

Version No: 05 Issue Date: 01/05/2020 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 11 Page: 1 of 13
	Hydrology Operations Manual	

Version 3.2.23/01/2020

Water Quality Monitoring Run Guide

Upper Rangitikei

STATE OF ENVIRONMENT (Monthly Sampling)

Job Hazard & Task Analysis










Hazard Identification – tick all that apply, write additional hazards identified:

The yellow highlighted hazards are known hazards at the time of compiling this document. This **does not negate** the need to assess for and potentially eliminate or isolate any hazards at *each* sample location at *every* visit

Hazard	Yes	Hazard	Yes	Hazard	Yes
Confined space	<input type="checkbox"/>	Suspended loads	<input type="checkbox"/>	Noise – plant and equipment	<input type="checkbox"/>
Difficult entry/exit	<input type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input checked="" type="checkbox"/>
Oxygen deficiency/excess	<input type="checkbox"/>	Working near cranes and crane runways	<input type="checkbox"/>	Remote area	<input checked="" type="checkbox"/>
Poisonous fumes/gas	<input type="checkbox"/>	Live rails-gantry cranes	<input type="checkbox"/>	Temperature extremes	<input type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input type="checkbox"/>
Flammable materials	<input type="checkbox"/>	Slippery surfaces	<input checked="" type="checkbox"/>	Unauthorized persons	<input type="checkbox"/>
Combustible materials	<input type="checkbox"/>	Manual handling	<input checked="" type="checkbox"/>	High pressure water	<input type="checkbox"/>
Hazardous substances	<input type="checkbox"/>	Sharp materials	<input type="checkbox"/>	Vacuum	<input type="checkbox"/>
Drowning	<input checked="" type="checkbox"/>	Line of fire	<input type="checkbox"/>	Air emissions – dust, fumes	<input type="checkbox"/>
Engulfment	<input type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input type="checkbox"/>
UV Radiation	<input type="checkbox"/>	Pressurized air/gas	<input type="checkbox"/>	Hazardous waste	<input type="checkbox"/>
Electrical – low /high voltage	<input type="checkbox"/>	Traffic / vehicle movements	<input checked="" type="checkbox"/>	Hydrocarbon / chemical spill	<input type="checkbox"/>
Multiple electrical feeds	<input type="checkbox"/>	Machinery – mobile plant	<input type="checkbox"/>	Soil disturbance/erosion	<input checked="" type="checkbox"/>
Working at height	<input type="checkbox"/>	Moving parts	<input type="checkbox"/>	Habitat disruption	<input type="checkbox"/>
Ladders	<input checked="" type="checkbox"/>	Chemical reaction (Pyrophoric iron)	<input type="checkbox"/>	Lighting	<input type="checkbox"/>
Elevated work platforms	<input type="checkbox"/>	Transport of hazardous substances	<input type="checkbox"/>	Weather extremes	<input checked="" type="checkbox"/>
Potential for difficult rescue	<input type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

Required PPE– tick all that apply, write additional PPE required:

The yellow highlighted PPE are known required PPE at the time of compiling this document. This **does not negate** the need to assess for the appropriate required PPE measures at each sample location per visit.

SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HI VIZ	SAFETY HARNESS					
						
<input type="checkbox"/>	<input type="checkbox"/>					

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							ENTER KNOWN HAZARDS AND CONTROLS HERE THESE SHOULD BE 'KNOWN' ISSUES WITH THE RUN/SITES WITH APPROPRIATE METHODS STATED
Trip Hazards	✓			✓	✓		Prior to sampling staff must check area is clear of any items that pose a risk. If there is any these should only be moved if safe to do so. Sampling only to commence if the sampler is satisfied that any slip, trip or fall hazards are isolated.
Slippery Surfaces	✓			✓	✓		Pond edges can be slippery at any time. Sampling from the pond edge must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Drowning	✓			✓		✓	The STP ponds can be deep, full of sediments, and have operating equipment on/within them. Sampling of the pond must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Machinery – mobile plant	✓			✓		✓	Sample site is within an operating waste water treatment plant, plant and machinery may be on-site during sampling. Staff to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.
Traffic Vehicle movements	✓			✓		✓	Sample site is within an operating waste water treatment plant with council and contractor vehicles liable to be present at any time. Staff to obey on site signage and instruction. HRC Vehicle to be parked in a safe and appropriate location. [HMP 16] [HMP 20]
Noise – plant and equipment	✓			✓	✓		Plant operation can create high levels of noise. Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]
Hazardous Waste – treated Effluent	✓			✓	✓		Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC [HMP 30] [HMP 35]
General Waste		✓		✓	✓		General waste can be stored on site depending on operating activity. Sample staff have no need to interact with any waste. All

