Monday, 19 September 2022

Te Hui o Te Kaunihera ā-Rohe o Heretaunga
Hastings District Council
Risk and Assurance Committee Meeting

Kaupapataka

Supplementary Agenda

Te Rā Hui: Meeting date:	**Monday, 19 September 2022**
Te Wā: Time:	**1.00pm - Item 8 report circulated separately**
Te Wāhi: Venue:	**Council Chamber** **Ground Floor** **Civic Administration Building** **Lyndon Road East** **Hastings**
Te Hoapā: Contact:	**Democracy and Governance Services** **P: 06 871 5000 | E:** democracy@hdc.govt.nz
Te Āpiha Matua: Responsible Officer:	**Group Manager: Corporate - Bruce Allan**

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Risk and Assurance Subcommittee – Terms of Reference

Fields of Activity

The Risk and Assurance Committee is responsible for assisting Council in its general overview of financial management, risk management and internal control systems that provide;

- Effective management of potential risks, opportunities and adverse effects.
- Reasonable assurance as to the integrity and reliability of the financial reporting of Council.
- Monitoring of Council's requirements under the Treasury Policy.
- Monitoring of Councils Strategic Risk Framework.

Membership

- Membership (7 including 4 Councillors).
- Independent Chair appointed by Council.
- Deputy Chair appointed by Council.
- 3 external independent members appointed by Council.

Quorum – 4 members

Delegated Powers

Authority to consider and make recommendations on all matters detailed in the Fields of Activity and such other matters referred to it by Council.

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Supplementary Agenda

Mematanga: Membership:	*Koromatua* **Chair:** Jon Nichols – External Independent Appointee *Nga Kai Kaunihera* **Councillors:** Simon Nixon (Deputy Chair), Alwyn Corban, Tania Kerr, and Geraldine Travers Heretaunga Takoto Noa Māori Standing Committee appointee: Robin Hape External Independent Appointee: Jaun Park Mayor Sandra Hazlehurst
Tokamatua: Quorum:	4 members
Kaihokoe mo te Apiha Officer Responsible:	Group Manager: Corporate – Bruce Allan
Te Rōpū Manapori me te Kāwanatanga Democracy & Governance Services:	Christine Hilton (Extn 5633)

Te Rārangi Take

Order of Business

Te Rārangi Take

Report to Risk and Assurance Committee

Nā: From:	**Craig Thew, Group Manager: Asset Management**
Te Take: Subject:	**GM Asset Management Update**

1.0 Purpose and summary - *Te Kaupapa Me Te Whakarāpopototanga*

1.1 The report is to provide an update to summarise items from the Asset Management group to the Risk and Assurance committee.

1.2 This report provides brief updates on:

- 3 Waters Transition management
- Operational and Programme delivery risks and mitigations
- Incident review - Wastewater overflow

2.0 Recommendations - *Ngā Tūtohunga*

A) That the Risk and Assurance Committee receive the report titled GM Asset Management Update dated 19 September 2022.

3.0 Three Waters Transition management

3.1 National Transition Unit (NTU) progress: Officers continue to supply information to the National Transition Unit, and staff portal coming on stream. Risks in regards to clarity of NTU programme, their day 1 outcomes, and how they fit with local perspective, and lack of coordination/recognition

of legislative requirements that Council must also deliver upon remain a concern and were tabled with the NTU at recent roadshow with CEs and senior staff.

3.2 Progress of Councils strategy has been slowed as officers have spent time working through the national and regional discussions. Significant work on the 'disaggregation' theme is commencing.

3.3 A package of work at a HB region level is also being finalised to consider the wider HB view and share common work items.

3.4 Submissions to the Water Services Entities Bill #1 were made, expecting bill #2 to become public sometime over next month or two.

3.5 The NTU/DIA is also progressing with work in regards to the appointment of the Establishment CEs and Board members for each of the 4 proposed entities later this year or early next year. It is an expectation that some form of Council involvement in these will occur.

4.0 Operational and Programme delivery risks and mitigations

4.1 As previously noted inflationary pressures, material supplies, and resourcing/capacity constraints are placing increased tension on the delivery of the programme of works Council is trying to deliver. Previous reports have noted that a range of approaches and tools are being used to mitigate these threats as best as possible, however there are residual effects that need to be balanced to ensure the overall risk profile is managed and acceptable, both now and over time.

4.2 At the meeting officers will present at a high level an example of some of the approaches used in prioritisation to provide further awareness to the committee and enable feedback/clarification.

4.3 Significant Contract renewal will occur over next year. Council will receive a procurement planning report on the 4 October 2022. Given inflationary pressures and resource challenges there are a number of risks that will need to be considered in this process.

5.0 Incident Review –Wastewater overflow (SH51, Whakatu)

5.1 An independent review of this incident has been completed by Neil Taylor, a copy of his report is attached. Mr Taylor will be present to talk and respond to questions from the committee.

5.2 The report also includes, as an attachment, the incident report also produced by the team at the WWTP, as it relates to flow on considerations at the plant and potentially with its consent compliance.

5.3 The reports highlight a number of areas of improvement that are suggested with a view to reducing the likelihood of this or similar events occurring. Below is a summary of progress on these suggested improvement items.

