

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**UNDER THE**

Resource Management Act 1991

**AND**

**IN THE MATTER**

of application CRC190445 by the Christchurch City Council for a comprehensive resource consent to discharge stormwater from within the Christchurch City area and Banks Peninsula settlements on or into land, into water and into coastal environments.

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**EVIDENCE SUMMARY**

**JULIA VALIGORE FOR CHRISTCHURCH CITY COUNCIL**

**5 November 2018**

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**TABLED AT HEARING**

Application: CRC190445

Date: 6 Nov 2018

**CHRISTCHURCH CITY COUNCIL**

PO BOX 73015

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Solicitor Acting: Brent Pizzey

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## INTRODUCTION

1. My name is Julia Marie Valigore. I here summarise key points of my evidence that relate generally to industrial stormwater audits, highlighting areas of agreement and disagreement between my opinion and that expressed by or on behalf of submitters and in the s42A report.

## NOTICE OF MINOR CHANGES

2. I have made minor changes to my Evidence in Chief dated 15 October 2018 (**EIC**) for the primary purposes of clarifying my opinions by adding cross references and also updating Appendix A based on industrial stormwater audit (**ISA**) statistics as of 1 November 2018. I have attached a Revised EIC and Appendix A to this summary. Appendices B and C remain unchanged from my EIC and have not been attached.

## KEY POINTS OF MY EVIDENCE IN CHIEF

3. My evidence demonstrates that Christchurch City Council (**Council**) has:
  - a. Established an ISA programme with appropriate resources and educational materials.
  - b. Conducted audits per current consents and as agreed with Environment Canterbury since June 2017.
  - c. Engaged with over 60 businesses to date through its ISA programme alone.
  - d. Improved point source industrial stormwater discharges.
  - e. Reduced risks to our waterways across the City.
4. Council's ISA team has required businesses to implement action lists that have included staff education initiatives, adoption of good management practices (**GMPs**), capital works, and establishment of Trade Waste areas for high risk

activities. I consider that these strategies have improved point source stormwater quality discharges and mitigated risks to our waterways.

5. In Appendix A of my EIC, I provide tables summarising the ISAs that Council has conducted by year, consent area, waterway impacted, industry type, risk rating, and risk mitigation. I also provide two examples of first flush stormwater sampling results that demonstrate improved discharges from a scrapyard and foundry following initial risk mitigation actions at those sites.
6. Concurrently, and prior to establishment of the ISA team in 2017, I consider that Council has made positive impacts on reducing stormwater contamination at industrial sites from the Trade Waste perspective. A portion of these site visits have been reported annually to Environment Canterbury since 2012.
7. In Appendix B of my EIC, I document improvements to the stormwater network achieved through internal collaboration among Council's ISA and Trade Waste teams.
8. I present four case studies of industrial sites that had been audited for stormwater management resulting in positive outcomes to the waterways and businesses (paragraphs 39-42 of my EIC). These case studies provide examples of initial site risks, mitigation actions, achievements, and collaboration required among stakeholders.

#### **S42A REPORT ISSUES AND RECOMMENDATIONS**

9. Council's current requirements are to do at least 10 audits/year under CRC090292 and to audit all high risk sites under CRC131249 and CRC120223 by 2023. These requirements disagree with the understanding summarised by the s42A report (297, 311) that 10 audits/year are required for each of the three consents. Council has been conducting extra audits since 2017 (i.e. 30 audits/year) merely to catch-up on overdue requirements as agreed with Environment Canterbury.
10. I consider that continuing to audit the highest risk sites is consistent with the aims of the existing consents, and that the overall risks to the waterways will reduce over

time as the highest risk sites are engaged to mitigate their risks. I consider that the ISA process will be more effective by also reserving resources to do:

- a. audits of other sites where issues are known/suspected,
- b. re-audits of previously mitigated sites, and
- c. audits of sites undergoing redevelopments.

11. *I note that Council has made changes to modify the number and types of ISAs required in Condition 41. I consider that conducting a minimum of 10 new audits/year at high risk sites as agreed between Environment Canterbury and Council as well as giving Council discretion to conduct an additional 5 audits/year to address paragraph 10a-c (above) is a more effective strategy to address contamination risks from industrial sites compared to the originally proposed condition.*

12. This approach more widely distributes accountability for environmental stewardship to all types of businesses at various risk levels rather than only to a select subset of the highest risk sites. I consider that other businesses will be more likely to voluntarily reduce their risks to our waterways if they consider that they are also accountable for the health of our waterways and that they might be audited.

13. The s42A report (288) raised concerns around uncertainty in expectations for industrial sites regarding stormwater quality. Council has recently developed a public webpage (<https://ccc.govt.nz/industrial-stormwater>) that includes resources to improve site management practices and clarify expectations for industrial sites. Proposed initiatives by Council that will further address these concerns include its

- a. community education and awareness campaign and
- b. updates to the Water Supply, Wastewater and Stormwater Bylaw (i.e. to formally establish stormwater discharge triggers and to facilitate setting site-specific conditions based on contamination risk as also recommended by the s42A report [App1, 43]).

