



Submissions closing: 22 October 2026

stormwater_wastewater@taumataarowai.govt.nz

Upload PDF to web site on this link [Public consultation on two more wastewater standards - Tell us about yourself - Taumata Arowai - Citizen Space](#)

RE: Waste Water Treatment Plant Standards – Metals

Synopsis

The submission supports the development of a nationally consistent framework for managing metals in municipal wastewater discharges but opposes the introduction of nationally prescribed end-of-pipe (EOP) metals limits at this time. The submission recognises that metals can pose significant risks to freshwater ecosystems, fisheries, customary and recreational harvest values, and human health due to their toxicity, persistence, sediment accumulation, and potential for bioaccumulation. It supports improved national consistency through stronger monitoring, trade waste management, source controls, industrial pretreatment, and site-specific risk assessment. Enhanced monitoring of both dissolved and total metals is considered the most valuable component of the proposal, particularly where monitoring is graduated according to the risk posed by the discharge and receiving environment.

However, the submission concludes that the evidence base is currently insufficient to justify national EOP metals limits. It highlights limited monitoring data, significant uncertainty, analytical inconsistencies, and the highly site-specific nature of metals risks. The submission notes that wastewater treatment plants are generally not designed to remove dissolved metals, meaning compliance outcomes are more likely to depend on influent quality and source controls than treatment performance. Fish & Game advocates for a precautionary, monitoring-led and adaptive management approach focused on receiving environment outcomes, direct metals monitoring, sediment and bioaccumulation assessment, and stronger source controls. National metals limits should only be considered once sufficient evidence demonstrates they are both necessary and environmentally effective.

We would like to discuss this work in more detail in a meeting when it is convenient to you. Our full submission is attached to this letter, along with responses to the discussion document questions in appendix 1.

Contact Details

Helen Brosnan, Senior Policy Advisor

E: hbrosnan@fishandgame.org.nz

P: 021486034

A handwritten signature in cursive script, appearing to read 'R Cosgrove'.

on behalf of
Richie Cosgrove
COO, New Zealand Fish and Game Council

A handwritten signature in cursive script, appearing to read 'Barrie Barnes'.

Barrie Barnes
Chair, New Zealand Fish and Game Council

Submission on WEPS discharge of metals proposal:

Advice to New Zealand Fish & Game Council

Kate McArthur

Executive summary

Metals in municipal wastewater discharges present potential risks to freshwater ecosystems, fisheries, and human health due to their toxicity, persistence, capacity for sediment accumulation, and potential for bioaccumulation. The significance of these risks depends heavily on receiving environment characteristics, contaminant sources, metal speciation, background concentrations, and cumulative effects.

There is a strong case for a nationally consistent framework that improves metals monitoring, source control, trade waste management, and risk assessment. Such a framework would improve information quality, transparency, and regulatory consistency, while supporting a better understanding of discharge characteristics, environmental risks, and long-term contaminant trends. A monitoring-led and adaptive approach could effectively achieve these objectives.

However, the evidence does not currently support the introduction of nationally prescribed end-of-pipe (EOP) metals limits. The technical report identifies substantial uncertainty, limited national data, analytical inconsistencies, and highly site-specific environmental risks, yet proposes national limits before sufficient information has been collected to justify them. It also does not clearly demonstrate a nationwide environmental problem requiring national EOP regulation and departs from international approaches that generally rely on receiving environment standards, source controls, industrial pretreatment, and site-specific permitting.

The proposal places insufficient emphasis on the reality that wastewater treatment plants are generally not designed to remove dissolved metals. Consequently, compliance outcomes are likely to be driven more by influent quality, trade waste inputs, and source-control measures than by treatment performance. This supports prioritising source controls over EOP regulation.

Further concerns relate to the derivation of the proposed limits, including their sensitivity to dilution and background concentration assumptions, the lack of transparency around moderated copper and zinc limits, inconsistency between

proposed compliance measures and the ANZG framework, and reliance on total suspended solids (TSS) and total phosphorus (TP) as surrogate indicators of metals behaviour. The removal or downgrading of several sensitive receiving environments from the risk framework is also difficult to reconcile with the stated precautionary approach.

The strongest case is for a nationally consistent framework centred on direct monitoring of total and dissolved metals, effective trade waste controls, upstream and up-network source investigations, and site-specific assessment of receiving environment risk. Mandatory monitoring should precede any consideration of national compliance limits and be used to determine whether such limits are justified in future. This approach would provide stronger protection for sensitive receiving environments, fisheries, customary and recreational harvest values, and human health, while remaining consistent with the available evidence and recognised uncertainties.