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							waste created by HRC staff to be taken with them.
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats.
Manual Handling	✓			✓	✓		There should be no need for sample staff to move any equipment etc. in order to carry out sampling activities. Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]
Electrical – low /high voltage	✓			✓	✓		Sampling activity does not require any interaction with live circuitry or equipment. Staff should check sample area is clear of any hazards (i.e. loose cables, live equipment etc.) before sampling. If access/safety is considered compromised sampling is aborted. [HMP 23]
Stock/Farm Animals	✓			✓	✓		Although generally docile farm animals can still be hazardous. The risk should be isolated by finding alternative access routes to the sample location or contacting the owner for assistance. [HMP26]
Weather Extremes	✓			✓	✓		During the duration of a sampling run varying types and degrees of weather may be experienced. All sampling staff are to have access within their HRC vehicle of additional and appropriate clothing.
Temperature Extremes - Hypothermia: following emersion	✓			✓		✓	Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18] [HMP18]
Traffic Vehicle movements	✓			✓		✓	Sample site requires parking beside a main road. The vehicle must be parked as far off of the road surface as safe and practicable to do so. Use of hazards lights must be considered. Hi-vis clothing must be worn. [HMP 16] [HMP 20]


Site Information

Hilltop Site Name	Easting/Longitude		Northing/Lat	Comments
<i>Rangitikei at Pukeokahu</i>	NZMG:	6170706	2771322	Operational lodge. Foot and vehicle traffic possible
	NZTM:	5609046	1861307	
	WGS84:	39 37 42.55 S	176 02 40.34 E	
Hautapu at Alabasters	NZMG:	6168075	2748638	Very swampy in winter, consider walking
	NZTM:	5606403	1838613	
	WGS84:	39 39 32 S	175 46 53 E	
Hautapu at U/S Rangitikei River confluence	NZMG:	6157386	2752970	Treacherous access, take care
	NZTM:	5595711	1842951	
	WGS84:	39 45 14	175 50 09	
Rangitikei at Mangaweka	NZMG:	6151329	2750373	Very slippery river bank, take care
	NZTM:	5589650	1840355	
	WGS84:	39 48 33	175 48 28	

[Contact details can be found here.](#)