14. The s42A report (276) recognises that sites listed on Schedule 1 are proposed to be excluded. However, Council's Application appears to list only sites in the Styx and South West consent areas on Schedule 1 for exclusion from its consent coverage. I recommend that those sites in the Interim Global area with site-specific consents from Environment Canterbury are also added to Schedule 1 and that the list is kept current in order to avoid any statutory conflicts.
15. The s42A report (305) recommends that Council retain the ability to exclude unacceptably high risk sites past 2025. In my experience, the possibility of exclusion has been a useful incentive for industrial sites to mitigate their stormwater risks. I also consider that the delegation of enforcement powers from Environment Canterbury should be reviewed, as also recommended by the s42A report (270-271), to improve Council's ability to respond to contamination.
16. *I note that Council has made changes to modify Condition 41 to enable audited industrial sites to be added to Schedule 1 to exclude them from the consent past 2025. I consider that the process of Council notifying and then engaging with industrial sites that pose an unacceptably high risk provides sites a reasonable opportunity to mitigate their risks. Following this period of engagement, I consider it reasonable for Council to continue to be able to exclude any audited industrial site that is not appropriating mitigating its unacceptably high risk.*

## **REBUTTAL EVIDENCE ISSUES AND RECOMMENDATIONS**

17. I agree that communication and coordination could be improved between Environment Canterbury and Council, as suggested by Mr Hay and Ms Wilkes for Ravensdown (his paragraph 6.1 and her paragraphs 3.3-3.6, respectively) regarding ISAs. As part of my newly established role, I am working towards improving communication and coordination between Environment Canterbury and Council to better clarify expectations and delineate the follow-up related to ISAs.
18. Ms Wilkes recommends changes to the ISA reporting process (her paragraph 3.7) regarding how actions, timeframes, and monitoring are established. I consider that the ISA team already discusses these considerations with site managers at their request.

19. Ms Wilkes was unclear of Council's point source stormwater discharge trigger values and how they were established (her paragraph 3.9). I redirect Ms Wilkes to my EIC and provide further clarification in my rebuttal evidence.
20. I agree with Mr Hay (his paragraph 6.3) that it is possible that measureable stormwater discharge improvements may not be evident after capital works due to factors including frequency, duration, and intensity of precipitation adding to the uncertainty. I explain in my rebuttal that, despite this possibility, another critical objective of the ISA programme is to reduce future risks to the stormwater network.
21. Ms Wilkes (her paragraph 3.10) and I do not agree on the transferability of site-specific approvals for stormwater discharge. Ms Wilkes considers that only a change in activity should require a new approval while I consider that changes in business owner should also require a new approval due to new management practices potentially impacting stormwater quality.
22. Ms Wilkes (her paragraph 3.11) and I also do not agree on a review of the delegation of enforcement powers from Environment Canterbury to Council. I consider that it could be a useful incentive to encourage sites to mitigate their risks. The s42A report (270-271) also supported a review of the delegated powers.
23. Mr Purves for Lyttelton Port Company has requested that the ISA methodology should be attached to the consent (his paragraph 45). However, I instead agree with Ms West that the ISA methodology should be kept separate from the consent because Council and Environment Canterbury staff could more easily agree on any changes to the methodology.
24. Mr Purves has suggested that Environment Canterbury make the ultimate decision on whether a site is an unacceptably high risk following an ISA (his paragraphs 44-45). I do not consider that this change would assist the Council in meeting its environmental objectives under this Application as it would still be Council's decision whether or not to exclude the site from its consent.
25. I agree with Mr Purves' view (his paragraph 55) that considerations such as environmental management practices, inspections, staff training evidence, and

compliance history should be taken into account when determining what standards (if any) should be imposed on an industrial site.

**ENCLOSURES:**

**REVISED EVIDENCE IN CHIEF AND APPENDIX A  
CONSENT HEARING PRESENTATION SLIDES**

**JULIA VALIGORE**

5 November 2018

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

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of application CRC190445 by the Christchurch City Council for a comprehensive resource consent to discharge stormwater from within the Christchurch City area on or into land, into water and into coastal environments

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**STATEMENT OF EVIDENCE OF  
JULIA VALIGORE FOR CHRISTCHURCH CITY COUNCIL**

**Dated ~~15 October~~ 1 November 2018**

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## INTRODUCTION

1. My full name is Julia Marie Valigore. I have been requested by Christchurch City Council (**Council**) to give evidence in relation to the application for a comprehensive stormwater network discharge consent (**Application**).
2. I hold the qualifications of Doctoral degree in Civil and Natural Resources Engineering from University of Canterbury and Bachelors of Science degree in Food, Agricultural, and Biological Engineering from Ohio State University (USA).
3. I have been a member of Council's Technical Services team since June 2017, where I am currently employed as a Specialist Advisor. My primary role is to conduct stormwater audits at industrial sites in order to advise businesses how they can mitigate their risks to the waterways and improve the quality of their stormwater discharges.
4. I have over 10 years of international experience in Three Waters. Prior to my current position, I was employed for 2.5 years by City Care Ltd as the Water and Wastewater Treatment Manager for Banks Peninsula.
5. I have additional experience promoting waste minimisation and sustainability at University of Canterbury and Walking Mountains Science Center (Colorado, USA). This work included providing community outreach and education for waste reduction and environmental conservation.
6. In preparing this evidence, I have considered the following documents/information:
  - a. The draft proposed conditions for Council's Application for CRC190445;
  - b. Section 42A Officer's Report for CRC190445 (**s42A**);
  - c. Council's industrial stormwater audit (**ISA**) reports and process documents;
  - d. IANZ-accredited laboratory results of stormwater discharge samples;
  - e. Council's Engineering Field Officers' Trade Waste site visit details;
  - f. Council's existing consents for stormwater discharge (CRC090292, CRC120223, and CRC131249);