Key Recommendations

1. Prioritise source controls, trade waste management, and industrial pretreatment as the primary tools for reducing metals in wastewater.
2. Develop a nationally consistent monitoring framework for metals in municipal wastewater discharges.
3. Require monitoring of both total and dissolved metals in influent and effluent, with monitoring intensity graduated according to discharge risk.
4. Do not rely on TSS and TP as surrogate indicators for metals.
5. Use site-specific assessment of receiving environment sensitivity and risk rather than nationally prescribed risk categories.
6. Retain a risk-based framework but ensure it drives the regulatory response rather than replacing site-specific environmental assessment.
7. Assess compliance against receiving environment outcomes rather than nationally prescribed EOP metals limits.
8. Do not introduce national EOP metals limits unless and until sufficient monitoring data exist to demonstrate both the need for, and effectiveness of, such limits.
9. Improve monitoring and assessment of metals accumulation in sediment, bioaccumulation, and cumulative effects in sensitive receiving environments.

10. Align metals management with international best practice by focusing on receiving environment protection, source controls, and site-specific consenting.
11. Apply a precautionary approach that recognises the risks to fisheries, customary and recreational harvest values, and human health from long-term metals accumulation.

Answers to discussion document questions attached as Appendix 1.

Benefits of the proposal

National consistency

The proposal would reduce current inconsistency between individual and regional consent approaches, monitoring requirements, and regulatory expectations, including the application of Trade Waste Bylaws. This may improve clarity, transparency, and regulatory certainty.

Improved Monitoring and Information

Perhaps the strongest element of the proposal is the likely improvement in national information on:

- discharge characteristics;
- metals concentrations and loads;
- receiving environment conditions;
- trade waste influences; and
- long-term environmental effects and trends.

Risk-based monitoring framework

The initial graduated monitoring framework is generally proportionate and adaptable, although the changes to the framework to reduce the number of risk categories¹ and control levels over-simplifies the risks. The risk categories should be reverted to something similar to Table 26 in the technical report. More distinction between lower-risk and higher-risk discharges provides a structured approach to information gathering and management. However, surrogate TSS and TP monitoring is already required through the WEPS Tranche 1 and notably does not provide any additional reliable information on dissolved metals which pass through WWTP without capture by the treatment processes.

¹ To 'high' and 'other than high'.

The graduated structure should instead focus on collection of total and dissolved metals with increasing risk associated with greater frequency and range of metals monitoring. Notwithstanding the concern with surrogate parameters, monitoring frequencies proposed for different plant sizes appear broadly reasonable.

Recognition of toxicity, persistence and ecological risk

The proposal appropriately recognises that metals are persistent contaminants capable of toxicity, sediment accumulation, bioaccumulation, and long-term ecological effects. Alignment with ANZG ecological protection concepts provides a scientifically recognised foundation. However, this must be followed up by a framework that effectively measures and manages ecological and human health risks from metals, implements the ANZG framework in the receiving environment (not EOP), and responds to variable environmental sensitivity and background conditions. The proposal diverges from the ANZG framework in a number of ways that undermine environmental protections.

Source-control and trade waste management

The proposal recognises the importance of:

- trade waste management;
- industrial pretreatment;
- pollution source prevention;
- stormwater infiltration;
- inflow management; and
- upstream source investigations.

Management at source is more consistent with a ‘polluter-pays’ principle and is likely to deliver greater environmental benefits than treatment-focused and EOP approaches.

Recognition of cumulative effects

Unlike the previous wastewater policy approaches, the metals proposal considers background concentrations and the persistent nature of metals contamination. This is conceptually stronger than frameworks that focus only on immediate dilution effects (i.e. WEPS Tranche 1 limits). However, these considerations are watered-down in the final limit derivation.

Potential for adaptive improvement

If implemented primarily as a monitoring, source-control, and adaptive-management framework, the proposal could provide the required information on the scale, nature and variability of effects, and to determine whether nationwide numeric standards are warranted in future.

Issues with the WEPS metals proposal

Weak evidence base for national standards

The proposed metals limits are derived from a very limited evidence base. The technical report acknowledges that approximately eight wastewater treatment plants had suitable metals performance data available for assessment and testing of proposed limits, and only two of these were relevant to large plants in rivers. Further data collection is explicitly identified as necessary to refine the framework in future.

