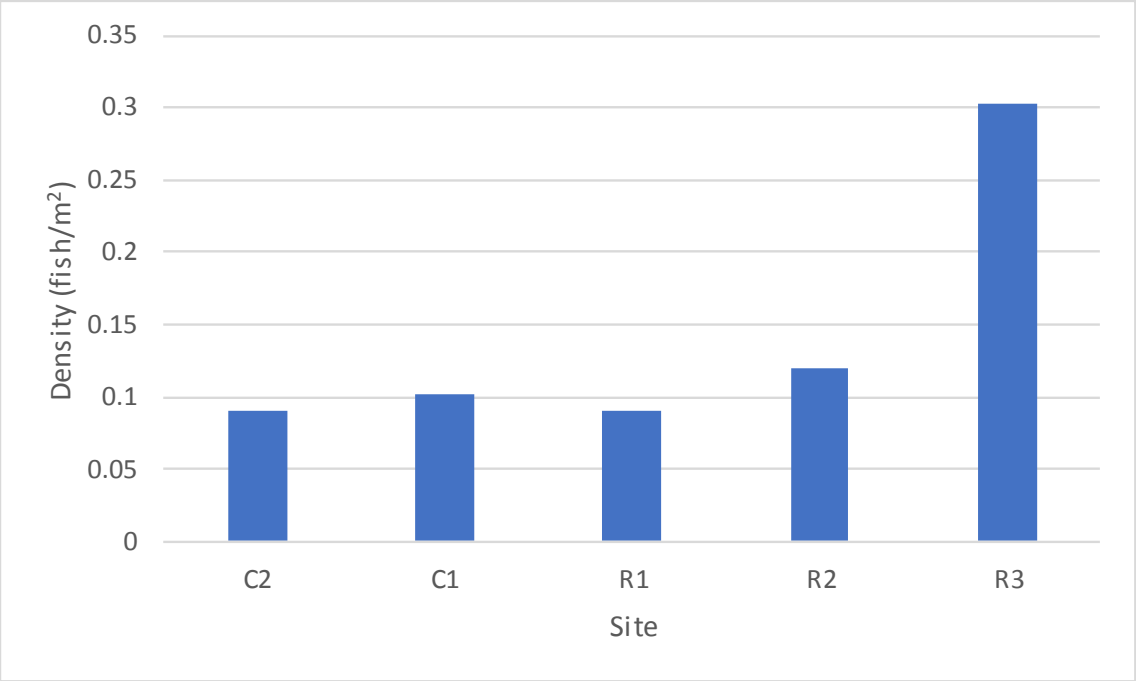

Figure 3: Overall densities at each site for the 2019 data set.

Across all sizes, densities were highest at R3 for torrentfish and bullies, with eels densities being highest at C1 (Figure 4). At all sites other than R3, bully densities were comparably low (≤0.02 fish/m^2).

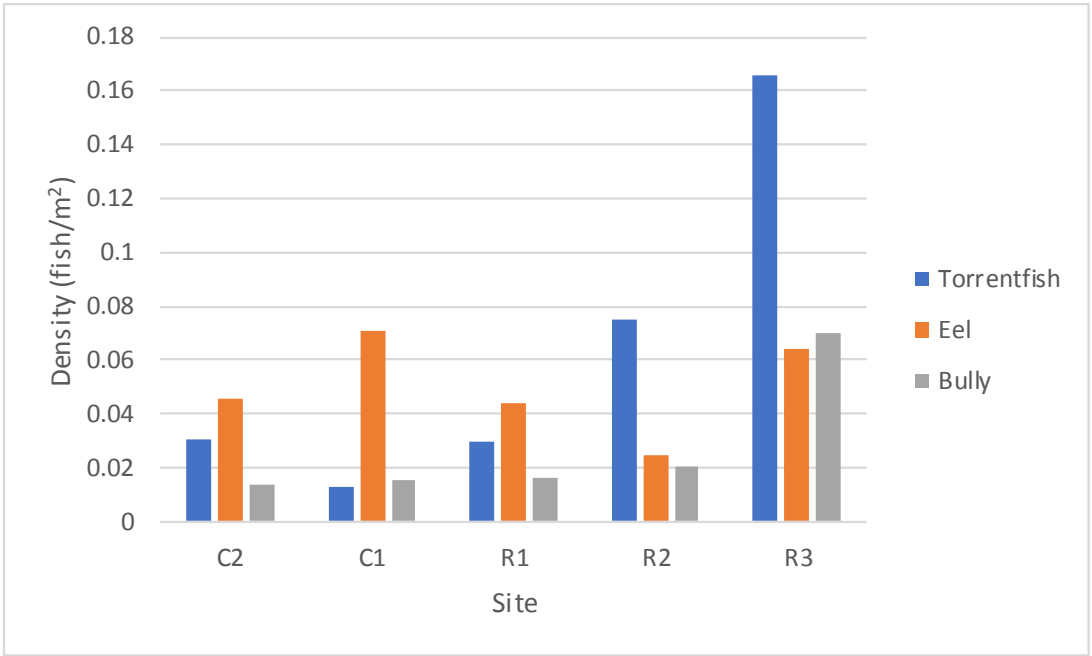

Figure 4: Densities of the main fish groups at each site during the 2019 monitoring period. Eels include shortfins, longfins and elver, bullies include redfin, common, bluegill and unidentified bullies.

3.3.3 Densities above and below the recharge point

The disparity between densities of fish above and below the recharge point was greatest in 2019 and least in 2018 (Figure 5). Densities were comparable between 2017 and 2018; however, we note the Waikanae River was only surveyed twice in 2017 which also excluded the R2 monitoring site. The reduced densities both above and below the recharge location in 2018 may be attributable to persistent increased flow conditions. Furthermore, the heightened disparity in 2019 is largely due to the much higher densities of fish at the R3 site.

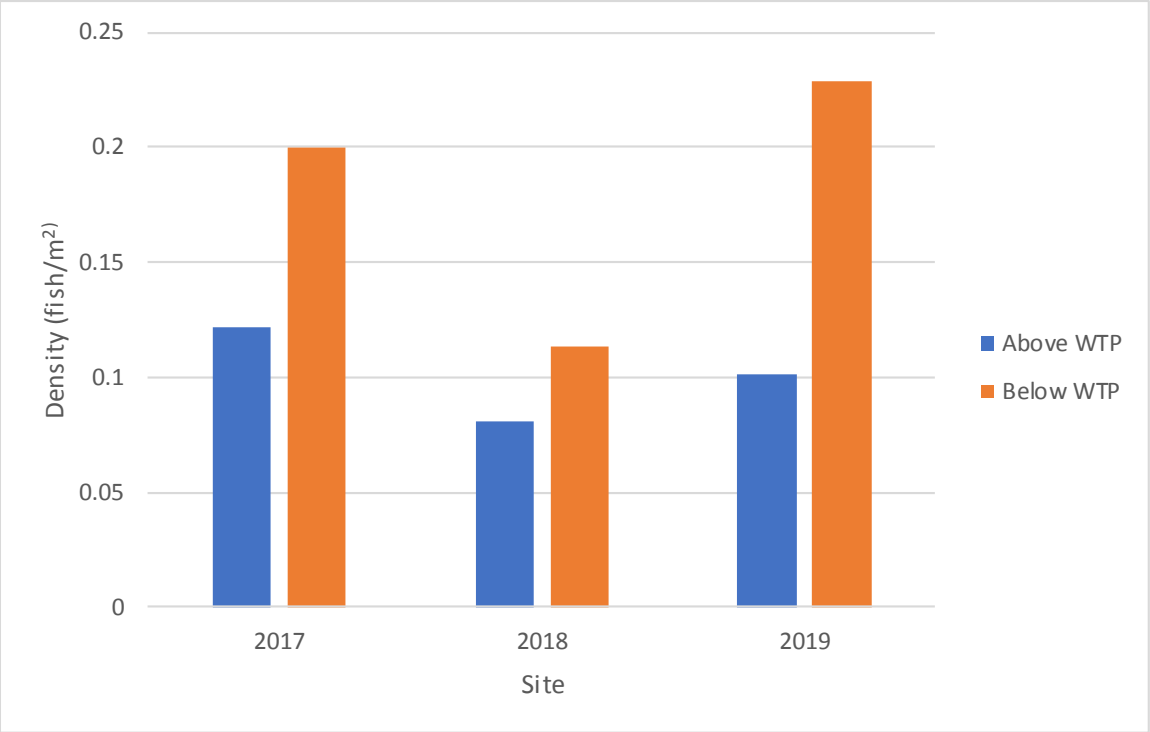

Figure 5: Overall fish densities above and below WTP, by year.

There was a large disparity in torrentfish densities above and below the recharge location in 2019, with much higher densities downstream (Figure 6). This was opposite for longfin eel, where greater densities were observed above the recharge point. Redfin bully densities were greater below the recharge point; however, these densities were comparatively low.

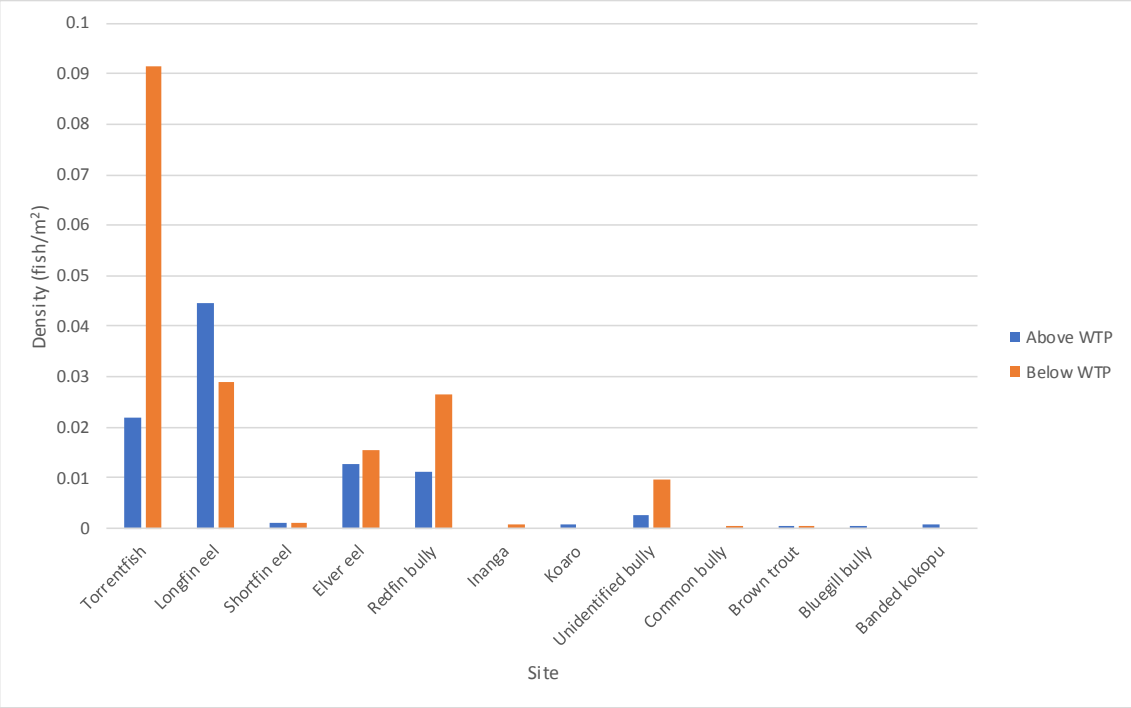

Figure 6: Species densities above and below the WTP.

3.3.4 Juvenile densities of notable fish taxa

3.3.4.1 Juvenile eel densities (≤150 mm)

Juvenile eel densities varied between sites but was greatest at the C1 and R3 sites (approximately 0.05 fish/m^2; Figure 7). R2 had the lowest densities.

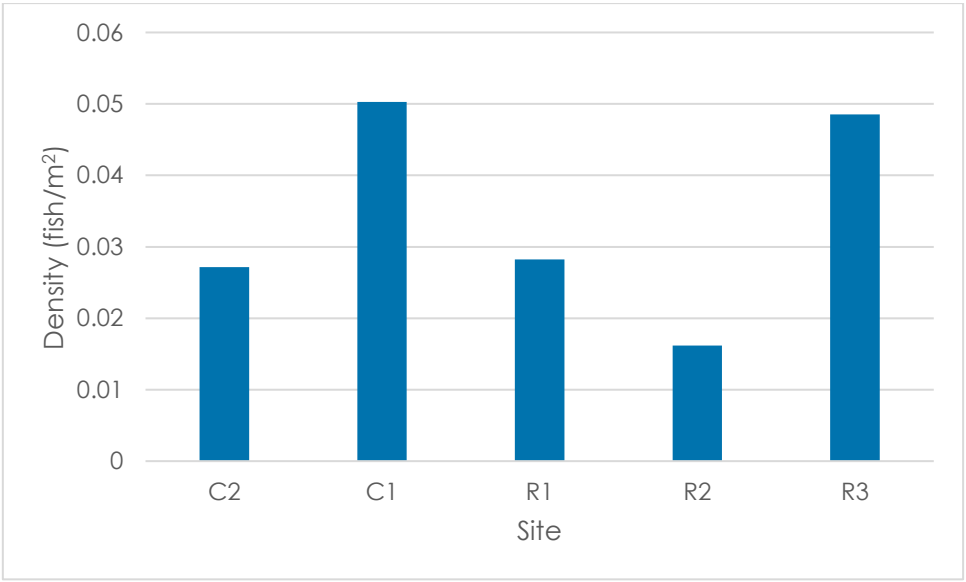

Figure 7: Average densities of juvenile eels (≤150 mm) at each site (2019).

Overall, juvenile eel densities were slightly higher at the recharge location (Figure 6). This suggests there are no discernible barrier to juvenile eel migration through the recharge and water treatment plant location of the Waikanae River.

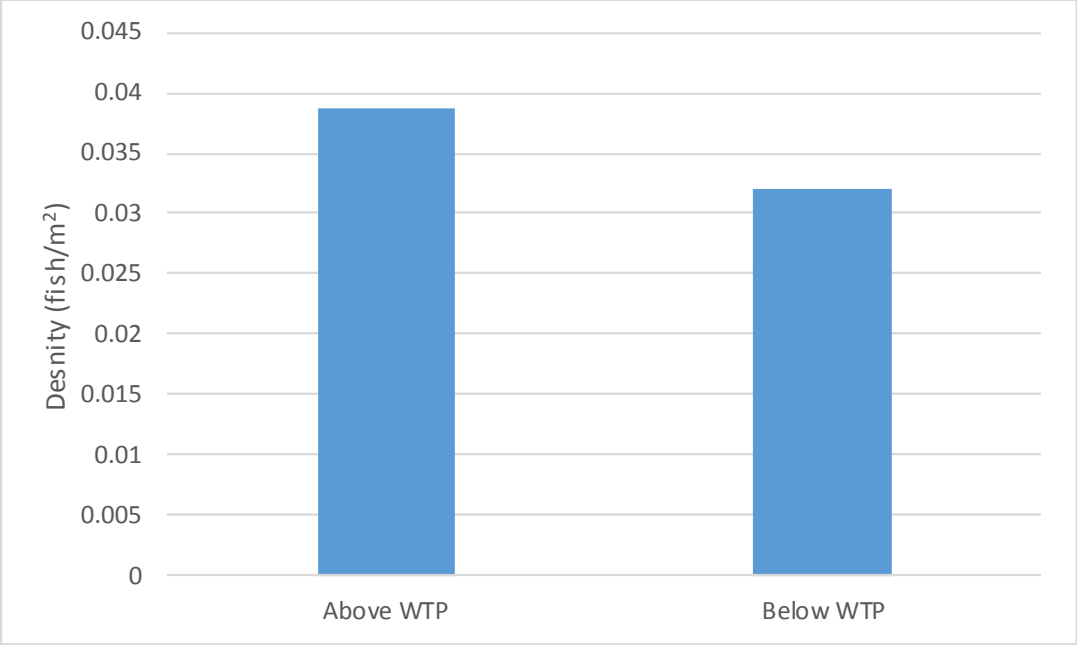

Figure 8: Average densities of juvenile eels (≤150 mm) above and below the water treatment plant.

3.3.4.2 Juvenile torrentfish densities (≤60 mm)

Juvenile torrentfish densities were notably higher at R3 site compared with no observed juveniles at C1 site (Figure 9). Densities were relatively consistent between sites R1 and R2; and were lower at C2. Site R3 is the site furthest from the recharge location (and below the SH1 armour cascade/falls). The comparatively high densities at R3 may be due to a shorter distance-from-sea, or an upstream swimming barrier, rather than an effect from the recharge discharge.

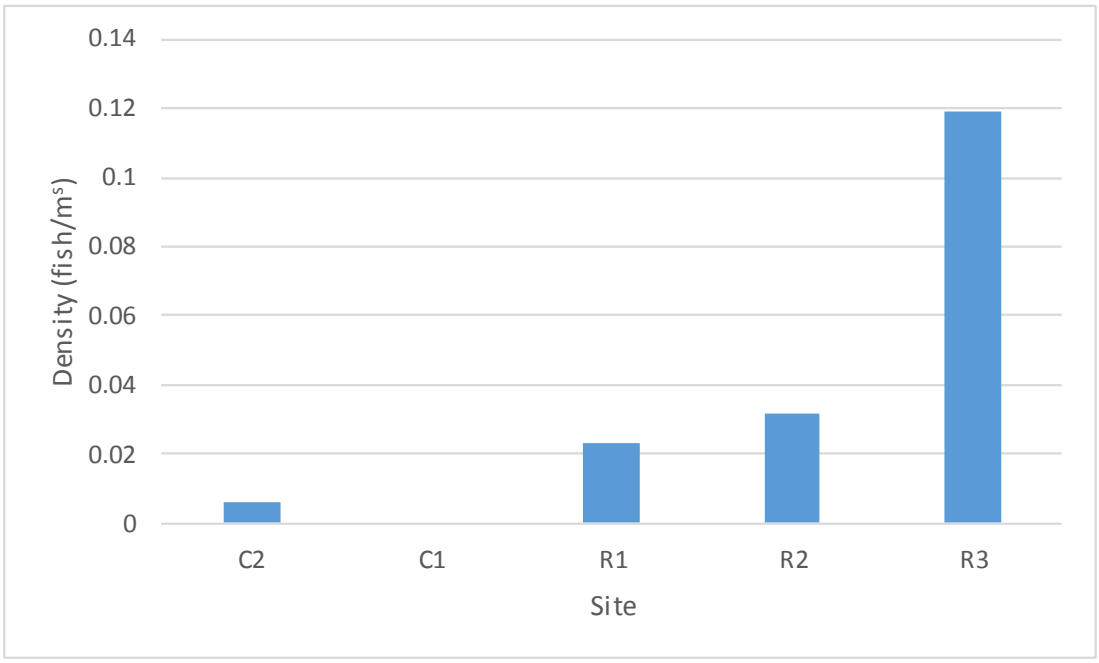

Figure 9: Average densities of juvenile torrentfish (≤60 mm) at each site.

Juvenile torrentfish densities were much higher below the recharge location; however, it is worth noting this is largely due to the comparatively high numbers observed at R3 (i.e. the site furthest from the recharge location; Figure 11).

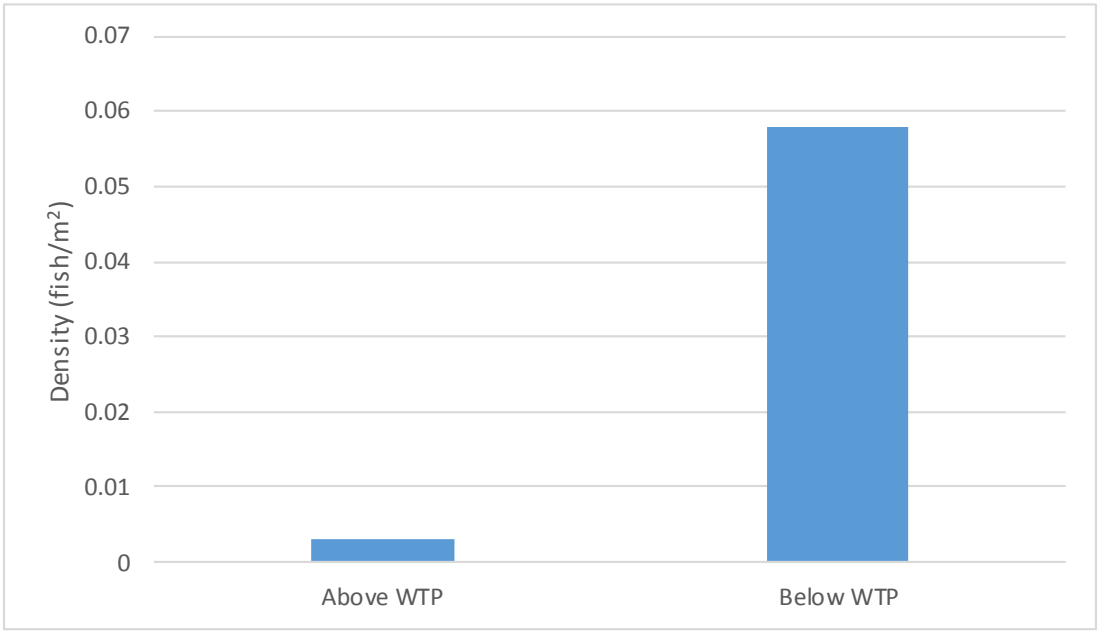

Figure 10: Average densities of juvenile torrentfish (≤60 mm) above and below the water treatment plant.

3.3.4.3 Juvenile bully (≤40 mm) densities

As with juvenile torrentfish, bully densities were notably highest at site R3 compared with all other sites (Figure 11). Densities at the remaining sites were comparable. The consistency in densities between all sites except R3 suggests the recharge is not a barrier to migrating juvenile bullies, but something does appear to be concentrating bully (and torrent fish) at R3, this pattern was seen in previous years. It is conceivable that the sample reach is the "last" strong riffle habitat before the armouring protection under the SH1 bridge and so "accumulates" these fish.

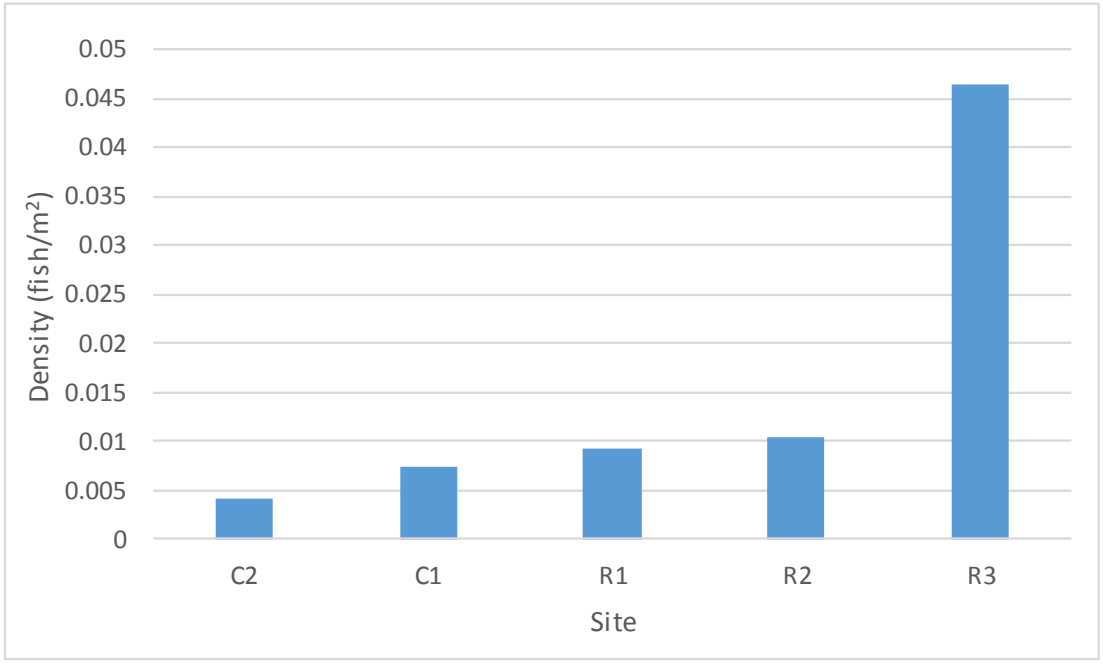

Figure 11: Average densities of juvenile bullies (≤40 mm) at each site.

Juvenile bully densities were considerably higher below the recharge location (Figure 12); however, this is misleading due to the higher densities at R3.

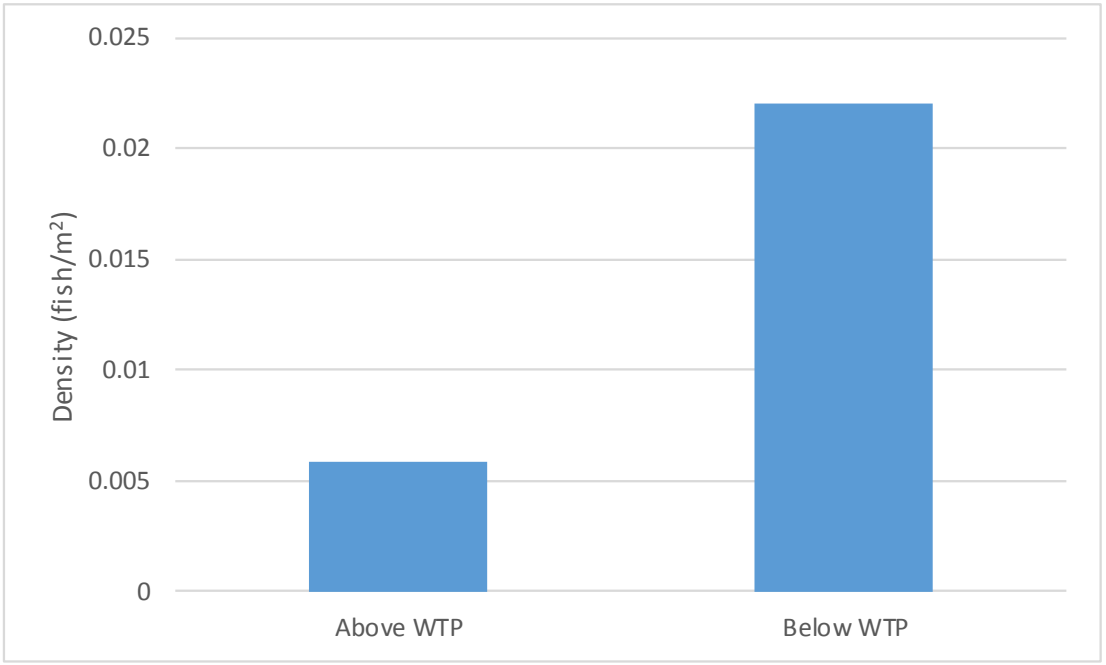

Figure 12: Average densities of juvenile bullies (≤40 mm) above and below the water treatment plant.

3.4 Statistical comparisons

Statistically significant differences in the 2019 data were seen between R3 and every other site, and between R2 and both C1 and R1 (Table 4). This suggests the high densities observed at R3 were due to conditions not pertaining to effects from the recharge programme. This is also likely the case for the remaining sites downstream of the recharge as the densities of fish at R2 are significantly different to both R1 and C1, but there is no difference between R1 and either of the control sites (R1 is the closest site to the recharge).

Table 4: Statistical table matrix comparing the number of fish per site. Numbers in red indicate a significant difference (P <0.05).

Two sample T-tests - 2019					
	C2	**C1**	**R1**	**R2**	**R3**
C2					
C1	0.446232				
R1	0.403452	0.880253			
R2	0.146485	0.007759	0.005479		
R3	0.000908	0.000158	0.000138	0.001489	

A t-test was also performed comparing sites above and below the recharge location. This returned a significant P-value of 0.038 (i.e. a statistically significant difference in densities). However, given the significant difference between R3 and all other sites, it is considered to be an outlier in this data set. When R3 is omitted, the P-value for above vs below the recharge location is 0.261 (not statistically significantly different). The absence of a significant difference in densities above and below the recharge location when R3 data is omitted is evidence that the recharge programme is not significantly impeding fish passage.

4 Recharge versus Survey findings

Recharge periods through 2017 were small and infrequent with 4 periods each only 1, or in one case 3 days. There were 10 periods over the 5 months in 2018, most longer than in 2017 and 4 periods in 2019, one of which was reasonable long.

Recharge to river is governed by the low flows in the Waikanae River, this means natural changes that occur to instream fauna and flora as the river flows decrease will be correlated with recharge periods and extent of recharge. It is then difficult to separate correlated patterns of the fauna and flora with the recharge if any.

2018

The following table (Table 5) identifies the dates of the recharges over the three years of fish monitoring and when fish surveys were conducted.

Table 5. Fish survey dates and river recharge dates in 2018

2019 dates of river recharge	Fish survey dates
31.1 – 1.2	7.2
20.2 – 24.2	20.2
1.3 – 2.3	5.3
26.3 – 3.4	22.3
2018 dates	
1.1 – 6.1	
9.1 – 11.1	
17.1 – 18.1	
31.1 – 3.2	5.2
7.2 – 13.2	14.2
23.2 – 24.2	
1.3 – 2.3	15.3, 19.3
28.3 – 29.3	
6.4 – 8.4	
11.4 – 12.4	
2017 Dates	
28.1 – 29.1	
28.2 – 01.3	17.2
30.3 – 31.3	9.3
27.4 – 28.4	

Surveys of fish which follow on “closely” from a recharge period are highlighted in pale blue above. Most surveys were sufficiently distant from recharge periods that they cannot be considered to be connected in terms of flow and temperature and water chemistry differences.

For those 2018 surveys close after a recharge period (the yellow columns in Table 6), in terms of total fish survey abundances, the survey shows that there is no firm pattern of fish abundances above or below the recharge point, and significant variation between below river recharge point survey sites. That is, there is no evidence in terms of survey abundances of a recharge effect (Table 6).

Table 6. Total fish survey abundances at each site for surveys in 2018. Yellow columns represent data not long after a recharge period.

	5.2.18	14.2.18	15.3.18	19.3.18	Total
C2	17	5	6	6	64
C1	23	15	6	4	77
R1	8	24	17	12	114
R2	6	7	15	11	39
R3	44	24	13	20	157
Total	98	75	57	53	451

In addition, there were no taxa abundance patterns at those times to suggest declines in abundance after a recharge either (Table 7).

Table 7. Total abundance of the species of fish caught at each date of survey in 2018 from all sites. Yellow columns represent data not long after a recharge period.