- g. Council's Water Supply, Wastewater and Stormwater Bylaw (2014) (**Bylaw**) and Trade Waste Bylaw (2015);
  - h. The Canterbury Land and Water Regional Plan (**LWRP**); and
  - i. The draft evidence of Dale McEntee and Brian Norton for Council's Application for CRC190445.
7. I confirm that I have read and agree to comply with the Code of Conduct for expert witnesses contained in the Environment Court Practice Note (dated 1 December 2014). I confirm that the issues addressed in the statement of evidence are within my area of expertise. I have not knowingly omitted to consider facts or information that might alter or detract from the opinions expressed. The Council agrees to me giving this evidence on its behalf.

## SUMMARY OF EVIDENCE

8. The purpose of this evidence is to demonstrate that Council's ISA process is being applied in accordance with the conditions of the current consents,<sup>1</sup> and that the ISA process is effective for improving stormwater discharges and reducing risks to our waterways.
9. This evidence covers:
- 8.1 Existing framework for ISA process
  - 8.2 ISA team and resources
  - 8.3 ISA process supporting documents
  - 8.4 ISA summary
  - 8.5 ISA case studies
  - 8.6 Improving the management of industrial sites under this Application.
10. The ISA team has engaged over ~~650~~ businesses to reduce risks to the waterways since June 2017 (as of 1 ~~November~~~~October~~ 2018). Risk mitigation and compliance has been achieved through businesses implementing action lists that ~~may have~~ included staff education initiatives, adoption of good management practices (**GMPs**), capital works, and ~~for~~ establishment of Trade Waste areas for high risk activities. Together, I consider that these strategies have improved point source stormwater quality discharges and mitigated risks to our waterways (**Appendix A**).

11. A total of 327 sites are now considered to have been mitigated to a medium or low risk rating in Council's assessment (**Appendix A**). Meanwhile, Council has been working towards improved performance with an additional 21 pending sites by providing education, technical advice, follow-up, and encouragement.
12. The ISA programme has resulted in five washbay upgrades and two drainage upgrades for the improved conveyance of Trade Waste to the wastewater network and out of the stormwater network (i.e. e.g., via washpad enlargement, bunding, regrading, etc.) and terminated ed six illicit connections (**Appendix B**). There also are an additional six washbay upgrades in progress for audited sites under review.
13. Concurrently, and prior to establishment of the ISA team in 2017, I consider that Council has made positive impacts on reducing stormwater contamination at industrial sites from the Trade Waste perspective. As part of the Trade Waste Bylaw,<sup>2</sup> all businesses discharging Trade Waste are also required to, *"protect public health and the environment, promote cleaner production, protect the stormwater system, ensure compliance with consent conditions, and store materials correctly to protect the sewerage and stormwater systems from spillage."* A portion of these site visits have been reported annually to Environment Canterbury since 2012.
14. Council's Engineering Field Officers have found that stormwater/wastewater diversion valves, which are often located on washpads and first flush systems, have a tendency to fail and can potentially result in the discharge of wastewater to the stormwater network. To mitigate this risk, Field Officers have worked with businesses to ensure that these hydraulic valves are checked and properly maintained or decommissioned where warranted. Since 2015, this proactive effort has resulted in the decommissioning of 17 existing diversion systems to reduce current and future risks to the City's waterways to date (**Appendix B**). This type of valve has also been discouraged for washpads less than 250m<sup>2</sup> at the consent application stage unless the site is in an area with limited wastewater capacity.

## EXISTING FRAMEWORK FOR ISA PROCESS

15. Council holds three consents with Canterbury Regional Council (**Environment Canterbury**) to permit discharge of stormwater from the network into receiving waterways under CRC090292 (Interim Global area), CRC120223 (South West area), and CRC131249 (Styx area). These consents specifically require Council to audit and report on industrial sites that generate stormwater. Any audited site that poses an unacceptable

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<sup>1</sup> CRC090292 (Interim Global area), CRC120223 (South West area), and CRC131249 (Styx area).

<sup>2</sup> <https://www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/bylaws/trade-waste-bylaw-2015>.

risk to the receiving environment objectives may be excluded by Council from its consent.