Proposed Actions/Improvements	Risk mitigation comments	Progress	Due Date
Update the ICP descriptions for the Muddy Creek & Whakatu Diversion Chambers to ensure the site descriptions are accurate, informative and intuitive	This will allow power outage notifications to be actioned appropriately in a timely manner	Completed	Completed
Ensure appropriate operational staff receive planned power outage notifications for the Muddy Creek & Whakatu Diversion Chambers	This will ensure early awareness of planned power outages and allow for early planning to ensure the environment and public is safeguarded	Completed	Completed
Install backup power at the Muddy Creek & Whakatu Diversion Chambers so that during power outages alarm notifications through the SCADA system will still occur. Backup power will also enable the automated mechanical functionality of the gates	This will ensure appropriate personnel receive critical alarms and will enable remote access through SCADA to control the gates as well as automated control of the gates onsite	Completed	Completed
Review alarms from the Muddy Creek & Whakatu Diversion Chambers to ensure all critical alarms are generated and are sent to the right personnel (mains failure, high level, hihi level, etc.)	This will ensure critical alarms are received by appropriate personnel	Completed	Completed
Investigate the operation of No4 penstock diversion chamber at the East Clive WWTP to enable flow in the No2 trunk sewer to be diverted to the domestic wastewater treatment process	This will ensure that if domestic wastewater is discharged into the No2 trunk sewer it can be diverted to domestic treatment process as required by the consent	Completed	Completed
Review and update planned power outage response plan and mains failure response plan for the Muddy Creek & Whakatu Diversion Chambers	This will ensure the response plan is fit purpose and that it is very clear who is responsible for what and what the responsible personnel needs to do, where they need to do it and by when they need to it	In progress	October
Review and update SOP for the weekly flushing maintenance activity of Inland Trunk #3	Incorporate and reference where necessary all the above proposed actions/improvements (i.e. response plans, contact information, etc.)	In progress	October
Review and update the standard operation of the 3 trunk sewers	This will ensure clarity to all and will facilitate an operation change register for all trunks	In progress	October
Review access and lighting requirements of the Muddy Creek & Whakatu Diversion Chambers to ensure staff can safely access and manually operate all valve wheels	Ensure safe access for operational staff	In progress	December
Replace existing valve wheels with larger valve wheels to improve manual operation	This will reduce the effort/force required to lift and lower the gates and improve manual operation	In progress	December
Investigate the automation of the No4 penstock diversion chamber at the East Clive WWTP	This will remove the manual operation of opening and closing penstock No4 at the WWTP	In progress	December
Wet weather site access		In progress	December

Attachments:

1⇩ Review of Whakatu Wastewater Overflow - Final Report CG-16-6-00189

6 September 2022

Review of the Whakatu Wastewater overflow on Thursday 23 June 2022 (SH5 between Station Road and Railway Road)

PURPOSE

1) This review was requested by the Hastings District Council (HDC) Chief Executive and General Manager: Asset Management and referred to in the press release of 23 June 2022 – copy attached as Appendix 1
2) The review addresses;
    - how this spill happened (the cause)
    - the response to the spill by Council staff and contractors
    - the clean-up of the spill
    - any related findings
    - recommendations to address shortfalls (if any) and to reduce the risks of any similar event occurring in the future

METHODOLOGY

3) The HDC General Manager: Asset Management has ensured that I have had unrestricted access to all staff, contractors, systems, and documentation related to this spill. Numerous interviews have been completed and all participants have been helpful in providing detailed information openly.
4) Site inspections have taken place and access to SCADA (Supervisory control and data acquisition) the key inductive automation system used by the Council staff (and contractors) to manage the water supply, wastewater and stormwater services for HDC, has been provided in relation to this spill.
5) Aerial photographs, service overlays, manuals, emails and photographs have been provided to me on the initiative of staff and also in response to specific requests.

6) A brief timeline has been prepared from the base documentation and responses of staff and contractors. This is attached as Appendix 2

FINDINGS (THE CAUSE OF THE SPILL)

7) The media release summarises the cause of this spill. The Council was undertaking a routine automatic sewer mains flushing operation which involves closing off the flow of sewage in one of the 'residential' mains and allowing a 'backup' to occur, gravity builds pressure in the pipe and the gate (valve) is then automatically released at 10.00am or earlier if the high level alarm is activated providing a significant flow that helps to scour any sewer pipe accumulations. On 23rd June 2022 the No3 gate at the 'Muddy Creek' penstock automatically closed at approximately 0800/0815. It was assumed that mains power on, however that was not the case because at 0901 the mains power outage at "Muddy Creek" penstock began (mains power was restored to this site at 1415). This mains power outage resulted in the "Muddy Creek" penstock No3 gate not being opened in the normal manner. The power outage also meant the high level alarm was not activated. This caused the flow of sewage to continue to build up in the pipe until it reached the lower ground surface level at the Whakatu orchard gates on the State Highway 51/Railway Road intersection where there are lidded sumps and penstocks – Aerial photo overview attached as Appendix 3.

FINDINGS (THE RESPONCE TO THE SPILL)

8) From the timeline and interviews it is clear that Council and main contractor (Fulton Hogan) both responded appropriately with urgency when first notified of the spill. At 1155 the call centre received the first call reporting a sewage spill. Two staff members of Hawke's Bay Regional Council (HBRC) rang two HDC staff at approximately 1159 to inform that a spill had occurred in the vicinity of Railway Road/State Highway 51 intersection. Staff immediately notified the Treatment Plant and Fulton Hogan, the latter generally responds to "blocked pipes" and or spills. At the same time checks were made on SCADA to try to identify any possible cause. A link to the "muddy creek" penstock gate being closed on that Thursday

morning for auto flushing was made. Staff travelled to Railway Road/State Highway 51 intersection, arriving between 1216 and 1234

9) The initial general thought at this stage was that a sewer main had blocked or collapsed, but the link to the auto flushing process was investigated directly. Staff arrived at "Muddy Creek" penstocks at 1236 and determined that the No3 gate remained closed. This confirmed the cause and all attention was focused on stopping the spill and opening the closed gate manually.