	5.2.18	14.2.18	15.3.18	19.3.18
Torrent fish	28	16	26	28
Longfin eel	34	21	4	7
Shortfin eel	0	0	6	0
Elver	27	12	2	6
Redfin bully	5	19	13	9
Inanga	1	1	0	0
Koaro	1	1	0	0
Common Bully	1	1	0	0
Brown trout	1	0	0	0

For the 2019 data, there was only one sample period near (after) a recharge period – that of the 5.3.2019 following a recharge between the 1st and 2nd of that same month. In that sample there are no "recharge" flow identifiable differences in total abundance below and above the recharge point, only a notable difference in the R3 sites survey return.

Table 8. Total fish survey abundances at each site for surveys in 2019. Yellow columns represent data not long after a recharge period.

	07.02.19	20.2.19	5.3.19	22.3.19
C2	14	13	10	6
C1	9	12	7	11
R1	7	20	5	14
R2	17	20	16	19
R3	51	80	83	64
Total				

Across the abundances of all taxa through the survey dates there was a pattern in increasing very small bully and a drop off in adult red fin bully, but no discernible recharge related pattern (Table 9).

Table 9. Total abundance of the species of fish caught at each date of survey in 2019 from all sites. Yellow columns represent data not long after a recharge period.

	07.02.19	20.2.19	5.3.19	22.3.19
Torrent fish	50	70	92	26
Longfin eel	19	31	17	12
Elver	7	3	10	4
Redfin bully	22	22	4	10
Inanga		2		
Small Bully		17	4	14
Total	98	144	127	66

5 Effect Trigger/s

The River OMP states that fish monitoring data will be analysed to determine if an applicable trigger can be implemented. These data (the total data set 2017-2019) do not support an effect of the recharge, and do not, and cannot, be used to set any meaningful measurement trigger of fish species densities or numbers which might relate to a water discharge effect of the recharge programme.

6 Conclusions

- The significantly higher fish densities observed at R3 are likely due to conditions (possibly the armouring cascade under SH1) unrelated to the recharge programme.
- There are various upward movement challenges in river between the R3 and C2 positions, primarily the SH1 / rail erosion armouring and the step at the Waikanae WTP intake weir. Both are passable but present challenges.
- There was no measured significant difference in fish densities above and below the recharge location when the R3 data (an outlier) was omitted.
- Juvenile eels, torrentfish, and bullies were observed above the recharge location.
- No juvenile torrentfish were observed at C1; however, their presence at C2 suggests this may be due to other environmental factors (e.g. habitat preference).
- Recharge records and fish surveys do not show a pattern of effect of the recharge on fish presence.

Appendix 1: Raw 2019 Fish Data

Abundance by species by survey site data

Torrent Fish					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	7	7	4	3	21
C1	0	2	1	2	5
R1	2	9	3	8	22
R2	12	15	14	14	55
R3	29	38	70	38	175
Sum	50	71	92	65	278

Longfin Eel					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	3	4	3	2	12
C1	5	8	4	5	22
R1	2	6	0	2	10
R2	3	2	2	3	10
R3	6	11	8	8	33
Sum	19	31	17	20	87

Elver					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	1	0	3	0	4
C1	1	2	2	0	5
R1	2	0	2	1	5
R2	1	0	0	0	1
R3	2	1	3	3	9
Sum	7	3	10	4	24

Redfin					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	3	1	0	1	5
C1	3	0	0	1	4
R1	1	3	0	0	4
R2	1	1	0	0	2
R3	14	16	4	8	42
	22	21	4	10	57

Inanga					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	0	0	0	0	0
C1	0	0	0	0	0
R1	0	1	0	0	1
R2	0	0	0	0	0

R3	0	1	0	0	1
Sum	0	2	0	0	2

Un ID Bully					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	0	1	0	0	1
C1	0	0	0	3	3
R1	0	1	0	3	4
R2	0	2	0	2	4
R3	0	13	4	6	23
Sum	0	17	4	14	35

All bullies					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	3	2	0	1	6
C1	3	0	0	4	7
R1	1	4	0	3	8
R2	1	3	0	2	6
R3	14	29	8	14	65
Sum	22	38	8	24	93

Brown Trout					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	0	0	0	0	0
C1	0	0	0	0	0
R1	0	0	0	0	0
R2	0	0	0	0	0
R3	0	0	0	1	1
Sum	0	0	0	1	1

All fish					
	07.02.19	20.02.19	05.03.19	22.03.19	Total
C2	14	13	10	6	43
C1	9	12	7	11	39
R1	7	20	5	14	46
R2	17	20	16	19	72
R3	51	80	89	64	284
Sum	98	145	127	114	484

Size data

Survey: 7.2.19
11:25-2:44
1.2 Cumecs at time of survey

Site R3

Torrentfish	Redfin bully	Longfin eel	Elver
90	60	250	120
60	50	130	100
90	50	130	
80	50	170	
70	30	150	
70	50	150	
80	70		
110	50		
110	50		
120	60		
120	60		
80	60		
70	60		
70	60		
60			
60			
60			
70			
70			
70			
70			
70			
110			
80			
100			
110			
70			
60			
60			

Site R2

Torrentfish	Elver	Longfin eel	Redfin bully
120	150	200	60

80		300	
70		180	
70			
70			
50			
80			
70			
70			
60			
100			
80			

Site R1

Elver	Torrentfish	Redfin bully	Longfin eel
100	60	20	180
150	60		160

Site C1

Longfin eel	Elver	Redfin bully
150	140	60
300		60
250		50
220		
250		

Site C2

Longfin eel	Torrentfish	Redfin bully	Elver
200	80	50	120
200	60	50	
220	100	50	
	80		
	120		
	120		
	80		

Survey: 20.2.19 (1 cumec)
1030-1500

Site R3

Torrentfish	Redfin bully	Longfin eel	Bully sp.	Inanga	Elver
70	60	200	20	110	90
70	20	150	20		
80	50	180	25		
110	70	180	25		
100	25	200	25		
70	50	180	25		
70	30	200	25		
50	50	150	25		
10	70	200	25		
70	70	120	20		
70	60	200	20		
70	60		20		
70	60		20		
70	60				
50	60				
40	20				
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70					
50					
120					
50					
40					
60					
60					
50					

80					
70					
80					

Site R2

Torrentfish	Longfin eel	Redfin bully	Bully sp.
70	180	60	20
40	130		25
80			
120			
100			
80			
70			
70			
60			
70			
70			
40			
50			
50			
90			

Site R1

Torrentfish	Redfin bully	Longfin eel	Inanga	Bully sp.
70	50	200	80	20
60	50	180		
60	70	200		
110		200		
100		170		
80		180		
60				
70				
70				

Site C1

Longfin eel	Elver	Redfin bully	Torrentfish
120	50		110

100	100		70
120			
200			
130			
120			
200			
150			

Site C2

Longfin eel	Torrentfish	Redfin bully	Bully sp.
200	100	60	20
180	100		
130	90		
150	80		
	120		
	60		
	100		

Survey: 05.3.19 (1 cumec)
1005-1247

Site R3

Torrentfish	Redfin bully	Longfin eel	Bully sp.	Elver
40	20	180	20	100
70	20	120	20	100
70	60	180	20	100
50	60	120	20	
100		200		
50		130		
40		300		
40		180		
40				
90				
50				
100				
70				
70				
140				

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140				
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70				
40				
50				

Site R2

Torrentfish	Longfin eel
60	180
80	180
100	
70	
80	
80	
120	
110	
90	
60	
50	
80	
80	
40	

Site R1

Torrentfish	Elver
50	100
70	150
70	

Site C1

Longfin eel	Elver	Torrentfish
250	100	80

280	100	
150		
120		

Site C2

Longfin eel	Torrentfish	Elver
200	110	90
130	100	100
150	110	100
	110	

Survey: 22.03.19
1012-1330

Site R3

Torrentfish	Redfin bully	Longfin eel	Bully sp.	Elver	Brown trout
70	60	150	20	100	130
60	50	300	20	100	
110	30	140	20	120	
40	50	250	20		
40	60	120	20		
40	60	150	20		
50	50	120			
110	40	150			
70					
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50					
70					
70					

Site R2

Torrentfish	Longfin eel	Bully sp.
70	120	20
70	200	20
80	150	
80		
50		
90		
110		
80		
130		
100		
90		
80		
50		
80		

Site R1

Torrentfish	Elver	Longfin eel	Bully sp.
60	100	150	30
50		150	25
50			25
60			

50			
80			
50			
100			

Site C1

Longfin eel	Redfin bully	Torrentfish	Bully sp.
150	50	130	20
130		100	25
120			25
150			
120			

Site C2

Longfin eel	Torrentfish	Redfin bully
200	80	30
160	110	
	100	

Appendix 2: Alternative 2016- 2017 Fish Monitoring Methodology for the Waikanae River

Memorandum

Boffa Miskell

☐ **Auckland**
Level 3, IBM Centre
82 Wyndham Street
P O Box 91250, 1142
Tel: 64 9 358 2526

☐ **Hamilton**
Ground Level
3 London Street
PO Box 1094
Waikato Mail Centre, 3240
Tel: 64 7 960 0006

☐ **Tauranga**
Level 2, 116 on Cameron
Cnr Cameron Road &
Wharf Street
P O Box 13373, 3141
Tel: 64 7 571 5511

☑ **Wellington**
Level 4
Huddart Parker Building
1 Post Office Square
P O Box 11340, 6142
Tel: 64 4 385 9315

☐ **Christchurch**
Ground Floor
4 Hazeldean Road
P O Box 110, 8140
Tel: 64 3 366 8891

☐ **Queenstown**
Te Ahi, Level 2
13 Camp Street
Queenstown 9300
Tel: 64 3 901 0004

Attention:	Tracy Clode, Martyn Coles (CC: Simon Newton)
Company:	Beca, KCDC
Date:	19.1.2017
From:	Dr Vaughan Keesing
Message Ref:	Alternative 2016-2017 fish monitoring method for the Waikanae River

Dear Tracy

Having canvased possibilities with Mr Alton Perrie; and putting aside the aspect of if any further monitoring should be required and how such monitoring might be used to form an effects trigger, we agreed on the following sampling procedure for the next summer period.

Starting in February and proceeding fortnightly until the end of March (i.e. 4 sampling times) at each of the two riffles of each of four sites (two controls and two effects sites, the first and second effect sites) EFM single pass freshwater fish sampling will be undertaken across all of each riffle (where the flows and velocities allow the method and safety of the operators to cross all of the riffle, or else what portion of the riffle can be safely sampled). All species caught will be recorded, including their linear lengths (lip to tail fork) and the fish released. The area of each riffle fished is to be measured and recorded.

The sites are sufficiently separated that it will make no difference as to the order of survey, but we suggest that the order rotate through the 4 collections periods to minimise a day period effect.

In the event of flows prohibiting any survey on any one period (based on an assessment of river flows from the GWRC gauging station prior to visit or as found at site) then the fish survey will be put back a week. Best endeavours will be made to undertake 4 samples in the February to March period. Surveys will not extend into April.

These data will provide evidence of the presence (or absence) of fish in the reaches first affected, but the focus is on red fin bully and elva presence and movement up stream at this time. We do not at this time know how that data may be used to establish if a recharge effect occurs.

Boffa Miskell Ltd

Dr Vaughan Keesing

19.1.2017

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

MEMO

TO	Jeremy Rusbatch
COPIED TO	Alton Perrie
FROM	Claire Baldwin
DATE	7 February 2017
FILE NUMBER	WGN130103

Alternative 2016- 2017 Fish Monitoring Methodology for the Waikanae River

Under Consent WGN130103 [34400] KCDC are required to monitor the Waikanae River in accordance with the Baseline Monitoring Plan (BMP). The BMP states that the principal issue with borefield recharge into the Waikanae River relates to water chemistry and cues that instigate or retard upstream fish migration. The intent of the monitoring is to observe fish life in the mainstream and tributaries of the Waikanae River to get a baseline of fish numbers and diversity. The comparison of data from the baseline to periods of recharge would allow GWRC to assess the effects of the recharge on fish life.

Monitoring under the current BMP resulted in very few fish found. KCDC believe that the data collated is not conclusive and the monitoring is an ineffective method of monitoring fish migration on the Waikanae River. Also, the timing of the fish capture does not necessarily correspond with when recharge is occurring.

On 25 October 2016 GWRC met with KCDC, Beca and Boffa Miskell to discuss the issues with the fish monitoring to date, and possible alternative methodologies. It was decided at the meeting that Vaughn Keesing from Boffa Miskell on behalf of KCDC and Alton Perrie from GWRC were to meet again to further discuss an acceptable monitoring methodology.

On 21 December 2016 after Vaugh and Alton met, on behalf of KCDC, Beca submitted a memo of the proposed methodology to GWRC for approval. This memo was reviewed by Alton Perrie, and minor changes requested. A revised proposal was resubmitted on 24 January 2017 which was also reviewed by Alton Perrie.

Alton accepted the latest proposed methodology, but could not find reason for why KCDC would not extend the surveys into April, should the four scheduled samples in February and March be unable to be completed. At this point Alton is still of the opinion that should a sample round not be able to be completed in February and March, it should be completed in April.

Recommendations

I recommend that the proposed KCDC alternative fish monitoring methodology for 2016 – 2017 is approved. However, due to the limited fish monitoring data that has been collected to date, I

recommend that KCDC are to complete monitoring in April if the full sample set is not able to be achieved in February and March.

By way of approving the recommendation of this memorandum, could you please sign the below:

Recommended:	Approved:
	
Claire Baldwin	**Jeremy Rusbatch**
Resource Advisor, Environmental Regulation	Team Leader, EReg

Appendix C

Operation and Maintenance Logs Intake and Production Bores

Manual Entries
Tab: General Comments
Plant: General Comments

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Tab: General Comments
Subgroup: General Comments
Parameter: General Comments
SCADA Tag:
Units:
Operations Min:
Operations Max:
Trigger Min:
Trigger Max:
92% Min:
92% Max:
95% Min:
95% Max:
98% Min:
98% Max:
99% Min:
99% Max:
Medium Min:
Medium Max:
Sample Month:
Days Between Samples:
Description:
Parameter ID: 11169

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User	
3327502	08/06/2017 14:26:00	08/06/2017 14:26:36		Ryan Young	water blast bore sites asap
3339842	22/06/2017 13:44:00	22/06/2017 13:49:14		Tony Attewell	I found an issue when entering pH levels at Paekakariki on 21.06.2017. the range that the box will except is to tight. The Range should be at start point atleast 6.00pH and up to 8.50pH on the high side, My example was that I attempted to enter 7.04 as a raw water pH, the tablet said that it was too high and would not except that level
3339864	28/06/2017 14:40:00	28/06/2017 14:43:59		Tony Attewell	Borefield bores pump temp parameter is set too low. Cannot enter a figure over 20.0 as it wont except top parameter needs to be atleast 38.0°c
3345181	26/07/2017 09:00:00	27/07/2017 08:09:59		Tony Attewell	Bores running today, as we are taking bore water samples, except K10 & KB4 as they were already sampled previous week. Lock out tags removed off K10 & KB4 so they are back in standby mode.
3353260	26/10/2017 12:06:00	26/10/2017 12:07:30		Brian Barnard	Bores running for sampling
3374153	29/03/2018 13:13:00	29/03/2018 13:14:40		Tony Attewell	K6 & K5 Bores need weed spraying.

Manual Entries
Tab: N2
Plant: N2

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Tab:	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2
Subgroup:	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2
Parameter:	Bore Level above Pump	Flow Forward	Flow Reverse	Pump Run Hours	Temperature	Cabinet Filter	Comments	Checked Well-head	Well-head Security Comment	Check Rodent Protection	Filled in log book?	
SCADA Tag:												
Units:	m	m³	m³		°C							
Operations Min:												
Operations Max:												
Trigger Min:												
Trigger Max:												
92% Min:												
92% Max:												
95% Min:												
95% Max:												
98% Min:												
98% Max:												
99% Min:												
99% Max:												
Medium Min:												
Medium Max:												
Sample Month:												
Days Between Samples:												
Description:												
Parameter ID:	11162	11163	11164	11165	11166	11167		11168	12149	12190	12191	12719

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User												
3122020	19/05/2017 09:26:00	22/05/2017 10:53:22		Chris Kaloyanis	44	6911	8	77	13	3 - No Action	needs weed spraying					
3122044	25/05/2017 09:18:00	25/05/2017 15:50:45		Tony Attewell	44	6912	8	77	13	2 - Clean	Done by RY					
3327389	02/06/2017 13:26:00	02/06/2017 13:40:48		Brian Barnard	43.9	7361	8	82.5	13	2 - Clean	0					
3327501	07/06/2017 14:25:00	08/06/2017 14:26:05		Ryan Young	43	7361	8	82	13	3 - No Action	checked well head					
3331033	15/06/2017 13:45:00	15/06/2017 14:31:16		Chris Kaloyanis	43.9	7362	8	81	13	3 - No Action	incoming power monitor not working	Yes		Yes		
3339841	22/06/2017 09:20:00	22/06/2017 13:44:10		Tony Attewell	43.8	7362	8	82	13	1 - Change		Yes	RY Checked site today	No		
3339863	28/06/2017 10:10:00	28/06/2017 14:40:36		Tony Attewell	38.6	7548.16	8.38	84		3 - No Action	bore running today for sample	Yes		No		
3343913	06/07/2017 14:50:00	06/07/2017 15:50:48		Ryan Young	44	7568	8	84	13	2 - Clean		Yes		Yes		
3345108	14/07/2017 11:40:00	14/07/2017 13:24:50		Chris Kaloyanis	43.8	7568	8	84	13	3 - No Action	Needs weed spraying	Yes	photos taken of mods needed	Yes		
3345145	21/07/2017 11:21:00	21/07/2017 11:21:30		Ryan Young	44	7568	8	84	13	3 - No Action		Yes		Yes		
3345180	26/07/2017 08:30:00	27/07/2017 08:07:32		Tony Attewell	39.2	7604	8.38	84	27.1	3 - No Action		Yes				
3345412	03/08/2017 12:35:00	03/08/2017 13:30:22		Ryan Young	44	7701	8	86	13	3 - No Action		Yes		Yes		
3347772	10/08/2017 14:33:00	10/08/2017 14:34:23		Ryan Young	44	7701	8	86	13	3 - No Action		Yes		No		
3347803	17/08/2017 11:00:00	17/08/2017 16:02:36		Tony Attewell	44.1	7703	8.39	86	13	3 - No Action	Needs a weed spray around sight	Yes				
3347826	24/08/2017 13:00:00	24/08/2017 14:52:20		Tony Attewell	44.1	7703	8.39	86	13	3 - No Action	Needs weed spray aroung site.	Yes				
3348079	31/08/2017 13:41:00	31/08/2017 13:42:18		Ryan Young	44	7818	8	87	13.5	3 - No Action		Yes				
3348171	07/09/2017 14:28:00	07/09/2017 14:29:25		Ryan Young	44	7818	8	86	13	3 - No Action		Yes				
3353180	14/09/2017 11:45:00	14/09/2017 14:54:03		Tony Attewell	44	7818.72	8.39	87	13	1 - Change		Yes	Borehead, checked all secure, OK			
3348200	21/09/2017 14:43:00	21/09/2017 14:44:58		Brian Barnard	440	7818	839	87	13	2 - Clean		Yes				
3348235	28/09/2017 13:45:00	28/09/2017 14:46:35		Ryan Young	43.9	7956	8	88	13.4	3 - No Action		Yes				
3353155	05/10/2017 14:52:00	05/10/2017 14:55:57		Ryan Young	43.9	7956	8	88	13	2 - Clean		Yes				
3353204	12/10/2017 13:20:00	12/10/2017 14:53:38		Tony Attewell	43.9	7956.75	8.39	88	13	2 - Clean		Yes				
3353235	19/10/2017 14:39:00	19/10/2017 14:40:29		Brian Barnard	43	7956	8.39	88	13	2 - Clean		Yes			Yes	
3353259	26/10/2017 12:05:00	26/10/2017 12:06:41		Brian Barnard	38	8089	8	90	26	2 - Clean					Yes	
3356237	02/11/2017 12:31:00	02/11/2017 12:34:28		Ryan Young	43.7	8159	8	91	13			Yes			Yes	
3356260	09/11/2017 09:11:00	09/11/2017 09:12:30		Ryan Young	43	8159	8	91	13	3 - No Action		Yes			Yes	
3365428	16/11/2017 13:56:00	16/11/2017 14:00:30		Brian Barnard	43	8160	8	91	13	2 - Clean		Yes			Yes	
3365476	23/11/2017 13:10:00	23/11/2017 13:15:32		Ryan Young	43.5	8162	8	91	13	2 - Clean		Yes			Yes	
3365513	01/12/2017 14:49:00	01/12/2017 14:49:46		Ryan Young	43.4	8354	8	93	13	2 - Clean		Yes			Yes	
3365559	07/12/2017 12:35:00	07/12/2017 13:58:01		Tony Attewell	43.4	8360	8.39	93	13	2 - Clean		Yes			Yes	
3367842	14/12/2017 14:05:00	14/12/2017 14:06:29		Brian Barnard	43	388	8	93	13	2 - Clean		Yes			Yes	
3367862	21/12/2017 11:31:00	21/12/2017 11:32:05		Ryan Young	42.8	9734	8	109	13.3	1 - Change		Yes			Yes	
3367892	28/12/2017 13:04:00	28/12/2017 13:06:10		Bruce Nesbitt	42.5	17183	8.39	197	13.1	3 - No Action		Yes	All good for security		Yes	
3367943	03/01/2018 13:35:00	03/01/2018 16:02:22		Tony Attewell	35.8	23147	8.39	267	25.6	2 - Clean		Yes	Bore running river re-charge		Yes	
3369337	11/01/2018 14:13:00	11/01/2018 14:17:06		Brian Barnard	0	0	0	292	5	2 - Clean	Electrition called to fix fault.	Yes			Yes	
3369461	18/01/2018 11:40:00	18/01/2018 15:27:00		Tony Attewell	42.9	25962	9.31	299	13	1 - Change	Rechecked Drive is in operational mode, (working and ready to start)	Yes			Yes	
3369488	25/01/2018 13:13:00	25/01/2018 13:15:06		Ryan Young	43	25992	9	299	13	2 - Clean		Yes			Yes	
3369513	01/02/2018 14:10:00	01/02/2018 14:56:14		Tony Attewell	36.1	30441	9.31	347	25.6	3 - No Action		Yes			Yes	
3371628	08/02/2018 13:44:00	08/02/2018 13:45:18		Brian Barnard	42	31957	9	366	13	2 - Clean		Yes			Yes	
3371653	15/02/2018 12:32:00	15/02/2018 12:32:44		Ryan Young	42	36634	9	422	13	2 - Clean		Yes			Yes	
3371677	22/02/2018 13:23:00	22/02/2018 13:25:33		Ryan Young	43	36634	9	421	13	2 - Clean		Yes			Yes	
3371708	01/03/2018 15:40:00	01/03/2018 16:31:24		Tony Attewell	43.2	36959	9.37	425	13.1	3 - No Action		Yes				
3373986	09/03/2018 11:35:00	09/03/2018 11:46:58		Brian Barnard	43	36965	9	425	13	2 - Clean	reported comms down	Yes			Yes	
3374009	15/03/2018 14:14:00	15/03/2018 14:15:09		Ryan Young	43	36974	9	425	13	2 - Clean		Yes			Yes	
3374145	29/03/2018 11:32:00	29/03/2018 11:33:49		Tony Attewell	43.4	37064.95	9.37	425	13	2 - Clean		Yes			Yes	
3374357	05/04/2018 23:15:00	05/04/2018 13:02:02		Tony Attewell	43.4	37122	9.37	425	13	3 - No Action	Lots of short ink weed around bore site needs spraying.	Yes			Yes	
3375741	12/04/2018 11:50:00	12/04/2018 11:52:07		Brian Barnard	43.5	37187	9.37	425	13	3 - No Action		Yes			Yes	
3375766	19/04/2018 11:52:00	19/04/2018 12:17:18		Ryan Young	43	37253	9	425	13	1 - Change	no comms. cannot silence alarm	Yes			Yes	
3376950	26/04/2018 13:52:00	26/04/2018 13:57:31		Brian Barnard	43.5	37323	9.37	425	13	3 - No Action	Alarm on cabinet would not turn off. with X Still no Power to Bore site.	Yes			Yes	
3377345	03/05/2018 15:26:00	04/05/2018 15:04:16		Simon Fraser	43.5	37670.88	9.37	428	13	3 - No Action	Well head weed spray / grubbing	Yes				
3378857	10/05/2018 14:15:00	10/05/2018 14:27:57		Simon Fraser	43.5	37736.57	9.37	428.7	13	2 - Clean		Yes			Yes	
3378885	17/05/2018 13:56:00	17/05/2018 13:58:19		Brian Barnard	43	37803	9	428	13	2 - Clean		Yes			Yes	
3378909	24/05/2018 14:01:00	24/05/2018 14:02:57		Brian Barnard	43	37871	9	428	13	2 - Clean		Yes			Yes	
3378927	31/05/2018 13:55:00	31/05/2018 14:35:17		Simon Fraser	43.6	38105	9.37	430	13	3 - No Action		Yes			Yes	
3378965	07/06/2018 14:50:00	07/06/2018 14:51:01		Tony Attewell	43.5	38168	9.37	430	13	3 - No Action		Yes			Yes	
3565956	14/06/2018 13:56:00	14/06/2018 13:58:09		Brian Barnard	43	38233	9	430	13	2 - Clean		Yes			Yes	
3576196	21/06/2018 13:49:00	21/06/2018 13:50:23		Ryan Young	43	38297	9	430	13	3 - No Action		Yes			Yes	
3702502	28/06/2018 14:05:00	28/06/2018 14:31:13		Simon Fraser	43.5	38361	9	430	13	3 - No Action		Yes			Yes	
3702523	05/07/2018 13:45:00	05/07/2018 13:46:42		Tony Attewell	43.5	38539	9.37	431	13	2 - Clean		Yes			Yes	
3702755	12/07/2018 14:10:00	12/07/2018 14:11:52		Tony Attewell	43.7	38600	9.37	431	13	3 - No Action		Yes			Yes	
3702780	19/07/2018 12:49:00	19/07/2018 12:50:49		Ryan Young	43	38662	9	431	13	3 - No Action		Yes			Yes	
3839495	26/07/2018 13:00:00	26/07/2018 13:25:06		Simon Fraser	43	38725	9	431	13	3 - No Action	Power = 121.73 kW	Yes			Yes	
3853604	02/08/2018 13:07:00	02/08/2018 13:09:28		Tony Attewell	43.7	38925	9.37	433	13	3 - No Action		Yes			Yes	

3854494	09/08/2018 10:29:00	09/08/2018 10:32:29	Tony Attewell	43.7	38987	9.37	433	13	2 - Clean	clean cabinet filter	Yes	Yes
3854525	16/08/2018 11:35:00	16/08/2018 11:36:41	Ryan Young	43	39049	9	433	13	2 - Clean		Yes	Yes
3854553	23/08/2018 12:20:00	23/08/2018 15:41:54	Simon Fraser	43	39111	9.37	433	13	3 - No Action		Yes	Yes
3854568	30/08/2018 10:52:00	30/08/2018 10:54:17	Tony Attewell	43.6	39343	9.38	435	13.1	3 - No Action		Yes	Yes
3872598	06/09/2018 11:54:00	06/09/2018 11:55:34	Brian Barnard	43	39343	9.38	435	13	2 - Clean		Yes	Yes
3873448	13/09/2018 12:51:00	13/09/2018 12:52:27	Ryan Young	43	39343	9	435	13	3 - No Action		Yes	Yes
3873476	20/09/2018 11:23:00	20/09/2018 11:45:58	Ryan Young	43.5	39343	9	435	13	2 - Clean		Yes	Yes
3873486	24/09/2018 14:15:00	24/09/2018 14:16:04	Ryan Young	43.4	39343	9	435	13	3 - No Action	Unlocked vsd and turned on	Yes	Yes
3873621	04/10/2018 13:05:00	04/10/2018 13:07:37	Brian Barnard	43.4	40034	9.38	444	13	2 - Clean		Yes	Yes
3873769	11/10/2018 13:59:00	11/10/2018 14:00:25	Ryan Young	43	40041	9	444	13	3 - No Action		Yes	Yes
3874087	18/10/2018 07:50:00	18/10/2018 13:55:47	Simon Fraser	43	40051	9	444	13	3 - No Action		Yes	Yes
3874460	25/10/2018 14:20:00	25/10/2018 14:22:07	Tony Attewell	43.3	40057	9.38	444	13	3 - No Action		Yes	Yes
3874491	02/11/2018 13:03:00	02/11/2018 13:05:28	Brian Barnard	43	40255	9	446	13	2 - Clean		Yes	Yes
3874896	08/11/2018 13:42:00	08/11/2018 13:42:53	Ryan Young	43	40255	9	446	13	3 - No Action		Yes	Yes
3874920	15/11/2018 12:46:00	15/11/2018 12:46:55	Ryan Young	43	40256	9	446	13	2 - Clean		Yes	Yes
3875912	22/11/2018 13:49:00	22/11/2018 13:52:21	Tony Attewell	43.3	40257	9.38	446	13	3 - No Action	All bore sites need major weed sprays or steam.	Yes	Yes
3877627	29/11/2018 11:21:00	29/11/2018 11:22:30	Tony Attewell	43	40402	9	447	13	2 - Clean		Yes	Yes
3881863	06/12/2018 14:22:00	06/12/2018 14:23:46	Tony Attewell	43	40403	9	448	13	3 - No Action		Yes	Yes
3882310	13/12/2018 10:38:00	13/12/2018 10:43:31	Brian Barnard	43	40404	9	447	13	2 - Clean			Yes
3882459	20/12/2018 14:11:00	20/12/2018 14:13:56	Ryan Young	43.1	40843	9	452	13	3 - No Action		Yes	Yes
3882490	27/12/2018 12:06:00	27/12/2018 12:07:36	Brian Barnard	43	41030	9	454	13	2 - Clean			Yes
3882514	04/01/2019 12:41:00	04/01/2019 12:42:01	Ryan Young	43.1	41030	9	454	13	1 - Change		Yes	Yes
3891931	17/01/2019 12:05:00	17/01/2019 12:07:15	Ryan Young	43.1	41071	9	454	13	2 - Clean	poison stations blown around	Yes	Yes
3892253	24/01/2019 11:26:00	24/01/2019 11:34:32	Simon Fraser	43	41133	9.75	454	13	3 - No Action		Yes	Yes
3892281	31/01/2019 14:05:00	31/01/2019 14:06:03	Ryan Young	42	41366	9	456	13.1	2 - Clean		Yes	Yes
3892504	07/02/2019 11:54:00	07/02/2019 11:55:17	Simon Fraser	42.8	41408	9	456	13	3 - No Action		Yes	Yes
3894980	14/02/2019 14:49:00	14/02/2019 14:49:53	Ryan Young	42.8	41462	9	456	13	2 - Clean		Yes	Yes
3895006	21/02/2019 13:51:00	21/02/2019 14:11:48	Simon Fraser	42.6	41670	9	458	13.1	3 - No Action		Yes	Yes
3896550	07/03/2019 13:37:00	07/03/2019 13:41:10	Ryan Young	42.7	41913	9	461	13	2 - Clean		Yes	Yes
3896573	14/03/2019 12:28:00	14/03/2019 12:29:57	Ryan Young	42.7	41913	9	461	13	3 - No Action		Yes	Yes
3896599	21/03/2019 14:02:00	21/03/2019 14:04:01	Brian Barnard	42.7	41913	9.95	461	13	2 - Clean			Yes
3896625	28/03/2019 08:07:00	28/03/2019 08:11:21	Ryan Young	37	41957	9	461	27.7	3 - No Action	sample taken	Yes	Yes
3896847	04/04/2019 14:48:00	04/04/2019 14:49:27	Ryan Young	42.7	42128	9.95	463	13	2 - Clean		Yes	Yes
3897735	11/04/2019 13:51:00	11/04/2019 13:52:06	clint hill	42.8	42128	0	463	13	2 - Clean		Yes	Yes
3899061	24/04/2019 14:08:00	24/04/2019 14:09:08	Ryan Young	42	42129	9	463	13	2 - Clean		Yes	Yes
3899073	30/04/2019 08:43:00	30/04/2019 08:44:27	Ryan Young	37.9	42166	9	465	27.7	3 - No Action		Yes	Yes
3899705	09/05/2019 14:10:00	09/05/2019 14:10:54	clint hill	42.9	42308	9.95	465	13	2 - Clean		Yes	Yes
3899706	09/05/2019 14:10:00	09/05/2019 14:12:18	clint hill							lock missing fro filter cabinet		Yes
3899797	16/05/2019 11:37:00	16/05/2019 11:38:16	Brian Barnard	43	42308	9.95	465	13	2 - Clean		Yes	Yes
3899824	23/05/2019 15:25:00	23/05/2019 15:25:49	Ryan Young	43	42308	9	465	13	3 - No Action		Yes	Yes
3899852	30/05/2019 13:20:00	30/05/2019 13:21:29	Ryan Young	42	42785	9.95	470	13.1	2 - Clean		Yes	Yes
3899884	06/06/2019 14:05:00	06/06/2019 14:05:56	Ryan Young	43	42785	9.95	470	13	2 - Clean		Yes	Yes
3899969	13/06/2019 11:23:00	13/06/2019 11:24:15	Brian Barnard	43	42785	9	470	13	2 - Clean		Yes	Yes
3900281	20/06/2019 14:30:00	20/06/2019 14:31:30	Brian Barnard	43	42785	9.98	470	13	2 - Clean		Yes	Yes
3900390	27/06/2019 14:44:00	27/06/2019 14:45:05	clint hill	43	42785	9.95	470	13	2 - Clean		Yes	Yes
3900417	04/07/2019 11:42:00	04/07/2019 11:46:36	Ryan Young	43	42785	9	470	13	2 - Clean		Yes	Yes
3900442	11/07/2019 15:28:00	11/07/2019 15:30:30	Ryan Young	43.1	42785	9	470	13	3 - No Action		Yes	Yes
3901629	18/07/2019 11:15:00	18/07/2019 11:16:59	Ryan Young	43.2	42785	9	470	13	2 - Clean		Yes	Yes
3901662	25/07/2019 12:49:00	25/07/2019 12:50:07	Brian Barnard	43	42786	9	470	13	2 - Clean		Yes	Yes