Notwithstanding that nationally consistent EOP standards are unlikely to adequately manage metals as environmental contaminants,² data should be collected and assessed prior to the development of any standards. Standards should be based on a robust understanding of the problem the standards are designed to mitigate.

There is limited information available on small and medium-sized treatment plants, freshwater discharges generally and soft-bottomed depositional reaches specifically, as well as estuary and lake environments. This creates substantial uncertainty regarding whether the proposed standards are more protective than the status quo or whether they are appropriately calibrated to actual environmental risk to freshwater ecosystems. Known inaccuracies and inconsistencies reduce confidence in the baseline assessment used to support the proposal.

The report repeatedly states that future monitoring information will enable refinement of the framework. Therefore, the standard is being implemented before sufficient evidence exists to support it.

Monitoring should precede prescribed national numeric limits

The report proposes limits while simultaneously acknowledging:

- sparse monitoring data;
- high uncertainty;
- limited national coverage; and
- the need for future refinement once more information becomes available.

The acknowledged data gaps create a sequencing problem: mandatory monitoring should be implemented first, with nationally prescribed compliance limits considered only after the resulting evidence demonstrates that they are warranted and can be appropriately calibrated.

² A site-specific approach to limits is far more likely to manage the specific risks and effects of each plant and receiving environment and is consistent with international practice and guidelines.

Simplicity prioritised above environmental effectiveness

The report considered alternatives including:

- site-specific limits;
- adaptive management;
- trigger-value approaches;
- monitoring-led frameworks; and
- stronger source-control mechanisms.

The preferred framework appears to have been selected largely because it was considered easier to implement. Administrative simplicity should not outweigh environmental effectiveness, particularly where substantial uncertainty exists.

Failure to demonstrate a national environmental problem

The technical report does not clearly establish the existence of a nationwide environmental problem requiring nationally prescribed EOP metals limits. There is no clear justification for the use of EOP metals limits, as opposed to receiving environment limits. Receiving environment limits are current best practice for managing toxicological and bioaccumulation effects and are consistent with the Australia New Zealand Guidelines for Fresh and Marine Water Quality (ANZG). The report highlights that EOP limits are in fact contrary to international practice. Lack of consistency with international practice is cause for concern.

The evidence presented frequently points to relatively low environmental effects while simultaneously being used to justify a national regulatory intervention. This creates a significant disconnect between the problem description and the proposed solution that is not helped by poor data availability on discharges and receiving environment conditions.

No international precedent

The review of international practice concludes there is no consistent international framework of municipal wastewater EOP metals standards that could be directly adopted or adapted.

Most international jurisdictions rely on:

- receiving-environment standards;
- trade waste regulation;
- industrial pretreatment;
- site-specific permitting; and
- risk-based compliance mechanisms.

This reliance on receiving-environment standards, source controls, industrial pretreatment, site-specific permitting, and risk-based compliance mechanisms indicates that international practice manages metals through multiple coordinated controls rather than a single nationally prescribed EOP limit.

Site-specific risk versus national numeric limits

The proposal repeatedly emphasises the importance of site-specific risk factors and receiving environment conditions, whilst also proposing nationally prescribed limits.

If environmental outcomes genuinely depend on local factors such as dilution, pH, temperature, ecological sensitivity, depositional characteristics, and bioavailability, then fixed national limits are difficult to reconcile with the stated risk-based philosophy.

Municipal wastewater discharges not the principal source of metals

The technical report repeatedly identifies diffuse urban runoff, stormwater, trade waste inputs, industrial sources, landfill leachate, treatment chemicals, and historical contamination as significant contributors to environmental metal loads. The State of Environment review specifically notes that freshwater and estuarine metal contamination is commonly associated with stormwater runoff, diffuse urban sources, and legacy contamination rather than treated municipal wastewater. However, the report does not identify or investigate localised effects and provides no data on downstream depositional environments in rivers or lakes.

The evidence fundamentally supports source-control mechanisms, industrial pretreatment, trade waste controls, and catchment-scale interventions as more effective environmental responses than nationally prescribed EOP limits. The policy approach misses responding to the key issues.

Source controls recognised as most effective yet not prioritised

The report recognises trade waste bylaws and source controls as among the most effective mechanisms for reducing metals in municipal wastewater discharges. Nevertheless, the proposal places substantial emphasis on EOP limits and compliance.