10) At around 1225 the staff decision was made to open the No2 gate at Railway Road/State Highway 51 to allow flow from No3 into No2 to stop the spill initially and relieve pressure on the "Muddy Creek" No3 gate. This allowed the staff who were at "Muddy Creek" by 1236 to open the No 3 gate (this was difficult for reasons that will be disclosed in the related findings section). Staff at the treatment plant were advised of this decision after the gate had been opened, as the No2 pipeline was or setup for industrial wastewater at the time. The plant staff made it clear that mixing of the residential and industrial wastewater streams must not occur. Staff at the spill site understood that flow diversion options were available at the plant.

11) It is estimated that the diversion to the No2 pipeline continued for up to 20 minutes. By 1250 the diversion to No2 pipeline was stopped and the "Muddy Creek" No3 gate had been opened enough to stop the spill, but the gate was only partially opened. Fulton Hogan staff arrived on site between 1230 and 1240 and immediately assisted with the manual opening of "Muddy Creek" No3 gate until it was fully opened at about 1311.

12) Staff from Higgins were on site managing traffic by the time Fulton Hogan staff arrived, including the temporary closing of State Highway 51. Fulton Hogan staff made contact with STMS regarding road safety and Davies Waste Solutions to engage the deployment of wastewater suction trucks. The first Davies suction truck was on site at 1315 to begin the spill clean-up.

13) All Management decision making and communications between all HDC staff, contractors, and HBRC staff during the response to the spill was well co-ordinated and calmly implemented in a collegial and professional manner.

FINDINGS (THE CLEAN UP)

14) All parties involved in the clean-up focused on meeting the HBRC staff requirements as quickly as possible with the clear intention of opening State Highway 51 by 1700

15) Fulton Hogan staff made contact directly with Davies when the Fulton Hogan staff arrived on site at approximately 1245/1250. They then immediately helped with the opening of "Muddy Creek" No3 gate, and began the clean-up process.

16) Davies first suction truck arrived on site by 1315. Nineteen truckloads of waste were cleaned up between 1315 and 1650. This waste was disposed back into the main sewer reticulation.

17) Final clean-up process involved hosing water and disinfection and additional suction to ensure public safety for road use and general health was achieved.

18) HDC staff had a phone conversation with HBRC staff member around 1425hrs agreeing that HDC staff and contractors would remain onsite until HBRC was happy with the clean-up. SH 51 would remain closed until the clean-up was completed.

19) State Highway 51 was reopened at 1700. Given the size of the spill this clean-up process was completed efficiently and competently. Disruption to the public was minimised. The HBRC staff set appropriate standards to be met, photographs and site inspections indicate that a high clean up standard was achieved.

FINDINGS (RELATED TO THE SPILL EVENT)

20) These findings target issues identified from this investigation that may have contributed directly or indirectly to this spill. This step is important because it helps to clarify recommendations for improvements that will contribute to reducing the reoccurrence of

this type of spill event in the future. In principle, it follows the "Swiss cheese accident causation model" developed by James T, Reason in his book Human Error.

21) It is important to understand and accept that accidents such as this spill are mostly caused by the confluence of multiple factors, many of which are latent or dormant, and involve human operational errors.

22) It should be noted that on 31 May 2022 Meridian Energy properly notified HDC that Unison had a planned power outage on 23 June 2022 from 9.00am to 4.00pm at:

- Pole 153681 Sewage tank, Richmond Road, Clive
- RIAWS site, Richmond Road, Clive.

A copy of this notice is attached as Appendix 4

This notice was widely circulated to appropriate staff in HDC however, from the supplied addresses it was believed to only effect the Wastewater Treatment Plant on Richmond Road, Clive where there are numerous backup generators and control systems that would cope with such a power outage. There appeared to be no association with the "Pole 153681 Sewage Tank" and the "Muddy Creek" Penstocks. Incomplete information is a latent/dormant risk factor.

23) Fulton Hogan also received a reminder notification of this power outage on 23 June 2022 at 0901 but from the information supplied were unable to link the address accurately. Their attention was on pump stations as these were their main contracted responsibilities to HDC that would be adversely impacted by a power outage.

24) The "Muddy Creek" penstocks site does not have a backup power system nor an alternative power supply to the high level alarm. Given that this asset (system of main sewer pipe gates) is regularly opened and closed for flushing procedures, the omission of battery powered backup for this alarm (or a backup generator) becomes a dormant risk factor of significance in a power outage. Critical risk assets should be identified and resilience built

into the systems to mitigate the risk of failure that leads to undesirable consequences (such as spills).

25) Knowledge of the flushing regime is not widely understood, this is a risk in itself as staff could make decisions during a flushing cycle that might adversely impact wastewater flows. All staff working in the pipeline system should be aware of all processes that are activated, including staff at the Treatment Plant and Fulton Hogan.

26) The manual controls at the "Muddy Creek" penstocks are not easy to operate manually. Currently, the opening/closing of these gates manually requires a vehicle deck to be available for staff to stand on, also the manual wheel used to operate the geared screw to open/close the gate appears to be small and difficult to turn. Photograph attached as Appendix 5. It is noted that head pressure above any gate increases the effort required in the opening and closing process of gates and this can be significant in the manual mode. Ease of operation is essential to eliminate the risk of failing to open/close a gate manually when required (especially in urgent circumstances).

FINDINGS (OTHER RELATED MATTERS)

27) It should be noted that the spill and its management triggered a non-compliance of the WWTP conditions. When the decision to divert No3 pipeline to No2 pipeline at the Road/State Highway 51 was made to stop the spill and to relieve pressure on the No3 gate at "Muddy Creek" Penstock residential wastewater mixed with the industrial wastewater flow. Treatment Plant staff requested that this diversion not occur (in a phone call) but by this time the No2 gate had already been opened.