Manual Entries
Tab: KB7
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Utility: Borefield Record Sheet

Tab:	KB7
Subgroup:	KB7
Parameter:	
SCADA Tag:	
Units:	
Operations Min:	
Operations Max:	
Trigger Min:	
Trigger Max:	
92% Min:	
92% Max:	
95% Min:	
95% Max:	
98% Min:	
98% Max:	
99% Min:	
99% Max:	
Medium Min:	
Medium Max:	
Sample Month:	
Days Between Samples:	
Description:	
Parameter ID:	

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User	Bore Level above Pump (m)	Flow Forward (m³)	Flow Reverse (m³)	Pump Run Hours	Temperature (ºC)	Cabinet Filter	Comments	Checked Well-head	Well-head Security Comment	Check Rodent Protection	Filled in log book?	
Parameter ID:					11148	11149	11150	11151	11152	11153		11154	12147	12186	12187	12717
3122018	19/05/2017 11:33:00	22/05/2017 10:50:41		Chris Kaloyanis	40	1410	4	1137	14.1	3 - No Action						
3122042	25/05/2017 10:24:00	25/05/2017 15:47:26		Tony Attewell	40	1410	4	1137	14.1	1 - Change	Done by RY					
3327387	02/06/2017 13:23:00	02/06/2017 13:24:43		Brian Barnard	40	1521	4		14.1	2 - Clean	0					
3327499	08/06/2017 11:01:00	08/06/2017 14:23:24		Ryan Young	40	1521	4	1142	14.1	2 - Clean	check well head					
3331031	15/06/2017 13:22:00	15/06/2017 14:28:31		Chris Kaloyanis	40	1521	4	1142	14.1	3 - No Action		Yes	chamber needs pumping out	Yes		
3339839	22/06/2017 10:32:00	22/06/2017 13:40:18		Tony Attewell	40	1521	4	1142	14.1	3 - No Action	Filter cabinet needs repairs. RY comment	Yes	valve chamber needs to be pumped down. RY Comment. and attend to rust repairs.	No		
3339861	28/06/2017 09:42:00	28/06/2017 14:37:30		Tony Attewell	12	1556.5	4.03	1144		3 - No Action		Yes	100mm of water in the bottom of well sump.	No		
3343911	06/07/2017 14:05:00	06/07/2017 15:48:55		Ryan Young	40	1571	4	1145	14.1	2 - Clean		Yes		Yes		
3345106	14/07/2017 11:18:00	14/07/2017 13:22:10		Chris Kaloyanis	40	1571	4	1145	14.1	3 - No Action		Yes	photos taken of mods needed	Yes		
3345143	20/07/2017 14:23:00	21/07/2017 11:19:27		Ryan Young	40	1571	4	1145	14.1	3 - No Action		Yes	Checked for water in well head chamber, none.	Yes		
3345178	26/07/2017 09:18:00	27/07/2017 08:03:36		Tony Attewell	12	1596.92	4.03	1146	25.3	3 - No Action		Yes	Checked Bore Well head pit, minimal water in trap area only, below well head hardware.			
3345410	03/08/2017 12:00:00	03/08/2017 13:28:47		Ryan Young	40	1604	4	1146	14.1	3 - No Action		Yes	Checked well head chamber, no water.	Yes		
3347770	10/08/2017 13:44:00	10/08/2017 13:45:21		Ryan Young	40	1604	4	1146	14.1	3 - No Action		Yes		No		
3347801	17/08/2017 00:25:00	17/08/2017 15:59:52		Tony Attewell	40	1604	403	1146	14.1	3 - No Action		Yes				
3347824	24/08/2017 13:38:00	24/08/2017 14:49:09		Tony Attewell	40	1604	4.03	1146	14.1	1 - Change		Yes	Lifted lid to well head, hardly any water in trap below.			
3348077	31/08/2017 13:01:00	31/08/2017 13:02:06		Ryan Young	40	1633	4	1147	14.3	3 - No Action		Yes				
3348169	07/09/2017 13:49:00	07/09/2017 13:49:42		Ryan Young	40	1633	4	1147	14.1	3 - No Action		Yes				
3353178	14/09/2017 14:00:00	14/09/2017 14:49:45		Tony Attewell	40	1633.33	4.03	1147	14.1	1 - Change		Yes	Borehead checked all secure OK			
3348198	21/09/2017 14:39:00	21/09/2017 14:40:56		Brian Barnard	40	1633.34	4.03	1147.88	14	2 - Clean		Yes				
3348233	28/09/2017 12:15:00	28/09/2017 14:45:12		Ryan Young	39	1666	4	1149	14.4	3 - No Action		Yes				
3353153	05/10/2017 14:28:00	05/10/2017 14:30:48		Ryan Young	40	1666	4	1149	14.1	2 - Clean		Yes				
3353202	12/10/2017 14:01:00	12/10/2017 14:50:47		Tony Attewell	40	1666.2	4.03	1149	14.1	3 - No Action		Yes				
3353233	19/10/2017 14:35:00	19/10/2017 14:37:33		Brian Barnard	40	1666	4.03	1149	14	2 - Clean		Yes			Yes	
3353257	26/10/2017 12:01:00	26/10/2017 12:04:29		Brian Barnard	13	1687	4.03	1150	24	2 - Clean		Yes			Yes	
3356235	02/11/2017 12:04:00	02/11/2017 12:05:17		Ryan Young	40	1703	4	1151	14.1	1 - Change		Yes			Yes	
3356258	09/11/2017 08:30:00	09/11/2017 08:32:12		Ryan Young	40	1703	4	1151	14.1	3 - No Action		Yes			Yes	
3365426	16/11/2017 13:17:00	16/11/2017 13:18:48		Brian Barnard	40	1703	4	1151	14	2 - Clean		Yes			Yes	
3365473	23/11/2017 11:25:00	23/11/2017 11:26:58		Ryan Young	40	1703	4	1151	14.2	2 - Clean		Yes			Yes	
3365510	01/12/2017 10:31:00	01/12/2017 10:34:06		Ryan Young	40	1749	4	1153	14.2	1 - Change		Yes			Yes	
3365557	07/12/2017 12:05:00	07/12/2017 13:55:45		Tony Attewell	40	1749	4.04	1153	14.1	2 - Clean		Yes			Yes	
3367840	14/12/2017 13:30:00	14/12/2017 13:31:37		Brian Barnard	40	1749	4	1153	14	2 - Clean		Yes			Yes	
3367868	21/12/2017 12:25:00	21/12/2017 12:26:09		Ryan Young	5	2431	4	1184	23.8	1 - Change		Yes			Yes	
3367897	28/12/2017 14:48:00	28/12/2017 14:49:33		Bruce Nesbitt	37	4225.49	4.04	1267	14.1	3 - No Action		Yes	All gates and fences good. Well head clean and tidy		Yes	
3367941	03/01/2018 14:35:00	03/01/2018 15:58:45		Tony Attewell	28	6449	4.04	1369	14.5	1 - Change		Yes	Bore not running? (re-charge)		Yes	
3369335	11/01/2018 13:29:00	11/01/2018 13:30:20		Brian Barnard	37	6972	4	1393	14	2 - Clean		Yes			Yes	
3369459	18/01/2018 12:30:00	18/01/2018 15:22:56		Tony Attewell	39	7140	4.08	1401	14.1	1 - Change	Checked well head bore pit. 100mms of water in trap. OK	Yes			Yes	
3369486	25/01/2018 12:41:00	25/01/2018 12:42:59		Ryan Young	39	7140	4	1401	14.4	2 - Clean		Yes			Yes	
3369511	01/02/2018 14:50:00	01/02/2018 14:53:11		Tony Attewell	3	8192	4.09	1449	24.5	3 - No Action		Yes			Yes	
3371626	08/02/2018 13:17:00	08/02/2018 13:19:36		Brian Barnard	3	8943	4.31	1483	24	2 - Clean	pumping	Yes			Yes	
3371651	15/02/2018 12:05:00	15/02/2018 12:07:16		Ryan Young	38	9927	4	1529	14.1	1 - Change		Yes			Yes	
3371675	22/02/2018 12:56:00	22/02/2018 12:58:18		Ryan Young	39	9927	4	1529	14.1	2 - Clean		Yes			Yes	
3371706	01/03/2018 15:20:00	01/03/2018 16:29:03		Tony Attewell	39	9987	4.31	1531	14.1	3 - No Action		Yes			Yes	
3373984	09/03/2018 11:07:00	09/03/2018 11:08:08		Brian Barnard	40	9987	4	1531	14	2 - Clean		Yes			Yes	
3374007	15/03/2018 13:36:00	15/03/2018 13:37:21		Ryan Young	40	9987	4	1531	14.1	2 - Clean		Yes			Yes	
3374151	29/03/2018 13:05:00	29/03/2018 13:06:43		Tony Attewell	40	10014	4.53	1533	14.1	2 - Clean		Yes			Yes	
3374355	05/04/2018 22:40:00	05/04/2018 12:57:37		Tony Attewell	40	10014	4.53	1533	14.1	3 - No Action	Site needs weed spray	Yes			Yes	
3375739	12/04/2018 11:23:00	12/04/2018 11:24:47		Brian Barnard	40	10014	4.53	1533	14.1	2 - Clean	well head weeds on south east side	Yes			Yes	
3375764	19/04/2018 11:35:00	19/04/2018 11:39:26		Ryan Young	40	10014	4	1533	14.1	2 - Clean		Yes			Yes	
3376948	26/04/2018 13:24:00	26/04/2018 13:26:44		Brian Barnard	40	10018	5.99	1533	14.1	3 - No Action		Yes			Yes	
3377343	04/05/2018 14:58:00	04/05/2018 15:00:28		Simon Fraser	40	10087	5.99	1536	14.3	2 - Clean	Filter door latch broken so does not lock. Needs pop riveting	Yes	Filter door latch broken so does not lock. Needs pop riveting		Yes	
3378855	10/05/2018 13:05:00	10/05/2018 14:25:26		Simon Fraser	40	10087.34	6.28	1536	14.2	3 - No Action		Yes			Yes	
3378883	17/05/2018 13:26:00	17/05/2018 13:27:34		Brian Barnard	40	10087	6	1536	14	2 - Clean		Yes			Yes	
3378907	24/05/2018 13:26:00	24/05/2018 13:29:01		Brian Barnard	40	10087	6	1536	14	2 - Clean		Yes			Yes	
3378925	31/05/2018 11:32:00	31/05/2018 14:31:23		Simon Fraser	40	10130	6	1538	14.1	2 - Clean	Tried to remove filter padlock to re rivet catch. Sprayed the lock with crc. Need bolt cutter or angle grinders to remove lock. Will try next time. Where do we find new locks?	Yes			Yes	
3378963	07/06/2018 14:47:00	07/06/2018 14:48:38		Tony Attewell	40	10130	6.28	1538	14.1	3 - No Action		Yes			Yes	
3565954	14/06/2018 13:19:00	14/06/2018 13:20:47		Brian Barnard	40	10131	6.75	1538	14	2 - Clean		Yes			Yes	
3576194	21/06/2018 12:57:00	21/06/2018 12:58:52		Ryan Young	40	10131	6	1538	14.1	2 - Clean		Yes			Yes	
3702500	28/06/2018 11:55:00	28/06/2018 14:28:13		Simon Fraser	40	10132	7	1538	14.1	3 - No Action		Yes			Yes	
3702529	05/07/2018 14:44:00	05/07/2018 14:45:51		Tony Attewell	40	10163	10	1539	14.1	3 - No Action		Yes	checked OK,		Yes	
3702753	12/07/2018 13:34:00	12/07/2018 13:42:29		Tony Attewell	40	10167	11.16	1539	14.1	3 - No Action		Yes	about 200mm of rain egress water in the bottom of wet well,Bruce B advised by email on todays date, photo attached to email		Yes	
3702778	19/07/2018 12:10:00	19/07/2018 12:13:42		Ryan Young	40	10170	11	1539	14	3 - No Action		Yes			Yes	
3839493	26/07/2018 12:10:00	26/07/2018 13:21:15		Simon Fraser	40	10171	11	1539	14.1	3 - No Action		Yes			Yes	
3853608	02/08/2018 13:46:00	02/08/2018 13:47:05		Tony Attewell	40	10197.88	12.72	1540	14.1	3 - No Action		Yes			Yes	
3854500	09/08/2018 11:25:00	09/08/2018 11:28:41		Tony Attewell	40	10198	12.72	1540	14.1	2 - Clean	CLEAN CABINET FILTER	Yes			Yes	
3854523	16/08/2018 10:53:00	16/08/2018 10:54:59		Ryan Young	40	10200	12	1540	14.1	2 - Clean		Yes			Yes	
3854551	23/08/2018 12:00:00	23/08/2018 15:39:46		Simon Fraser	40	10202	12	1540	14.1	3 - No Action		Yes			Yes	
3854575	30/08/2018 13:25:00	30/08/2018 13:25:57		Tony Attewell	40	10246	12.72	1542	14.1	3 - No Action		Yes			Yes	
3872596	06/09/2018 11:22:00	06/09/2018 11:23:53		Brian Barnard	40	10246	12	1542	14	2 - Clean		Yes			Yes	
3873446	13/09/2018 12:19:00	13/09/2018 12:21:53		Ryan Young	40	10246	12	1542	14.1	3 - No Action		Yes			Yes	
3873474	20/09/2018 11:15:00	20/09/2018 11:18:15		Ryan Young	40	10246	12	1542	14.1	2 - Clean		Yes			Yes	
3873483	24/09/2018 13:37:00	24/09/2018 13:38:29		Ryan Young	40	10246	12	1542	14.1	3 - No Action		Yes			Yes	
3873484	24/09/2018 13:38:00	24/09/2018 13:38:52		Ryan Young							Unlocked vsd and turned on					
3873619	04/10/2018 11:44:00	04/10/2018 11:45:05		Brian Barnard	40	10305	13	1545	14.1	2 - Clean		Yes			Yes	
3873766	11/10/2018 13:36:00	11/10/2018 13:39:01		Ryan Young	40	10306	13	1545	14.1	3 - No Action		Yes			Yes	
3874085	18/10/2018 12:03:00	18/10/2018 13:53:55		Simon Fraser	40	10306	13	1545	14.1	3 - No Action		Yes			Yes	
3874461	25/10/2018 14:39:00	25/10/2018 14:40:07		Tony Attewell	40	10308	14.26	1545	14.1	3 - No Action		Yes			Yes	
3874489	02/11/2018 11:36:00	02/11/2018 11:37:52		Brian Barnard	40	10358	17	1547	14	2 - Clean		Yes			Yes	
3874893	08/11/2018 12:53:00	08/11/2018 12:57:09		Ryan Young	40	10358	17	1547	14.1	3 - No Action		Yes			Yes	
3874918	15/11/2018 12:21:00	15/11/2018 12:23:36		Ryan Young	40	10359	17	1547	14.1	2 - Clean		Yes			Yes	
3875909	22/11/2018 13:20:00	22/11/2018 13:27:48		Tony Attewell	40	10359	17.77	1547	14.1	3 - No Action		Yes			Yes	
3877625	29/11/2018 10:51:00	29/11/2018 10:52:33		Tony Attewell	40	10400	17	1549	14.1	2 - Clean		Yes			Yes	
3881860	06/12/2018 13:58:00	06/12/2018 14:00:40		Tony Attewell	40	10400	17	1549	14.1	3 - No Action		Yes			Yes	
3882314	13/12/2018 11:14:00	13/12/2018 11:16:14		Brian Barnard	40	10400	18	1549	14	2 - Clean		Yes			Yes	
3882464	20/12/2018 14:51:00	20/12/2018 14:53:17		Ryan Young	40	10492	18	1553	14.1	3 - No Action		Yes			Yes	
3882488	27/12/2018 11:41:00	27/12/2018 11:42:27		Brian Barnard	40	10540	18	1555	14	2 - Clean		Yes			Yes	
3882512	04/01/2019 11:41:00	04/01/2019 11:44:26		Ryan Young	40	10540	18	1555	14.1	1 - Change		Yes			Yes	
3889861	10/01/2019 11:23:00	10/01/2019 11:24:29		Brian Barnard	40	10540	18	1555	14	2 - Clean		Yes			Yes	
3891938	17/01/2019 13:00:00	17/01/2019 13:01:32		Ryan Young	40	10540	18	1555	14.2	3 - No Action		Yes			Yes	
3892251	24/01/2019 10:55:00	24/01/2019 11:01:14		Simon Fraser	40	10540	18.01	1555	14.1	3 - No Action		Yes			Yes	
3892278	31/01/2019 11:48:00	31/01/2019 11:52:24		Ryan Young	40	10584	18	1557	14.2	1 - Change		Yes			Yes	
3892279	31/01/2019 11:52:00	31/01/2019 11:57:05		Ryan Young	62.2	17106	54	587	13.7	1 - Change		Yes			Yes	
3892502	07/02/2019 11:26:00	07/02/2019 11:30:13		Simon Fraser	40	10584	18	1557	14.2	3 - No Action		Yes			Yes	
3894978	14/02/2019 14:27:00	14/02/2019 14:28:43		Ryan Young	40	10584	18	1557	14.1	2 - Clean		Yes			Yes	
3895003	21/02/2019 13:13:00	21/02/2019 13:14:52		Simon Fraser	7	11451	18	1597	23.2	3 - No Action		Yes			Yes	
3896548	07/03/2019 13:05:00	07/03/2019 13:11:11		Ryan Young	39	11825	18	1615	14.1	2 - Clean		Yes			Yes	
3896571	14/03/2019 11:58:00	14/03/2019 12:00:33		Ryan Young	40	11825	18.81	1615	14.1	3 - No Action		Yes			Yes	
3896596	21/03/2019 13:30:00	21/03/2019 13:32:45		Brian Barnard	40	11825	18.01	1615	14	2 - Clean		Yes			Yes	
3896631	28/03/2019 09:40:00	28/03/2019 09:41:05		Ryan Young	11	12373	18	1640	25.2	3 - No Action	sample taken	Yes			Yes	
3896845	04/04/2019 13:48:00	04/04/2019 13:53:27		Ryan Young	38	13528	18.01	1693	14.1	2 - Clean		Yes			Yes	
3897734	11/04/2019 13:18:00	11/04/2019 13:19:25		clint hill	39	13528	0	1693	14.1	2 - Clean		Yes			Yes	
3899035	18/04/2019 12:47:00	18/04/2019 12:47:56		clint hill	40	13538	0	1693	14.1	2 - Clean		Yes			Yes	
3899036	18/04/2019 12:47:00	18/04/2019 12:51:16		clint hill							lock needs are riveting at filter cover					
3899059	24/04/2019 13:30:00	24/04/2019 13:31:58		Ryan Young	40	13543	18	1693	14.1	2 - Clean		Yes			Yes	
3899060	24/04/2019 13:40:00	24/04/2019 13:41:19		Ryan Young	62	19907	54	694	13.7	2 - Clean		Yes			Yes	
3899079	30/04/2019 10:00:00	30/04/2019 10:01:37		Ryan Young	13	13580	18	1695	25.3	3 - No Action	Bore level seems like a huge jump	Yes			Yes	
3899456	09/05/2019 13:26:00	09/05/2019 13:28:44		clint hill	40	13614	21	1695	14.1	2 - Clean		Yes			Yes	
3899457	09/05/2019 13:28:00	09/05/2019 13:29:56		clint hill							needs latch fixed on filter cover added 2 2 do list				Yes	
3899795	16/05/2019 11:12:00	16/05/2019 11:13:38		Brian Barnard	40	13614	21	1695	14.1	2 - Clean		Yes			Yes	
3899796	16/05/2019 11:13:00	16/05/2019 11:19:15		Brian Barnard	62	19965	54	696	13.7	2 - Clean		Yes			Yes	
3899822	23/05/2019 14:34:00	23/05/2019 14:36:41		Ryan Young	40	13614	21	1695	14.1	3 - No Action	power cycled plc panelview/alarm monitor	Yes			Yes	
3899850	30/05/2019 11:32:00	30/05/2019 11:32:59		Ryan Young	39	13730	21	1701	14.1	2 - Clean		Yes			Yes	
3899882	06/06/2019 13:34:00	06/06/2019 13:35:46		Ryan Young	40	13731	21	1701	14.1	2 - Clean		Yes			Yes	
3899967	13/06/2019 10:42:00	13/06/2019 10:57:02		Brian Barnard	40	13734	22	1701	14.1	2 - Clean		Yes			Yes	
3900279	20/06/2019 13:38:00	20/06/2019 13:39:31		Brian Barnard	40	13753	27.32	1701	14.1	2 - Clean		Yes			Yes	
3900280	20/06/2019 13:39:00	20/06/2019 13:54:18		Brian Barnard	62	20118	54	701	13.7	2 - Clean		Yes			Yes	
3900388	27/06/2019 14:00:00	27/06/2019 14:01:36		clint hill	40	13758	54	1701	14.1	2 - Clean					Yes	
3900413	04/07/2019 11:10:00	04/07/2019 11:13:27		Ryan Young	40	13775	37	1701	14	2 - Clean					Yes	
3900414	04/07/2019 11:13:00	04/07/2019 11:13:38		Ryan Young								Yes				
3900415	04/07/2019 11:13:00	04/07/2019 11:19:52		Ryan Young	64	20118	54	701	13.6	2 - Clean		Yes			Yes	
3900440	11/07/2019 15:02:00	11/07/2019 15:04:13		Ryan Young	40	13780	39	1701	14.1	3 - No Action		Yes			Yes	
3901635	18/07/2019 13:56:00	18/07/2019 13:57:22		Ryan Young	40	13788	46	1701	14.1	2 - Clean		Yes			Yes	
3901660	25/07/2019 11:09:00	25/07/2019 11:14:19		Brian Barnard	40	13808	49	1701	14.1			Yes			Yes	

Manual Entries
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Utility: Borefield Record Sheet

Tab:	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	
Subgroup:	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	KB4	
Parameter:	Bore Level above Pump	Power Meter Reading 1	Power Meter Reading 2	Power Meter Reading 3	Flow Forward	Flow Reverse	Pump Run Hours	Temperature	Cabinet Filter	Comments	Checked Well-head	Well-head Security Comment	Check Rodent Protection	Filled in log book?	
SCADA Tag:															
Units:	m	kwh	kwh	kwh	m³	m³		°C							
Operations Min:															
Operations Max:															
Trigger Min:															
Trigger Max:															
92% Min:															
92% Max:															
95% Min:															
95% Max:															
98% Min:															
98% Max:															
99% Min:															
99% Max:															
Medium Min:															
Medium Max:															
Sample Month:															
Days Between Samples:															
Description:															
Parameter ID:	11118	11119	11120	11121	11122	11123	11124	11125	11126	11127	12143	12180	12181	12720	