16. In June 2017, it was agreed between Council and Environment Canterbury that a quota of 30 audits/year would be adequate going forward to meet past and future compliance requirements for CRC090292 (Interim Global area), CRC120223 (South West area), and CRC131249 (Styx area) (see Mr McEntee's evidence for further discussion).
17. Council's current requirements under the consents are to do at least 10 audits/year under CRC090292 and to audit all high risk sites under CRC131249 and CRC120223 by 2023. These requirements are in contrast to the understanding summarised by the s42A report (297, 311) that 10 audits/year are required for each of the three consents. Council proposes a minimum of 10 audits/year (draft condition 41 of the Application) as it has been conducting extra audits since 2017 (i.e. 30 audits/year) merely to catch-up on overdue requirements as agreed with Environment Canterbury.
18. I consider that continuing to conduct a minimum of 10 audits/year at the highest risk sites is consistent with the aims of the existing consents. This approach is appropriate because as the highest risk sites continue to be engaged by the ISA team to mitigate their risks, the overall risks to the waterways will reduce over time. Generally, the higher risk the site is, the longer time that it may take to mitigate risks (i.e. due to capital works, behaviour change, etc.). In my experience, it has been essential to maintain ongoing communication and oversight of non-compliant audited sites to ensure that they address their risks. For these reasons, I consider that the ISA process will be more effective by focusing on 10 audits/year of high risk sites while also reserving resources to do 1) ad-hoc audits of other ~~lower risk~~ sites where issues are known/suspected, -and- 2) re-audits of previously mitigated sites, and 3) audits of redevelopments (paragraph 45) where necessary.
19. In my opinion, the approach proposed above more widely distributes accountability for care of the waterways to all types of businesses at various risk levels rather than only to a select subset of the highest risk sites. I think that lower risk businesses will be more likely to voluntarily adopt GMPs and other improvements to reduce their risks if they consider that they might be audited.
20. Environment Canterbury and Council staff collaborated to compile proposed ISA lists for 2017 and 2018 (**Appendix C**).

21. All stormwater discharges must also comply with Council's Bylaw,<sup>3</sup> which prohibits any material that is likely to cause a nuisance from entering the stormwater network.

## ISA TEAM AND RESOURCES

22. I was specifically hired in June 2017, and my new, dedicated Specialist Advisor role was purposefully established in July 2018 to assist Council in meeting its industrial stormwater consent requirements.
23. Two additional Council staff (Engineering Field Officers) assist with ISAs and also oversee Trade Waste compliance and consenting.
24. Where applicable, I consider that it is beneficial to be able to conduct ISAs along with Trade Waste site visits since Trade Waste activities can impact stormwater risks. Often, overarching strategies and management practices can be implemented to benefit both networks and meet business needs.
25. Council's Technical Services unit, which includes the ISA and Trade Waste teams, is appropriately resourced to conduct field audits. Technical Services is also in the process of upgrading to a new software management system that will enable improved tracking of industrial sites' audit, follow-up, and compliance information.
26. Council operates an IANZ-accredited laboratory that is able to characterise point source contaminants in industrial stormwater discharges.
27. Nationally, I considered that there was a lack of guidance information available for industrial sites related to GMPs for stormwater protection. In response, Council has developed an industrial stormwater management webpage (<https://ccc.govt.nz/industrial-stormwater>) that includes guidelines and brochures to help improve site practices and clarify expectations for industrial sites. I consider that through this initiative, along with updates to Council's Bylaw (see paragraphs 46-47) and Council's community education and awareness campaign (draft condition 38 of this Application), that s42A report (288) concerns around stormwater quality are being addressed.
28. Externally, the ISA team collaborates with Environment Canterbury's Pollution Prevention team to share information and encourage compliance among businesses ([see paragraphs 39-40 for some examples](#)).

<sup>3</sup> <https://www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/bylaws/water-supply-wastewater-and-stormwater-bylaw-2014>.

## ISA PROCESS SUPPORTING DOCUMENTS

29. Council has developed documents and established processes to set the framework for conducting ISAs as described below.
30. The Industrial Stormwater Site Audit Methodology document (**Appendix B**) includes a list of sites City-wide that was compiled and assigned risk levels by Council and Environment Canterbury in a desktop assessment. Council and Environment Canterbury have used this document to select sites for auditing.
31. The ISA Promapp Process document (**Appendix B**) ensures that audits are carried out consistently. It contains templates that are used by the ISA team to request audits and to report on the findings.
32. The "Stormwater: Protecting our Waterways" brochure (**Appendix B**) was developed by Council with input by Environment Canterbury, and it is distributed to industrial sites by Council and Environment Canterbury to promote stormwater awareness.
33. The "General Stormwater Good Management Practices (GMPs) for Industrial Sites" document and associated "Industrial Stormwater Management" brochure (**Appendix B**) is guidance information that was developed by Council to provide a set of GMPs for industrial sites. It is a reference for Engineering Field Officers as well as business owners.
34. The "Stormwater Discharge Consent Exclusion Guidelines for Industrial Site Audits" document (**Appendix B**) establishes a set of trigger values for stormwater discharges based on LWRP receiving water standards. First flush sampling results from industrial sites are compared to these trigger values to indicate whether site management practices are successfully implemented. Although this document also provides guidelines for excluding sites from Council's stormwater consents, it has been Council's preference to work closely with existing industrial sites to help them reduce their stormwater risks and improve their discharges in order to remain under Council's consents.