28) This short-term diversion of domestic wastewater to the industrial treatment system caused a non-compliance with the WWTP consent administered by HBRC. A separate report was produced, as required in the consent, and provided to HBRC for their consideration. This report is attached as Appendix 6.

29) For several years after the Treatment Plant became operational it appears there were informal 'rules' relating to the 3 main pipelines, Pipeline No1 was industrial wastewater flow, Pipeline No3 was residential wastewater flow and Pipeline No2 is used as controlled diversion option primarily to provide redundancy and to enable programmed works to occur on either of the other trunk mains. Over recent years number 2 pipeline has predominantly been set to the industrial flow backup. Standard rules relating to the use of these pipelines should apply to all staff and contractors at all times.

30) Staff at the spill site thought that the Treatment Plant staff had options on site to redirect flows. While the plant included these features, there had been previous problems with the gates on the Treatment Plant No4 penstock making it difficult to operate. Not having the design flexibility that was built into the Treatment Plant via the No4 penstock diversion chambers had introduced a significant latent risk that flow flexibility in the 3 pipelines would be compromised.

RECOMMENDATIONS

31) Critical alarm systems require an alternative power supply. Review all critical risk assets.

32) Upgrade the 'Muddy Creek' penstock manual controls to ensure ease of operation and safety of all staff and contractors.

33) The clarity of power outage notices needs to be reviewed. Notices need to take in to account clause 34 below and be appropriately registered, documented and implemented.

34) Develop a unique and clear system for all infrastructure assets and ensure all staff and contractors are familiar with and use these names at all times. It is important to eliminate/minimise the risk of confusion around identification of assets that are integral to all service infrastructure systems.

35) Review the Treatment Plant No4 penstocks diversion chambers to ensure the appropriate flexibility is reliably available to the treatment plant. Additionally, consider if further automation of this gate would add value. Ie Automation that would trigger so that when

gates upstream are altered then the gate at penstock 4 diversion chamber would adjust, if necessary, to ensure domestic waste is directed to the appropriate side of the treatment plant. A review of risks would be required in an automation review, including consideration of override delegation.

36) Review and update 'rules' for the use of the 3 main wastewater pipelines.

37) Further sharing of information about assets and activity in infrastructure systems should be encouraged for all staff and contractors working with or on that system. Consideration should be given to extending training, joint meetings, activity notices, auto emails/texts, SCADA access and knowledge generally. The ability to monitor only should be shared.

38) Provide further training to staff/contractors to enhance and maintain working relationships to share learnings, build wider awareness, and enhance behaviours of curiosity and self-improvement. This is a critical element of organisations that seek to continually improve and learn from adverse events and near misses. Accountability for action/inaction is important to ongoing performance management but a propensity to focus on the allocation of blame generally undermines open, learning organisations. This can result in staff focusing on the possibility of failure and eroding their confidence to make decisions.

Signed: N D Taylor Date: 06/09/22

Neil Taylor

APPENDICES

Appendix 1 - Press release of 23 June 2022

Appendix 2 – Timeline

Appendix 3 - Aerial photo overview

Appendix 4 - Planned Power Outage Notice

Appendix 5 - Manual controls at the "Muddy Creek" penstocks photo

Appendix 6 – WWTP non-compliance report to HBRC

Appendix 1

Thursday, 23 June 2022

He Tukunga Pāpāho

Media Release

Subject: Whakatū wastewater overflow

Whakatū wastewater overflow

A power outage interrupted a routine wastewater flushing operation on Thursday [June 23], disabling the automatic gate function, resulting in a wastewater overflow on State 51, near Whakatū.

As soon as the waste team was alerted to the overflow, just after midday on Thursday, the gate was opened manually. The overflow ceased at 12.45pm.

It is estimated that about 200 cubic metres of wastewater spilled onto the road and into the adjacent rural drain.

The road was immediately closed and traffic diverted through Whakatū, and the clean-up of the road started. Vacuum trucks were used to remove the debris, and then the road was washed and disinfected so it could be reopened at 5pm.

Hastings District Council chief executive Nigel Bickle acknowledged that this should not have happened and apologises to the community.

"This is a serious matter. Our immediate focus has been on responding to the incident. Next week, I will be commissioning an independent review into the incident to understand how it happened and I will be expecting recommendations to ensure events such as this cannot happen again. The report and its findings will be made public."

Hawke's Bay Regional Council, as the regulator, will carry out its own investigation, and Hastings District Council expects that will result in enforcement action.

Hastings District Council notified Hawke's Bay District Health Board, and as a precaution Council is asking the public to avoid Muddy Creek and the Clive River mouth, including for food collection until further notice.