Because these controls act on the principal sources before metals enter the wastewater system, they should form the primary regulatory response; EOP limits should not displace measures that are both more effective and more closely aligned with the causes of contamination.

Environmental risk classification appears poorly justified

The proposed environmental risk framework contains several features that appear inconsistent with established understanding of metals behaviour and accumulation.

Particularly concerning issues include:

- lakes are not automatically classified as high-risk receiving environments;
- shellfish gathering areas have been removed as a risk factor;
- soft-bottom depositional environments have been removed;
- estuarine accumulation pathways are not clearly reflected in risk classifications; and
- the framework relies heavily on dilution categories rather than accumulation potential or ecological sensitivity.

The report further notes that poor monitoring data for depositional environments and shellfish does not necessarily indicate an absence of risk. Yet these factors appear to have influenced their removal from risk assessments.

The proposal therefore acknowledges that metals are persistent contaminants capable of bioaccumulation while simultaneously downgrading or excluding several receiving environments where accumulation risks are likely to be most significant. A site-by-site basis is the only method by which the nuances of environmental risk can be appropriately accounted for to effectively manage effects on aquatic life and human health. This is the key reason the proposal for national EOP limits should be discarded.

Existing consent variability is treated as a problem rather than reflecting environmental differences

The report identifies variability among consent conditions as evidence supporting national consistency.

However:

- existing limits may include both receiving-environment limits and site-specific EOP limits;
- receiving environments differ substantially;
- existing limits may reflect legitimate local circumstances; and
- highly site-specific consent conditions are expected if environmental sensitivity varies.

The report therefore does not clearly demonstrate that variation itself indicates a regulatory failure that requires remedy through national EOP limits.

Precautionary principle versus framework design

The report states that a precautionary approach has been adopted. However, the report simultaneously acknowledges that precaution is applied only "overall" and not necessarily in every circumstance.

Examples where precaution appears weakened include:

- use of higher dilution assumptions;
- removal of shellfish gathering considerations;
- exclusion of lakes from high-risk classifications;
- removal of soft-bottom river environments from risk assessments;
- moderation of copper and zinc limits; and
- reliance on surrogate monitoring in place of metals monitoring.

Commented [HB1]: Does this cover recreational and commercial shellfish?

Taken together, these settings show that the stated precautionary approach has been weakened at each major decision point: dilution assumptions, receiving-environment classification, copper and zinc limit moderation, and the substitution of surrogate parameters for direct metals monitoring.

Discharge risk matters more than dilution risk

The technical report consistently identifies trade waste, industrial inputs, landfill leachate, and treatment chemicals as key determinants of wastewater metals concentrations.

This suggests that risk classification should be driven more strongly by:

- influent quality;
- trade waste inputs;
- source-control performance;
- treatment chemicals;
- landfill leachate contributions; and
- plant size and characteristics.

The proposed framework instead places significant emphasis on dilution-based receiving environment classifications. This creates a disconnect between the factors driving metals concentrations and the factors used to regulate risk. Dilution does not necessarily reduce risks associated with sediment accumulation and long-term contamination, particularly in freshwater systems, lakes, and estuaries.

Reliance on dilution-based limit derivation

The proposed limits are primarily derived through back-calculation from ANZG guideline values using assumed dilution factors. The report acknowledges that derived limits are highly sensitive to dilution assumptions and to assumptions regarding background concentrations.

Several concerns arise from the approach to EOP limits:

- actual dilution conditions are highly variable;
- mixing conditions are dynamic rather than fixed;
- upper-bound dilution assumptions appear to have been adopted in some cases;
- more precautionary lower-bound dilution assumptions were not generally used in the final limits;
- low-dilution freshwater systems may not be adequately protected; and
- dilution does not address cumulative sediment accumulation or bioaccumulation risks.

The report itself recognises that higher assumed dilution factors produce less stringent limits.

The central problem is not merely that dilution varies between sites, but that back-calculating EOP limits from assumed dilution converts uncertain and dynamic receiving-environment conditions into fixed national compliance values. This can produce limits that are insufficiently protective in low-dilution systems while still failing to address sediment accumulation and bioaccumulation.

Copper and zinc limits are poorly justified

Copper and zinc are often identified as the principal metals of concern in receiving environments.

However, the report also acknowledges that:

- compliance with derived copper limits may be difficult in low and very-low-dilution freshwater environments;
- compliance with zinc limits may be difficult across many freshwater and estuarine systems;
- existing treatment technologies may not be capable of consistently meeting derived limits; and
- copper and zinc limits were subsequently "moderated."