## ISA SUMMARY

35. In 2016, Council contracted RST Environmental Solutions to conduct 14 ISAs on its behalf for the Interim Global and South West consents. In 2017, Council allocated staff and resources to the ISA programme in order to begin conducting its own audits in earnest. By this time, three of the 2016 RST-audited sites had moved or closed, two sites were being managed by Environment Canterbury's Pollution Prevention team, and the

remaining nine sites were flagged for re-auditing and follow-up by the ISA team in 2017 and 2018 (**Appendix A**).

36. The ISA team has conducted audits across the three consent areas and associated waterways (**Appendix A**). Initially, it was agreed between Environment Canterbury and Council that efforts would be focused in the South West area, and particularly Haytons Stream, since this is a priority catchment for Environment Canterbury.
37. The ISA team conducted audits across various industries. The most common type of site audited was Motor Vehicle and Equipment Workshops, Depots, Refuelling, and Hire Facilities followed by Primary and Fabricated Metal Product Manufacturers (**Appendix A**).
38. The ISA team endeavoured to select high and extreme risk sites for auditing to have the greatest environmental benefit and to align with the conditions of the consents. These sites were chosen in agreement with Environment Canterbury. In reality, however, some audited sites were actually lower risk than the desktop study (or other measures) expected due to the sites' layouts and/or having adequate GMPs already established. This resulted in a wider range of risk levels being audited (**Appendix A**).

## ISA CASE STUDIES

39. In August 2017, Environment Canterbury requested the ISA team to audit one of its pollution prevention sites that had a history of environmental incidents. The site is a Motor Vehicle and Equipment Workshop, Depot, and Hire Facility that is located in the South West area. From the audit, an action list was generated for the business to implement to mitigate its extreme risks to stormwater. The ISA team also provided technical advice to the business to enable it to undertake site works to expand its washpad and better contain its Trade Waste activities. The business gained a greater awareness and understanding of environmental issues, implemented solutions that met business needs, and demonstrated a commitment to using better management practices in the future. This result demonstrates a successful collaboration between the ISA team and Environment Canterbury's Pollution Prevention team to mitigate risks in the network.
40. In October, 2017, the ISA team audited an Automobile Salvage Yard in the Interim Global area. This site was found to be in breach of Council's Approval for Stormwater Discharge into the network due to a prohibited activity occurring on-site. The ISA team, the business's consultant, and Environment Canterbury are working together to transition to a site-specific consent under Environment Canterbury's jurisdiction.



41. In April 2018, the ISA team audited a Rubber and Miscellaneous Plastic Product Manufacturer in the Styx area. During the audit, the ISA team found contamination and clear evidence of product transport downstream into Kā Pūtahi Creek. This pollution was attributed to buildup of contaminants on hardstand, poor infrastructure maintenance, and unnecessary storage of excess materials outdoors. Within one month, the business had significantly cleaned up its site, reduced stormwater risks, and established new processes to better manage the storage and transport of its products. The ISA team followed up with this business in September 2018 and found a couple of lingering contamination issues that were related to faulty on-site traps. The business responded promptly to have the traps repaired and contamination addressed, and it also plans to install additional traps downstream to further reduce risks in the wider catchment.
42. In June 2018, the ISA team audited a Chemical and Pharmaceutical Product Manufacturer in the Interim Global area. During the audit, highly contaminated areas (i.e. from chemical storage and forklift tracking) were found that were piped to discharge stormwater directly into the Heathcote River. Through collaboration among the ISA and Trade Waste teams, a contained area is being established where contaminated activities may occur to enable the site to better meet its business needs while ceasing pollution of the waterway.

## **IMPROVING THE MANAGEMENT OF INDUSTRIAL SITES UNDER THIS APPLICATION**

### **Reasonable Endeavours**

43. I consider that stormwater contamination resulting from industrial activities must be minimised to the extent possible using GMPs and treatment devices as applicable. Otherwise, I consider that a site is an unacceptable risk if it is not willing to undertake these reasonable endeavours to reduce its risk to the stormwater network.
44. GMPs include tactical site layout, housekeeping, site checks and maintenance, spill control and safeguards, on-site treatment, and employee training. These practices are required to be implemented to mitigate unacceptable stormwater risks at the ISA team's discretion or when discharge trigger values are exceeded (see paragraph 34).
45. Council is making a dedicated effort to ensure that existing industrial sites that apply for building consents (i.e. usually for re-development purposes) are also concurrently audited for stormwater risks where warranted. This collaboration increases the likelihood that any risks will be mitigated faster, better, and cheaper across the site at one time rather than through two different mechanisms that may occur years apart.

46. I consider that Council's Bylaw needs to be updated to formally establish point source stormwater discharge trigger levels and also to facilitate setting site-specific conditions for sites that cannot meet these trigger levels (see paragraph 47). This will help clarify expectations for businesses and aims to improve point source stormwater discharges.

### **Sites that Exceed Council's Trigger Levels**

47. Despite undertaking reasonable endeavours, not all industrial sites will be able to meet Council's stormwater discharge trigger levels. For these sites that are not excluded from Council's consent, I consider that site-specific approvals for stormwater discharge are appropriate for improved management of these risks. These approvals could impose conditions such as maximum discharge limits, maintenance regimes, sampling requirements, penalties for exceedances, etc. Varying monitoring requirements depending on the contamination risk agrees with a recommendation in the s42A report (App1, 43). It is my understanding that a change to the Bylaw may be needed to achieve this strategy. Further, I consider that these approvals should not be transferable if a change of owner or discharger occurs.