ENDS

Media Enquiries

Nicki Harper
Media communications advisor

Phone 06 871 5056 or 027 275 5205
Email nickih@hdc.govt.nz

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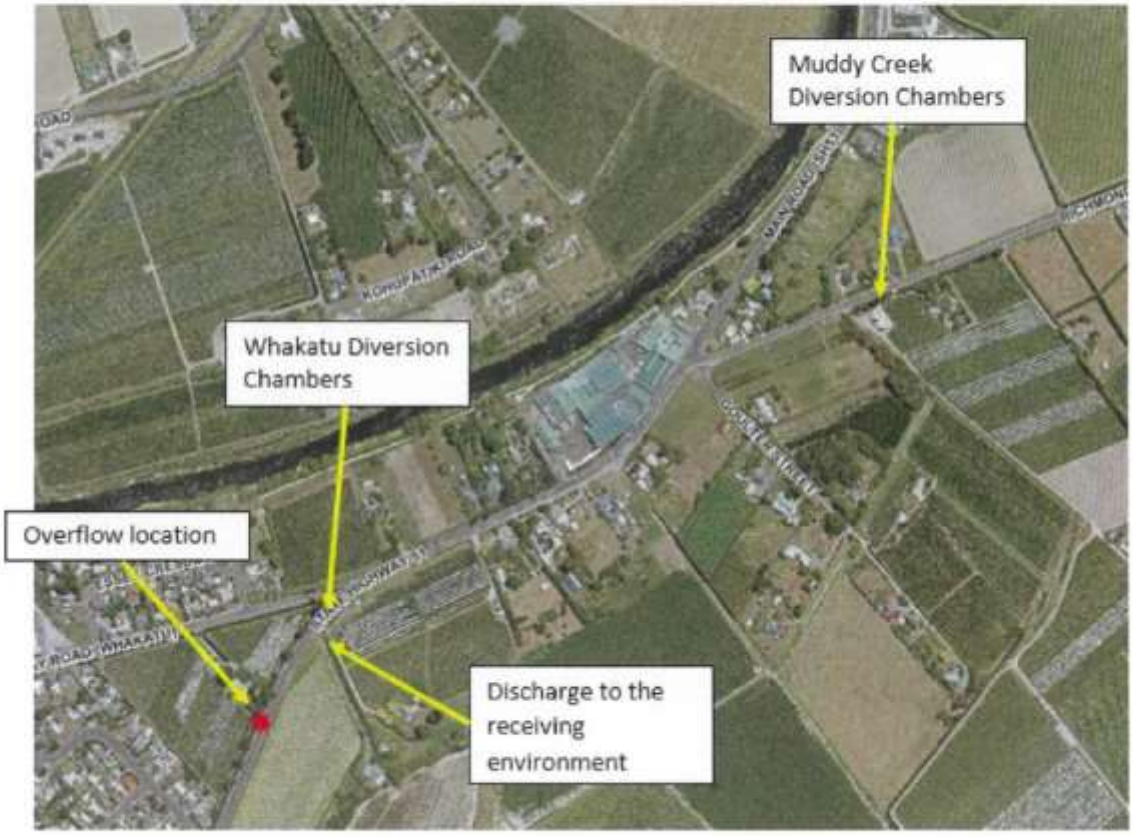
TE KAUNIHERA Ā ROHE O HERETAUNGA

Appendix 2

Timeline for response and cleanup	
1155	Public calls to call centre to report an overflow
1202	SCADA checked, staff thought blocked or collapsed main sewer pipe. 4 staff left for spill site.
1204	Treatment plant staff and Fulton Hogan notified by phonecalls from HDC staff
1216	First HDC staff arrived on site. Focus traffic management
1224/25	Next 2 HDC staff arrive on site of spill and begin process of diverting flow (opening no2 gate)
1234	Staff member who had determined problem at "Muddy Creek" penstocks arrived at spill site - discussed likely problem
1236	2 Staff from spill site arrived at 'Muddy Creek' penstocks began lifting No3 gate manually (very difficult) coordinating pressure relief with 2 staff left at spill site (who were diverting the flow to No2 pipe) by phone
1245	Fulton Hogan staff arrived on site. Called STMS and Davies
1250 (approx)	Diversion stopped no2 gate at SH51/Railway Road closed. Staff with FH staff focussed on fully opening No3 gate at 'Muddy Creek'
1311	No3 gate fully opened
1315	First suction truck on site. Clean up progressed
1325	HDC staff began leaving pipe site. Spill stopped. Some staff remained on site with Fulton Hogan staff and suction trucks to manage the clean up
15.23	Clean up significantly responded to HBRC staff assessed site for opening SH51 and required some further disinfection and suction
1605	Disinfection completed
1655	HDC staff left site about this time Fulton Hogan staff also returned to there depot
1700	SH51 opened

Appendix 3


Muddy Creek
Diversion Chambers
Whakatu Diversion
Chambers
Overflow location
Discharge to the
receiving
environment