Environmental justification for moderation of copper and zinc limits is absent and the methodology for determining the moderated values is not transparent. The rationale appears to rely on technical feasibility and cost rather than demonstrated environmental protection, undermining the core purpose of the limits and proposed standard.

This creates a major inconsistency because metals commonly identified as environmental concerns, with high potential for cumulative catchment effects are also the metals for which protective limits have been relaxed.

If copper and zinc are primary contaminants of concern, and if their limits require relaxation to become achievable, it becomes difficult to identify the environmental benefit that the EOP limits will actually deliver.

90th Percentile compliance limits are inconsistent with the ANZG framework

The proposal applies compliance using annual 90th percentile values for medium and large treatment plants. However, the proposed limits are derived from ANZG ecological protection values. The inconsistency between the proposed compliance percentile and the ecological protection framework used to derive those limits (ANZG) is not clearly explained. ANZG requires assessment of 95th percentiles of data against guideline values to determine compliance. Species protection levels cannot be assured when departing from the ANZG framework.

Wastewater treatment plants are not designed for metals removal

The report repeatedly acknowledges that municipal wastewater treatment plants are generally not designed specifically for dissolved metals removal. Metals (total) removal occurs largely as a by-product of solids removal and biological treatment processes.

The technical report also concludes:

"There is unlikely to be a simple, inexpensive or operationally efficient process that can be readily incorporated into existing biological treatment plants to further reduce dissolved metal concentrations."

Consequently:

- compliance may depend more on influent quality than treatment performance;
- source-control measures are likely to be more effective than plant upgrades in many instances; and
- compliance expectations may not align with treatment system capabilities.

Keeping in mind that data is poor and uncertainty of the effectiveness of the policy approach is high.

Numerical limits would therefore regulate an outcome that treatment plants have limited capacity to control, creating a risk that compliance reflects influent composition and upstream trade waste inputs rather than treatment performance.

Appendix E of the technical report acknowledges metals removal is incidental to the main objectives of municipal wastewater treatment. Specific metals treatment is generally not implemented at municipal WWTP. Physical solids removal is the primary mechanism for the reduction of particulate metals, including through biological adsorption, leaving the dissolved fraction to pass through the treatment process with minimal attenuation (removal).

Because particulate-metal removal is incidental and dissolved metals pass through treatment with minimal attenuation, further reduction is more appropriately pursued through source controls and regulation of influent inputs than through nationally prescribed EOP limits.

Over-reliance on TSS and phosphorus as surrogate indicators

A major concern is the proposed reliance on total suspended solids (TSS) and total phosphorus as surrogate indicators for lower risk categories.

The proposal assumes that particulate-bound metals will be managed through TSS controls. However:

- dissolved metals are the bioavailable form largely responsible for toxicity effects in the immediate receiving environment;
- TSS monitoring does not describe dissolved metals behaviour;
- no comprehensive evidence is presented demonstrating TSS is an effective surrogate across treatment plant types and receiving environments; and
- increased phosphorus removal can increase aluminium concentrations where alum dosing is used and the tension between phosphorus removal and discharge aluminium limits is not adequately resolved.

The technical report itself repeatedly acknowledges limitations of surrogate approaches for dissolved metals and also recognises the risks of source inputs of metals to medium and small plants, many of which will require only surrogate TSS monitoring.

No evidence is presented demonstrating that TSS controls implemented through Tranche 1 WEPS will adequately manage metals risks.

Bioaccumulation risks are not adequately addressed

The proposed standards focus largely on water-column concentrations and dilution ratios while providing no effective approach to managing bioaccumulation and food-chain risks. Consumption of freshwater fish and the potential for bioaccumulation effects on human is not addressed at all within the technical report.³

Several other issues arise:

- selenium is not included despite its recognised capacity to bioaccumulate and biomagnify;
- selenium is included within trade waste management frameworks but not the standards;
- bioaccumulation can occur at water column concentrations below laboratory detection limits; therefore limits derived from receiving environment concentrations will not capture effects;
- sediment and tissue monitoring is often required to adequately assess risk; and
- shellfish gathering areas have been removed as a receiving environment risk factor.

The omission of selenium is particularly notable because of its environmental behaviour and the high probability that it is present in trade waste and domestic waste streams.

The proposal risks under-protecting fisheries values, customary harvest values, and human consumption values. This is a key issue for Fish & Game as salmonid fish are commonly caught and eaten in New Zealand and have a high bioaccumulation risk due to their position as top predators in freshwater food-webs.