### **Excluding Sites from Council's Consents**

48. I note that there are sites in the Interim Global area that have site-specific consents from Environment Canterbury. Schedule 1 attached to the proposed consent conditions appears to include only sites in the Styx and South West consent areas. I understand that if Council wishes to exclude those sites from the coverage of the proposed consent until 2025, it will require a consent Variation under the Resource Management Act (RMA). An ongoing process needs to be established between Council and Environment Canterbury to ensure that Schedule 1 is kept up to date across the entire City.
49. With regard to the previously excluded high risk sites proposed to be authorised under this consent from 2025 or when their own consents expire (whichever is the later), I agree with Mr Norton's evidence that Council and Environment Canterbury need to have a transitional strategy for managing these high risk sites.
50. I note that the s42A report (305) recommends that Council retain the ability to exclude unacceptably high risk sites past 2025, but this is not currently proposed by Council's draft consent conditions. In my experience, the ability for Council to exclude sites from its consent has been a useful incentive for non-compliant industrial sites to mitigate their stormwater risks. I consider that if Council does not retain the ability to exclude sites from its consent, then there should be a delegation of enforcement powers from Environment Canterbury to give Council more enforcement options than prosecution for breach of the Bylaw and/or RMA. Similarly, the s42A report (270-271) recommended that delegation of enforcement powers be reviewed to (presumably) improve Council's ability to respond to non-compliances.

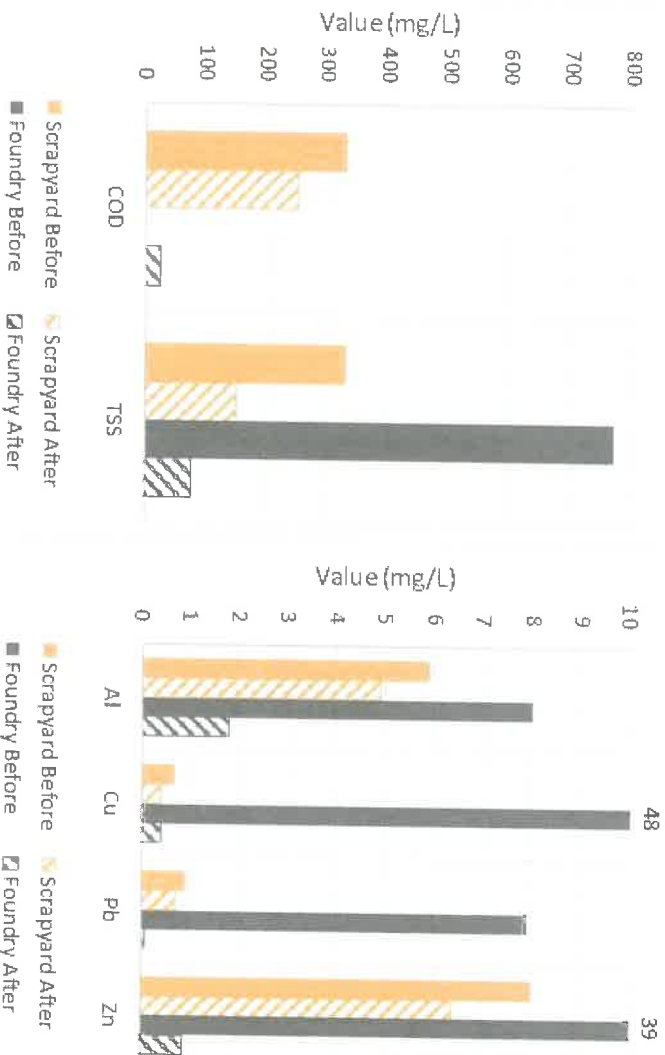
**Julia Valigore**

**~~15-October~~1 November 2018**

## Appendix A: Summary Figures & Tables



**Figure A-1. Map of Audited Sites 2016-2018.** (Note: Pending = to be audited in 2018; Reviewed = risk mitigation in progress; Completed = risk mitigation completed.)



**Figure A-2. Examples of Initial Water Quality Improvements of Point Source Stormwater Discharges.** (Note: COD = chemical oxygen demand; TSS = total suspended solids; Al = aluminium; Cu = copper; Pb = lead; Zn = zinc.)

**Table A-1. Industrial Sites Audited by Consent 2016-2018.**

	2016 Count	2017 Count	2018 Count*
<b>Consent</b>			
Interim Global	1 (2)	3	7
South West	2 (9)	20	<del>7</del> <u>10</u>
Styx	-	9	<del>9</del> <u>7</u>
<b>Grand Total</b>	<b>3 (11)</b>	<b>32</b>	<b><del>24</del><u>16</u></b>

Note: (X) represents additional audits that were instead later counted as reaudits in 2017/2018 or taken over by Environment Canterbury.

\*Count as of 01/10/2018.