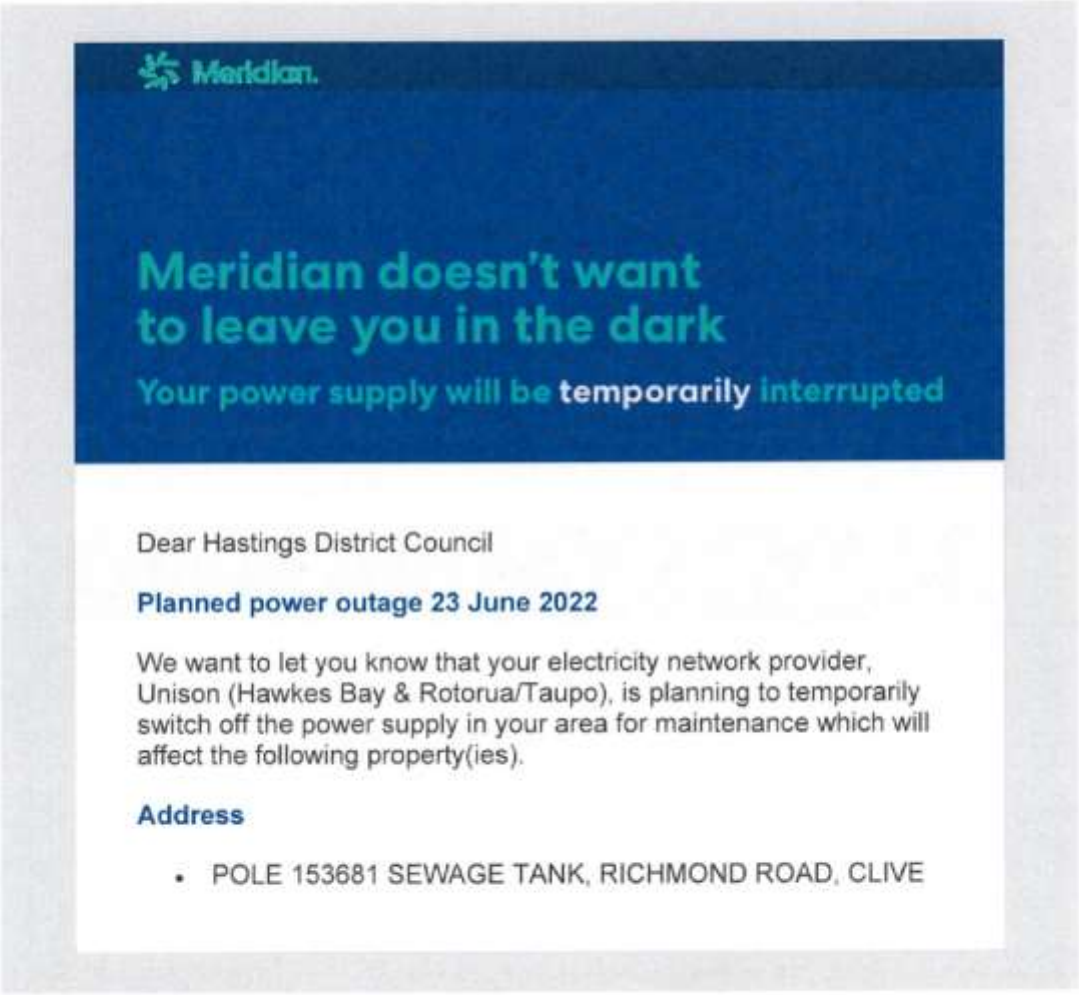
Kris Andrew

From: Leo Kronenburg
Sent: Tuesday, 31 May 2022 4:34 PM
To: Power Outage Notification
Subject: FW: Planned power outage

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Oksana

From: Meridian Energy [mailto:noreply@meridianaccount.co.nz]
Sent: Tuesday, 31 May 2022 4:16 PM
To: Energy Management <EnergyManagement@hdc.govt.nz>
Subject: Planned power outage



1

- RIAWS SITE, RICHMOND ROAD, CLIVE

ICP

- 0000018788HB954
- 0000049513HB0B4

Outage details
Day: 23 June 2022 to 23 June 2022
Scheduled time: 9:00AM to 4:00PM

If for some reason they are not able to conduct or complete the work during this time, the alternative date will be: No alternative date has been provided by the network.

Preparing for outages

- Disconnect all electrical equipment (eg computers)
- Switch off all potentially hazardous equipment (eg heaters)

Keep in mind that your power supply can be interrupted at any time, for several reasons, such as bad weather. Please make sure you have arrangements in place to manage in case of emergencies. And, for your own safety, please treat all wiring and sockets as 'live' at all times.

Medically dependent on electricity?

If someone in your household or business is medically dependent on electricity and any disconnection poses a threat to their health or wellbeing, please ensure you have alternative arrangements available for the dates and times listed above, including any alternative date.

We suggest you refer to your emergency back up plan or contact your local health provider to find out what your options are during

an outage. If you ever feel your health is at risk due to a power outage call emergency services or get to a hospital.

It's important to tell us if someone in your household or business is medically dependent. Find out more information and how to do this here or call us on **0800 496 496**.

Contact us
Freephone 0800 496 496
7.30am to 7.30pm, Monday to Friday
service@meridianenergy.co.nz

Meridian.

Customer Support
If you have a question, concern or complaint, please let us know straight away. We'll work with you to resolve things quickly and fairly. You can also contact Utilities Disputes at any time for a free and independent resolution service on **0800 223 340**, info@utilitiesdisputes.co.nz or at utilitiesdisputes.co.nz.

For a free and independent energy price comparison visit powerswitch.org.nz.

3

Appendix 5

Appendix 6

EAST CLIVE WASTEWATER TREATMENT PLANT – Non-compliance with Condition 5b of Discharge Consent AUTH-120712-01 (CD130214W)

Figure 1: East Clive Wastewater Treatment Plant - Biological Trickling Filters

WAT-5-09-1-22-358 – East Clive WWTP Non-Compliance Report - Whakatu Wastewater Spill into Muddy Creek 23rd June 2022

Introduction

This report is required by Condition 31 of the discharge consent AUTH-120712-01 (CD130214W), that specifies the treatment requirements of all treated wastewater discharged from the East Clive Wastewater Treatment Plant (WWTP) into Hawke Bay, due to the non-compliance with Condition 5b of the discharge consent on 23rd June 2022. See Conditions 5b and 31 below.

Wastewater treatment and standards

5. The final combined wastewater discharged shall meet the following requirements:

   a) All separable industrial wastewater shall pass through a milliscreen having a maximum aperture slot width of 1mm.

   b) All domestic and non-separable industrial wastewater shall pass through a 3mm diameter hole size screening device or equivalent, followed by treatment in a biological trickling filter, with an annual average daily loading of carbonaceous biochemical oxygen demand (5 day test) ($cBOD_5$) that shall not exceed 0.4 kg per cubic metre of media, with the treatment plant managed in accordance with best wastewater engineering practice and industry standards, and:

      i) the media in the biological trickling filters shall consist of randomly packed plastic material that provides a specific surface area of not less than $90m^2/m^3$, and

      ii) the wastewater remaining after that treatment, prior to being discharged, shall pass through the Rakahore channel.