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User															
3122015	19/05/2017 11:10:00	22/05/2017 10:39:48		Chris Kaloyanis	33	842010	235496	42502	201147	2433	4881	14.4	3 - No Action						
3122038	25/05/2017 09:51:00	25/05/2017 15:05:38		Tony Attewell	33	842010	235496	42502	201147	2443	4881	14.4	3 - No Action						
3327383	02/06/2017 13:12:00	02/06/2017 13:15:32		Brian Barnard	33	842010	235718	42502	201820	2456	4886	14.5	2 - Clean	0					
3327496	07/06/2017 14:47:00	08/06/2017 11:49:24		Ryan Young	33	842010	235718	42502	201820	2464	4886	14.5	2 - Clean	checked well head					
3331027	15/06/2017 13:00:00	15/06/2017 14:20:25		Chris Kaloyanis	33	842010	235718	42502	201820	2478	4886	14.4	3 - No Action		Yes	Air release fitting needs clean and paint	Yes		
3339835	22/06/2017 09:45:00	22/06/2017 13:28:50		Tony Attewell	33	842010	235718	42502	201820	2489	4886	14.4	1 - Change		Yes	Checked well head			
3339858	28/06/2017 08:50:00	28/06/2017 14:30:45		Tony Attewell	26	842010	235748	42502	201916	2499	4887		3 - No Action	bore running for sample today	Yes		No		
3343907	06/07/2017 13:30:00	06/07/2017 15:42:35		Ryan Young	33	842010	235811	42502	202106	2512	4888	14.5	2 - Clean		Yes		Yes		
3345102	14/07/2017 10:47:00	14/07/2017 13:15:04		Chris Kaloyanis	33	842010	235811	42502	202106	2525	4888	14.3	3 - No Action		Yes	photos taken of mods needed	Yes		
3345139	20/07/2017 14:00:00	21/07/2017 11:04:59		Ryan Young	33	842010	235811	42502	202106	2536	4888	14.6	2 - Clean		Yes		Yes		
3345174	26/07/2017 11:39:00	27/07/2017 07:54:04		Tony Attewell	33	842010	235898	42502	202403	2546	4891	15.7	3 - No Action		Yes				
3345406	03/08/2017 11:15:00	03/08/2017 13:23:33		Ryan Young	33	842010	235898	42502	202403	2563	4891	14.4	3 - No Action		Yes		Yes		
3347752	10/08/2017 12:57:00	10/08/2017 12:59:18		Ryan Young	33	842010	235898	42502	202403	2579	4891	14.5	3 - No Action		Yes	work has been undertaken to further secure bore. Photos taken.	No		
3347797	17/08/2017 11:55:00	17/08/2017 15:53:44		Tony Attewell	33	842010	235899	42502	202405	2592	4891	14.5	3 - No Action		Yes				
3347820	24/08/2017 11:15:00	24/08/2017 14:39:04		Tony Attewell	33	842010	235899	42502	202405	2604	4891	14.5	3 - No Action		Yes				
3348073	31/08/2017 12:20:00	31/08/2017 12:28:02		Ryan Young	33	842010	235955	42502	202585	2617	4892	15.2	3 - No Action		Yes				
3348165	07/09/2017 13:15:00	07/09/2017 13:18:09		Ryan Young	33	842010	235955	42502	202585	2629	4892	14.6	3 - No Action		Yes				
3353174	14/09/2017 13:20:00	14/09/2017 14:39:32		Tony Attewell	33	842010	235955	42502	202585	2641	4892	14.5	1 - Change		Yes	wellhed checked all OK, secure			
3348193	21/09/2017 14:21:00	21/09/2017 14:25:42		Brian Barnard	33	842010	235955	42502	202585	2652	4892.53	14.5	2 - Clean						
3348229	28/09/2017 11:45:00	28/09/2017 14:38:32		Ryan Young	33	842028	235998	42502	202785	2665	4894	15.5	3 - No Action		Yes				
3353149	05/10/2017 13:45:00	05/10/2017 13:55:02		Ryan Young	33	842028	235998	42502	202785	2678	4894	14.5	1 - Change		Yes				
3353198	12/10/2017 11:35:00	12/10/2017 14:43:29		Tony Attewell	33	842028	235998	42502	202785	2694	4894	14.6	1 - Change		Yes				
3353229	19/10/2017 14:15:00	19/10/2017 14:17:59		Brian Barnard	33	842028	235998	42502	202785	2706	4894	14	2 - Clean		Yes				Yes
3353253	26/10/2017 11:51:00	26/10/2017 11:53:07		Brian Barnard	26	842044	235998	42502	202840	2718	4894	23	2 - Clean		Yes				Yes
3356231	02/11/2017 11:33:00	02/11/2017 11:38:11		Ryan Young	33	842095	236000	42502	203005	2731	4895	14.7	1 - Change		Yes				Yes
3356254	09/11/2017 08:02:00	09/11/2017 08:04:34		Ryan Young	33	842095	236000	42502	203005	2746	4895	14.5	3 - No Action		Yes				Yes
3365422	16/11/2017 11:17:00	16/11/2017 11:20:32		Brian Barnard	33	842095	236000	42502	203005	2760	4895	14	2 - Clean		Yes				Yes
3365469	23/11/2017 10:57:00	23/11/2017 10:58:47		Ryan Young	33	842095	236000	42502	203005	2772	4895	14.7	1 - Change		Yes				Yes
3365506	01/12/2017 10:01:00	01/12/2017 10:02:36		Ryan Young	33	842126	236065	42502	203284	2786	4898	14.8	1 - Change		Yes				Yes
3365553	07/12/2017 11:35:00	07/12/2017 13:48:00		Tony Attewell	33	842126	236065	42502	203284	2797	4898	14.8	2 - Clean		Yes				Yes
3367836	14/12/2017 11:46:00	14/12/2017 11:48:55		Brian Barnard	33	842126	236065	42502	203286	2812	4898	14	2 - Clean		Yes				Yes
3367864	21/12/2017 11:54:00	21/12/2017 11:55:30		Ryan Young	24	842424	236644	42789	207297	2822	4930	22.5	1 - Change		Yes				Yes
3367893	28/12/2017 13:06:00	28/12/2017 14:42:20		Bruce Nesbitt	33	843649	237931	439967	219922	2822	5032	14.6	3 - No Action		Yes	Well head security good			Yes
3367937	03/01/2018 14:40:00	03/01/2018 15:50:07		Tony Attewell	23	844924	239270	45145	232911	2830	5136	23	1 - Change		Yes	Bore running river re - charge 34.52 l/s			Yes
3369331	11/01/2018 11:36:00	11/01/2018 11:39:06		Brian Barnard	32	845656	239924	45740	239570	2839	5191	14	2 - Clean		Yes				Yes
3369455	18/01/2018 12:45:00	18/01/2018 15:13:32		Tony Attewell	33	845656	239924	45756	239641	2852	2852	14.7	1 - Change		Yes				Yes
3369482	25/01/2018 12:08:00	25/01/2018 12:12:44		Ryan Young	33	845656	239924	45756	239641	2865	5192	14.7	1 - Change		Yes				Yes
3369507	01/02/2018 13:25:00	01/02/2018 14:44:34		Tony Attewell	23	846262	240531	46372	245613	2874	5240	22.8	3 - No Action		Yes				Yes
3371622	08/02/2018 11:49:00	08/02/2018 11:51:59		Brian Barnard	23	846940	241136	46937	252215	2882	5296	22	2 - Clean	bore runing	Yes				Yes
3371647	15/02/2018 11:37:00	15/02/2018 11:39:52		Ryan Young	33	847664	241918	47577	259574	2890	5355	14.7	1 - Change		Yes				Yes
3371671	22/02/2018 11:54:00	22/02/2018 11:57:10		Ryan Young	33	847664	241918	47577	259574	2903	5355	14.6	1 - Change		Yes				Yes
3371702	01/03/2018 14:50:00	01/03/2018 16:14:03		Tony Attewell	33	847715	241994	47577	259975	2915	5358	14.9	3 - No Action		Yes				Yes
3373980	09/03/2018 10:37:00	09/03/2018 10:40:41		Brian Barnard	33	847715	241994	47577	259975	2929	5358	14	2 - Clean		Yes				Yes
3374003	15/03/2018 13:01:00	15/03/2018 13:03:19		Ryan Young	33	847715	241994	47577	259975	2940	5358	14.7	1 - Change		Yes				Yes
3374146	29/03/2018 12:35:00	29/03/2018 12:37:50		Tony Attewell	33	847745	242013	47577	260134	2964	5359	14.7	2 - Clean		Yes				Yes
3374351	05/04/2018 21:05:00	05/04/2018 12:03:23		Tony Attewell	33	0.134			260185	2978	5360	14.6	3 - No Action	New Smart meter installed, hence new low single reading	Yes				Yes
3375735	12/04/2018 10:57:00	12/04/2018 11:01:01		Brian Barnard	33				260185	2991	5360	14.5	2 - Clean		Yes				Yes
3375760	19/04/2018 10:57:00	19/04/2018 11:00:47		Ryan Young	33				260185	3006	5360	14.5	1 - Change		Yes				Yes
3376944	26/04/2018 11:45:00	26/04/2018 11:48:05		Brian Barnard	33				260185	3021	5360	14.6	3 - No Action		Yes	clean n tidy. no issues			Yes
3377339	03/05/2018 14:23:00	04/05/2018 14:52:20		Simon Fraser	33	1.394			260575	3034	5363	14.6	3 - No Action		Yes				Yes
3378851	10/05/2018 13:30:00	10/05/2018 14:17:48		Simon Fraser	45	1.394	3.413		260575	3046	7337	13.8	2 - Clean		Yes				Yes
3378879	17/05/2018 11:46:00	17/05/2018 11:48:17		Brian Barnard	33				260575	3059	5363	14	2 - Clean		Yes				Yes
3378903	24/05/2018 11:31:00	24/05/2018 11:33:12		Brian Barnard	33				260575	3071	5363	14	2 - Clean		Yes				Yes
3378921	31/05/2018 10:55:00	31/05/2018 14:15:51		Simon Fraser	33	2.149			260813	0	5365	14.5	2 - Clean		Yes				Yes
3378956	07/06/2018 11:46:00	07/06/2018 11:48:10		Tony Attewell	0.33				260813	3098	5365	14.4			Yes				Yes
3565950	14/06/2018 11:30:00	14/06/2018 11:32:19		Brian Barnard	33				260813	3111	5365	14	2 - Clean		Yes				Yes
3576190	21/06/2018 12:29:00	21/06/2018 12:33:10		Ryan Young	33				260813	3124	5365	14.5	2 - Clean		Yes				Yes
3702496	28/06/2018 11:25:00	28/06/2018 14:21:11		Simon Fraser	33	2.15			260813	3137	5365	14.4	3 - No Action		Yes				Yes
3702524	05/07/2018 14:11:00	05/07/2018 14:12:56		Tony Attewell	33	2.7			260989	3151	5366	14.6	3 - No Action		Yes				Yes
3702749	12/07/2018 11:02:00	12/07/2018 11:07:41		Tony Attewell	33				260989	3164	5366	14.5	3 - No Action		Yes				Yes
3702774	19/07/2018 11:35:00	19/07/2018 11:37:12		Ryan Young	33				260989	3178	5366	14	2 - Clean		Yes				Yes
3839489	26/07/2018 11:30:00	26/07/2018 13:13:13		Simon Fraser	0.33	2.709			260989	3191	5366	14.5	3 - No Action		Yes				Yes
3853603	02/08/2018 11:42:00	02/08/2018 11:44:32		Tony Attewell	33	3.16			261148	3205	5368	14.6	3 - No Action		Yes	ok no issues			Yes
3854495	09/08/2018 10:48:00	09/08/2018 10:53:46		Tony Attewell	33	3.16			261148	3218	5368	14.5	2 - Clean	clean cabinet filter	Yes				Yes
3854519	16/08/2018 10:27:00	16/08/2018 10:28:56		Ryan Young	33				261148	3232	5368	14.5	2 - Clean		Yes				Yes
3854547	23/08/2018 11:30:00	23/08/2018 15:04:53		Simon Fraser	33	3.171	0	0	261148	3246	5368	14.5	3 - No Action		Yes				Yes
3854571	30/08/2018 11:37:00	30/08/2018 11:38:34		Tony Attewell	33	3.95			261398	3259	5370	14.6	3 - No Action		Yes				Yes
3872580	06/09/2018 10:45:00	06/09/2018 10:46:49		Brian Barnard	33				261398	3272	5370	14	2 - Clean		Yes				Yes
3873442	13/09/2018 11:54:00	13/09/2018 11:56:26		Ryan Young	33				261398	3285	5370	14.5	2 - Clean		Yes				Yes
3873470	20/09/2018 10:46:00	20/09/2018 10:56:35		Ryan Young	33				261398	3299	5370	14.6	2 - Clean		Yes				Yes
3873479	24/09/2018 13:04:00	24/09/2018 13:05:35		Ryan Young	33				261398	3306	5370	14.6	3 - No Action	Unlocked vsd and turned back online	Yes				Yes
3873615	04/10/2018 11:09:00	04/10/2018 11:10:18		Brian Barnard	33				261698	3324	5372	14	2 - Clean		Yes				Yes
3873762	11/10/2018 13:18:00	11/10/2018 13:19:16		Ryan Young	33				261698	3337	5372	14.5	3 - No Action		Yes				Yes
3874081	18/10/2018 11:45:00	18/10/2018 13:49:20		Simon Fraser	33				26168	3350	5372	14.6	3 - No Action		Yes				Yes
3874455	25/10/2018 11:09:00	25/10/2018 11:10:42		Tony Attewell	33				261698	3363	5372	14.6	3 - No Action		Yes				Yes
3874485	02/11/2018 11:05:00	02/11/2018 11:06:56		Brian Barnard	33				261972	3378	5375	14	2 - Clean		Yes				Yes
3874890	08/11/2018 12:08:00	08/11/2018 12:09:58		Ryan Young	33				261972	3390	5375	14.6	3 - No Action		Yes				Yes
3874914	15/11/2018 11:54:00	15/11/2018 11:58:55		Ryan Young	33				261972	3405	5375	14.7	1 - Change		Yes				Yes
3875901	22/11/2018 12:05:00	22/11/2018 12:06:07		Tony Attewell	33				261972	3418	5375	14.5	3 - No Action		Yes				Yes
3877621	29/11/2018 10:22:00	29/11/2018 10:24:21		Tony Attewell	33				262208	3432	5377	14.7	2 - Clean		Yes				Yes
3881813	06/12/2018 13:43:00	06/12/2018 13:46:09		Tony Attewell	33				262208	3446	5377	14.6	3 - No Action		Yes				Yes
3882313	13/12/2018 11:11:00	13/12/2018 11:15:41		Simon Fraser	0.33				262208	3460	5377	14.8	3 - No Action		Yes				Yes
3882460	20/12/2018 14:32:00	20/12/2018 14:33:38		Ryan Young	33				262663	3473	5380	14.7	2 - Clean		Yes				Yes
3882484	27/12/2018 11:08:00	27/12/2018 11:09:41		Brian Barnard	33				262939	3487	5382	14	2 - Clean						Yes
3882508	04/01/2019 11:08:00	04/01/2019 11:10:49		Ryan Young	33				262939	3502	5382	14.8	1 - Change		Yes				Yes

3889857	10/01/2019 10:54:00	10/01/2019 10:55:20	Brian Barnard	33	262939	3514	5382	14	2 - Clean		Yes		Yes
3889858	10/01/2019 11:05:00	10/01/2019 11:06:33	Brian Barnard	47	1507766	76441	7360	13.7	2 - Clean		Yes		Yes
3891933	17/01/2019 12:35:00	17/01/2019 12:36:46	Ryan Young	33	262939	3528	5382	14.7	3 - No Action		Yes		Yes
3892247	24/01/2019 10:27:00	24/01/2019 10:30:26	Simon Fraser	33	262939	3542	5382	14.6	3 - No Action		Yes		Yes
3892273	31/01/2019 11:25:00	31/01/2019 11:28:30	Ryan Young	33	263219	3558	5385	14.9	1 - Change		Yes		Yes
3892386	07/02/2019 10:54:00	07/02/2019 10:55:29	Simon Fraser	33	263219	3558	5385	14.7	3 - No Action		Yes		Yes
3894972	14/02/2019 14:10:00	14/02/2019 14:11:42	Ryan Young	33	263219	3585	5385	14.8	2 - Clean		Yes		Yes
3894999	21/02/2019 12:21:00	21/02/2019 12:22:57	Simon Fraser	33	263535	3599	5388	14.9	3 - No Action		Yes		Yes
3895023	28/02/2019 09:38:00	28/02/2019 09:39:10	Ryan Young	33	263535	3613	5388	14.6	3 - No Action		Yes		Yes
3896544	07/03/2019 12:45:00	07/03/2019 12:47:01	Ryan Young	33	263535	3627	5388	14.7	2 - Clean		Yes		Yes
3896567	14/03/2019 11:29:00	14/03/2019 11:30:45	Ryan Young	0.33	263535	3640	5388	14.6	3 - No Action		Yes		
3896592	21/03/2019 11:47:00	21/03/2019 11:53:25	Brian Barnard	33	263535	3654	5388	14	2 - Clean		Yes		Yes
3896627	28/03/2019 08:46:00	28/03/2019 08:47:32	Ryan Young	26	264859	3666	5405	23.1	3 - No Action	sample taken	Yes		Yes
3896725	04/04/2019 13:12:00	04/04/2019 13:15:02	Ryan Young	33	269747	0	5449	14.6	2 - Clean		Yes		Yes
3897730	11/04/2019 12:34:00	11/04/2019 12:35:28	clint hill	33	269747	0	549	14.5			Yes		Yes
3899030	18/04/2019 12:07:00	18/04/2019 12:07:52	clint hill	33	269747	0	5449	14.6	3 - No Action		Yes		Yes
3899055	24/04/2019 13:00:00	24/04/2019 13:02:52	Ryan Young	33	269747	3717	5449	14.7	1 - Change		Yes		Yes
3899075	30/04/2019 09:26:00	30/04/2019 09:27:25	Ryan Young	26	269885	3728	5450	23.4	3 - No Action		Yes		Yes
3899451	09/05/2019 11:45:00	09/05/2019 11:46:20	clint hill	33	270006	0	5451	14.6	2 - Clean		Yes		Yes
3899791	16/05/2019 10:48:00	16/05/2019 10:49:55	Brian Barnard	33	270006	3763	5451	14	2 - Clean		Yes		Yes
3899818	23/05/2019 13:59:00	23/05/2019 14:00:32	Ryan Young	33	270006	3782	5451	14.6	2 - Clean		Yes		Yes
3899846	30/05/2019 11:03:00	30/05/2019 11:05:01	Ryan Young	33	270674	3797	5456	14	2 - Clean		Yes		Yes
3899878	06/06/2019 13:10:00	06/06/2019 13:12:40	Ryan Young	33	270674	3797	5456	14.5	2 - Clean		Yes		Yes
3899963	13/06/2019 10:21:00	13/06/2019 10:23:31	Brian Barnard	33	270674	3826	5456	14.6	2 - Clean		Yes		Yes
3900275	20/06/2019 13:05:00	20/06/2019 13:07:55	Brian Barnard	33	270674	3826	5456	14.5	2 - Clean		Yes		Yes
3900384	27/06/2019 13:36:00	27/06/2019 13:36:55	clint hill	33	270674	3826	5456	14.5	2 - Clean				Yes
3900409	04/07/2019 10:39:00	04/07/2019 10:48:03	Ryan Young	33	270674	3870	5456	14	2 - Clean				Yes
3900436	11/07/2019 14:45:00	11/07/2019 14:45:55	Ryan Young	33	270674	3884	5456	14.6	3 - No Action		Yes		Yes
3901631	18/07/2019 13:35:00	18/07/2019 13:36:05	Ryan Young	33	270674	3899	5456	14.6	2 - Clean		Yes		Yes
3901655	25/07/2019 10:37:00	25/07/2019 10:47:35	Brian Barnard	33	270674	3913	5456	14.5	2 - Clean		Yes		Yes

Manual Entries
Tab: K12
Plant: K12

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Tab:	K12	K12	K12	K12	K12	K12	K12	K12	K12	K12	K12
Subgroup:	K12	K12	K12	K12	K12	K12	K12	K12	K12	K12	K12
Parameter:	Bore Level above Pump	Flow Forward	Flow Reverse	Pump Run Hours	Temperature	Cabinet Filter	Comments	Checked Well-head	Well-head Security Comment	Check Rodent Protection	Filled in log book?
SCADA Tag:											
Units:	m	m³	m³		°C						
Operations Min:											
Operations Max:											
Trigger Min:											
Trigger Max:											
92% Min:											
92% Max:											
95% Min:											
95% Max:											
98% Min:											
98% Max:											
99% Min:											
99% Max:											
Medium Min:											
Medium Max:											
Sample Month:											
Days Between Samples:											
Description:											
Parameter ID:	11155	11156	11157	11158	11159	11160	11161	12148	12188	12189	12718

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User										
3122019	19/05/2017 11:40:00	22/05/2017 10:51:52		Chris Kaloyanis	62.8	2243	20	76	13.9	3 - No Action					
3122043	25/05/2017 10:36:00	25/05/2017 15:49:21		Tony Attewell	62.6	2244	20	76	13.9	1 - Change	Done by RY				
3327388	02/06/2017 13:24:00	02/06/2017 13:26:26		Brian Barnard	62.2	2392	20	2392	18.3	2 - Clean	0				
3327500	08/06/2017 11:10:00	08/06/2017 14:24:57		Ryan Young	62	2393	21	81	13.9	3 - No Action	check well head				
3331032	15/06/2017 13:30:00	15/06/2017 14:29:34		Chris Kaloyanis	62.6	2395	21	81	13.9	3 - No Action		Yes		Yes	
3339840	22/06/2017 10:43:00	22/06/2017 13:42:22		Tony Attewell	62	2397	21	81	13.9	3 - No Action		Yes	RY Checked site today	No	
3339862	28/06/2017 09:23:00	28/06/2017 14:39:03		Tony Attewell	24.6	2436.34	22.29	82		3 - No Action	bore running today for sample	Yes		No	
3343912	06/07/2017 14:17:00	06/07/2017 15:49:51		Ryan Young	62	2468	22	83	13.9	2 - Clean		Yes		Yes	
3345107	14/07/2017 01:25:00	14/07/2017 13:23:24		Chris Kaloyanis	62.5	2469	22	83	13.9	3 - No Action		Yes	photos taken of mods needed	Yes	
3345144	20/07/2017 14:30:00	21/07/2017 11:21:03		Ryan Young	62	2470	23	83	13.9	3 - No Action		Yes		Yes	
3345179	26/07/2017 09:06:00	27/07/2017 08:06:04		Tony Attewell	24.7	2509.79	23.18	85	27.2	3 - No Action		Yes			
3345411	03/08/2017 12:10:00	03/08/2017 13:29:35		Ryan Young	62	2516	23	85	13.9	3 - No Action		Yes		Yes	
3347771	10/08/2017 13:54:00	10/08/2017 13:55:57		Ryan Young	62.7	2518	23	85	13.9	3 - No Action		Yes		No	
3347802	17/08/2017 00:30:00	17/08/2017 16:01:02		Tony Attewell	62.7	2519	23.89	85	13.9	3 - No Action		Yes			
3347825	24/08/2017 11:38:00	24/08/2017 14:51:01		Tony Attewell	62.7	2519	24.02	85	18.8	3 - No Action		Yes			
3348078	31/08/2017 13:09:00	31/08/2017 13:10:47		Ryan Young	62	2558	24	86	14	3 - No Action		Yes			
3348170	07/09/2017 14:06:00	07/09/2017 14:06:40		Ryan Young	62.7	2559	24	86	13.8	3 - No Action		Yes			
3353179	14/09/2017 14:06:00	14/09/2017 14:52:08		Tony Attewell	62.7	2560.37	24.37	86	13.8	1 - Change		Yes	Wellhead checked all secure, OK		
3348199	21/09/2017 14:40:00	21/09/2017 14:43:27		Brian Barnard	62.7	2561.11	24.5	86.5	13.8	2 - Clean					
3348234	28/09/2017 12:21:00	28/09/2017 14:46:01		Ryan Young	61.7	2607	24	88	14	3 - No Action		Yes			
3353154	05/10/2017 14:34:00	05/10/2017 14:37:19		Ryan Young	62.6	2607	24	88	13.8	2 - Clean		Yes			
3353203	12/10/2017 14:08:00	12/10/2017 14:52:11		Tony Attewell	62.6	2608.38	24.85	88	13.8	2 - Clean		Yes			
3353234	19/10/2017 14:37:00	19/10/2017 14:39:03		Brian Barnard	62	2609	24	88	14	2 - Clean		Yes			Yes
3353258	26/10/2017 12:04:00	26/10/2017 12:05:33		Brian Barnard	25	2641	25	89	25	2 - Clean		Yes			Yes
3356236	02/11/2017 12:11:00	02/11/2017 12:12:54		Ryan Young	62	2660	25	89	13.8	1 - Change		Yes			Yes
3356259	09/11/2017 08:53:00	09/11/2017 08:54:07		Ryan Young	62	660	25	89	13.8	3 - No Action		Yes			Yes
3365427	16/11/2017 13:30:00	16/11/2017 13:32:01		Brian Barnard	62	2661	25	89	14	2 - Clean		Yes			Yes
3365474	23/11/2017 11:32:00	23/11/2017 11:33:06		Ryan Young	62.3	2661	25	89	13.7	2 - Clean		Yes			Yes
3365511	01/12/2017 10:39:00	01/12/2017 10:40:27		Ryan Young	62	2723	25	91	13.7	1 - Change		Yes			Yes
3365558	07/12/2017 12:15:00	07/12/2017 13:56:54		Tony Attewell	62.1	2724	25.76	91	13.7	2 - Clean		Yes			Yes
3367841	14/12/2017 13:37:00	14/12/2017 13:38:21		Brian Barnard	62	2724	25	91	14	2 - Clean		Yes			Yes
3367869	21/12/2017 12:31:00	21/12/2017 12:32:36		Ryan Young	15.9	3621	26	12	24.9	1 - Change		Yes			Yes
3367898	28/12/2017 14:49:00	28/12/2017 14:50:32		Bruce Nesbitt	59	6570.96	26.13	224	14.1	3 - No Action		Yes	All gates and fences good. Well head clean and tidy		Yes
3367942	03/01/2018 14:15:00	03/01/2018 16:00:24		Tony Attewell	10.3	9586	26.17	328	27.3	1 - Change		Yes			Yes
3369336	11/01/2018 13:37:00	11/01/2018 13:39:23		Brian Barnard	59	11177	26	383	13	2 - Clean		Yes			Yes
3369460	18/01/2018 12:15:00	18/01/2018 15:24:37		Tony Attewell	60.8	11353	26.37	391	13.7	1 - Change		Yes			Yes
3369487	25/01/2018 12:52:00	25/01/2018 12:54:37		Ryan Young	61	11354	26	391	13.7	2 - Clean		Yes			Yes
3369512	01/02/2018 14:00:00	01/02/2018 14:54:24		Tony Attewell	13.6	12760	26.75	439	25.9	3 - No Action		Yes			Yes
3371627	08/02/2018 13:25:00	08/02/2018 13:26:40		Brian Barnard	134	14510	26	501	25	2 - Clean	pumping	Yes			Yes
3371652	15/02/2018 12:10:00	15/02/2018 12:12:53		Ryan Young	59	16184	26	558	13.7	1 - Change		Yes			Yes
3371676	22/02/2018 13:04:00	22/02/2018 13:04:58		Ryan Young	61.5	16186	27	558	13.7	2 - Clean		Yes			Yes
3371707	01/03/2018 15:25:00	01/03/2018 16:30:12		Tony Attewell	61.4	16281	27.26	562	13.7	3 - No Action		Yes			Yes
3373985	09/03/2018 11:14:00	09/03/2018 11:15:30		Brian Barnard	61	16283	27	562	13	2 - Clean		Yes			Yes
3374008	15/03/2018 13:43:00	15/03/2018 13:45:25		Ryan Young	61	16284	27	562	13.7	2 - Clean		Yes			Yes
3374152	29/03/2018 13:11:00	29/03/2018 13:13:32		Tony Attewell	62.1	16321	2.12	563	13.7	2 - Clean		Yes			Yes
3374356	05/04/2018 10:50:00	05/04/2018 12:59:26		Tony Attewell	62.2	16322	28.38	563	13.7	3 - No Action		Yes	Checked all Good		Yes
3375740	12/04/2018 11:30:00	12/04/2018 11:31:55		Brian Barnard	62.2	16324	28.74	563	13.7	2 - Clean		Yes			Yes
3375765	19/04/2018 11:39:00	19/04/2018 11:52:21		Ryan Young	62	16326	29	563	13.7	2 - Clean		Yes			Yes
3376949	26/04/2018 13:30:00	26/04/2018 13:32:27		Brian Barnard	62.2	16328	30.22	563	13.7	3 - No Action		Yes			Yes
3377344	03/05/2018 15:05:00	04/05/2018 15:02:23		Simon Fraser	62.1	16420.37	30.86	566	13.7	3 - No Action	Power = 80.307kWH				Yes
3378856	10/05/2018 13:12:00	10/05/2018 14:26:43		Simon Fraser	62.2	16422.93	31.67	566.4	13.7	3 - No Action		Yes			Yes
3378884	17/05/2018 13:32:00	17/05/2018 13:33:50		Brian Barnard	62	16425	32	566	13.7	2 - Clean		Yes			Yes
3378908	24/05/2018 13:34:00	24/05/2018 13:35:34		Brian Barnard	62	16427	33	566	14	2 - Clean		Yes			Yes
3378926	31/05/2018 12:07:00	31/05/2018 14:33:20		Simon Fraser	62	16485	34.17	568	13.7	3 - No Action		Yes			Yes
3378964	07/06/2018 14:48:00	07/06/2018 14:50:06		Tony Attewell	62.7	16488	35.13	568	13.7	3 - No Action		Yes			Yes
3565955	14/06/2018 13:26:00	14/06/2018 13:27:14		Brian Barnard	62	16491	36	568	13	2 - Clean		Yes			Yes
3576195	21/06/2018 13:16:00	21/06/2018 13:16:47		Ryan Young	62	16494	37	568	13.7	2 - Clean		Yes			Yes
3702501	28/06/2018 12:14:00	28/06/2018 14:29:48		Simon Fraser	62	16496	37	568	13.7	3 - No Action	80.618 kw power reading	Yes			Yes
3702530	05/07/2018 14:51:00	05/07/2018 14:52:21		Tony Attewell	62.7	16537	38.85	569	13.7	3 - No Action		Yes	well head checked ,OK		Yes
3702754	12/07/2018 13:47:00	12/07/2018 13:49:13		Tony Attewell	63	16541	40.07	569	13.7	3 - No Action		Yes			Yes
3702779	19/07/2018 12:13:00	19/07/2018 12:17:06		Ryan Young	63	16543	41	569	13	3 - No Action		Yes			Yes