Monitoring and analytical uncertainty

The report identifies several important analytical uncertainties including:

- limited monitoring frequency;
- limited national coverage;
- inconsistent analytical methods;
- differences between total and dissolved metals measurements;

³ The only reference to fish consumption is in the brief literature review of the USEPA controls, which address the issue by application of receiving environment criteria and standards, consistent with common international practice.

- uncertainty regarding appropriate speciation approaches;
- inconsistent measurement units and reporting practices; and
- inadequacies in using surrogate indicators.

Best practice commonly involves assessment of total and dissolved metals. Comparing total recoverable concentrations with guidelines first, then investigating dissolved and bioavailable fractions where necessary, provides a more complete understanding of contaminant fate and ecological risk.

Appendix A: Answers to discussion document questions

18. Do you agree that a national standard should be developed for discharge of metals in treated wastewater to water receiving environments?

Yes, provided the standard focuses primarily on nationally consistent source controls, trade waste management, monitoring, and risk assessment rather than nationally prescribed end-of-pipe (EOP) limits. There is support for improved national consistency and stronger source-control measures, while there is currently an insufficient evidential basis for national EOP metals limits. A national framework should prioritise consistent application of trade waste regulations, upstream and up-network source investigations, and comprehensive national monitoring of metals to better understand discharge characteristics, environmental effects, and long-term risks before considering whether national limits are warranted.

19. Do you agree with the proposed risk-based framework for metals?

No. While a risk-based approach is supported in principle, the proposed framework oversimplifies environmental risk and does not adequately account for the highly site-specific nature of metals contamination. Environmental outcomes depend on factors such as ecological sensitivity, depositional characteristics, dilution, background concentrations, bioavailability, and bioaccumulation potential. Risk assessment should therefore be undertaken on a site-specific basis, with the discharge risk framework used to inform the appropriate regulatory response rather than relying on broad national classifications and dilution ratio classes.

20. Do you agree with the proposed discharge risk triggers and receiving environment risk factors?

Yes, the proposed discharge risk triggers appear broadly adequate. However, receiving environment risk should continue to be assessed on a site-by-site basis. Some environmentally sensitive receiving environments and accumulation pathways are not adequately captured within the proposed national risk framework and site-specific assessment is required to appropriately account for environmental sensitivity, bioaccumulation potential, and local conditions.

21. Do you agree with the proposed metals control levels?

No. Surrogate total suspended solids (TSS) and total phosphorus (TP) monitoring should not be relied upon as a substitute for metals monitoring. All discharges should undertake an appropriately graduated level of direct metals monitoring, including both total and dissolved metals in effluent and periodic influent monitoring. National EOP limits are not supported because environmental risk is highly dependent on receiving

environment characteristics and local conditions. Where limits are required, they should be based on receiving environment outcomes and environmental sensitivity rather than nationally prescribed EOP discharge concentrations.

22. Do you agree with the monitoring proposals for discharge of metals to water?

No. Reliance on TSS and TP as surrogate indicators is inadequate. Direct monitoring of metals should be required because surrogate parameters do not provide reliable information about dissolved metals, which are often the most bioavailable and toxic forms. Monitoring should include both total and dissolved metals in effluent and influent, with the range of metals monitored and monitoring frequency scaled according to discharge risk.

23. Do you agree with the proposed numerical limits and when they would apply?

No. National EOP limits for metals are not supported. There is insufficient evidence to justify such limits and that they may both under-protect sensitive receiving environments and over-regulate discharges where environmental risk is low. National EOP limits do not adequately account for local environmental conditions, cumulative effects, sediment accumulation, bioaccumulation, or downstream risks. The preferred approach is to focus on source controls, monitoring, and receiving environment protection rather than nationally prescribed discharge limits. The EOP limits approach is not consistent with internationally recognised practice.

24. Is there anything important missing from the proposed discharge of metals to water standard, or areas that need further testing before final decisions are made?

Yes. The key gap is the lack of adequate evidence to support national EOP metals limits. There is limited monitoring data, analytical uncertainty, inconsistent national information, and a strong need for further data collection before confidence can be placed in national standards. The proposed standard should instead prioritise nationally consistent metals monitoring, source controls, trade waste management, and upstream source investigations. A robust monitoring programme should be established first to determine the scale of the issue and whether national metals limits are justified in the future. On the currently available evidence, that case has not been demonstrated.