Figure 2: Condition 5 of discharge consent AUTH-120712-01 (CD130214W)

31. Within one calendar month of any unforeseen event that resulted in non-compliance with the conditions of this Resource Consent, the Consent Holder shall provide a further report to the Regional Council (Manager Resource Use). This report shall include, but not be limited to the provision of any further information on the reasons for the non-compliance and the measures investigated and put in place or to be put in place to avoid or at least minimise the possibility of any similar problems in the future that may cause non-compliance.

Figure 3: Condition 31 of discharge consent AUTH-120712-01 (CD130214W)

Summary

1. On the 23rd June 2022 around midday, Hastings District Council were alerted to a wastewater overflow on SH51 near Whakatu. Operations staff and Council's 3 Waters Maintenance Contractor attended the site and found wastewater overflowing from a manhole on SH51 discharging into the Whitford Drain (upper Muddy Creek system).

Figure 4: Whakatu wastewater overflow site & discharge to environment site

Figure 4: Overflow location SH51

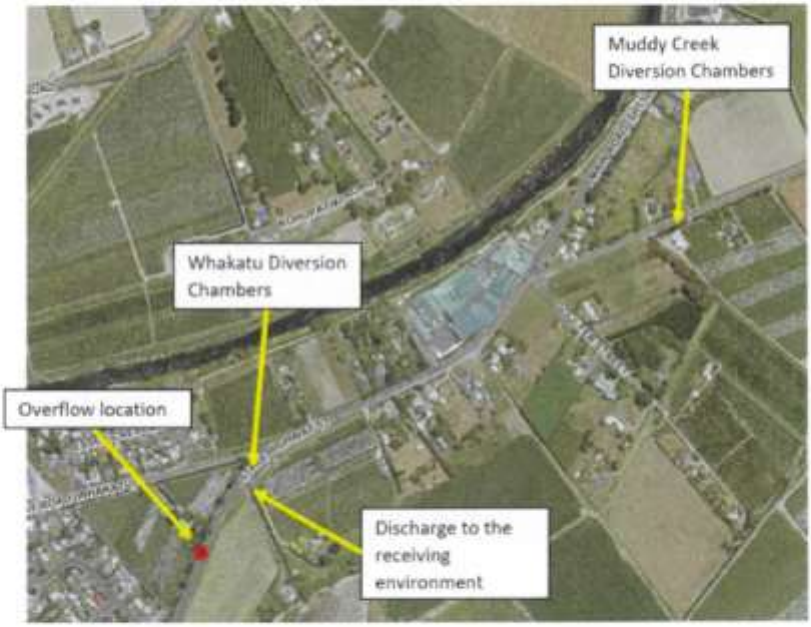


Figure 5: Whakatu wastewater overflow site & diversion chambers locations

WAT-5-09-1-22-358 – East Clive WWTP Non-Compliance Report - Whakatu Wastewater Spill into Muddy Creek 23rd June 2022

2. A closed gate on the domestic sewer (Inland Trunk #3) at the Muddy Creek Diversion Chambers was found to be cause of the overflow into the Whitford Drain (upper Muddy Creek catchment). A power outage interrupted a routine wastewater flushing operation on the domestic sewer (Inland Trunk #3) at the Muddy Creek Diversion Chambers, disabling automatic gate function, resulting in wastewater backing up into the network over a number of hours and eventually overflowing at the lowest point in the network, a manhole on SH51 near Whakatu.

3. To stop the overflow of wastewater to the environment and allow further diagnosis of the closed gate on Inland Trunk #3 at the Muddy Creek Diversion Chambers, domestic wastewater was diverted at the Whakatu Diversion Chambers into the adjacent industrial sewer (Inland Trunk Sewer #2) by manually opening a diversion gate. While flow was being diverted, the closed gate on Inland Trunk #3 at the Muddy Creek Diversion Chambers was manually opened to restore normal operation of the Inland Trunk sewers. Approximately 130-200m3 of untreated domestic wastewater discharged into the Muddy Creek System over approximately 30-45minutes.

4. The duration of the diversion of domestic wastewater from Inland Trunk #3 into the industrial sewer Inland Trunk #2 was approximately 7 minutes. This resulted in approximately 140m3 of domestic wastewater bypassing the domestic treatment process at the East Clive Wastewater Treatment Plant (WWTP), via the industrial sewer Inland Trunk #2, instead passing through the industrial wastewater treatment process. This resulted in a non-compliance with Condition 5b of the discharge consent AUTH-120712-01 (CD130214W). Condition 5b states *"All domestic and non-separable industrial wastewater shall pass through a 3mm diameter hole size screening device or equivalent, followed by treatment in a biological trickling filter... "*.

5. An increase in the industrial wastewater influent flow was observed at the East Clive WWTP for a duration of approximately 60 minutes between 1:30pm and 2:30pm (see below graph). Industrial wastewater influent samples were taken every 30mins between 1pm – 2:30pm to determine the duration and impact of the domestic wastewater diversion into the industrial sewer (see below summary table – lab results attached).

Figure 6: East Clive WWTP industrial influent samples @ 1pm, 1:30pm, 2pm & 2:30pm