3839494	26/07/2018 12:40:00	26/07/2018 13:22:42	Simon Fraser	63	16546	41	569	13.7	3 - No Action		Yes		Yes
3853609	02/08/2018 13:52:00	02/08/2018 13:53:24	Tony Attewell	63.8	16592.99	42.85	571	13.7	3 - No Action		Yes		Yes
3854501	09/08/2018 11:32:00	09/08/2018 11:33:34	Tony Attewell	63.7	16595	43.87	571	13.7	2 - Clean	Clean cabinet filter	Yes		Yes
3854524	16/08/2018 11:18:00	16/08/2018 11:19:24	Ryan Young	63	16598	44	571	13.7	2 - Clean		Yes		Yes
3854552	23/08/2018 12:05:00	23/08/2018 15:41:04	Simon Fraser	63	16600	45	571	13.7	3 - No Action		Yes		Yes
3854576	30/08/2018 13:31:00	30/08/2018 13:37:26	Tony Attewell	63.4	16660.38	47.09	573	13.7	3 - No Action		Yes		Yes
3872597	06/09/2018 11:29:00	06/09/2018 11:29:51	Brian Barnard	63	16660	47	573	14	2 - Clean		Yes		Yes
3873447	13/09/2018 12:26:00	13/09/2018 12:27:59	Ryan Young	63	16660	47	573	13.7	3 - No Action		Yes		Yes
3873475	20/09/2018 11:18:00	20/09/2018 11:23:39	Ryan Young	63.9	16660	47	573	13.7	2 - Clean		Yes		Yes
3873485	24/09/2018 13:45:00	24/09/2018 13:46:15	Ryan Young	63.5	16660	47	573	13.7	3 - No Action	Unlocked vsd and turned back on	Yes		Yes
3873620	04/10/2018 11:51:00	04/10/2018 11:53:44	Brian Barnard	62	16735	48	575	13	2 - Clean		Yes		Yes
3873767	11/10/2018 13:39:00	11/10/2018 13:43:32	Ryan Young	63	16738	48	575	13.7	3 - No Action		Yes		Yes
3874086	18/10/2018 12:10:00	18/10/2018 13:54:56	Simon Fraser	63	16740	13	575	13.7	3 - No Action		Yes		Yes
3874462	25/10/2018 14:44:00	25/10/2018 14:45:49	Tony Attewell	63.2	16742	50.2	575	13.7	3 - No Action		Yes		Yes
3874490	02/11/2018 11:42:00	02/11/2018 11:43:34	Brian Barnard	63	16807	51	577	14	2 - Clean		Yes		Yes
3874894	08/11/2018 12:57:00	08/11/2018 13:06:33	Ryan Young	63	16809	51	577	13.7	3 - No Action		Yes		Yes
3874919	15/11/2018 12:27:00	15/11/2018 12:29:01	Ryan Young	63	16810	52	577	13.7	2 - Clean		Yes		Yes
3875910	22/11/2018 13:27:00	22/11/2018 13:32:21	Tony Attewell	62.9	16812	53.07	577	13.7	3 - No Action		Yes		Yes
3877626	29/11/2018 10:58:00	29/11/2018 10:59:25	Tony Attewell	63	16859	53	579	13.7	2 - Clean		Yes		Yes
3881861	06/12/2018 14:01:00	06/12/2018 14:05:09	Tony Attewell	63	16860	54	579	13.7	3 - No Action		Yes		Yes
3882312	13/12/2018 11:04:00	13/12/2018 11:07:01	Brian Barnard	63	16861	54	579	13.7	2 - Clean		Yes		Yes
3882465	20/12/2018 14:56:00	20/12/2018 14:57:02	Ryan Young	62.7	16984	54	583	13.7	3 - No Action		Yes		Yes
3882489	27/12/2018 11:47:00	27/12/2018 11:48:49	Brian Barnard	62	17048	54	585	13.7	2 - Clean				Yes
3882513	04/01/2019 11:51:00	04/01/2019 11:52:07	Ryan Young	62.7	17048	54	585	13.7	1 - Change		Yes		Yes
3889862	10/01/2019 11:29:00	10/01/2019 11:30:47	Brian Barnard	62	17048	54	585	13.7	2 - Clean		Yes		Yes
3889864	10/01/2019 11:30:00	10/01/2019 11:49:22	Brian Barnard	43	41032	9	454	13	2 - Clean		Yes		Yes
3891939	17/01/2019 13:05:00	17/01/2019 13:05:49	Ryan Young	62.9	17048	54	585	13.7	3 - No Action		Yes		Yes
3892252	24/01/2019 11:08:00	24/01/2019 11:09:12	Simon Fraser	63	17048	54	585	13.7	3 - No Action		Yes		Yes
3892280	31/01/2019 11:57:00	31/01/2019 11:58:45	Ryan Young	62.2	17106	54	587	13.7	1 - Change		Yes		Yes
3892503	07/02/2019 11:35:00	07/02/2019 11:36:28	Simon Fraser	62.5	17106	54	587	13.6	3 - No Action		Yes		Yes
3894979	14/02/2019 14:32:00	14/02/2019 14:33:12	Ryan Young	62.8	17106	54	587	13.6	2 - Clean		Yes		Yes
3895004	21/02/2019 13:14:00	21/02/2019 13:24:04	Simon Fraser	57.3	17707	54	614	13.8	3 - No Action		Yes		Yes
3896549	07/03/2019 13:19:00	07/03/2019 13:21:01	Ryan Young	61.8	17958	54	624	13.7	2 - Clean		Yes		Yes
3896572	14/03/2019 12:05:00	14/03/2019 12:08:03	Ryan Young	61.9	17958	54	624	13.7	3 - No Action		Yes		Yes
3896598	21/03/2019 13:38:00	21/03/2019 13:41:45	Brian Barnard	61.9	17958	54.48	624	14	2 - Clean				Yes
3896632	28/03/2019 09:52:00	28/03/2019 09:53:19	Ryan Young	22.4	18602	54	648	27.4	3 - No Action	sample taken	Yes		Yes
3896846	04/04/2019 14:01:00	04/04/2019 14:03:13	Ryan Young	60	19907	54.48	694	13.7	2 - Clean		Yes		Yes
3897736	11/04/2019 14:22:00	11/04/2019 14:23:16	clint hill	61.7	19907	0	694	13.7	2 - Clean		Yes		Yes
3899037	18/04/2019 12:59:00	18/04/2019 13:00:20	clint hill	61	19907	0	694	13.7	2 - Clean		Yes		Yes
3899038	18/04/2019 13:00:00	18/04/2019 13:28:24	clint hill	42.8	42129	0	463	13	2 - Clean		Yes		Yes
3899080	30/04/2019 10:08:00	30/04/2019 10:09:23	Ryan Young	24	19960	54	696	27.4	3 - No Action		Yes		Yes
3899703	09/05/2019 13:37:00	09/05/2019 13:38:24	clint hill	62	19965	54	696	13.7	2 - Clean		Yes		Yes
3899704	09/05/2019 13:38:00	09/05/2019 13:44:38	clint hill							k12 needs new lock			
3899823	23/05/2019 14:40:00	23/05/2019 14:41:53	Ryan Young	62	19965	54	696	13.7	3 - No Action		Yes		Yes
3899851	30/05/2019 11:38:00	30/05/2019 11:38:46	Ryan Young	61	20118	54	701	13.7	2 - Clean		Yes		Yes
3899883	06/06/2019 13:44:00	06/06/2019 13:45:32	Ryan Young	62	20118	54	701	13.7	2 - Clean		Yes		Yes
3899968	13/06/2019 10:57:00	13/06/2019 11:02:21	Brian Barnard	62	20118	54	701	13.7	2 - Clean		Yes		Yes
3900389	27/06/2019 14:09:00	27/06/2019 14:10:40	clint hill	62.7	20118	54	701	13.7	2 - Clean				Yes
3900416	04/07/2019 11:21:00	04/07/2019 11:23:12	Ryan Young	64	20118	54	701	13.6	2 - Clean		Yes		Yes
3900441	11/07/2019 15:07:00	11/07/2019 15:08:39	Ryan Young	63.7	20118	54	701	13.6	3 - No Action		Yes		Yes
3901636	18/07/2019 14:07:00	18/07/2019 14:08:22	Ryan Young	63.5	20118	54	701	13.6	2 - Clean		Yes		Yes
3901661	25/07/2019 11:14:00	25/07/2019 11:21:21	Brian Barnard	63	20118	54	701	13.6	2 - Clean		Yes		Yes

Manual Entries
Tab: K10
Plant: K10

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User	Bore Level above Pump	Power Meter Reading 1	Power Meter Reading 2	Power Meter Reading 3	Flow Forward	Flow Reverse	Compressor Run Hours	Temperature	Cabinet Filter	Comments	Checked Well-head	Well-head Security Comment	Run compressor manually?	Check rodent protection	Compressor Service Due Date	Filled in log book?	Pump Run Hours
				Tab:	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10
				Subgroup:	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10	K10
				SCADA Tag:																	
				Units:	m	kwh	kwh	kwh	m^3	m^3		°C									
				Operations Min:		0															
				Operations Max:																	
				Trigger Min:																	
				Trigger Max:																	
				92% Min:																	
				92% Max:																	
				95% Min:																	
				95% Max:																	
				98% Min:																	
				98% Max:																	
				99% Min:																	
				99% Max:																	
				Medium Min:																	
				Medium Max:																	
				Sample Month:																	
				Days Between Samples:																	
				Description:																	
				Parameter ID:	11100	11101	11102	11103	11104	11105	11106	11107	11108	11109	12142	12172	12173	12174	12178	12713	12714
3122013	19/05/2017 10:25:00	22/05/2017 10:32:40		Chris Kaloyanis	53	183783	108330	33244	2121	109	4496	14.2	3 - No Action	wrong service sticker for compressor 5/2/17							
3122036	25/05/2017 02:54:00	25/05/2017 14:59:09		Tony Attewell	53	183784	108332	33244	2121	109	4496	14.3	1 - Change	Two penetrations into Bore not sealed.Photos taken. Ryan Young..Needs Weeding in surge chamber area. RY							
3327381	02/06/2017 13:07:00	02/06/2017 13:10:08		Brian Barnard	53	183884	108381	33244	2432	109	4501	14.3	2 - Clean	0							
3327494	07/06/2017 14:07:00	08/06/2017 11:39:25		Ryan Young	53	183885	108387	33244	2432	109	4501	14.3	2 - Clean	checked well head							
3331023	15/06/2017 11:20:00	15/06/2017 14:14:54		Chris Kaloyanis	53	183887	108390	33244	2432	109	4501	14.2	3 - No Action		Yes		Yes	Yes	43075.3751		
3339833	22/06/2017 11:00:00	22/06/2017 13:23:23		Tony Attewell	53	183890	108397	33244	2432.37	109.93	4501	14.2	3 - No Action	A heavy vehicle of some kind has driven over the grass area between the Bore cabinet & the surge chamber & left deep wheel marks in the grass/soil, small truck?	Yes		No	Yes			
3339856	28/06/2017 08:17:00	28/06/2017 14:24:08		Tony Attewell	31	183895	108399	33244	2445.98	109.93	4501		3 - No Action	bore running sample day	Yes		Yes				
3343905	06/07/2017 11:35:00	06/07/2017 15:38:40		Ryan Young	53	183956	108410	33255	2562	109	4503	14.3	2 - Clean		Yes			Yes			
3345100	14/07/2017 10:35:00	14/07/2017 13:10:50		Chris Kaloyanis	52	183957	108414	33255	2562	109	4503	14.2	3 - No Action		Yes	photos taken of mods needed	Yes	Yes	43075		
3345137	20/07/2017 13:30:00	21/07/2017 11:00:21		Ryan Young	53	183958	108416	33255	2562	109	4503	14.3	2 - Clean		Yes		Yes	Yes	43075		
3345172	26/07/2017 11:18:00	27/07/2017 07:50:44		Tony Attewell	52	183993	108420	33255	2649	109		15.1	3 - No Action				Yes				
3345404	03/08/2017 10:30:00	03/08/2017 13:20:36	03/08/2017 13:32:37	Ryan Young	53	183994	108422	33255	2649	109	4505	14.2	2 - Clean	Need replacement Screen for cabinet filter	Yes		Yes	Yes	43075		
3347750	10/08/2017 11:05:00	10/08/2017 11:07:33		Ryan Young	53	183995	108424	33255	2649	109	68	14.2	3 - No Action	Bill Borking doing work on surge chambers so no manual running of compressor.	Yes		No	No	43075		
3347795	17/08/2017 11:45:00	17/08/2017 15:50:53		Tony Attewell	53	184005	108435	33265	2650	109.93	68	14.3	3 - No Action		Yes		Yes				
3347818	24/08/2017 10:45:00	24/08/2017 14:35:12		Tony Attewell	53	184006	108439	33265	2650.04	109.93	68.7	14.3	2 - Clean	Surge chamber & compressor run checked,	Yes	Well head checked.	Yes				
3348059	31/08/2017 11:40:00	31/08/2017 11:50:39		Ryan Young	52	184043	108446	33265	2730	109	70	14.8	3 - No Action		Yes		Yes		43075		
3348162	07/09/2017 11:05:00	07/09/2017 11:11:15		Ryan Young	53	184044	108450	33265	2730	109	70	14.3	3 - No Action	need weed/grass control	Yes		Yes		43075		
3353172	14/09/2017 11:05:00	14/09/2017 14:35:03		Tony Attewell	53	184047	108454	33265	2730.19	109.93	4506	14.3	1 - Change		Yes	checked all secure no issues	Yes		43075		
3348191	21/09/2017 14:16:00	21/09/2017 14:20:06		Brian Barnard	53	184051	108460	33266	2730	109	71.64	14.2			Yes		Yes		43075		
3348227	28/09/2017 11:25:00	28/09/2017 14:36:28		Ryan Young	52	184084	108466	33276	2821	109	73	15.1	3 - No Action		Yes		Yes		43075		
3353145	05/10/2017 13:03:00	05/10/2017 13:05:03		Ryan Young	53	184089	108475	33276	2821	109	73	14.3	2 - Clean		Yes		Yes		43075		
3353196	12/10/2017 11:15:00	12/10/2017 14:39:59		Tony Attewell	52	184094	108482	33277	2821.98	109.93	4508	14.3	3 - No Action		Yes		Yes		43075		
3353227	19/10/2017 14:09:00	19/10/2017 14:14:14		Brian Barnard	53	184100	108491	33277	2821	109	74	14	2 - Clean		Yes		Yes		43075	Yes	4508
3353251	26/10/2017 11:45:00	26/10/2017 11:50:26		Brian Barnard	29	184170	108502	33284	2840	109		23.9	2 - Clean		Yes		Yes		43075	Yes	4508
3356228	02/11/2017 10:51:00	02/11/2017 10:58:43		Ryan Young	53	184122	108514	33320	2922	109	74	14.3	1 - Change	compressor service in 1 month	Yes		Yes		43075	Yes	4510
3356253	09/11/2017 07:51:00	09/11/2017 07:55:59		Ryan Young	52	184130	108525	33320	2922	109	74	14.2	3 - No Action		Yes		Yes			Yes	4510
3365420	16/11/2017 10:44:00	16/11/2017 10:49:58		Brian Barnard	53	184147	108542	33335	2922	109	74	14	2 - Clean		Yes		Yes		43075	Yes	4510
3365466	23/11/2017 10:02:00	23/11/2017 10:06:58		Ryan Young	52	184159	108556	33337	2922	109	74	14.3	2 - Clean		Yes		Yes		43075	Yes	4510
3365504	01/12/2017 09:45:00	01/12/2017 09:48:11		Ryan Young	52	184217	108571	33358	3051	109	76	14.3	1 - Change		Yes		Yes		43075	Yes	4512
3365551	07/12/2017 11:05:00	07/12/2017 13:45:20		Tony Attewell	52	184233	108585	33365	3051.2	109.94	76	14.3	2 - Clean		Yes		Yes		43075	Yes	4512
3367834	14/12/2017 11:15:00	14/12/2017 11:20:42		Brian Barnard	52	184252	108602	33379	3051	109	78	14	2 - Clean		Yes		Yes		43262	Yes	4512
3367859	21/12/2017 10:47:00	21/12/2017 10:52:04		Ryan Young	52	184440	108623	33387	3504	109	80	14.4	2 - Clean		Yes		Yes		43262	Yes	4521
3367863	21/12/2017 11:48:00	21/12/2017 11:48:46		Ryan Young									1 - Change								
3367891	28/12/2017 13:01:00	28/12/2017 13:04:40		Bruce Nesbitt	52	184786	109009	33721	6293	109	80	14.3	3 - No Action		Yes	All security good	Yes		43292	Yes	4576
3367936	03/01/2018 14:51:00	03/01/2018 15:47:41		Tony Attewell	22	185172	109334	34115	8993	10.94	81	24.6	2 - Clean	Drain compressor water trap	Yes	checked OK, Bore running - Re charge - 16.53 l/s	Yes		43262	Yes	4624
3369329	11/01/2018 11:07:00	11/01/2018 11:13:43		Brian Barnard	52	185399	109652	34330	10677	109	80	14	2 - Clean		Yes		Yes		43262	Yes	4653
3369453	18/01/2018 12:55:00	18/01/2018 15:08:55		Tony Attewell	52	185417	109670	34344	10677	109	80.28	14.3	1 - Change	Surge Chamber hatch bolds need painting.No Audible ALARN sounded on control cabinet when opening door	Yes	all good. clean & tidy, no issues	Yes			Yes	4653
3369479	25/01/2018 11:24:00	25/01/2018 11:31:04		Ryan Young	52	185434	109688	34361	10677	109	80	14.3	2 - Clean		Yes		Yes		43262	Yes	4653
3369505	01/02/2018 13:05:00	01/02/2018 14:42:24		Tony Attewell	23	185841	110104	34752	13478	109	81	24.7	3 - No Action		Yes		Yes		43262	Yes	4700
3371621	08/02/2018 11:21:00	08/02/2018 11:27:38		Brian Barnard	52	185863	110208	34761	13711	109	81	14	1 - Change		Yes		Yes		43262	Yes	4704
3371645	15/02/2018 10:57:00	15/02/2018 11:02:33		Ryan Young	52	186083	110438	35019	15513	109	81	14.3	2 - Clean		Yes		Yes		43262	Yes	4741
3371669	22/02/2018 11:23:00	22/02/2018 11:26:26		Ryan Young	52	186100	110455	35035	15513	109	81	14.3	2 - Clean		Yes		Yes		43262	Yes	4741
3371700	01/03/2018 14:40:00	01/03/2018 16:11:54		Tony Attewell	52	186165	110469	35074	15705	109		14.3	3 - No Action		Yes					Yes	4744
3373979	09/03/2018 10:27:00	09/03/2018 10:32:44		Brian Barnard	52	186179	110485	35085	15705	109	83.71	14	2 - Clean		Yes		Yes		43262	Yes	4744
3374001	15/03/2018 12:42:00	15/03/2018 12:43:56		Ryan Young	52	186189	110496	35086	15705	109	83	14.3	1 - Change		Yes		Yes		43262	Yes	4744
3374124	22/03/2018 13:03:00	22/03/2018 13:22:09		Ryan Young	52	186202	110510	35088	15705	109		14.2	2 - Clean		Yes					Yes	4744
3374143	29/03/2018 11:07:00	29/03/2018 11:10:13		Tony Attewell	52	186227	11523	35110	15782	109.94		14.3	2 - Clean		Yes		Yes			Yes	4745
3374348	05/04/2018 08:45:00	05/04/2018 11:57:53		Tony Attewell	52	0.084			15803	109	85	14.3	3 - No Action	No Audible Alarm sounded on entry to Cabinet, NEW smart Meter installed by John 04042018	Yes	Checked OK.	Yes			Yes	4745
3375733	12/04/2018 10:29:00	12/04/2018 10:35:53		Brian Barnard	52	0.164	0	0	15803	109	86	14.3	2 - Clean		Yes		Yes			Yes	4745
3375758	19/04/2018 10:25:00	19/04/2018 10:29:04		Ryan Young	52				15803	109	86	14.3	1 - Change	power out. Electra doing work on the lines	Yes		No		43262	Yes	4745
3376941	26/04/2018 11:26:00	26/04/2018 11:30:40		Brian Barnard	52				15803	109.94	86	14.3	3 - No Action		Yes		Yes			Yes	4745
3377337	03/05/2018 13:48:00	04/05/2018 14:43:21		Simon Fraser	52	1.193			15991.02	109.94	93	14.3	2 - Clean	Note no audible alarm in cabinet when door opened	Yes	OK	Yes		43262	Yes	4749
3378849	10/05/2018 11:41:00	10/05/2018 14:14:26		Simon Fraser	52	1.34			15991.02	109.94	9990	14.3	3 - No Action		Yes		Yes		43262.59236	Yes	4749
3378877	17/05/2018 11:08:00	17/05/2018 11:12:21		Brian Barnard	53				15991	109	113	14	2 - Clean		Yes		Yes		43262	Yes	4749
3378901	24/05/2018 11:03:00	24/05/2018 11:07:55		Brian Barnard	52				15991	109	134	14	2 - Clean		Yes		Yes		43262	Yes	4749
3378919	31/05/2018 10:10:00	31/05/2018 14:11:46		Simon Fraser	52	2.884			16119.31	109.94	163	14.3	2 - Clean	Compressor has been removed for service. Power switch locked out	Yes		No		43262	Yes	4751
3378954	07/06/2018 11:23:00	07/06/2018 11:26:28		Tony Attewell	0.52				16119	109		14.2	3 - No Action	Compresser still under repair.	Yes		No			Yes	4751
3378958	07/06/2018 14:36:00	07/06/2018 14:39:13		Tony Attewell							163						No				
3565947	14/06/2018 11:09:00	14/06/2018 11:13:27		Brian Barnard	52				16119	109	163	14	2 - Clean	Compressor being fixed	Yes		Yes		43262	Yes	4751
3576198	21/06/2018 11:46:00	21/06/2018 11:51:18		Ryan Young					16119	109		14.3	3 - No Action	Bore level above pump = 52mRun hours= 4751New compressor, left alone.	Yes		No			Yes	
3702494	28/06/2018 12:50:00	28/06/2018 14:18:00		Simon Fraser	52	3.452			16119	109		14.3	3 - No Action	new compressor installed. no run hours seen. old run hours are 164. no mention of service date on pump	Yes		Yes			Yes	4751
3702520	05/07/2018 11:26:00	05/07/2018 11:33:23		Tony Attewell	52	3.933			16204	109.94	165	14.3	3 - No Action	loan compreesor onsite.	Yes		No			Yes	4752
3702747	12/07/2018 10:39:00	12/07/2018 10:44:12		Tony Attewell	52	4.07			16204	109.94		14.3	2 - Clean		Yes	still waiting on replacement compressor. Temp one in place	No			Yes	4752
3702772	19/07/2018 11:08:00	19/07/2018 11:11:52		Ryan Young	52				16204	109		14	2 - Clean	Need to discuss new compressor	Yes		No			Yes	4752
3839487	26/07/2018 10:15:00	26/07/2018 13:09:10		Simon Fraser	0.53	4.369			16204	109	4752	14.3	3 - No Action	No compressor service date for new compressor. old service date is june 18 for old compressor. old compressor still outside the compressor shed. needs shifting to where?	Yes		Yes			Yes	4752
3853601	02/08/2018 10:46:00	02/08/2018 10:49:37		Tony Attewell	522	4.888			16294.35	109.94		14.3	3 - No Action		Yes		No			Yes	47543
3854492	09/08/2018 09:05:00	09/08/2018 09:11:25	30/08/2018 12:03:39	Tony Attewell	52	5.03			16294	109.94		14.3	2 - Clean	still no replacement compressor. run standby model, clean cabinet filter	Yes					Yes	4754
3854517	16/08/2018 09:56:00	16/08/2018 10:04:57		Ryan Young	52				16294	109	165	14.2	2 - Clean	service date and run hours for compressor appear to be from old compressor.pump run hours is 4754 but previous entry was higher (47544) so was unable to save without adding extra 4	Yes		Yes		43262	Yes	47544
3854545	23/08/2018 10:50:00	23/08/2018 15:02:32	30/08/2018 12:05:24	Simon Fraser	52	5.312	0	0	16294	109	165	14.3	3 - No Action		Yes		Yes		43262	Yes	4754
3854569	30/08/2018 11:11:00	30/08/2018 11:17:41	30/08/2018 12:01:10	Tony Attewell	520				16414	109.94	166.4	14.3	3 - No Action		Yes	bore pump drive is locked out by Ryan Young.	Yes		43262	Yes	4756
3872577	06/09/2018 10:20:00	06/09/2018 10:26:34		Brian Barnard	52				16414	109	166	14	2 - Clean		Yes		Yes		43262	Yes	4756
3873440	13/09/2018 11:27:00	13/09/2018 11:31:03		Ryan Young	52				16414	109		14.2	2 - Clean		Yes		Yes			Yes	4756
3873468	20/09/2018 10:17:00	20/09/2018 10:34:47		Ryan Young	52				16414	109	166	14.3	2 - Clean		Yes		Yes			Yes	4756
3873478	24/09/2018 12:56:00	24/09/2018 12:58:14		Ryan Young	52				16414	109		14.3	3 - No Action	Unlocked vsd and turned back on	Yes		Yes			Yes	4756
3873614	04/10/2018 10:41:00	04/10/2018 10:45:45		Brian Barnard	52				16565	109	187	14	2 - Clean		Yes		Yes		43262	Yes	4758
3873760	11/10/2018 12:59:00	11/10/2018 13:00:12		Ryan Young	53				16565	109		14.2	3 - No Action		Yes		Yes			Yes	4758
3874079	18/10/2018 11:00:00	18/10/2018 13:46:51		Simon Fraser	52				16565	109	167	14.3	3 - No Action		Yes		Yes		43262	Yes	4758
3874453	25/10/2018 10:37:00	25/10/2018 10:40:40		Tony Attewell	52				16565	109	167	14.3	3 - No Action		Yes		Yes		43262	Yes	4758
3874483	02/11/2018 10:40:00	02/11/2018 10:44:51		Brian Barnard	52				16695	109	167	14	2 - Clean		Yes		Yes		43262	Yes	4761
3874888	08/11/2018 11:28:00	08/11/2018 11:31:50		Ryan Young	52				16695	109	167	14.3	3 - No Action		Yes		Yes			Yes	4761
3874912	15/11/2018 11:21:00	15/11/2018 11:27:31		Ryan Young	52				16695	109	167	14.3	1 - Change		Yes		Yes			Yes	4761
3875899	22/11/2018 11:29:00	22/11/2018 11:57:43		Tony Attewell	52				16695	109.94	167	14.2	3 - No Action		Yes	natural habitats vehicles parked all over our bore site. up against our cabinet . vehicles had weed sprays and spraypacks onboard. Right above our Bore. rang NHabitates asked them to remove their vehicles.	Yes			Yes	4761
3877619	29/11/2018 09:08:00	29/11/2018 09:12:06		Tony Attewell	52				16792	109	168	14.2	2 - Clean		Yes		Yes		43433	Yes	4762
3881811	06/12/2018 13:29:00	06/12/2018 13:31:28		Tony Attewell	52				16792	109	168	14.3	3 - No Action		Yes		Yes			Yes	4762
3882309	13/12/2018 10:24:00	13/12/2018 10:34:54		Simon Fraser	52				16795	111	168	14.3	3 - No Action	\We'll head 100mm outlet leaking. Close valve firmly	Yes		Yes			Yes	4762
3882456	20/12/2018 11:23:00	20/12/2018 11:26:33		Ryan Young	52				17013	111	168	14.3	2 - Clean		Yes		Yes			Yes	4766
3882482	27/12/2018 10:44:00	27/12/2018 10:47:18		Brian Barnard	52				17138	111	168	14	2 - Clean		Yes		Yes			Yes	4768
3882507	04/01/2019 10:54:00	04/01/2019 10:58:27		Ryan Young	52				17138	111	168	14.3	1 - Change		Yes		Yes			Yes	4768
3889855	10/01/2019 10:34:00	10/01/2019 10:37:38		Brian Barnard	52				17138	111	168	14	2 - Clean		Yes		Yes			Yes	4768
3891934	17/01/2019 12:37:00	17/01/2019 12:43:02		Ryan Young	52				17138	111	168	14.3	3 - No Action		Yes		Yes			Yes	4768
3892245	24/01/2019 09:52:00	24/01/2019 10:03:03		Simon Fraser	52				17138	111	168	14.3	3 - No Action	weeds under compressed air vessel pulled8	Yes		Yes		43660	Yes	4768
3892271	31/01/2019 10:13:00	31/01/2019 10:17:39		Ryan Young	52				17270	111	169	14.3	1 - Change		Yes		Yes			Yes	4770
3892384	07/02/2019 09:47:00	07/02/2019 09:53:54		Simon Fraser	52				17270	111	169	14.3	3 - No Action		Yes		Yes		43660	Yes	4770
3894970	14/02/2019 13:35:00	14/02/2019 13:39:01		Ryan Young	52				17270	111	169	14.3	2 - Clean		Yes		Yes			Yes	4770
3894997	21/02/2019 11:22:00	21/02/2019 11:28:24		Simon Fraser	52				17388	111	169	14.3	3 - No Action		Yes		Yes		43660	Yes	4772
3895021	27/02/2019 14:59:00	27/02/2019 15:01:58		Ryan Young	52				17388	111	169	14.3	3 - No Action		Yes		Yes			Yes	4772
3896542	07/03/2019 12:11:00	07/03/2019 12:13:47		Ryan Young	52				17388	111	169	14.3	2 - Clean		Yes		Yes			Yes	4772
3896565	14/03/2019 10:53:00	14/03/2019 10:58:56		Ryan Young	52				17388	111	169	14.3			Yes		Yes		43660		4772
3896590	21/03/2019 11:12:00	21/03/2019 11:20:17		Brian Barnard	52				17389	111	169	14	2 - Clean		Yes		Yes			Yes	4772
3896626	28/03/2019 08:34:00	28/03/2019 08:37:30		Ryan Young	26				17441	111	169	24.9	3 - No Action	sample taken	Yes		Yes			Yes	4773
3896723	04/04/2019 11:07:00	04/04/2019 11:15:31		Ryan Young	52				17531	111.35	169	14.3	2 - Clean		Yes		Yes		43660	Yes	4775
3897727	11/04/2019 11:33:00	11/04/2019 11:38:52		clint hill	52				17531	111	169	14.3			Yes		Yes			Yes	4775
3899028	18/04/2019 11:21:00	18/04/2019 11:25:53		clint hill	52				17531	0	170	14.6	3 - No Action		Yes		Yes		43660	Yes	4775
3899054	24/04/2019 12:50:00	24/04/2019 12:54:44		Ryan Young	52				17531	111	170	14.3	1 - Change		Yes		Yes			Yes	4775
3899074	30/04/2019 09:17:00	30/04/2019 09:19:21		Ryan Young	26				17588	111	170	25	3 - No Action		Yes		Yes			Yes	4776
3899448	09/05/2019 10:46:00	09/05/2019 10:52:36		clint hill	52				17657	111	1708	14.3	2 - Clean		Yes		Yes		43660	Yes	4777
3899789	16/05/2019 10:27:00	16/05/2019 10:30:21		Brian Barnard	52				17657	111	170	14	2 - Clean		Yes		Yes			Yes	4777
3899816	23/05/2019 12:04:00	23/05/2019 12:09:15		Ryan Young	52				17657	111	170	14.3	2 - Clean		Yes		Yes			Yes	4777
3899843	30/05/2019 10:20:00	30/05/2019 10:31:03		Ryan Young	52				17983	111	170	14	2 - Clean		Yes		Yes			Yes	4782
3899877	06/06/2019 11:44:00	06/06/2019 11:52:24		Ryan Young	53				17983	111	170	14.3	2 - Clean		Yes		Yes		43660	Yes	4782
3899961	13/06/2019 09:02:00	13/06/2019 09:06:10		Brian Barnard	52				17983	111	170	14.3	2 - Clean		Yes		Yes			Yes	4782
3900272	20/06/2019 11:27:00	20/06/2019 11:30:41		Brian Barnard	52				17983	111	170	14.3	2 - Clean		Yes		Yes			Yes	4782
3900378	27/06/2019 11:48:00	27/06/2019 11:51:13		clint hill	52				17983	111	170	14.3	2 - Clean		Yes		Yes		43660	Yes	4782
3900407	04/07/2019 10:26:00	04/07/2019 10:29:30		Ryan Young	52				17983	111	170	14	2 - Clean		Yes		Yes			Yes	4782
3900434	11/07/2019 14:19:00	11/07/2019 14:24:11		Ryan Young	52				17983	111	171	14.3	3 - No Action		Yes		Yes		43841	Yes	4782
3901627	18/07/2019 10:41:00	18/07/2019 10:45:25		Ryan Young	53				17983	111	171	14.3	2 - Clean	weed under pressure vessel	Yes		Yes		43841	Yes	4782
3901652	25/07/2019 10:23:00	25/07/2019 10:27:03		Brian Barnard	52				17983	111	171	14.3	2 - Clean		Yes		Yes			Yes	4782

Manual Entries
Tab: K6
Plant: K6

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Parameter ID	Tab	Subgroup	Parameter	Units
12132	K6	K6	Bore Level above Pump	m
12133	K6	K6	Power Meter Reading 1	kwh
12134	K6	K6	Power Meter Reading 2	kwh
12135	K6	K6	Power Meter Reading 3	kwh
12136	K6	K6	Flow Forward	m³
12137	K6	K6	Flow Reverse	m³
12138	K6	K6	Compressor Run Hours	
12139	K6	K6	Temperature	°C
12140	K6	K6	Cabinet Filter	
12141	K6	K6	Comments	
12146	K6	K6	Checked Well-head	
12175	K6	K6	Run compressor manually?	
12176	K6	K6	Well-head Security Comment	
12177	K6	K6	Check Rodent Protection	
12179	K6	K6	Compressor Service Due Date	
12715	K6	K6	Filled in log book?	
12716	K6	K6	Pump Run Hours	

SCADA Tag:
Operations Min:
Operations Max:
Trigger Min:
Trigger Max:
92% Min:
92% Max:
95% Min:
95% Max:
98% Min:
98% Max:
99% Min:
99% Max:
Medium Min:
Medium Max:
Sample Month:
Days Between Samples:
Description:

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User	12132	12133	12134	12135	12136	12137	12138	12139	12140	12141	12146	12175	12176	12177	12179	12715	12716
3327503	08/06/2017 22:56:00	08/06/2017 14:40:46		Ryan Young	49	179146	187204	126525	550194	259216	7019	14.5	2 - Clean	checked well head							
3331030	15/06/2017 13:16:00	15/06/2017 14:27:28		Chris Kaloyanis	49	179174	187232	126553	550194	259216	7019	14.5	3 - No Action		Yes	Yes		Yes	43075.37539		
3339838	22/06/2017 10:23:00	22/06/2017 13:37:33		Tony Attewell	49	179200	187259	126580	550194	259216	7019	14.5	3 - No Action	Surge tank needs water blasting, winter green showing	Yes	No		No			
3339860	28/06/2017 09:30:00	28/06/2017 14:35:33		Tony Attewell	33	179336	187282	126610	550471	25916	7020		3 - No Action	checked compressor, run in manual, surge chamber level 49.29%	Yes	Yes		No			
3343910	06/07/2017 13:55:00	06/07/2017 15:48:00		Ryan Young	49	179445	187314	126641	550654	259217	7021	14.5	2 - Clean		Yes			Yes			
3345105	14/07/2017 11:10:00	14/07/2017 13:20:52		Chris Kaloyanis	48	179476	187344	126672	550654	255217	7021	14.5	3 - No Action	needs waterblasting around surge tank area and well head	Yes	Yes	photos taken of mods needed	Yes	43075		
3345142	20/07/2017 14:17:00	21/07/2017 11:09:19		Ryan Young	49	179500	187369	126696	550654	259219	7021	14.5	3 - No Action		Yes	Yes		Yes			
3345177	26/07/2017 09:06:00	27/07/2017 08:00:31		Tony Attewell	33	179600	187449	126727	551050	259220	7023		3 - No Action	Compressor running because bores had started for taking samples. surge chamber at 51%		Yes					
3345409	03/08/2017 11:53:00	03/08/2017 13:27:44		Ryan Young	49	179675	187480	126758	551757	259220	7024	14.5	3 - No Action	compressor run hours 63	Yes	Yes		Yes			
3347762	10/08/2017 13:30:00	10/08/2017 13:33:13		Ryan Young	49	179701	187507	126784	551157	259221	7024	14.5	3 - No Action	I think the next service date for compressor is incorrect. states last service was 6.6.17 and next service is due 12.6.17.	Yes	No		No	42898		
3347800	17/08/2017 00:18:00	17/08/2017 15:58:38		Tony Attewell	49	179724	187528	126806	551158	259227	7024	14.5	3 - No Action	compressor hrs = 64	Yes	Yes					
3347823	24/08/2017 13:28:00	24/08/2017 14:47:32		Tony Attewell	49	179748	187552	126830	551158	259229	7024	14.5	2 - Clean	Compressor room needs vacumm out, drained water out of drain leg, compressor hrs 64	Yes	Yes					
3348076	31/08/2017 12:50:00	31/08/2017 12:55:51		Ryan Young	49	179772	187575	126852	551159	259234	7024	14.5	3 - No Action		Yes	Yes			43075		
3348168	07/09/2017 13:41:00	07/09/2017 13:44:20		Ryan Young	49	179788	187591	126869	551159	259235	7024	14.5	3 - No Action	compressor hours - 66	Yes	Yes			43075		
3353177	14/09/2017 13:50:00	14/09/2017 14:47:51		Tony Attewell	49	179802	187606	126886	551159	259235	7024	14.5	1 - Change	Bore electronics out of commission, Electricians replacing the drive. (Still)	Yes	No	checked wellhead, all secure OK		43075		
3348197	21/09/2017 14:31:00	21/09/2017 14:35:53		Brian Barnard	49	179814	187619	126903	551159	259236	7024.01	14.5	2 - Clean	Off for VSD replacment	Yes	Yes			43075		
3348232	28/09/2017 12:05:00	28/09/2017 14:44:11		Ryan Young	48	179828	187631	126922	551159	259236	7024	14.5	3 - No Action	compressor hours - 67	Yes	Yes			43075		
3353152	05/10/2017 14:17:00	05/10/2017 14:26:11		Ryan Young	49	179840	187641	126938	551159	259237	7024	14.5	3 - No Action	compressor run hours - 67	Yes	Yes			43075		
3353201	12/10/2017 13:51:00	12/10/2017 14:49:29		Tony Attewell	49	179851	187652	126954	551159	259238	7024	14.5	3 - No Action		Yes	Yes	K6 Bore still in-operable. awaiting new drive.		43075		
3353232	19/10/2017 14:31:00	19/10/2017 14:35:53		Brian Barnard	49	179864	187667	126970	551159	7024	67	14	2 - Clean	Bill Borkin on sight fitting VSD	Yes	Yes			43075	Yes	14
3353256	26/10/2017 11:58:00	26/10/2017 12:01:17		Brian Barnard	48	179881	187684	126987	551159	259240		14.5	2 - Clean		Yes				43075		7024
3356234	02/11/2017 11:55:00	02/11/2017 12:00:18		Ryan Young	49	179901	187703	127043	551274	259244	68	14.5	3 - No Action	compressor 1 month till service	Yes	Yes			43075	Yes	7024
3356257	09/11/2017 08:23:00	09/11/2017 08:27:14		Ryan Young	49	179920	187722	127062	551274	259247	68	14.5	3 - No Action		Yes	Yes			43075	Yes	7024
3365425	16/11/2017 13:06:00	16/11/2017 13:12:39		Brian Barnard	49	179941	187741	127083	551274	259250	68	14	2 - Clean		Yes	Yes			43075	Yes	7024
3365472	23/11/2017 11:18:00	23/11/2017 11:23:37		Ryan Young	48	179960	187762	127102	551274	259252	68	14.5	2 - Clean		Yes	Yes			43075	Yes	7024
3365509	01/12/2017 10:27:00	01/12/2017 10:30:59		Ryan Young	49	180049	187784	127243	551699	259257	70	14.6	1 - Change		Yes	Yes				Yes	7026
3365556	07/12/2017 11:55:00	07/12/2017 13:54:35		Tony Attewell	49	180066	187801	127259	551699	259261	70	14.5	2 - Clean		Yes	Yes			43075	Yes	7026
3367839	14/12/2017 13:20:00	14/12/2017 13:26:34		Brian Barnard	48	180217	187848	127279	552229	259266	71	14	2 - Clean		Yes	Yes			43627	Yes	7029
3367867	21/12/2017 12:16:00	21/12/2017 12:20:20		Ryan Young	48	180616	187867	127326	553195	259267	73	14.6	1 - Change		Yes	Yes			43262	Yes	7034
3367896	28/12/2017 14:46:00	28/12/2017 14:48:24		Bruce Nesbitt	48	180636	187887	127346	553195	259267	73.08	14.5	3 - No Action		Yes	Yes	All gates and feces good. Well head clean and tidy		43262	Yes	7034
3367940	03/01/2018 14:25:00	03/01/2018 15:56:56		Tony Attewell	38	180671	187933	127402	553428	259270	73.4	25.6	1 - Change	Drain water from compressor water trap	Yes	Yes	Bore going river re-charge		43262	Yes	7035
3369334	11/01/2018 13:19:00	11/01/2018 13:23:23		Brian Barnard	48	108983	188698	127713	556953	259270	73	14	2 - Clean		Yes	Yes			43262	Yes	7059
3369458	18/01/2018 12:25:00	18/01/2018 15:21:09		Tony Attewell	48	181001	188717	127732	556953	259272	73.48	14.5	1 - Change	Site needs massive weed spray, spring has hit again!Run Comp, drain water trap	Yes	Yes				Yes	7059
3369485	25/01/2018 12:33:00	25/01/2018 12:37:26		Ryan Young	48	181020	188736	127751	556953	259273	73	14.5	2 - Clean		Yes	Yes			43262	Yes	7059
3369510	01/02/2018 13:47:00	01/02/2018 14:50:35		Tony Attewell	47	181335	189162	128004	559426	259275	73	14.6	3 - No Action		Yes	Yes			43262	Yes	7077
3371625	08/02/2018 13:09:00	08/02/2018 13:13:14		Brian Barnard	47	181354	189181	128024	559426	259276	73	14	2 - Clean		Yes	Yes			43262	Yes	7077
3371650	15/02/2018 11:56:00	15/02/2018 12:00:36		Ryan Young	48	181373	18920	128043	559426	259276	73	14.5	2 - Clean		Yes	Yes			43262	Yes	7077
3371674	22/02/2018 12:50:00	22/02/2018 12:54:39		Ryan Young	48	181393	189220	128063	559426	259276	73	14.5	2 - Clean			Yes			43262	Yes	7077
3371705	01/03/2018 15:15:00	01/03/2018 16:28:12		Tony Attewell	48	181522	189240	128254	560099	252976		14.7	3 - No Action		Yes	No				Yes	7080
3373983	09/03/2018 10:58:00	09/03/2018 11:03:07		Brian Barnard	48	181544	189261	128277	560099	259276	73.48	14	2 - Clean		Yes	Yes			43262	Yes	7080
3374006	15/03/2018 13:18:00	15/03/2018 13:22:16		Ryan Young	48	181561	189278	128294	560099	259276	73	14.5	2 - Clean		Yes	Yes			43262	Yes	7080
3374150	29/03/2018 12:57:00	29/03/2018 13:02:59		Tony Attewell	48	181600	189318	128409	560312	259277	73	14.6	2 - Clean		Yes	Yes			43262	Yes	7081
3374354	05/04/2018 22:35:00	05/04/2018 12:09:35		Tony Attewell	48	181619	189337	128429	560312	259277	73	14.5	3 - No Action	Black berries starting to get away around bore site, needs spraying	Yes	Yes				Yes	7081
3375738	12/04/2018 11:17:00	12/04/2018 11:20:08		Brian Barnard	48				560390	259227	73	14.7	3 - No Action		Yes	Yes			43262	Yes	7081
3375763	19/04/2018 11:28:00	19/04/2018 11:34:44		Ryan Young	48				560390	259278	73	14.5	1 - Change		Yes	Yes			43262	Yes	7081
3376947	26/04/2018 13:18:00	26/04/2018 13:22:02		Brian Barnard	48				560390	259278	73	14.5	3 - No Action		Yes	Yes	ok			Yes	7081
3377342	03/05/2018 14:52:00	04/05/2018 14:58:33		Simon Fraser	48	4.032			560921	259278	73	14.6	3 - No Action	Weeds under Airtank	Yes	Yes	OK		43262	Yes	7084
3378854	10/05/2018 13:00:00	10/05/2018 14:23:58		Simon Fraser	48	4.418			560921	259279	7348	14.5	3 - No Action		Yes	Yes			43262.59931	Yes	7084
3378882	17/05/2018 13:19:00	17/05/2018 13:23:04		Brian Barnard	49				560921	259280	73	14	2 - Clean		Yes	Yes			43262	Yes	7084
3378906	24/05/2018 13:21:00	24/05/2018 13:24:12		Brian Barnard	48				560921	259280	73	14	2 - Clean		Yes	Yes			43262	Yes	7084
3378924	31/05/2018 11:22:00	31/05/2018 14:25:36		Simon Fraser	48	6.875			561226	259280	73	14.6	2 - Clean		Yes	Yes			43262	Yes	7085
3378962	07/06/2018 14:46:00	07/06/2018 14:47:42		Tony Attewell	48				561226	259280	73	14.5	3 - No Action		Yes	Yes				Yes	7085
3565953	14/06/2018 13:12:00	14/06/2018 13:15:44		Brian Barnard	48				561226	259280	73	14	2 - Clean		Yes	Yes			43262	Yes	7085
3576193	21/06/2018 12:49:00	21/06/2018 12:54:27		Ryan Young	48				561226	259281	73	14.4	2 - Clean	Compressor service due	Yes	Yes			43262.53681	Yes	7085
3702499	28/06/2018 11:55:00	28/06/2018 14:27:10		Simon Fraser	49	8.422			561226	259281	73	14.5	3 - No Action	used top filter grill to fit to k5 bottom air filter as old grill broken.	Yes	Yes			43262.60069	Yes	7085
3702527	05/07/2018 14:32:00	05/07/2018 14:36:44		Tony Attewell	48				561505	259281	73.4	14.5	3 - No Action		Yes	Yes			43262	Yes	7087
3702528	05/07/2018 14:40:00	05/07/2018 14:42:16		Tony Attewell													Natural Habitats asked to remove their vehicle off boresite. chemicals and weeksprays, napsacks on ground beside vehicle, working on site ocross the road. Two female staff, spoken too.				
3702752	12/07/2018 13:26:00	12/07/2018 13:30:25		Tony Attewell	48				561505	259282	73.4	14.4	3 - No Action		Yes	Yes			43262	Yes	7087
3702777	19/07/2018 11:53:00	19/07/2018 12:01:28		Ryan Young	49				561505	259282	73	14	3 - No Action	compressor service due	Yes	Yes			43262	Yes	7087
3839492	26/07/2018 11:20:00	26/07/2018 13:19:46		Simon Fraser	49	11.168			561505	259282	73	14.9	3 - No Action		Yes	Yes			43262	Yes	7087
3853607	02/08/2018 13:36:00	02/08/2018 13:43:05		Tony Attewell	49	12.54			561760	259282	73.4	14.5	3 - No Action	compressor over due on service sticker 11.06.2018 drained water trap.	Yes	Yes			43262	Yes	7088
3854498	09/08/2018 11:15:00	09/08/2018 11:21:28		Tony Attewell	49	12.9			561760	259283	73.4	14.4	2 - Clean	compressor service over due	Yes	Yes			43262	Yes	7088
3854522	16/08/2018 10:45:00	16/08/2018 10:49:34		Ryan Young	49				561760	259283	73	14.4	2 - Clean	compressor service due.	Yes	Yes			43262	Yes	7088
3854550	23/08/2018 11:50:00	23/08/2018 15:38:41		Simon Fraser	49	13.738	0	0	561775	259286	73	14.4	3 - No Action		Yes	Yes			43262		7088
3854574	30/08/2018 13:13:00	30/08/2018 13:23:12		Tony Attewell	49	15.82			562187	259522	73.4	14.6	3 - No Action	Bore drive locked out. main drained for break in pipeline oposite bore site.KCDC Retic repair crew.	Yes	Yes			43262	Yes	7090
3872595	06/09/2018 11:13:00	06/09/2018 11:19:01		Brian Barnard	48				562330	261745	73	14	2 - Clean		Yes	Yes			43262	Yes	7090
3873445	13/09/2018 12:15:00	13/09/2018 12:19:04		Ryan Young	49				562330	265413		14.4	3 - No Action		Yes	Yes				Yes	7090
3873473	20/09/2018 11:10:00	20/09/2018 11:14:49		Ryan Young	49				562330	265413	73	14.4	2 - Clean		Yes	Yes				Yes	7090
3873482	24/09/2018 13:28:00	24/09/2018 13:31:40		Ryan Young	49				562330	265413		14.5	3 - No Action	Unlocked vsd and turned back on. Closed supply valve and turned valves back in for air supply to tank	Yes	Yes				Yes	7090
3873618	04/10/2018 11:34:00	04/10/2018 11:38:07		Brian Barnard	48				5627632	265413	74.98	14.5	2 - Clean		Yes	Yes			43262	Yes	7092
3873765	11/10/2018 13:33:00	11/10/2018 13:36:04		Ryan Young	49				562732	265416	74	14.5	3 - No Action		Yes	Yes				Yes	7092
3874084	18/10/2018 11:59:00	18/10/2018 13:52:57		Simon Fraser	48				562732	265416	74	14.5	3 - No Action		Yes	Yes			43262	Yes	7092
3874458	25/10/2018 11:26:00	25/10/2018 11:34:30		Tony Attewell	49				562732	265417	74	14.5	3 - No Action		Yes	Yes			43262	Yes	7092
3874488	02/11/2018 11:29:00	02/11/2018 11:33:04		Brian Barnard	47				563189	6265417	76	14	2 - Clean		Yes	Yes			43262	Yes	7095
3874892	08/11/2018 12:49:00	08/11/2018 12:52:12		Ryan Young	48				563189	265418	76	14.5	3 - No Action		Yes	Yes				Yes	7095
3874917	15/11/2018 12:16:00	15/11/2018 12:20:08		Ryan Young	47				563189	265421	76	14.5	2 - Clean		Yes	Yes				Yes	7095
3875908	22/11/2018 13:14:00	22/11/2018 13:17:08		Tony Attewell	47				563189	265422	76	14.5	3 - No Action		Yes	Yes			43262	Yes	7095
3877624	29/11/2018 10:42:00	29/11/2018 10:46:44		Tony Attewell	47				563575	265424	77	14.5	2 - Clean		Yes	Yes			43433	Yes	7096
3881815	06/12/2018 13:55:00	06/12/2018 13:57:55		Tony Attewell	47				563575	265432	77	14.5	3 - No Action		Yes	Yes				Yes	7096
3882316	13/12/2018 11:21:00	13/12/2018 11:26:13		Brian Barnard	47				563577	265442	77	14.5	2 - Clean		Yes	Yes			43448	Yes	7096
3882463	20/12/2018 14:46:00	20/12/2018 14:50:30		Ryan Young	46				564338	265449	79	14.5	3 - No Action	leak in compressor nfilters	Yes	Yes				Yes	7100
3882487	27/12/2018 11:31:00	27/12/2018 11:36:38		Brian Barnard	46				564797	265462	81	14	2 - Clean		Yes	Yes				Yes	7102
3882511	04/01/2019 11:35:00	04/01/2019 11:39:17		Ryan Young	46				564804	265476	93	14.5	1 - Change	Air leak in compressor filters	Yes	Yes				Yes	7102
3889860	10/01/2019 11:16:00	10/01/2019 11:19:53		Brian Barnard	46				564807	265486	106	14	2 - Clean		Yes	Yes				Yes	7102
3891937	17/01/2019 12:55:00	17/01/2019 12:57:47		Ryan Young	46				564824	265507	115	14.5	3 - No Action		Yes	Yes				Yes	7102
3892250	24/01/2019 10:46:00	24/01/2019 10:55:45		Simon Fraser	45				564824	265508	115	14.5	3 - No Action		Yes	Yes			43660	Yes	7102
3892277	31/01/2019 11:44:00	31/01/2019 11:48:20		Ryan Young	45				565260	265511	117	14.6	2 - Clean		Yes	Yes				Yes	7104
3892501	07/02/2019 11:11:00	07/02/2019 11:26:12		Simon Fraser	45				565260	265511	124	14.5	3 - No Action	air leaking from the output feed from the compressor to the air hose feeding the system. just on top of the 3 black pressure bowls.drain water from system.	Yes	Yes			43660	Yes	7104
3894975	14/02/2019 14:23:00	14/02/2019 14:25:33		Ryan Young	48				565260	265513	133	14.5	2 - Clean		Yes	Yes				Yes	7104
3895002	21/02/2019 12:52:00	21/02/2019 13:04:51		Simon Fraser	56				565637	265513	142	14.6	3 - No Action	lock on compressor compound needs changing. will not latch properlydrain water from air line	Yes	Yes			43660	Yes	7106
3896547	07/03/2019 13:01:00	07/03/2019 13:04:12		Ryan Young	56				565637	265516	160	14.5	2 - Clean		Yes	Yes				Yes	7106
3896570	14/03/2019 11:49:00	14/03/2019 11:54:37		Ryan Young	55				565637	265516	176	14.5	3 - No Action	air leaking from in line outlet filters leaking motor hot	Yes	Yes			43660	Yes	7106
3896595	21/03/2019 13:18:00	21/03/2019 13:26:36		Brian Barnard	55				300121	265516	200	14.5	2 - Clean	air leak on compressor		Yes				Yes	7106
3896630	28/03/2019 09:16:00	28/03/2019 09:34:31		Ryan Young	36				565957	265517	227	30.6	3 - No Action	sample taken compressor not working. able to run in manual by triggering circuit breaker inside control box but suspect electrical fault of some sort	Yes	Yes				Yes	7108
3896844	04/04/2019 13:36:00	04/04/2019 13:43:52		Ryan Young	51				566098	265518	236	14.5	2 - Clean	Compressor leaking	Yes	Yes				Yes	7108
3897733	11/04/2019 13:07:00	11/04/2019 13:10:35		clint hill	51				265518	0	236	14.5	2 - Clean		Yes	Yes				Yes	7108
3899033	18/04/2019 12:38:00	18/04/2019 12:39:01		clint hill							242			compressor leaking still		Yes					
3899034	18/04/2019 12:39:00	18/04/2019 12:41:51		clint hill	51				265518	0		14.5	2 - Clean		Yes	Yes			43660	Yes	7108
3899058	24/04/2019 13:25:00	24/04/2019 13:28:28		Ryan Young	50				566098	265518	249	14.5	2 - Clean	Still air leaking from Oiler/moisture trap unit on side of compressor	Yes	Yes				Yes	7108
3899078	30/04/2019 09:52:00	30/04/2019 09:55:29		Ryan Young	33				566422	265518	258	31	3 - No Action	Compressor already running. Room incredibly hot	Yes	No				Yes	7110
3899454	09/05/2019 13:18:00	09/05/2019 13:22:04		clint hill	50				566521	0		14.5	2 - Clean		Yes	Yes				Yes	7111
3899455	09/05/2019 13:22:00	09/05/2019 13:23:01		clint hill							271										
3899794	16/05/2019 11:05:00	16/05/2019 11:08:19		Brian Barnard	50				566521	265518	271	14.5	2 - Clean		Yes	Yes				Yes	7111
3899821	23/05/2019 14:20:00	23/05/2019 14:23:26		Ryan Young	50				566521	265518	271	14.5	3 - No Action		Yes	Yes				Yes	7111
3899849	30/05/2019 11:25:00	30/05/2019 11:28:18		Ryan Young	50				567668	265518	273	14.6	2 - Clean		Yes	Yes				Yes	7116
3899881	06/06/2019 13:27:00	06/06/2019 13:31:14		Ryan Young	50				567668	265518	273	14.5	2 - Clean		Yes	Yes			43660	Yes	7116
3899966	13/06/2019 10:39:00	13/06/2019 10:42:15		Brian Barnard	49				567668	265518		14.5	2 - Clean		Yes	Yes				Yes	7116
3900278	20/06/2019 13:26:00	20/06/2019 13:31:17		Brian Barnard	49				567668	265518	273	14.5	2 - Clean		Yes	Yes			43660	Yes	7116
3900387	27/06/2019 13:53:00	27/06/2019 13:57:04		clint hill	49				567668	265518	273	14.5	2 - Clean		Yes	Yes			43660	Yes	7116
3900412	04/07/2019 11:02:00	04/07/2019 11:08:42		Ryan Young	49					265519	273	14	2 - Clean		Yes	Yes				Yes	7116
3900439	11/07/2019 14:57:00	11/07/2019 14:59:56		Ryan Young	48				567668	265519	273	14.5	3 - No Action		Yes	Yes			43841	Yes	7116
3901634	18/07/2019 13:50:00	18/07/2019 13:53:53		Ryan Young	46				567668	265519	274	14.5	2 - Clean		Yes	Yes			43841	Yes	7116
3901659	25/07/2019 11:02:00	25/07/2019 11:09:19		Brian Barnard	46				567668	265519	274	14.5	2 - Clean		Yes	Yes				Yes	7116

Manual Entries
Tab: K5
Plant: K5

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Tab:	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5
Subgroup:	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5	K5
Parameter:	Bore Level above Pump	Power Meter Reading 1	Power Meter Reading 2	Power Meter Reading 3	Flow Forward	Flow Reverse	Pump Run Hours	Temperature	Cabinet Filter	Comments	Checked Well-head	Check Rodent Protection	Well-head Security Comment	Filled in log book?
SCADA Tag:														
Units:	m	kwh	kwh	kwh	m³	m³		°C						
Operations Min:														
Operations Max:														
Trigger Min:														
Trigger Max:														
92% Min:														
92% Max:														
95% Min:														
95% Max:														
98% Min:														
98% Max:														
99% Min:														
99% Max:														
Medium Min:														
Medium Max:														
Sample Month:														
Days Between Samples:														
Description:														

