

Risk Assessment

Issue Ref #	Hazard Type	Hazard Description	Risk Rating (Current / Without Controls)	Mitigation Actions/Controls	Primary Actionee	Secondary Actionee	Residue Risk Rating (Future / With Controls)	Interim Controls	Location (Pipe number beginning 10m prior to the Te Wairoa Stream Culvert)
R001	Environmental	Effluent entering the Te Wairoa Stream from damaged pipe - construction and operations	21	1) Run the pipeline on the other side of the road away from the stream. 2) material selection 3) MSQA 4) Control system response (refer HAZOP) 5) Depth of culvert and cover over pipe, material over pipe.	Contractor	RLC	14	8	550-1900
R002	Environmental	Effluent entering the Rotokakahi from damaged pipe	18	1) Run the pipeline on the other side of the road away from the lake. 2) material selection 3) MSQA 4) Control system response (refer HAZOP) 5) Depth of culvert and cover over pipe, material over pipe.	Contractor	RLC	14	N/A	550-1900
R003	Environmental	Acts of God causing major break of pipe	19	1) Pump station would shut down (refer to HAZAOP) 2) Pipe selection	RLC	N/A	14	N/A	Along the length of the system
R004	Environmental	Poor response time to spill in an act of God event.	24	1) Operations and maintenance overflow notification procedure is part of contract. 2) Communications from RLC to RBOC.	Contractor	RLC	15	N/A	N/A
R005	Environmental	Effluent seepage from small break	18	1) Refer to HAZOP - SCADA to monitor pressure while pumps are off.	Contractor	RLC	14	N/A	Along the length of the system

<b>R006</b>	Environmental	Effluent laying around immediate area	13	1) Above mitigation actions/controls 2) Investigate cause of effluent 3) HAZMAT clean up	Contractor	RLC	6	N/A	Along the length of the system
<b>R007</b>	Environmental	Slurry from Drilling entering Te Wairoa Stream	22	1) Run the pipeline on the other side of the road away from the stream. 2) MSQA 3) Site supervision 4) Certification of machinery and operators	Contractor	RLC	15	N/A	550-1900
<b>R008</b>	Environmental	Diesel/Petrol Spill entering Te Wairoa Stream	22	1) Petrol tank refueled prior to commencing works at the stream 2) H&S procedures 3) Contamination cleanup procedures 4) Handling procedures	Contractor	RLC	15	N/A	550-1900
<b>R009</b>	Environmental	Diesel/Petrol Spill entering the lake	15	1) Petrol tank refueled prior to commencing works at the stream 2) H&S procedures 3) Contamination cleanup procedures 4) Handling procedures	Contractor	RLC	15	N/A	550-1900
<b>R010</b>	Environmental	Breach into stream from drill	15	1) Run the pipeline on the other side of the road away from the stream. 2) MSQA 3) Site supervision 4) Certification of machinery and operators	Contractor	RLC	15	N/A	550-1900
<b>R011</b>	People	Contractor touching the lake	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	Contractor	RLC	10	N/A	N/A
<b>R012</b>	People	Contractor disturbing fish in stream	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	Contractor	RLC	10	N/A	N/A

<b>R013</b>	People	Contractor Poaching fish	10	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	Contractor	RLC	10	N/A	N/A
<b>R014</b>	People	Contractor taking water from the lake	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	Contractor	RLC	10	N/A	N/A
<b>R015</b>	People	Contractor walking beside the stream	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	Contractor	RLC	10	N/A	N/A
<b>R016</b>	People	RLC staff disturbing fish	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	RLC	N/A	10	N/A	N/A
<b>R017</b>	People	RLC staff touching the lake water	21	1) Comms 2) Everyone involved will need to undertake a cultural induction by RBOC. 3) MOU	RLC	N/A	10	N/A	N/A
<b>R018</b>	H&S	Fish eating effluent that whanau take home	21	1) Mitigation for risks R001-R010 2) Communications from RLC to RBOC.	Contractor	RLC	10	N/A	N/A
<b>R019</b>	H&S	Koura eating effluent that whanau take home	21	1) Mitigation for risks R001-R010 2) Communications from RLC to RBOC.	Contractor	RLC	10	N/A	N/A


## Comments

Residue risks involve:

- 1) Major earthquake could impact the pipe post-commissioning. Pipes are 100-year rated.
- 2) 3rd party damage by means of drilling, excavating - controls in place: asbuilts before digging occurs and tracer.

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Residue risk (impact) has been reduced due to pump station shutting down to reduce amount of overflow.

Residue risk involves:

- 1) Tele-communication breakdown

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<p>Water will be brought in from other sources.  RLC acknowledges this has been viewed as major. With mitigation, the likelihood is extremely unlikely. Cultural monitoring from RBOC is welcome.</p>
<p>Risk of person/contaminants entering stream.  When drilling under the culvert, the operator will need to be near the stream to follow the drilling line.  RLC acknowledges this has been viewed as major. With mitigation, the likelihood is extremely unlikely. Cultural monitoring from RBOC is welcome.</p>
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