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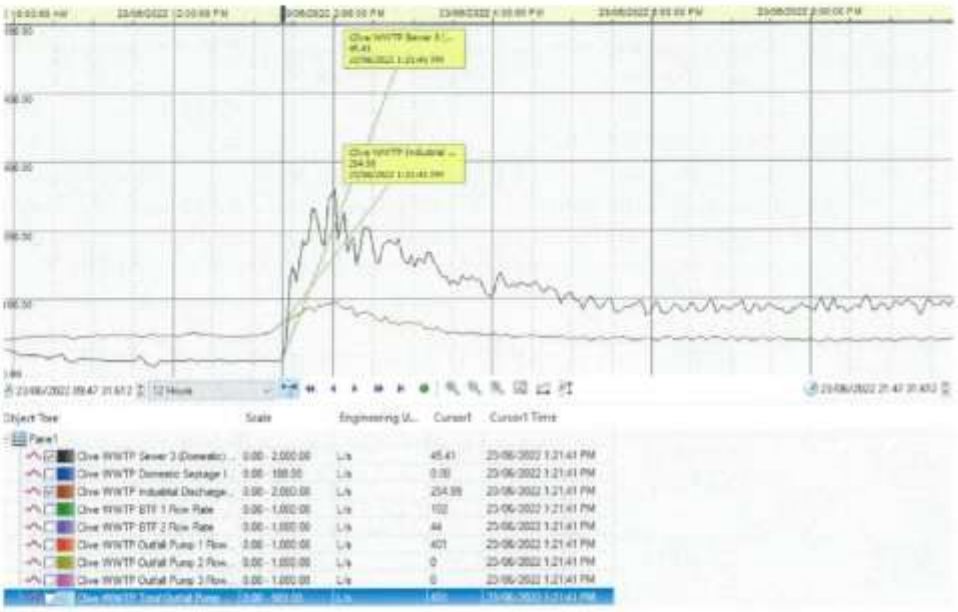

Figure 7: East Clive WWTP influent flow rates on 23rd June 2022

Time	1pm	1:30pm	2pm	2:30pm
Flow	Industrial flows normal indicating domestic WW yet to arrive	Elevated industrial flows indicating a potential presence of domestic WW in industrial flow	Elevated industrial flows indicating a potential presence of domestic WW in industrial flow	Elevated industrial flows indicating a potential presence of domestic WW in industrial flow
Colour	Normal – control sample	Darker – Indicating a potential presence of domestic WW in industrial flow	Lighter– Indicating a potential presence of domestic WW in industrial flow	Normal – Indicating **NO** presence of domestic WW in industrial flow
Influent Characteristics	Normal characteristics	No noticeable difference of analytes from normal influent characteristics	No noticeable difference of analytes from normal influent characteristics	No noticeable difference of analytes from normal influent characteristics
Summary	**No presence** of domestic WW in industrial flow	**Presence** of domestic WW in industrial flow	**Presence** of domestic WW in industrial flow	**No presence** of domestic WW in industrial flow

Table 1: Summary table of the East Clive WWTP industrial influent flow, colour & influent characteristics

6. Samples of the Muddy Creek system were taken on the same day as the wastewater overflow as well as samples on subsequent days after the wastewater overflow to determine the duration and impact of the wastewater spill into the receiving environment (environmental risk and public health risk) – see attached lab results. On 23rd June 2022 notification to inform the public of a potential public health risk associated with the wastewater overflow into the Muddy Creek System was done via a media release.

7. Clean up and disinfection of the overflow site started once trunk sewers returned to normal operation and was completed on 23rd June 2022. Site visits on subsequent days concluded that the clean-up and disinfection was successful as there was no evidence (debris or odour) at the site.

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8. Follow up sampling of Muddy Creek indicated that from 28th June there was no further impact on the waterway from the wastewater spill.

Post Event Investigations

1. Investigations into the nature of the power outage that interrupted the routine wastewater flushing operation on the 23rd June 2022 which disabled the automated mechanical functionality of the gate on the domestic sewer (Inland Trunk #3) at the Muddy Creek Diversion Chambers identified that the power outage was due to planned works on the Richmond Road overhead power lines.

2. Investigations into notification of the power outage identified that a planned power outage notification was received prior to the power outage and not acted upon. Review of the power outage notification identified that the description of the affected site(s) was ambiguous and not intuitive and was likely a key contributor to the lack of awareness and preparedness for the planned power outage at the Muddy Creek Diversion Chambers.

3. Investigation into council's SCADA system identified that a "mains failure" alarm was generated on the morning of 23rd June 2022 when the power outage occurred at the Muddy Creek Diversion Chambers but was not acted upon.

Proposed actions and improvements

Proposed Actions/Improvements	Risk mitigation comments
Update the ICP descriptions for the Muddy Creek & Whakatu Diversion Chambers to ensure the site descriptions are accurate, informative and intuitive	This will allow power outage notifications to be actioned appropriately in a timely manner
Ensure appropriate operational staff receive planned power outage notifications for the Muddy Creek & Whakatu Diversion Chambers	This will ensure early awareness of planned power outages and allow for early planning to ensure the environment and public is safeguarded
Review and update planned power outage response plan and mains failure response plan for the Muddy Creek & Whakatu Diversion Chambers	This will ensure the response plan is fit purpose and that it is very clear who is responsible for what and what the responsible personnel needs to do, where they need to do it and by when they need to it
Install backup power at the Muddy Creek & Whakatu Diversion Chambers so that during power outages alarm notifications through the SCADA system will still occur. Backup power will also enable the automated mechanical functionality of the gates	This will ensure appropriate personnel receive critical alarms and will enable remote access through SCADA to control the gates as well as automated control of the gates onsite
Review alarms from the Muddy Creek & Whakatu Diversion Chambers to ensure all critical alarms are generated and are sent to the right personnel (mains failure, high level, hihi level, etc.)	This will ensure critical alarms are received by appropriate personnel
Review access and lighting requirements of the Muddy Creek & Whakatu Diversion Chambers to ensure staff can safely access and manually operate all valve wheels	Ensure safe access for operational staff
Replace existing valve wheels with larger valve wheels to improve manual operation	This will reduce the effort/force required to lift and lower the gates and improve manual operation
Review and update SOP for the weekly flushing maintenance activity of Inland Trunk #3	Incorporate and reference where necessary all the above proposed actions/improvements (i.e. response plans, contact information, etc.)