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User	11138	11139	11140	11141	11142	11143	11144	11145	11146	11147	12145	12184	12185	12722
3122017	19/05/2017 11:21:00	22/05/2017 10:46:40		Chris Kaloyanis	51	835008	966147	56333	552154	4000	5055	14.9	3 - No Action	Air vent socket need clean and paint				
3122040	25/05/2017 10:08:00	25/05/2017 15:42:24		Tony Attewell	51	835008	966147	56333	552154	4001	5055	14.9	1 - Change	Done By RY				
3327385	02/06/2017 13:17:00	02/06/2017 13:21:33		Brian Barnard	51	835269	966160	56396	552810	4001	5060	14.9	2 - Clean	0				
3327498	08/06/2017 10:51:00	08/06/2017 11:52:24		Ryan Young	51	835269	966160	56396	552810	4002	5060	14.9	2 - Clean	checked well head				
3331029	15/06/2017 13:10:00	15/06/2017 14:25:12		Chris Kaloyanis	51	835269	966160	56396	552810	4002	5060	14.9	3 - No Action		Yes	Yes	air release fitting needs clean and paint	
3339837	22/06/2017 10:15:00	22/06/2017 13:34:31		Tony Attewell	54	835269	966160	56396	552810	4003	5060	14.9	3 - No Action		Yes	No	check weel head - finish water blasting	
3339859	28/06/2017 09:16:00	28/06/2017 14:32:40		Tony Attewell	17	835305	966160	56432	552956	4004	5062		3 - No Action	bore running today for sample	Yes	No		
3343909	06/07/2017 13:50:00	06/07/2017 15:46:12		Ryan Young	52	835378	966160	56432	553101	4005	5063	14.9	2 - Clean		Yes	Yes		
3345104	14/07/2017 11:02:00	14/07/2017 13:18:47		Chris Kaloyanis	53	835378	966160	56432	553101	4005	5063	14.8	3 - No Action		Yes	Yes	photos taken of mods needed	
3345141	20/07/2017 14:12:00	21/07/2017 11:08:00		Ryan Young	52	835378	966160	56432	553101	4006	5063	14.9	3 - No Action		Yes	Yes		
3345176	26/07/2017 08:59:00	27/07/2017 07:57:31		Tony Attewell	19	835396	966208	56469	553339	4006	5065	24.9	3 - No Action		Yes			
3345408	03/08/2017 11:47:00	03/08/2017 13:25:25		Ryan Young	53	835436	966208	56469	553421	4007	5065	14.9	3 - No Action		Yes	Yes		
3347754	10/08/2017 13:18:00	10/08/2017 13:20:02		Ryan Young	51	835436	966208	56469	553421	4008	5065	14.9	3 - No Action		Yes	No		
3347799	17/08/2017 00:10:00	17/08/2017 15:56:42		Tony Attewell	51	835436	966208	56469	553423	4008	5065	14.9	3 - No Action		Yes			
3347822	24/08/2017 11:30:00	24/08/2017 14:44:47		Tony Attewell	54	835436	966208	56469	553423	4009	5065	14.9	2 - Clean	Broken Cabinet filter cover	Yes			
3348075	31/08/2017 12:42:00	31/08/2017 12:46:00		Ryan Young	52	835483	966208	56504	553600	4010	5067	15.4	3 - No Action		Yes			
3348167	07/09/2017 13:34:00	07/09/2017 13:35:44		Ryan Young	52	835483	966208	56504	553600	4011	5067	14.9	3 - No Action		Yes			
3353176	14/09/2017 13:42:00	14/09/2017 14:43:02		Tony Attewell	51	835483	966208	56504	553600	4011	5067	14.9	1 - Change		Yes		Borehead checked all secure OK	
3348195	21/09/2017 14:29:00	21/09/2017 14:31:19		Brian Barnard	52	835483	966208	56504	553600	4012	5067.31	14.9	2 - Clean		Yes			
3348231	28/09/2017 11:56:00	28/09/2017 14:41:48		Ryan Young	52	835483	966208	56593	553796	4012	5068	15.6	3 - No Action		Yes			
3353151	05/10/2017 14:08:00	05/10/2017 14:09:51		Ryan Young	53	835483	966208	56593	553796	4013	5068	14.9	2 - Clean		Yes			
3353200	12/10/2017 13:46:00	12/10/2017 14:46:36		Tony Attewell	54	835483	966208	56593	553796	4014	5068	14.9	2 - Clean		Yes			
3353231	19/10/2017 14:26:00	19/10/2017 14:31:24		Brian Barnard	54	835483	966208	56593	553796	4014	5068	14.9	2 - Clean					Yes
3353255	26/10/2017 11:55:00	26/10/2017 11:58:12		Brian Barnard	20	835483	966208	56633	553886	4015	5069	24	2 - Clean		Yes			Yes
3356233	02/11/2017 11:49:00	02/11/2017 11:54:03		Ryan Young	55	835483	966208	56694	554017	4016	5070	15	1 - Change		Yes			Yes
3356256	09/11/2017 08:15:00	09/11/2017 08:17:10		Ryan Young	58	835483	966208	56694	554017	4017	5070	14.9	3 - No Action		Yes			Yes
3365424	16/11/2017 12:59:00	16/11/2017 13:01:41		Brian Barnard	57	835483	966208	56694	554017	4018	5070	15	2 - Clean		Yes			Yes
3365471	23/11/2017 11:09:00	23/11/2017 11:12:09		Ryan Young	56	835483	966208	56694	554017	4018	5040	14.9	2 - Clean		Yes			Yes
3365508	01/12/2017 10:17:00	01/12/2017 10:20:53		Ryan Young	56	835503	966208	56817	554294	4019	5072	15	1 - Change		Yes			Yes
3365555	07/12/2017 11:50:00	07/12/2017 13:52:52		Tony Attewell	56	835503	966208	56817	554294	4020	5072	15	2 - Clean					Yes
3367838	14/12/2017 13:13:00	14/12/2017 13:15:28		Brian Barnard	56	835503	966208	56817	554297	4023	5072	15	2 - Clean		Yes			Yes
3367866	21/12/2017 12:11:00	21/12/2017 12:12:24		Ryan Young	56	835758	966208	56868	554909	4024	5077	15	1 - Change		Yes			Yes
3367895	28/12/2017 14:44:00	28/12/2017 14:46:21		Bruce Nesbitt	56	836014	966553	56939	556690	4024	5101	14.9	3 - No Action		Yes		All gates and feces good. Well head clean and tidy	Yes
3367939	03/01/2018 14:05:00	03/01/2018 15:54:20		Tony Attewell	18	836433	967081	57295	559863	4024	5136	24.8	2 - Clean		Yes		Bore running for river re - charge	Yes
3369333	11/01/2018 13:09:00	11/01/2018 13:12:12		Brian Barnard	57	837182	967783	57755	563715	4025	5167	15	2 - Clean		Yes			Yes
3369457	18/01/2018 12:10:00	18/01/2018 15:18:09		Tony Attewell	58	837182	967783	57755	563715	4025	5167	15	1 - Change		Yes			Yes
3369484	25/01/2018 12:25:00	25/01/2018 12:28:38		Ryan Young	58	837182	967783	57755	563715	4026	5167	15	1 - Change		Yes			Yes
3369509	01/02/2018 13:40:00	01/02/2018 14:47:39		Tony Attewell	38	837963	968630	58286	568480	4026	5213	20.5	3 - No Action		Yes			Yes
3371624	08/02/2018 13:04:00	08/02/2018 13:06:14		Brian Barnard	58	837974	968630	58388	568764	4027	5216	15	2 - Clean		Yes			Yes
3371649	15/02/2018 11:52:00	15/02/2018 11:55:18		Ryan Young	59	838111	968797	58388	569560	4027	5227	15	1 - Change		Yes			Yes
3371673	22/02/2018 12:45:00	22/02/2018 12:48:31		Ryan Young	60	838111	968797	58389	569563	4028	5227	15.6	2 - Clean		Yes			Yes
3371704	01/03/2018 15:05:00	01/03/2018 16:26:50		Tony Attewell	60	838120	968891	58437	569860	4028	5231	15.1	3 - No Action		Yes			Yes
3373982	09/03/2018 10:53:00	09/03/2018 10:55:41		Brian Barnard	60	838120	968891	58437	569860	4029	5231	14	2 - Clean		Yes			Yes
3374005	15/03/2018 13:14:00	15/03/2018 13:16:06		Ryan Young	60	838120	968891	58438	569860	4031	5231	14.9	2 - Clean		Yes			Yes
3374148	29/03/2018 12:50:00	29/03/2018 12:51:29		Tony Attewell	61	838120	968967	58438	570027	4036	5232	15	2 - Clean		Yes			Yes
3374149	29/03/2018 12:55:00	29/03/2018 12:56:31		Tony Attewell	48	181600	189318	128409	560312	259277	7081	14.6	2 - Clean		Yes			Yes
3374353	05/04/2018 22:30:00	05/04/2018 12:07:08		Tony Attewell	61	838120	968967	58438	570027	4036	5232	15	3 - No Action		Yes			Yes
3375737	12/04/2018 11:11:00	12/04/2018 11:14:20		Brian Barnard	61				570069	4036	5232	14.9	2 - Clean		Yes			Yes
3375762	19/04/2018 11:22:00	19/04/2018 11:28:32		Ryan Young	61				570069	4037	5232	14.9	1 - Change		Yes			Yes
3376946	26/04/2018 13:12:00	26/04/2018 13:13:56		Brian Barnard	61				570069	4038	5232	14.9	3 - No Action		Yes			Yes
3377341	03/05/2018 14:48:00	04/05/2018 14:56:11		Simon Fraser	62	2.205			570477	4038	5235	14.9	3 - No Action		Yes			Yes
3378853	10/05/2018 12:55:00	10/05/2018 14:21:39		Simon Fraser	62	2.205			570477	4039	5235	14.9	3 - No Action		Yes			Yes
3378881	17/05/2018 13:15:00	17/05/2018 13:16:52		Brian Barnard	62				570477	4040	5235	14	2 - Clean		Yes			Yes
3378905	24/05/2018 13:14:00	24/05/2018 13:17:01		Brian Barnard	62				570477	4040	5235	14	2 - Clean		Yes			Yes
3378923	31/05/2018 11:12:00	31/05/2018 14:23:20		Simon Fraser	62	3.519			570747	4041	5237	14.9	2 - Clean	checked filter and cover broke in half. Used one half to fix into place. To replace cover.	Yes			Yes
3378957	07/06/2018 13:54:00	07/06/2018 14:36:12		Tony Attewell														Yes
3378961	07/06/2018 14:43:00	07/06/2018 14:46:14		Tony Attewell	62				570747	4042	5273	14.8	3 - No Action		Yes			Yes
3565952	14/06/2018 13:08:00	14/06/2018 13:09:38		Brian Barnard	62				570747	4043	5237	14	2 - Clean		Yes			Yes
3576192	21/06/2018 12:46:00	21/06/2018 12:48:00		Ryan Young	62				570747	4043	5237	14.9	2 - Clean		Yes			Yes
3702498	28/06/2018 11:45:00	28/06/2018 14:23:52		Simon Fraser	62	3.521			570747	4044	5237	14.8	3 - No Action		Yes			Yes
3702526	05/07/2018 14:27:00	05/07/2018 14:32:33		Tony Attewell	62				570927	4045	5239	14.9	3 - No Action		Yes			Yes
3702751	12/07/2018 11:18:00	12/07/2018 11:19:35		Tony Attewell	62				570927	4045	5239	14.9	3 - No Action		Yes			Yes
3702776	19/07/2018 11:51:00	19/07/2018 11:52:37		Ryan Young	63				570927	4046	5239	14	3 - No Action		Yes			Yes
3839491	26/07/2018 12:00:00	26/07/2018 13:17:13		Simon Fraser	63	4.41			570927	4047	5239	14.9	3 - No Action		Yes			Yes
3853606	02/08/2018 13:31:00	02/08/2018 13:36:03		Tony Attewell	63	5.3			571125	4048	5240	14.9	3 - No Action		Yes			Yes
3854497	09/08/2018 11:07:00	09/08/2018 11:10:22		Tony Attewell	64	5.34			571125	4048	5240	14.9	2 - Clean	clean cabinet filter	Yes			Yes
3854499	09/08/2018 11:21:00	09/08/2018 11:23:17		Tony Attewell										Peugeot car parked on boresite. short older man grey hair, shifty eyes,rego ELE958 SILVER				
3854521	16/08/2018 10:38:00	16/08/2018 10:41:37		Ryan Young	64				571125	4049	5240	14.9	2 - Clean		Yes			Yes
3854549	23/08/2018 11:45:00	23/08/2018 15:36:54		Simon Fraser	64	5.353	0	0	571125	4049	5240	14.8	3 - No Action		Yes			Yes
3854573	30/08/2018 13:06:00	30/08/2018 13:08:55		Tony Attewell	64	6.61			571385	4072	5242	15	3 - No Action	security alarm wont turn off pushing the X.audible continues to sound.	Yes			Yes
3872594	06/09/2018 11:08:00	06/09/2018 11:09:55		Brian Barnard	64				571385	4082	5242	14	2 - Clean		Yes			Yes
3873444	13/09/2018 12:06:00	13/09/2018 12:09:05		Ryan Young	65				571385	4082	5242	14.9	3 - No Action		Yes		Higgins road working trucks parked over bore site. asked to move which they did. resealing of road.	Yes
3873472	20/09/2018 11:04:00	20/09/2018 11:09:20		Ryan Young	65				571385	4082	5242	14.9	2 - Clean	Alarm will not silence	Yes			Yes
3873481	24/09/2018 13:18:00	24/09/2018 13:19:47		Ryan Young	64				571385	4082	5242	14.9	3 - No Action	Unlocked vsd and turned on	Yes			Yes
3873617	04/10/2018 11:27:00	04/10/2018 11:29:01		Brian Barnard	65				571798	4082	5246	14.9	2 - Clean		Yes			Yes
3873764	11/10/2018 13:30:00	11/10/2018 13:31:53		Ryan Young	65				571798	4083	5246	14.9	3 - No Action		Yes			Yes
3874083	18/10/2018 11:55:00	18/10/2018 13:51:20		Simon Fraser	65				571798	4084	5246	14.9	3 - No Action		Yes			Yes
3874457	25/10/2018 11:21:00	25/10/2018 11:22:26		Tony Attewell	65				571798	4085	5246	14.9			Yes			Yes
3874487	02/11/2018 11:24:00	02/11/2018 11:26:11		Brian Barnard	65				572090	4085	5248	15	2 - Clean		Yes			Yes
3874891	08/11/2018 12:28:00	08/11/2018 12:30:13		Ryan Young	65				572090	4086	5248	15	3 - No Action		Yes			Yes
3874916	15/11/2018 12:12:00	15/11/2018 12:14:22		Ryan Young	65				572090	4087	5248	15	2 - Clean		Yes			Yes
3875907	22/11/2018 13:08:00	22/11/2018 13:11:18		Tony Attewell	65				572090	4087	5248	14.9	3 - No Action		Yes			Yes
3877623	29/11/2018 10:36:00	29/11/2018 10:38:58		Tony Attewell	53				572343	4088	5250	14.9	2 - Clean		Yes			Yes
3881862	06/12/2018 14:05:00	06/12/2018 14:08:54		Tony Attewell	53				572343	4089	5258	14.9	3 - No Action		Yes			Yes
3882317	13/12/2018 11:29:00	13/12/2018 11:30:43		Simon Fraser	53				572343	4090	5250	15	3 - No Action		Yes			Yes
3882462	20/12/2018 14:42:00	20/12/2018 14:44:12		Ryan Young	53				572819	4090	5254	14.9	3 - No Action		Yes			Yes
3882486	27/12/2018 11:24:00	27/12/2018 11:26:35		Brian Barnard	53				573107	4091	5256	14.9	2 - Clean					Yes
3882510	04/01/2019 11:25:00	04/01/2019 11:26:42		Ryan Young	53				573107	4092	5256	15	1 - Change		Yes			Yes
3889859	10/01/2019 11:11:00	10/01/2019 11:12:25		Brian Barnard	53				573107	4093	5256	15	2 - Clean		Yes			Yes
3891936	17/01/2019 12:53:00	17/01/2019 12:53:54		Ryan Young	53				573107	4093	5256	14.9	3 - No Action		Yes			Yes
3892249	24/01/2019 10:42:00	24/01/2019 10:46:50		Simon Fraser	53				573107	4094	5256	14.9	3 - No Action		Yes			Yes
3892276	31/01/2019 11:41:00	31/01/2019 11:43:58		Ryan Young	52				573375	4095	5258	15.1	1 - Change		Yes			Yes
3892428	07/02/2019 11:07:00	07/02/2019 11:08:01		Simon Fraser	53				573375	4095	5258	14.9	3 - No Action		Yes			Yes
3894974	14/02/2019 14:20:00	14/02/2019 14:21:10		Ryan Young	53				573375	4097	5258	15	2 - Clean		Yes			Yes
3895001	21/02/2019 12:50:00	21/02/2019 12:52:07		Simon Fraser	53				573614	4097	5260	15	3 - No Action		Yes			Yes
3895025	28/02/2019 09:48:00	28/02/2019 09:49:40		Ryan Young	53				573614	4098	5260	14.9	3 - No Action		Yes			Yes
3896546	07/03/2019 12:56:00	07/03/2019 12:58:16		Ryan Young	53				573614	4099	5260	15	2 - Clean		Yes			Yes
3896569	14/03/2019 11:44:00	14/03/2019 11:45:47		Ryan Young	53				573614	4100	5260	14.9	3 - No Action		Yes			Yes
3896594	21/03/2019 13:10:00	21/03/2019 13:15:38		Brian Barnard	54				569514	4100	5260	15	1 - Change					Yes
3896629	28/03/2019 09:04:00	28/03/2019 09:05:54		Ryan Young	21				573783	4101	5261	25.2	3 - No Action	sample taken	Yes			Yes
3896775	04/04/2019 13:29:00	04/04/2019 13:30:26		Ryan Young	53				573901	0	5262	15	2 - Clean		Yes			Yes
3897732	11/04/2019 13:00:00	11/04/2019 13:01:40		clint hill	53				573901	0	5262	14.9	2 - Clean		Yes			Yes
3899032	18/04/2019 12:29:00	18/04/2019 12:30:35		clint hill	53				573901	0	5262	14.9	2 - Clean		Yes			Yes
3899057	24/04/2019 13:16:00	24/04/2019 13:17:06		Ryan Young	53				573901	4122	5262	14.9	2 - Clean		Yes			Yes
3899077	30/04/2019 09:44:00	30/04/2019 09:45:54		Ryan Young	21				574084	4123	5263	25.3	3 - No Action		Yes			Yes
3899453	09/05/2019 13:15:00	09/05/2019 13:18:09		clint hill	53				574165	0	5264	15	2 - Clean	entry alarm will not turn offcabinet alarm will not shut off.	Yes			Yes
3899793	16/05/2019 11:01:00	16/05/2019 11:02:29		Brian Barnard	53				574165	4125	5264	14.9	2 - Clean		Yes			Yes
3899820	23/05/2019 14:11:00	23/05/2019 14:12:46		Ryan Young	55				574165	4126	5264	14.9	3 - No Action	alarm will not silence	Yes			Yes
3899848	30/05/2019 11:17:00	30/05/2019 11:18:59		Ryan Young	53				574869	4128	5270	14.9	2 - Clean		Yes			Yes
3899880	06/06/2019 13:22:00	06/06/2019 13:26:22		Ryan Young	53				574869	4130	5207	14.8	2 - Clean		Yes			Yes
3899965	13/06/2019 10:32:00	13/06/2019 10:37:04		Brian Barnard	53				574869	4131	5270	14.9	2 - Clean		Yes			Yes
3900277	20/06/2019 13:22:00	20/06/2019 13:25:22		Brian Barnard	53				574869	4132	5270	14.9	2 - Clean		Yes			Yes
3900386	27/06/2019 13:49:00	27/06/2019 13:50:50		clint hill	53				574869	4132	5270	14.9	2 - Clean					Yes
3900411	04/07/2019 10:58:00	04/07/2019 11:02:15		Ryan Young	53				574869	4134	5270	14.9	2 - Clean		Yes			Yes
3900438	11/07/2019 14:54:00	11/07/2019 14:55:43		Ryan Young	53				574869	4136	5270	14.9	3 - No Action		Yes			Yes
3901633	18/07/2019 13:47:00	18/07/2019 13:49:08		Ryan Young	53				574869	4137	5270	14.9	2 - Clean		Yes			Yes
3901658	25/07/2019 11:00:00	25/07/2019 11:02:37		Brian Barnard	53				574869	4138	5270	14.9	2 - Clean		Yes			Yes

Manual Entries
Tab: K4
Plant: K4

= Edited
= Entered by another user
= Edited by another user

Utility: Borefield Record Sheet

Tab:	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4
Subgroup:	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4	K4
Parameter:	Bore Level above Pump	Power Meter Reading 1	Power Meter Reading 2	Power Meter Reading 3	Flow Forward	Flow Reverse	Pump Run Hours	Temperature	Cabinet Filter	Comments		Checked Well-head	Well-head Security Comment	Check Rodent Protection	Filled in log book?	
SCADA Tag:																
Units:	m	kwh	kwh	kwh	m³	m³		°C								
Operations Min:																
Operations Max:																
Trigger Min:																
Trigger Max:																
92% Min:																
92% Max:																
95% Min:																
95% Max:																
98% Min:																
98% Max:																
99% Min:																
99% Max:																
Medium Min:																
Medium Max:																
Sample Month:																
Days Between Samples:																
Description:																
Parameter ID:	11128	11129	11130	11131	11132	11133	11134	11135	11136		11137	12144	12182	12183	12721	

Batch ID	Sample Date/Time	First Entered	Last Edited	Entry User																
3122016	19/05/2017 11:16:00	22/05/2017 10:44:05		Chris Kaloyanis	47	413468	464410	133057	1396094	70595	6866	14	3 - No Action	M2PP flow meter 64582, Pipe and meter still need removing					
3122039	25/05/2017 10:00:00	25/05/2017 15:40:26		Tony Attewell	47	413482	464425	133073	1396104	70609	6866	14	1 - Change	Done by RY					
3327384	02/06/2017 13:15:00	02/06/2017 13:17:39		Brian Barnard	47	413902	464522	133139	1397356	70629	6872	14.1	2 - Clean	0					
3327497	08/06/2017 10:45:00	08/06/2017 11:50:51		Ryan Young	47	413917	464537	133155	1397358	70634	6872	14	2 - Clean	checked well head					
3331028	15/06/2017 13:05:00	15/06/2017 14:22:15		Chris Kaloyanis	46	413935	464555	133173	1397439	70718	6872	14	3 - No Action		Yes	air release fitting needs clean and paint	Yes		
3339836	22/06/2017 10:10:00	22/06/2017 13:31:33		Tony Attewell	46	413952	464573	133190	1397439	70719	6872	14	3 - No Action		Yes	Checked well head			
3343908	06/07/2017 13:40:00	06/07/2017 15:44:45		Ryan Young	46	414202	464609	133235	1397928	70728	6874	14	2 - Clean		Yes		Yes		
3345103	14/07/2017 10:55:00	14/07/2017 13:16:51		Chris Kaloyanis	46	414222	464628	133255	1397982	70728	6874	13.9	3 - No Action		Yes	photos taken of mods needed	Yes		
3345140	20/07/2017 14:08:00	21/07/2017 11:06:52		Ryan Young	46	414237	464644	133270	1397985	70732	6874	14	2 - Clean		Yes		Yes		
3345175	26/07/2017 08:52:00	27/07/2017 07:55:48		Tony Attewell	28	414315	464733	133295	1398413	70747	6876	29.7	3 - No Action		Yes				
3345407	03/08/2017 11:40:00	03/08/2017 13:24:29		Ryan Young	46	414457	464753	133316	1398746	70763	6877	14	3 - No Action		Yes		Yes		
3347753	10/08/2017 13:12:00	10/08/2017 13:13:52		Ryan Young	46	414472	464768	133331	1398824	70844	6877	14	3 - No Action	Noted lights on power meter so forwarded a photo to Bill Borkin.	Yes		No		
3347798	17/08/2017 00:04:00	17/08/2017 15:55:06		Tony Attewell	46	414488	464783	133346	1398843	70868	6877	14	3 - No Action		Yes				
3347821	24/08/2017 11:25:00	24/08/2017 14:42:48		Tony Attewell	46	414505	464801	133364	1398866	70901	6877	14	2 - Clean		Yes				
3348074	31/08/2017 12:35:00	31/08/2017 12:38:35		Ryan Young	46	414642	464818	133393	1399220	70932	6879	15	3 - No Action		Yes				
3348166	07/09/2017 13:25:00	07/09/2017 13:30:03		Ryan Young	46	414660	464836	133410	1399255	70976	6879	14	3 - No Action		Yes				
3353175	14/09/2017 13:35:00	14/09/2017 14:41:25		Tony Attewell	46	414677	464854	133428	1399267	70991	6879	14	1 - Change		Yes	Borehead checked all secure OK			
3348194	21/09/2017 14:25:00	21/09/2017 14:29:15		Brian Barnard	46	414694	464871	133446	1399286	71011	6879.09	13.9	2 - Clean		Yes				
3348230	28/09/2017 11:54:00	28/09/2017 14:40:41		Ryan Young	46	414751	464888	133568	1399675	71030	6880	15.4	3 - No Action		Yes				
3353150	05/10/2017 13:59:00	05/10/2017 14:05:36		Ryan Young	46	414769	464906	133586	1399707	71067	6880	14	2 - Clean		Yes				
3353199	12/10/2017 13:40:00	12/10/2017 14:45:04		Tony Attewell	46	414786	464923	133603	1399723	71085	6880	14	2 - Clean		Yes				
3353230	19/10/2017 14:17:00	19/10/2017 14:26:26		Brian Barnard	46	414803	464941	133621	1399724	71087	6880	14	2 - Clean		Yes			Yes	
3353254	26/10/2017 11:53:00	26/10/2017 11:55:13		Brian Barnard	28	414820	464958	133691	1399866	71087	6881	29	2 - Clean		Yes			Yes	
3356232	02/11/2017 11:44:00	02/11/2017 11:47:36		Ryan Young	46	414837	464976	133816	1400155	71118	6882	14	1 - Change		Yes			Yes	
3356255	09/11/2017 08:09:00	09/11/2017 08:12:36		Ryan Young	46	414854	464993	133833	1400177	71150	6882	13.9	3 - No Action		Yes			Yes	
3365423	16/11/2017 11:35:00	16/11/2017 11:38:43		Brian Barnard	46	414872	465011	133852	140201	71180	6882	14	2 - Clean		Yes			Yes	
3365470	23/11/2017 11:05:00	23/11/2017 11:07:29		Ryan Young	45	414889	465028	133869	1400204	71185	6882	13.9	2 - Clean		Yes			Yes	
3365507	01/12/2017 10:11:00	01/12/2017 10:15:30		Ryan Young	45	414989	465047	134032	1400733	71202	6884	14	1 - Change		Yes			Yes	
3365554	07/12/2017 11:45:00	07/12/2017 13:50:51		Tony Attewell	45	415004	465062	134047	1400742	71224	6884	14	2 - Clean		Yes			Yes	
3367837	14/12/2017 13:04:00	14/12/2017 13:06:34		Brian Barnard	45	415021	465079	134064	1400768	71257	6884	14	2 - Clean		Yes			Yes	
3367865	21/12/2017 12:06:00	21/12/2017 12:08:14		Ryan Young	36	416114	465664	134701	1407332	71266	6917	24.1	1 - Change		Yes			Yes	
3367894	28/12/2017 14:42:00	28/12/2017 14:44:09		Bruce Nesbitt	45	418925	468405	137529	1430024	71287	7017	14	3 - No Action		Yes	Well head security all good		Yes	
3367938	03/01/2018 14:54:00	03/01/2018 15:52:03		Tony Attewell	29	421656	470923	140236	1451999	71287	7121	27.6	1 - Change		Yes			Yes	
3369332	11/01/2018 11:47:00	11/01/2018 11:50:24		Brian Barnard	45	422757	472425	141398	1462634	71306	7174	14	2 - Clean		Yes			Yes	
3369456	18/01/2018 11:55:00	18/01/2018 15:16:00		Tony Attewell	45	422774	472442	141415	1462665	71335	7174	13.9	1 - Change		Yes			Yes	
3369483	25/01/2018 12:19:00	25/01/2018 12:22:35		Ryan Young	45	422790	472458	141433	1462667	71336	7174	13.9	2 - Clean		Yes			Yes	
3369508	01/02/2018 13:35:00	01/02/2018 14:46:03		Tony Attewell	25	424301	473889	142927	1473845	71373	7222	29.3	3 - No Action		Yes			Yes	
3371623	08/02/2018 12:57:00	08/02/2018 13:00:42		Brian Barnard	29	425219	475065	143926	1483035	71384	7271	27	2 - Clean	pumping	Yes			Yes	
3371648	15/02/2018 11:46:00	15/02/2018 11:49:58		Ryan Young	45	426898	476912	145361	1496296	71393	7329	13.9	1 - Change		Yes			Yes	
3371672	22/02/2018 12:39:00	22/02/2018 12:42:54		Ryan Young	45	426916	476929	145378	1496299	71398	7329	13.9	2 - Clean		Yes			Yes	
3371703	01/03/2018 15:00:00	01/03/2018 16:15:24		Tony Attewell	45	427051	476947	145593	1497093	71448	7332	14	3 - No Action		Yes			Yes	
3373981	09/03/2018 10:47:00	09/03/2018 10:49:46		Brian Barnard	45	427070	476966	145613	1497166	71547	7332	14	2 - Clean		Yes			Yes	
3374004	15/03/2018 13:10:00	15/03/2018 13:11:53		Ryan Young	45	427085	476981	145628	1497207	71603	7332	13.8	2 - Clean		Yes			Yes	
3374147	29/03/2018 12:44:00	29/03/2018 12:47:10		Tony Attewell	45	427120	477016	145746	1497519	71719	7333	13.9	2 - Clean		Yes			Yes	
3374352	05/04/2018 22:25:00	05/04/2018 12:05:34		Tony Attewell	45	427137	477034	145763	1497584	71806	7333	13.9	3 - No Action	Electrician onsite John, changing out Power meter with new smart meter	Yes			Yes	
3375736	12/04/2018 11:08:00	12/04/2018 11:10:02		Brian Barnard	45				1497718	71878	7334	13.8	3 - No Action		Yes			Yes	
3375761	19/04/2018 11:00:00	19/04/2018 11:22:48		Ryan Young	45				1497818	72005	7334	13.8	2 - Clean		Yes			Yes	
3376945	26/04/2018 13:08:00	26/04/2018 13:10:40		Brian Barnard	45				1497976	72188	7334	13.8	3 - No Action		Yes			Yes	
3377340	03/05/2018 14:43:00	04/05/2018 14:53:52		Simon Fraser	45	3.399			1498840	72346	7337	13.8	3 - No Action		Yes			Yes	
3378852	10/05/2018 12:45:00	10/05/2018 14:19:31		Simon Fraser	45	3.413			1498907	72447	7337	13.8	3 - No Action		Yes			Yes	
3378880	17/05/2018 13:09:00	17/05/2018 13:10:54		Brian Barnard	45				1499046	72624	7337	13	2 - Clean		Yes			Yes	
3378904	24/05/2018 12:51:00	24/05/2018 12:52:37		Brian Barnard	46				1499089	72687	7337	14			Yes			Yes	
3378922	31/05/2018 11:05:00	31/05/2018 14:17:56		Simon Fraser	46	5.463			1499652	72768	7339	13.8	2 - Clean		Yes			Yes	
3378959	07/06/2018 13:39:00	07/06/2018 14:40:45		Tony Attewell	46				1499728	72859	7339	13.7	3 - No Action		Yes			Yes	
3378960	07/06/2018 14:40:00	07/06/2018 14:43:42		Tony Attewell	62				570747	4042	5273	14.8	3 - No Action		Yes			Yes	
3565951	14/06/2018 11:40:00	14/06/2018 11:41:38		Brian Barnard	46				1499908	73047	7339	13.8	2 - Clean		Yes			Yes	
3576191	21/06/2018 12:41:00	21/06/2018 12:43:29		Ryan Young	46				1500068	73218	7339	13.8	2 - Clean		Yes			Yes	
3702497	28/06/2018 11:40:00	28/06/2018 14:22:12		Simon Fraser	46	5.544			1500313	73469	7339	13.7	3 - No Action		Yes			Yes	
3702525	05/07/2018 14:19:00	05/07/2018 14:24:37		Tony Attewell	46	6.93			1500666	73495	7341	13.8	2 - Clean		Yes			Yes	
3702750	12/07/2018 11:14:00	12/07/2018 11:14:58		Tony Attewell	46				1500701	73535	7341	13.7	3 - No Action		Yes			Yes	
3702775	19/07/2018 11:46:00	19/07/2018 11:47:48		Ryan Young	46				1500781	73625	7341	13	3 - No Action		Yes			Yes	
3839490	26/07/2018 11:45:00	26/07/2018 13:14:52		Simon Fraser	46	6.987			1500850	73701	7341	13.7	3 - No Action		Yes			Yes	
3853605	02/08/2018 13:26:00	02/08/2018 13:30:00		Tony Attewell	46	8.12			1501209	73766	7342	13.8	3 - No Action		Yes			Yes	
3854496	09/08/2018 10:59:00	09/08/2018 11:01:25		Tony Attewell	46	8.15			1501339	73904	7342	13.8	2 - Clean	clean cabinet filter	Yes			Yes	
3854520	16/08/2018 10:33:00	16/08/2018 10:35:32		Ryan Young	46				1501503	74081	7342	13.7	2 - Clean		Yes			Yes	
3854548	23/08/2018 11:40:00	23/08/2018 15:35:31		Simon Fraser	46	8.233	0	0	1501703	74286	7342	13.7	3 - No Action		Yes			Yes	
3854572	30/08/2018 12:59:00	30/08/2018 13:02:31		Tony Attewell	46	10.16			1502233	74355	7344	13.9	3 - No Action		Yes			Yes	
3872593	06/09/2018 11:01:00	06/09/2018 11:05:06		Brian Barnard	46				1502338	74467	7344	14	2 - Clean	oil leaking from transformer	Yes			Yes	
3873443	13/09/2018 12:01:00	13/09/2018 12:03:11		Ryan Young	46				1502411	74546	7344	13.7	2 - Clean		Yes			Yes	
3873471	20/09/2018 10:57:00	20/09/2018 11:03:59		Ryan Young	46				1502485	74635	7344	13.7	2 - Clean		Yes			Yes	
3873480	24/09/2018 13:13:00	24/09/2018 13:14:56		Ryan Young	46				1502586	74745	7344	13.7	3 - No Action	Unlocked vsd and turned on	Yes			Yes	
3873616	04/10/2018 11:18:00	04/10/2018 11:21:05		Brian Barnard	46				1503340	74915	7347	31.7	2 - Clean		Yes			Yes	
3873763	11/10/2018 13:23:00	11/10/2018 13:25:02		Ryan Young	46				1503387	74977	7347	13.7	3 - No Action		Yes			Yes	
3874082	18/10/2018 11:49:00	18/10/2018 13:50:19		Simon Fraser	46				1503425	75022	7347	13.7	3 - No Action		Yes			Yes	
3874456	25/10/2018 11:17:00	25/10/2018 11:18:29		Tony Attewell	46				1503538	75173	7347	13.8	3 - No Action		Yes			Yes	
3874486	02/11/2018 11:19:00	02/11/2018 11:20:23		Brian Barnard	46				1504925	75261	7352	14	2 - Clean		Yes			Yes	
3874915	15/11/2018 12:06:00	15/11/2018 12:09:23		Ryan Young	48				1504983	75327	7352	13.8	2 - Clean		Yes			Yes	
3875906	22/11/2018 13:06:00	22/11/2018 13:08:36		Tony Attewell	51				1505145	75522	7352	13.7	3 - No Action		Yes			Yes	
3877622	29/11/2018 10:33:00	29/11/2018 10:34:21		Tony Attewell	49				1505685	75637	7354	13.8	2 - Clean		Yes			Yes	
3881814	06/12/2018 13:46:00	06/12/2018 13:51:53		Tony Attewell	48				1505764	75739	7354	13.7	3 - No Action		Yes			Yes	
3882315	13/12/2018 11:23:00	13/12/2018 11:24:21		Simon Fraser	48				1505907	75898	7354	13.8	3 - No Action					Yes	
3882461	20/12/2018 14:38:00	20/12/2018 14:40:36		Ryan Young	48				1506840	75992	7358	13.8	3 - No Action	alarm doesn't turn off	Yes			Yes	
3882485	27/12/2018 11:17:00	27/12/2018 11:18:04		Brian Barnard	47					1507496	7360	13.8	2 - Clean					Yes	