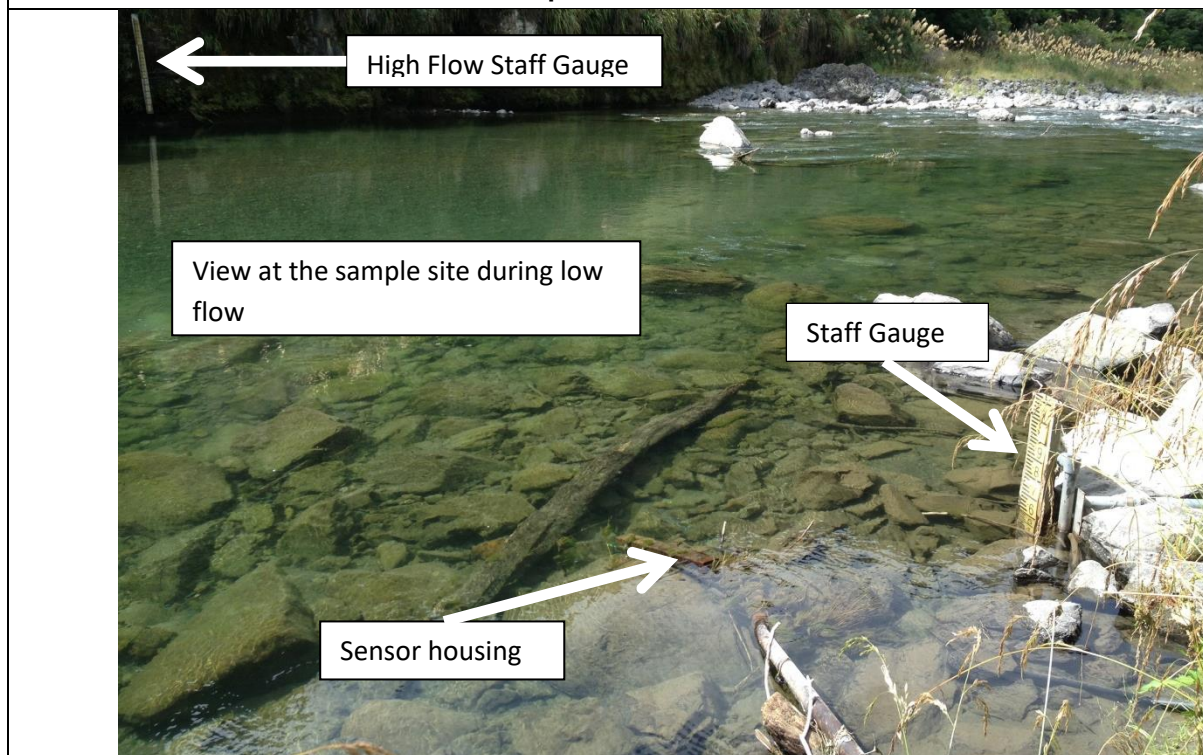
Equipment Required

Sample Bottles	Four (04) sample bottle sets - refer to http://tqm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx
Sample numbers	Four (04)
Equipment	<ul style="list-style-type: none"> • Handheld multi-parameter instrument (calibrated) – including iPad/screen • Black disc, viewer, tape measure • Clarity Tube • Sampling pole • Chilly bins and ice-packs • Bags for isolating effluent samples • Disinfectant equipment for sampling equipment • Field sampling books • Sampling ID labels (created using Hilltop Sampler) • Use gloves for wastewater and effluent samples • Alcohol gel

Site Name:		Rangitikei at Pukeokahu	
Date:	11/07/2016	Site #: 32763	Version: 1.0
Site Location Map			
			
Site Information:			
Sample Programme:		SOE - Upper Rangitikei. Contracted monthly sample site	
NZMG GPS Co-ordinates:		Easting: 6170706	Northing: 2771322
NZTM GPS Co-ordinates:		Easting: 5609046	Northing: 1861307
WGS84 Co-ordinates:		Longitude: 39 37 42.55 S	Latitude: 176 02 40.34 E
Consent Number (if applicable):			
Access:	<ul style="list-style-type: none"> • At the end of Mangahoata Rd • Head down the River Valley Lodge driveway, past reception and accommodation • Park on the central turn around island across from the rafting shed • Walk through/around the rafting shed to the small shipping container which contains the telemetry equipment • Sample near ESG or upstream at the beach if flows are too high 		
Health & Safety:	<ul style="list-style-type: none"> • When driving in, be on the lookout for horses crossing the road on treks with novice riders • Lots of foot traffic, particularly in summer. Take care driving through • Access road can get badly rutted, 4WD necessary • Access to the river is changeable, often sensor piping is exposed • Wet river rocks are slippery • River can be deceptively deep 		

Additional Comments/ Instructions	<ul style="list-style-type: none"> This site has its own computer in the container for connecting to the logger if you are doing general site work also
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Sample Site Photo



Sample Site Description	<ul style="list-style-type: none"> At the base of the track down to the river from the shipping container Sample in flow just above the sensors
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Signed (By signing this form you are confirming that the information contained where-in is accurate and true):

Staff Position:	Signature:	Date:
Discrete Water Quality Portfolio Holder		
Senior Scientist Water Quality		
Compliance Officer		