**Table A-2. Industrial Sites Audited by Waterways 2016-2018.**

Consent	Count*
<b>Interim Global</b>	<b>11</b>
Antigua Drain / Avon River	1
Chapmans Road Drain	1
Charlesworth Drain	7
Heathcote River	1
Linwood Canal	1
<b>South West</b>	<b><del>32</del>29</b>
Curletts Drain	8
Halswell Junction Outfall	2
Haytons Stream	<del>13</del> 5
Heathcote River	1
Paparua Stream	<del>6</del> 5
<b>Styx</b>	<b><del>16</del>8</b>
Kā Pūtahi Creek	<del>13</del> 2
Otukaikino Creek	1
Styx River	<del>3</del> 2
Smacks Creek	1
<b>Grand Total</b>	<b><del>56</del>1</b>

\*Count as of 01/1~~1~~0/2018.

**Table A-3. Types of Industries Audited 2016-2018.**

Industry Category	Count*
Automobile Salvage Yards	4
Boat Yards, Water Transportation Facilities, and Port-Related Activities	1
Building, Construction, and Earthworks Contractors	4
Chemical and Pharmaceutical Product Manufacturers	3
Food and Beverage Manufacturers	<del>5</del> 4
Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturers	2
Leather Tanning and Finishing Facilities	1
Primary and Fabricated Metal Product Manufacturers	6
Rubber and Miscellaneous Plastic Product Manufacturers	1
Scrap and Waste Recycling Facilities	3
Timber and Paper Product Manufacturers	2
Waste Transfer and Composting Facilities	2
Waste Treatment, Storage, and Disposal Facilities	3
Wood and Metal Furniture and Fixture Manufacturers	3
Motor Vehicle and Equipment Workshops, Depots, and Hire Facilities	<del>21</del> 7
<b>Grand Total</b>	<b><del>61</del>56</b>

\*Count as of 01/1~~1~~0/2018.

**Table A-4. Industrial Sites Audited by Risk Rating 2016-2018.**

Audited Risk Rating	2016 Count	2017 Count	2018 Count*
Extreme	1 (3)	9	5
High	2 (8)	15	<u>119</u>
Medium	-	2	<u>97</u>
Low	-	6	<u>1-</u>
<b>Grand Total</b>	<b>3 (11)</b>	<b>32</b>	<b><u>216</u></b>

Note: (X) represents additional audits that were instead later counted as reaudits in 2017/2018 or taken over by Environment Canterbury.

\*Count as of 01/119/2018.

**Table A-5. Risk Mitigation to Waterways 2017-2018.**

Audited Risk Rating	Mitigated Risk Rating			Grand Total
	Medium	Low	Pending	
Extreme	<u>23</u>		<u>121</u>	14
High	4	14	<u>86</u>	<u>246</u>
Medium		<u>96</u>	<u>32</u>	<u>911</u>
Low		<u>76</u>		<u>76</u>
<b>Grand Total</b>	<b><u>76</u></b>	<b><u>2630</u></b>	<b><u>211</u></b>	<b><u>538*</u></b>

Note: 3 audited sites not included due to relocation and/or closure.

\*Count as of 01/119/2018.

# Industrial Stormwater Audit Programme

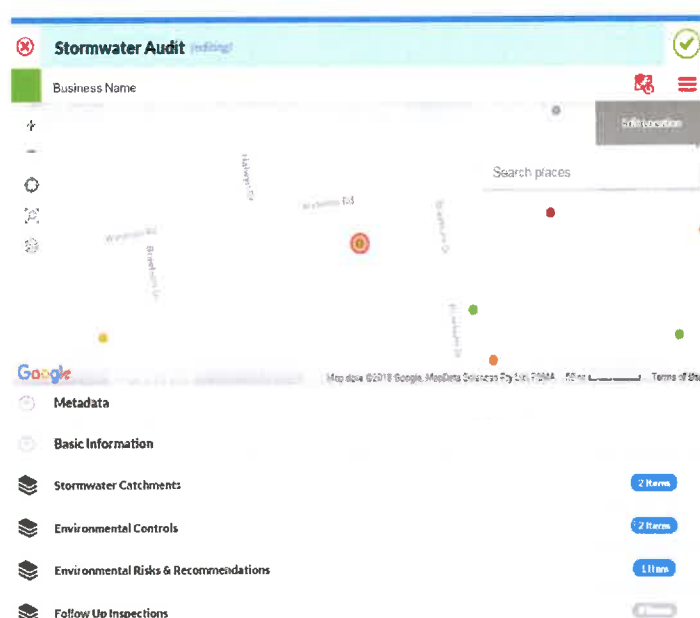
Julia Valigore, PhD  
Specialist Advisor – Water / Environmental  
Technical Services, Three Waters & Waste  
Christchurch City Council

November 2018

Christchurch  
City Council

## Resources

- ISA and Trade Waste staff
- IANZ-accredited laboratory
- New public website - [ccc.govt.nz/industrial-stormwater](http://ccc.govt.nz/industrial-stormwater)
- Educational pamphlets
- Field devices