3882509	04/01/2019 11:19:00	04/01/2019 11:20:17	Ryan Young	47	1507640	76306	7360	13.8	1 - Change		Yes	Yes
3891935	17/01/2019 12:43:00	17/01/2019 12:50:53	Ryan Young	47	1507917	76604	7360	13.7	3 - No Action		Yes	Yes
3892248	24/01/2019 10:38:00	24/01/2019 10:41:27	Simon Fraser	47	1508005	76701	7360	13.7	3 - No Action		Yes	Yes
3892274	31/01/2019 11:31:00	31/01/2019 11:37:20	Ryan Young	47	1508565	76770	7362	13.9	2 - Clean		Yes	Yes
3892387	07/02/2019 11:02:00	07/02/2019 11:04:33	Simon Fraser	47	1508650	76866	7362	13.8	3 - No Action		Yes	Yes
3894973	14/02/2019 14:16:00	14/02/2019 14:18:04	Ryan Young	47	1508797	77027	7362	13.7	2 - Clean		Yes	Yes
3895000	21/02/2019 12:23:00	21/02/2019 12:39:03	Simon Fraser	47	1509689	77124	7366	13.9	3 - No Action		Yes	Yes
3895024	28/02/2019 09:45:00	28/02/2019 09:45:50	Ryan Young	47	1509846	77295	7366	13.7	3 - No Action		Yes	Yes
3896545	07/03/2019 12:52:00	07/03/2019 12:54:30	Ryan Young	47	1509968	77440	7366	13.8	2 - Clean		Yes	Yes
3896568	14/03/2019 11:39:00	14/03/2019 11:40:28	Ryan Young	47	1510040	77530	7366	13.7	3 - No Action		Yes	Yes
3896593	21/03/2019 13:05:00	21/03/2019 13:08:46	Brian Barnard	47	1510176	77675	7366	14	2 - Clean		Yes	Yes
3896628	28/03/2019 08:56:00	28/03/2019 08:59:42	Ryan Young	28	1510571	77811	7368	30.1	3 - No Action	sample taken	Yes	Yes
3896773	04/04/2019 13:23:00	04/04/2019 13:24:39	Ryan Young	48	1515062	0	7398	13.8	2 - Clean		Yes	Yes
3897731	11/04/2019 12:53:00	11/04/2019 12:54:39	clint hill	57	1515229	0	7398	13.7	2 - Clean		Yes	Yes
3899031	18/04/2019 12:23:00	18/04/2019 12:24:24	clint hill	56	1515245	0	7398	13.7	2 - Clean		Yes	Yes
3899056	24/04/2019 13:10:00	24/04/2019 13:12:20	Ryan Young	56	1515317	78167	7398	13.7	2 - Clean		Yes	Yes
3899076	30/04/2019 09:36:00	30/04/2019 09:37:48	Ryan Young	56	1515716	78268	7399	30.3	3 - No Action		Yes	Yes
3899452	09/05/2019 13:09:00	09/05/2019 13:10:48	clint hill	56	1515993	0.3	7400	13.8	2 - Clean		Yes	Yes
3899792	16/05/2019 10:56:00	16/05/2019 10:57:56	Brian Barnard	56	1516074	78456	7400	13.7	2 - Clean		Yes	Yes
3899819	23/05/2019 14:08:00	23/05/2019 14:09:08	Ryan Young	56	1516232	78619	7400	13.7	3 - No Action		Yes	Yes
3899847	30/05/2019 11:05:00	30/05/2019 11:13:47	Ryan Young	56	1517585	78715	7405	13.8	2 - Clean		Yes	Yes
3899879	06/06/2019 13:20:00	06/06/2019 13:21:36	Ryan Young	56	1517585	78902	7405	13.7	2 - Clean		Yes	Yes
3899964	13/06/2019 10:30:00	13/06/2019 10:32:12	Brian Barnard	56	1517843	78976	7405	13.7	2 - Clean		Yes	Yes
3900276	20/06/2019 13:18:00	20/06/2019 13:19:45	Brian Barnard	56	1517933	78976	7405	13.7	2 - Clean		Yes	Yes
3900385	27/06/2019 13:44:00	27/06/2019 13:45:27	clint hill	57	1517993	78976	7405	13.7	2 - Clean		Yes	Yes
3900410	04/07/2019 10:48:00	04/07/2019 10:57:07	Ryan Young	57	1518077	79216	7405	13.7	2 - Clean		Yes	Yes
3900437	11/07/2019 14:51:00	11/07/2019 14:53:08	Ryan Young	57	1518164	79304	7405	13.7	3 - No Action		Yes	Yes
3901632	18/07/2019 13:41:00	18/07/2019 13:42:58	Ryan Young	57	1518190	79332	7405	13.7	2 - Clean		Yes	Yes
3901656	25/07/2019 10:48:00	25/07/2019 10:56:36	Brian Barnard	57	1518310	79453	7405	13.7	2 - Clean		Yes	Yes
3901657	25/07/2019 10:56:00	25/07/2019 11:00:49	Brian Barnard	53	574869	4138	5270	14.9	2 - Clean		Yes	Yes

Appendix D

Bore Water Quality Sampling Results

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Eurofins ELS Limited

Kapiti Coast District Council -
Sewage Treatment Plant
Sewage Treatment Plant
Mazengarb Road
Paraparaumu 5254
Attention: Anne Robertson

Analytical Report

Report Number: 18/60882

Issue: 1
04 January 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-01	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:05	19/12/2018 13:00	322628

Notes: 185744, K4, Preseason River Recharge Baseline Bore Monitoring

	Test	Result	Units	Signatory
0001	pH	7.5		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.8	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	104	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	53.1	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	292	g/m³	Jennifer Mont KTP
0073	Bicarbonate	104	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	7	g CO2/m³	Marylou Cabral .
0590	Anion Sum	4.45	meq/L	Divina Lagazon KTP
0591	Cation Sum	5.13	meq/L	Amit Kumar KTP
0592	Ion Balance	7.09	%	Divina Lagazon KTP
0601	Fluoride	0.22	g/m³	Amit Kumar KTP
0602	Chloride	85.4	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.29	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	0.03	g/m³	Amit Kumar KTP
0607	Sulphate	15.6	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.02	g/m³	Divina Lagazon KTP
1642	Total Hardness	28	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.093	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	4.10	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	4.35	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.143	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	1.82	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	104	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.100	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.100	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.33		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	488	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	14.8	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-02	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:15	19/12/2018 13:00	322628

Notes: 185745, K5

	Test	Result	Units	Signatory
0001	pH	8.0		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.3	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	223	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	108	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	593	g/m³	Jennifer Mont KTP
0073	Bicarbonate	221	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	4	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.21	meq/L	Divina Lagazon KTP
0591	Cation Sum	9.85	meq/L	Amit Kumar KTP
0592	Ion Balance	3.40	%	Divina Lagazon KTP
0601	Fluoride	0.06	g/m³	Amit Kumar KTP
0602	Chloride	196	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.74	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	0.41	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.35	g/m³	Divina Lagazon KTP
1642	Total Hardness	124	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.454	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	30.3	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	0.012	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	12.8	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.068	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	7.93	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	162	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.156	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.117	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.32	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.88		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	1,040	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	15.5	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-03	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:38	19/12/2018 13:00	322628

Notes: 185746, K6

	Test	Result	Units	Signatory
0001	pH	7.7		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	272	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	113	mS/m	Jennifer Mont KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-03	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:38	19/12/2018 13:00	322628

Notes: 185746, K6

	Test	Result	Units	Signatory
0055B	Total Dissolved Solids	620	g/m³	Jennifer Mont KTP
0073	Bicarbonate	271	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	10	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.70	meq/L	Divina Lagazon KTP
0591	Cation Sum	10.4	meq/L	Amit Kumar KTP
0592	Ion Balance	3.61	%	Divina Lagazon KTP
0601	Fluoride	0.05	g/m³	Amit Kumar KTP
0602	Chloride	184	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.73	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	0.29	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.48	g/m³	Divina Lagazon KTP
1642	Total Hardness	144	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.743	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	32.9	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	16.1	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.079	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	11.0	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	164	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.078	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.070	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.49	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	0.0007	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	0.030	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.50		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	1,070	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	15.4	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-04	Kapiti Coast District Council - Supplementary Bore		17/12/2018 10:50	19/12/2018 13:00	322628

Notes: 185747, KB4

	Test	Result	Units	Signatory
0001	pH	7.7		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.1	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	190	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	116	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	637	g/m³	Jennifer Mont KTP
0073	Bicarbonate	189	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	7	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.84	meq/L	Divina Lagazon KTP
0591	Cation Sum	10.4	meq/L	Amit Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-04	Kapiti Coast District Council - Supplementary Bore		17/12/2018 10:50	19/12/2018 13:00	322628

Notes: 185747, KB4

	Test	Result	Units	Signatory
0592	Ion Balance	2.63	%	Divina Lagazon KTP
0601	Fluoride	0.04	g/m³	Amit Kumar KTP
0602	Chloride	238	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.91	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	1.54	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.07	g/m³	Divina Lagazon KTP
1642	Total Hardness	134	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.261	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	36.4	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	12.0	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.025	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	6.87	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	170	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.030	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.037	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.06	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.50		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	1,080	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	14.8	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-05	Kapiti Coast District Council - Supplementary Bore		17/12/2018 10:35	19/12/2018 13:00	322628

Notes: 185748, K10

	Test	Result	Units	Signatory
0001	pH	7.7		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.3	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	210	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	81.9	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	451	g/m³	Jennifer Mont KTP
0073	Bicarbonate	209	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	9	g CO2/m³	Marylou Cabral .
0590	Anion Sum	6.99	meq/L	Shanel Kumar KTP
0591	Cation Sum	8.23	meq/L	Amit Kumar KTP
0592	Ion Balance	8.15	%	Shanel Kumar KTP
0601	Fluoride	0.04	g/m³	Amit Kumar KTP
0602	Chloride	126	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.52	g/m³	Amit Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-05	Kapiti Coast District Council - Supplementary Bore		17/12/2018 10:35	19/12/2018 13:00	322628

Notes: 185748, K10

	Test	Result	Units	Signatory
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	< 0.20	g/m³	Shanel Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.24	g/m³	Divina Lagazon KTP
1642	Total Hardness	171	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.167	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	49.7	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	12.9	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.162	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	8.19	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	103	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.084	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.050	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.22	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.23		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	787	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	15.3	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-06	Kapiti Coast District Council - Supplementary Bore		17/12/2018 12:00	19/12/2018 13:00	322628

Notes: 185749, K12

	Test	Result	Units	Signatory
0001	pH	7.7		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	82	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	50.7	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	279	g/m³	Jennifer Mont KTP
0073	Bicarbonate	81	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	3	g CO2/m³	Marylou Cabral .
0590	Anion Sum	4.25	meq/L	Divina Lagazon KTP
0591	Cation Sum	4.72	meq/L	Amit Kumar KTP
0592	Ion Balance	5.24	%	Divina Lagazon KTP
0601	Fluoride	0.09	g/m³	Amit Kumar KTP
0602	Chloride	90.4	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.29	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	16.0	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	Divina Lagazon KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-06	Kapiti Coast District Council - Supplementary Bore		17/12/2018 12:00	19/12/2018 13:00	322628

Notes: 185749, K12

	Test	Result	Units	Signatory
1642	Total Hardness	78	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.392	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	17.7	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	8.65	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.017	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	1.90	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	70.8	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.046	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.044	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.62		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	484	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	15.0	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-07	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:42	19/12/2018 13:00	322628

Notes: 185750, KB7

	Test	Result	Units	Signatory
0001	pH	7.8		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.1	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	92	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	75.3	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	414	g/m³	Jennifer Mont KTP
0073	Bicarbonate	91	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	3	g CO2/m³	Marylou Cabral .
0590	Anion Sum	6.39	meq/L	Divina Lagazon KTP
0591	Cation Sum	6.30	meq/L	Amit Kumar KTP
0592	Ion Balance	0.67	%	Divina Lagazon KTP
0601	Fluoride	0.07	g/m³	Amit Kumar KTP
0602	Chloride	162	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.51	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	14.1	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	Divina Lagazon KTP
1642	Total Hardness	84	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.503	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	18.0	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	10.1	g/m³	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-07	Kapiti Coast District Council - Supplementary Bore		17/12/2018 11:42	19/12/2018 13:00	322628

Notes: 185750, KB7

	Test	Result	Units	Signatory
1823	Manganese - Dissolved	0.011	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	2.93	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	104	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.032	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.031	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.65		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	725	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	15.2	Deg C	Sunita Raju (transcribed by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-08	Kapiti Coast District Council - Supplementary Bore		17/12/2018 12:35	19/12/2018 13:00	322628

Notes: 185751, N2

	Test	Result	Units	Signatory
0001	pH	7.5		Jennifer Mont KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Tracy Morrison KTP
0052	Alkalinity - Total	70	g CaCO3/m³	Jennifer Mont KTP
0055	Conductivity at 25°C	45.1	mS/m	Jennifer Mont KTP
0055B	Total Dissolved Solids	248	g/m³	Jennifer Mont KTP
0073	Bicarbonate	69	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	4	g CO2/m³	Marylou Cabral .
0590	Anion Sum	3.75	meq/L	Divina Lagazon KTP
0591	Cation Sum	4.16	meq/L	Amit Kumar KTP
0592	Ion Balance	5.18	%	Divina Lagazon KTP
0601	Fluoride	0.16	g/m³	Amit Kumar KTP
0602	Chloride	77.6	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.25	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	20.3	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Rob Deacon .
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.05	g/m³	Divina Lagazon KTP
1642	Total Hardness	104	g CaCO3/m³	Richard Zhao KTP
1806	Boron - Dissolved	0.057	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	29.1	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	7.27	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.101	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	3.05	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	46.6	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.128	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.116	g/m³	Divina Lagazon KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/60882-08	Kapiti Coast District Council - Supplementary Bore		17/12/2018 12:35	19/12/2018 13:00	322628

Notes: 185751, N2

	Test	Result	Units	Signatory
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Sharon van Soest KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Sharon van Soest KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Sharon van Soest KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Sharon van Soest KTP
O1306	pH - onsite reading	7.25		Sunita Raju (transcribed by)
O1309	Conductivity at 25°C	431	uS/cm	Prashilla Singh (transcribed by)
O1311	Temperature	14.6	Deg C	Sunita Raju (transcribed by)

Comments:

Sampled by customer using ELS approved containers.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500 H.	0.1
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310B,C, ASTM D2579, D4839.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Total Dissolved Solids	Conductivity reading in mS/m x 5.5. The result by this method should be considered approximate only.	1 g/m³
Bicarbonate	Calculated from alkalinity and pH following APHA Online Edition Method 4500-CO2. The sample TDS must be <500 g/m3 and all alkalinity derived from hydroxides, carbonates or bicarbonates.	1 g CaCO3/m³
Free CO2	Calculated from alkalinity and pH following APHA Online Edition Method 4500-CO2. The sample TDS must be <500 g/m3 and all alkalinity derived from hydroxides, carbonates or bicarbonates.	1 g CO2/m³
Anion Sum	Calculation of the anion sum in miliequivalents per litre. Tests used are Alkalinity, Chloride, Nitrate, Boron and Sulphate.	0.001 meq/L
Cation Sum	Calculation of the cation sum in miliequivalents per litre. Tests used are Ammonia, Iron, Sodium, Potassium, Calcium, and Magnesium.	0.001 meq/L
Ion Balance	Calculation following APHA Online Edition 1030E.1: (Cation Sum - Anion Sum) / (Anion Sum + Cation Sum). For this calculation the anions = Alkalinity, Chloride, Nitrate, Boron and Sulphate and the cations = Ammonia, Iron, Sodium, Potassium, Calcium, and Magnesium.	0.01 %
Fluoride	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m³
Chloride	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m³
Nitrite - Nitrogen	Ion Chromatography following USEPA 300.0 (modified)	0.01 g/m³
Bromide	Ion Chromatography following USEPA 300.0 (modified)	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following USEPA 300.0 (modified).	0.01 g/m³
Sulphate	Ion Chromatography following USEPA 300.0 (modified).	0.02 g/m³
Hydrogen Sulphide	APHA Online Edition Method 4500-S2 part H and is calculated from Sulphide, Temperature, Total Dissolved Solids, and pH results.	0.05 g/m³
Cyanide	Discrete Analyser. In House method based on APHA Online Edition Method 4500-CN- C & E.	0.005 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Boron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified)	0.005 g/m³
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³

Test	Methodology	Detection Limit
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Manganese - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Potassium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Total Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G. Persulphate digestion follows APHA Online Edition 4500-P B.	0.005 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Total Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500-NO3 I. Persulphate digestion follows APHA Online Edition 4500-N C.	0.05 g/m³
Mercury - Acid Soluble	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Silver - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.0005 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³

Onsite Observation Methodology:

Test	Methodology	Detection Limit
pH - onsite reading	Analysed on site by sampler.	0.1
Conductivity at 25°C	Analysed on site by sampler.	1 uS/cm
Temperature	Analysed on site by sampler.	0.1 Deg C

Unless otherwise stated, all tests are performed in Wellington.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not IANZ", which are outside the scope of this laboratory's accreditation.

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Eurofins ELS Limited

Kapiti Coast District Council -
Sewage Treatment Plant
Sewage Treatment Plant
Mazengarb Road
Paraparaumu 5254
Attention: Kim Wearne

Analytical Report

Report Number: 19/27663

Issue: 1
12 June 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-01	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:40	29/05/2019 14:10	328037

Notes: 192343 K4 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.3		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	1.0	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	104	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	53.5	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	294	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	102	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	< 1	g CO2/m³	Marylou Cabral .
0590	Anion Sum	4.41	meq/L	Yvette Ibe
0591	Cation Sum	4.95	meq/L	Divina Lagazon KTP
0592	Ion Balance	5.82	%	Divina Lagazon KTP
0601	Fluoride	0.20	g/m³	Amit Kumar KTP
0602	Chloride	85.2	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.29	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	15.3	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.03	g/m³	Divina Lagazon KTP
1642	Total Hardness	30	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.101	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	4.29	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	0.007	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	4.59	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.148	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	1.89	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	99.1	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.106	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.097	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	14.6	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-02	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:55	29/05/2019 14:10	328037

Notes: 192344 K5 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.2		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.5	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	218	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	108	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	593	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	214	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	3	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.02	meq/L	Yvette Ibe
0591	Cation Sum	10.3	meq/L	Divina Lagazon KTP
0592	Ion Balance	6.79	%	Divina Lagazon KTP
0601	Fluoride	0.06	g/m³	Amit Kumar KTP
0602	Chloride	194	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.70	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	0.40	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.32	g/m³	Divina Lagazon KTP
1642	Total Hardness	134	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.446	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	30.9	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	13.7	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.066	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	8.36	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	171	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.128	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.107	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.33	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	15.3	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-03	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:05	29/05/2019 14:10	328037

Notes: 192345 K6 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.1		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.3	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	264	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	113	mS/m	Marylou Cabral KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-03	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:05	29/05/2019 14:10	328037

Notes: 192345 K6 End of season testing

	Test	Result	Units	Signatory
0055B	Total Dissolved Solids	619	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	261	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	4	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.47	meq/L	Yvette Ibe
0591	Cation Sum	11.0	meq/L	Divina Lagazon KTP
0592	Ion Balance	7.28	%	Divina Lagazon KTP
0601	Fluoride	0.04	g/m³	Amit Kumar KTP
0602	Chloride	182	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.70	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	0.31	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.47	g/m³	Divina Lagazon KTP
1642	Total Hardness	152	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.674	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	33.6	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	16.4	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.079	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	11.3	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	175	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.086	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.063	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.48	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	15.2	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-04	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:25	29/05/2019 14:10	328037

Notes: 192346 K64 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.1		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	190	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	113	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	620	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	188	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	3	g CO2/m³	Marylou Cabral .
0590	Anion Sum	9.48	meq/L	Yvette Ibe

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-04	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:25	29/05/2019 14:10	328037

Notes: 192346 K64 End of season testing

	Test	Result	Units	Signatory
0591	Cation Sum	10.4	meq/L	Divina Lagazon KTP
0592	Ion Balance	4.69	%	Divina Lagazon KTP
0601	Fluoride	0.04	g/m³	Amit Kumar KTP
0602	Chloride	225	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.83	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	1.41	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.07	g/m³	Divina Lagazon KTP
1642	Total Hardness	138	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.264	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	35.9	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	11.8	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.026	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	7.17	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	172	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.031	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.032	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.06	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	14.7	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-05	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:10	29/05/2019 14:10	328037

Notes: 192347 K10 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.2		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.4	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	208	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	81.9	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	451	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	205	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	2	g CO2/m³	Marylou Cabral .
0590	Anion Sum	6.80	meq/L	Yvette Ibe
0591	Cation Sum	8.00	meq/L	Divina Lagazon KTP
0592	Ion Balance	8.11	%	Divina Lagazon KTP
0601	Fluoride	0.03	g/m³	Amit Kumar KTP
0602	Chloride	122	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-05	Kapiti Coast District Council - Supplementary Bore		28/05/2019 09:10	29/05/2019 14:10	328037

Notes: 192347 K10 End of season testing

	Test	Result	Units	Signatory
0604	Bromide	0.48	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	< 0.02	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.24	g/m³	Divina Lagazon KTP
1642	Total Hardness	179	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.161	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	50.1	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	13.1	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.162	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	8.41	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	96.4	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.078	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.046	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	0.27	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	15.1	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-06	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:25	29/05/2019 14:10	328037

Notes: 192348 K12 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.0		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.1	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	81	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	51.2	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	281	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	80	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	2	g CO2/m³	Marylou Cabral .
0590	Anion Sum	4.21	meq/L	Yvette Ibe
0591	Cation Sum	4.70	meq/L	Divina Lagazon KTP
0592	Ion Balance	5.51	%	Divina Lagazon KTP
0601	Fluoride	0.08	g/m³	Amit Kumar KTP
0602	Chloride	90.1	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.28	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	15.6	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-06	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:25	29/05/2019 14:10	328037

Notes: 192348 K12 End of season testing

	Test	Result	Units	Signatory
0760	Ammonia Nitrogen	< 0.01	g/m³	Divina Lagazon KTP
1642	Total Hardness	81	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.377	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	17.5	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	9.17	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.015	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	1.93	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	69.5	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.047	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.041	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	14.9	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-07	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:14	29/05/2019 14:10	328037

Notes: 192349 K67 End of season testing

	Test	Result	Units	Signatory
0001	pH	8.0		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	91	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	77.0	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	423	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	90	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	2	g CO2/m³	Marylou Cabral .
0590	Anion Sum	6.43	meq/L	Yvette Ibe
0591	Cation Sum	6.88	meq/L	Divina Lagazon KTP
0592	Ion Balance	3.38	%	Divina Lagazon KTP
0601	Fluoride	0.06	g/m³	Amit Kumar KTP
0602	Chloride	164	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.50	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	13.7	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	< 0.01	g/m³	Divina Lagazon KTP
1642	Total Hardness	92	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.477	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	18.7	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	0.007	g/m³	Shanel Kumar KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-07	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:14	29/05/2019 14:10	328037

Notes: 192349 K67 End of season testing

	Test	Result	Units	Signatory
1822	Magnesium - Dissolved	11.0	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.010	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	3.19	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	114	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.031	g/m³	Divina Lagazon KTP
2088	Dissolved Reactive Phosphorus	0.027	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	15.2	Deg C	Prashilla Singh (Transcription by)

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-08	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:50	29/05/2019 14:10	328037

Notes: 192350 N2 End of season testing

	Test	Result	Units	Signatory
0001	pH	7.9		Marylou Cabral KTP
0040	Total (NP) Organic Carbon	0.2	g/m³	Sharon van Soest KTP
0052	Alkalinity - Total	69	g CaCO3/m³	Marylou Cabral KTP
0055	Conductivity at 25°C	44.9	mS/m	Marylou Cabral KTP
0055B	Total Dissolved Solids	247	g/m³	Marylou Cabral KTP
0062	Sulphide - Total	< 0.2	g/m³	Gordon McArthur KTP
0073	Bicarbonate	68	g CaCO3/m³	Marylou Cabral .
0076	Free CO2	2	g CO2/m³	Marylou Cabral .
0590	Anion Sum	3.69	meq/L	Yvette Ibe
0591	Cation Sum	4.12	meq/L	Divina Lagazon KTP
0592	Ion Balance	5.41	%	Divina Lagazon KTP
0601	Fluoride	0.15	g/m³	Amit Kumar KTP
0602	Chloride	76.6	g/m³	Amit Kumar KTP
0603	Nitrite - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0604	Bromide	0.24	g/m³	Amit Kumar KTP
0605	Nitrate - Nitrogen	< 0.01	g/m³	Amit Kumar KTP
0607	Sulphate	19.8	g/m³	Amit Kumar KTP
0680	Hydrogen Sulphide	< 0.05	g/m³	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Divina Lagazon KTP
0760	Ammonia Nitrogen	0.06	g/m³	Divina Lagazon KTP
1642	Total Hardness	104	g CaCO3/m³	Shanel Kumar KTP
1806	Boron - Dissolved	0.064	g/m³	Shanel Kumar KTP
1810	Calcium - Dissolved	28.7	g/m³	Shanel Kumar KTP
1819	Iron - Dissolved	< 0.005	g/m³	Shanel Kumar KTP
1822	Magnesium - Dissolved	7.83	g/m³	Shanel Kumar KTP
1823	Manganese - Dissolved	0.103	g/m³	Shanel Kumar KTP
1829	Potassium - Dissolved	3.28	g/m³	Shanel Kumar KTP
1834	Sodium - Dissolved	44.9	g/m³	Shanel Kumar KTP
2080	Total Phosphorus	0.136	g/m³	Divina Lagazon KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/27663-08	Kapiti Coast District Council - Supplementary Bore		28/05/2019 10:50	29/05/2019 14:10	328037

Notes: 192350 N2 End of season testing

	Test	Result	Units	Signatory
2088	Dissolved Reactive Phosphorus	0.119	g/m³	Divina Lagazon KTP
2127	Total Nitrogen	< 0.05	g/m³	Divina Lagazon KTP
6022	Mercury - Acid Soluble	< 0.0005	g/m³	Shanel Kumar KTP
6703	Arsenic - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6708	Cadmium - Dissolved	< 0.0002	g/m³	Shanel Kumar KTP
6711	Chromium - Dissolved	< 0.001	g/m³	Shanel Kumar KTP
6713	Copper - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6718	Lead - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6724	Nickel - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6730	Silver - Dissolved	< 0.0005	g/m³	Shanel Kumar KTP
6738	Zinc - Dissolved	< 0.002	g/m³	Shanel Kumar KTP
O1311	Temperature	14.5	Deg C	Prashilla Singh (Transcription by)

Comments:

Sampled by customer using ELS approved containers.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
pH	Dedicated pH meter following APHA Online Edition Method 4500 H.	0.1
Total (NP) Organic Carbon	Total Non-Purgeable Organic Carbon using TOC analyser. APHA Online Edition 5310B,C, ASTM D2579, D4839.	0.1 g/m³
Alkalinity - Total	APHA Online Edition Method 2320 B	1 g CaCO3/m³
Conductivity at 25°C	APHA Online Edition Method 2510 B.	0.1 mS/m
Total Dissolved Solids	Conductivity reading in mS/m x 5.5. The result by this method should be considered approximate only.	1 g/m³
Sulphide - Total	APHA Online Edition Method 4500-S2 parts B,C and F	0.2 g/m³
Bicarbonate	Calculated from alkalinity and pH following APHA Online Edition Method 4500-CO2. The sample TDS must be <500 g/m3 and all alkalinity derived from hydroxides, carbonates or bicarbonates.	1 g CaCO3/m³
Free CO2	Calculated from alkalinity and pH following APHA Online Edition Method 4500-CO2. The sample TDS must be <500 g/m3 and all alkalinity derived from hydroxides, carbonates or bicarbonates.	1 g CO2/m³
Anion Sum	Calculation of the anion sum in miliequivalents per litre. Tests used are Alkalinity, Chloride, Nitrate, Boron and Sulphate.	0.001 meq/L
Cation Sum	Calculation of the cation sum in miliequivalents per litre. Tests used are Ammonia, Iron, Sodium, Potassium, Calcium, and Magnesium.	0.001 meq/L
Ion Balance	Calculation following APHA Online Edition 1030E.1: (Cation Sum - Anion Sum) / (Anion Sum + Cation Sum). For this calculation the anions = Alkalinity, Chloride, Nitrate, Boron and Sulphate and the cations = Ammonia, Iron, Sodium, Potassium, Calcium, and Magnesium.	0.01 %
Fluoride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Chloride	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrite - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Bromide	Ion Chromatography following APHA 4110B.	0.02 g/m³
Nitrate - Nitrogen	Ion Chromatography following APHA 4110B.	0.01 g/m³
Sulphate	Ion Chromatography following APHA 4110B.	0.02 g/m³
Hydrogen Sulphide	APHA Online Edition Method 4500-S2 part H and is calculated from Sulphide, Temperature, Total Dissolved Solids, and pH results. If temperature has not been provided a default value of 15'C will be used.	0.05 g/m³
Cyanide	Discrete Analyser. In House method based on APHA Online Edition Method 4500-CN- C & E.	0.005 g/m³
Ammonia Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500 NH3-H.	0.01 g/m³
Total Hardness	ICP-OES following APHA Online Edition Method 3120 B (modified).	1 g CaCO3/m³
Boron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified)	0.005 g/m³

Test	Methodology	Detection Limit
Calcium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Iron - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Magnesium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Manganese - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.005 g/m³
Potassium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.01 g/m³
Sodium - Dissolved	ICP-OES following APHA Online Edition Method 3120 B (modified).	0.02 g/m³
Total Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G. Persulphate digestion follows APHA Online Edition 4500-P B.	0.005 g/m³
Dissolved Reactive Phosphorus	Flow Injection Autoanalyser following APHA Online Edition Method 4500-P G.	0.005 g/m³
Total Nitrogen	Flow Injection Autoanalyser following APHA Online Edition Method 4500-NO3 I. Persulphate digestion follows APHA Online Edition 4500-N C.	0.05 g/m³
Mercury - Acid Soluble	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Arsenic - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Cadmium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0002 g/m³
Chromium - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.001 g/m³
Copper - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Lead - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Nickel - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.0005 g/m³
Silver - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified)	0.0005 g/m³
Zinc - Dissolved	ICP-MS following APHA Online Edition method 3125 (modified).	0.002 g/m³

Onsite Observation Methodology:

Test	Methodology	Detection Limit
Temperature	Analysed on site by sampler.	0.1 Deg C

Unless otherwise stated, all tests are performed in Wellington.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not IANZ", which are outside the scope of this laboratory's accreditation.

Appendix E

Complaints Record

Please Note:

There is no insertion for this section, as there were no complaints during this reporting period.