Document Change Log:

Version Number:	Date:	Comment:	Signature:
1.0	11 July 2016	Document created	CB

Site Name:		Hautapu at Alabasters	
Date:	11/07/2016	Site #:32767	Version 1.0
Site Location Map			
Site Information:			
Sample Programme:	SOE - Upper Rangitikei. Contracted monthly sample site		
NZMG GPS Co-ordinates:	Easting: 6168075	Northing: 2748638	
NZTM GPS Co-ordinates:	Easting: 5606403	Northing: 1838613	
WGS84 Co-ordinates:	Longitude: 39 39 32 S	Latitude: 175 46 53 E	
Consent Number (if applicable):			
Access:	<ul style="list-style-type: none"> Follow Abattoir Rd to the end and over the bridge Go through the gate on the left directly after the bridge Follow the river up past the telemetry site to the continuous loop gauging site Sample by the continuous loop 		
Health & Safety:	<ul style="list-style-type: none"> Site can have deep, slippery mud on rivers edge Beware of trip hazards, mainly from willow shoots or cut off stumps The ladder by the Staff Gauge can be very slippery The paddock is mainly used for sheep, but larger stock could be in there from time to time Bees and wasps can be an issue in summer/autumn Sand flies are quite prolific at this site 		

Additional Comments/ Instructions	<ul style="list-style-type: none"> The Staff Gauge is located back down stream above the weir at the telemetry site
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Sample Site Photo



Sample Site Description	<ul style="list-style-type: none"> Sample on the left bank just below the continuous loop
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Senior Scientist Water Quality		
Compliance Officer		

Document Change Log:

Version Number:	Date:	Comment:	Signature:
1.0	11 July 2016	Document created	CB

Site Name:		Hautapu at U/S Rangitikei Confluence	
Date:	11/07/2016	Site #:	Version 1.0
Site Location Map			
Site Information:			
Sample Programme:	SOE - Upper Rangitikei. Contracted monthly sample site		
NZMG GPS Co-ordinates:	Easting: 6157386	Northing: 2752970	
NZTM GPS Co-ordinates:	Easting: 5595711	Northing: 1842951	
WGS84 Co-ordinates:	Longitude: 39 45 14	Latitude: 175 50 09	
Consent Number (if applicable):			
Access:	<ul style="list-style-type: none"> • Park just before the bridge on the left side. Be careful as there is often large steel wire cable off cuts here • Follow the path through the bush down to the Hautapu River just up from where it joins the Rangitikei River 		
Health & Safety:	<ul style="list-style-type: none"> • Take care when parking and entering/exiting the vehicle on the side of the road • The access path is heavily eroded and in some places missing. Take extra care when travelling on this path to avoid slips down the bank • Be aware that you are sampling near a much larger river with deep, fast flows right near the sample site • When leaving drive across the bridge to turn around on the gravel side road rather than making a U turn at the site 		

Additional Comments/ Instructions	<ul style="list-style-type: none"> In higher flows it may be necessary to sample further up the Hautapu River to avoid sampling water from the Rangitikei directly as it does back flow up the mouth of the Hautapu at times
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Sample Site Photo