Christchurch  
City Council



## Audited Sites 2016-2018

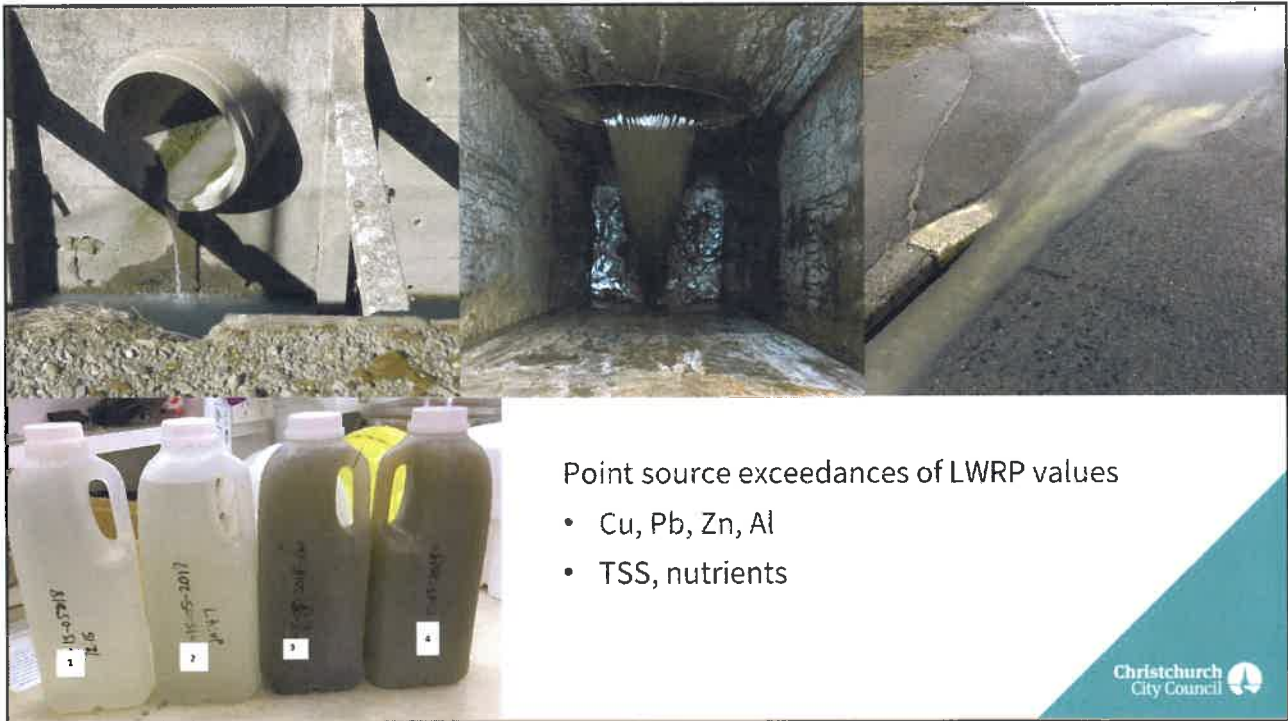


### Waterways Impacted

Consent	Count*
<b>Interim Global</b>	<b>11</b>
Antigua Drain / Avon River	1
Chapmans Road Drain	1
Charlesworth Drain	7
Heathcote River	1
Linwood Canal	1
<b>South West</b>	<b>32</b>
Curletts Drain	8
Halswell Junction Outfall	2
Haytons Stream	15
Heathcote River	1
Paparua Stream	6
<b>Styx</b>	<b>18</b>
Kā Pūtahi Creek	13
Otukaikino Creek	1
Styx River	3
Smacks Creek	1
<b>Grand Total</b>	<b>61</b>

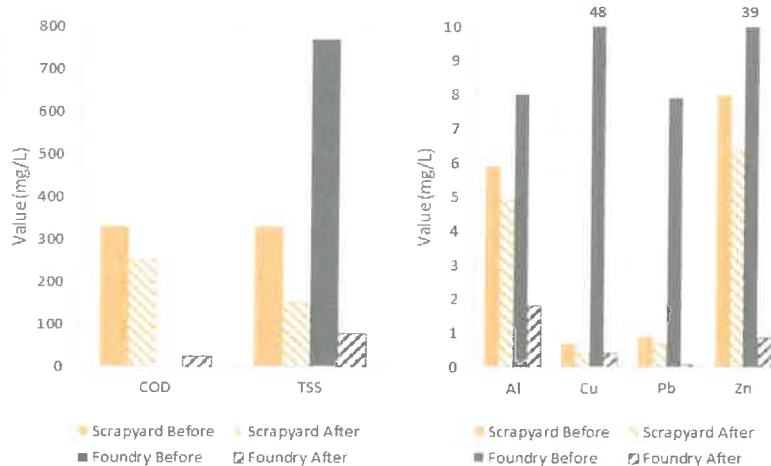
\*Count as of 01/11/2018.







## Examples of Initial Water Quality Improvements of Point Source Stormwater Discharges



## Risk Mitigation to Waterways 2017-2018

Audited Risk Rating	Mitigated Risk Rating			Grand Total
	Medium	Low	Pending	
Extreme	3		11	14
High	4	14	8	26
Medium		9	2	11
Low		7		7
<b>Grand Total</b>	<b>7</b>	<b>30</b>	<b>21</b>	<b>58*</b>

\*Count as of 01/11/2018.