Sample Site Description	<ul style="list-style-type: none"> Image is looking downstream from the sample site towards the Rangitikei River Ensure the sample is from the Hautapu proper and not back flow from the Rangitikei, particularly in higher flows
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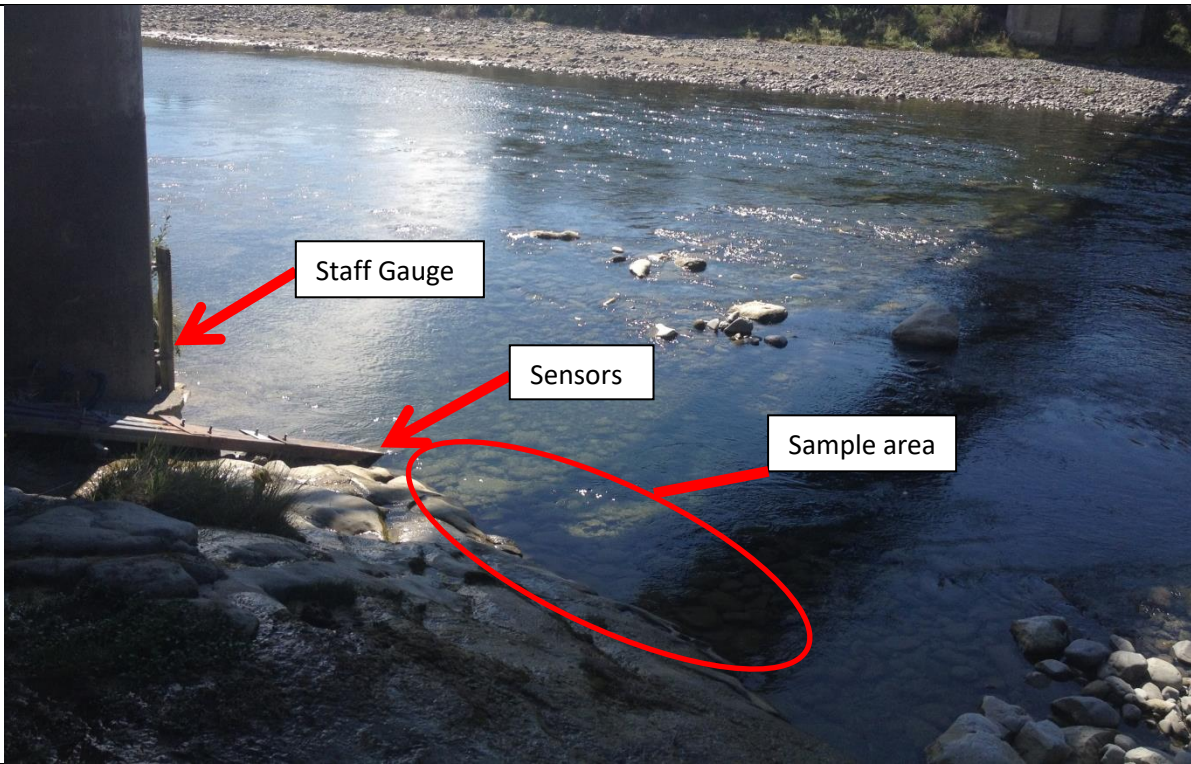
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Senior Scientist Water Quality		
Compliance Officer		

Document Change Log:

Version Number:	Date:	Comment:	Signature:
1.0	11 July 2016	Document created	CB

Site Name:		Rangitikei at Mangaweka	
Date:	11/07/2016	Site #: 32702	Version 1.0
Site Location Map			
<p>Access through campground and along track</p>			
Site Information:			
Sample Programme:		SOE - Upper Rangitikei. Contracted monthly sample site	
NZMG GPS Co-ordinates:		Easting: 6151329	Northing: 2750373
NZTM GPS Co-ordinates:		Easting: 5589650	Northing: 1840355
WGS84 Co-ordinates:		Longitude: 39 48 33	Latitude: 175 48 28
Consent Number (if applicable):			
Access:	<ul style="list-style-type: none"> • Under the bridge by the campground, river right • If in a 4WD, drive into the campground and just as the road heads down to the lower campsites, there is a 4WD track off to the left. Park at the base of this (might be easier to back down) 		
Health & Safety:	<ul style="list-style-type: none"> • The rock here is extremely slippery, particularly when wet • There are brambles and other thorns along the track • Bees and wasps are an issue in summer/autumn • River can be fast and deep at this point 		
Additional Comments/ Instructions	<ul style="list-style-type: none"> • Telemetry site is accessed off the bridge in the tower • In very high flows it is advised to sample either from the lower campsite beach or from the left bank, wherever is safest 		

Sample Site Photo			
			
Sample Site Description	<ul style="list-style-type: none"> Sample by the sensors at the base of the tower Take care on the extremely slippery bank 		
Signed (<i>By signing this form you are confirming that the information contained where-in is accurate and true</i>):			
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Senior Scientist Water Quality			
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