



NEW ZEALAND
LAND AND GROUNDWATER
CONFERENCE 2024
22 - 24 OCTOBER - AUCKLAND

Puhipuhi Mercury Mine

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EHS Support

Primary Study area

3 phases of investigation

224 soil samples – collected five main areas

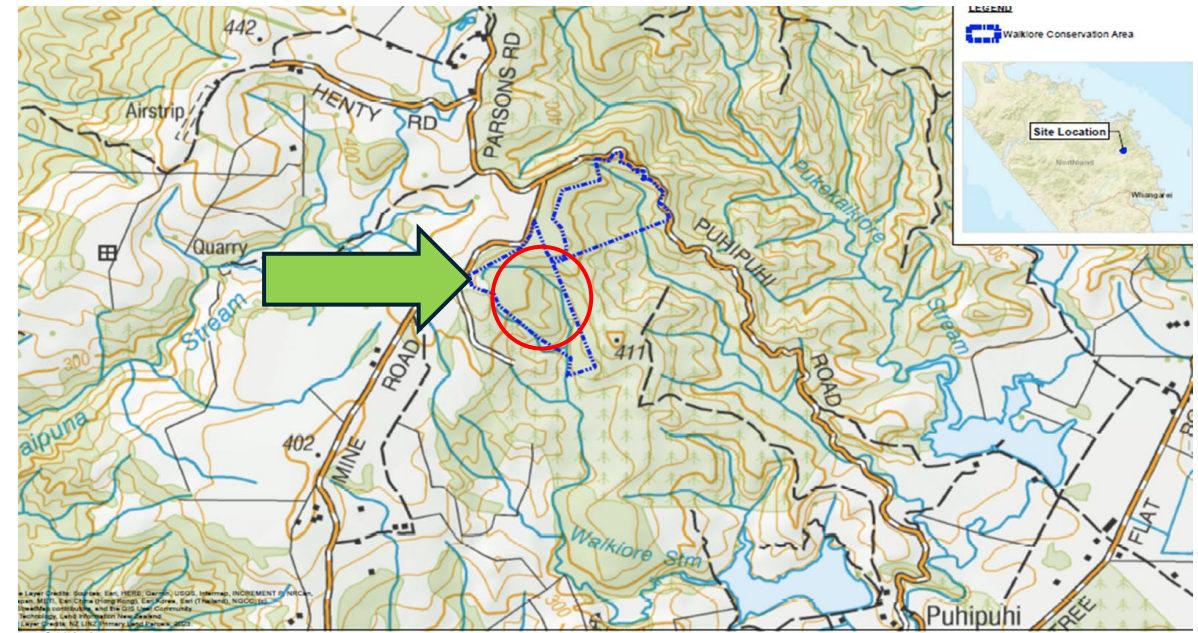
12 surficial sediment samples

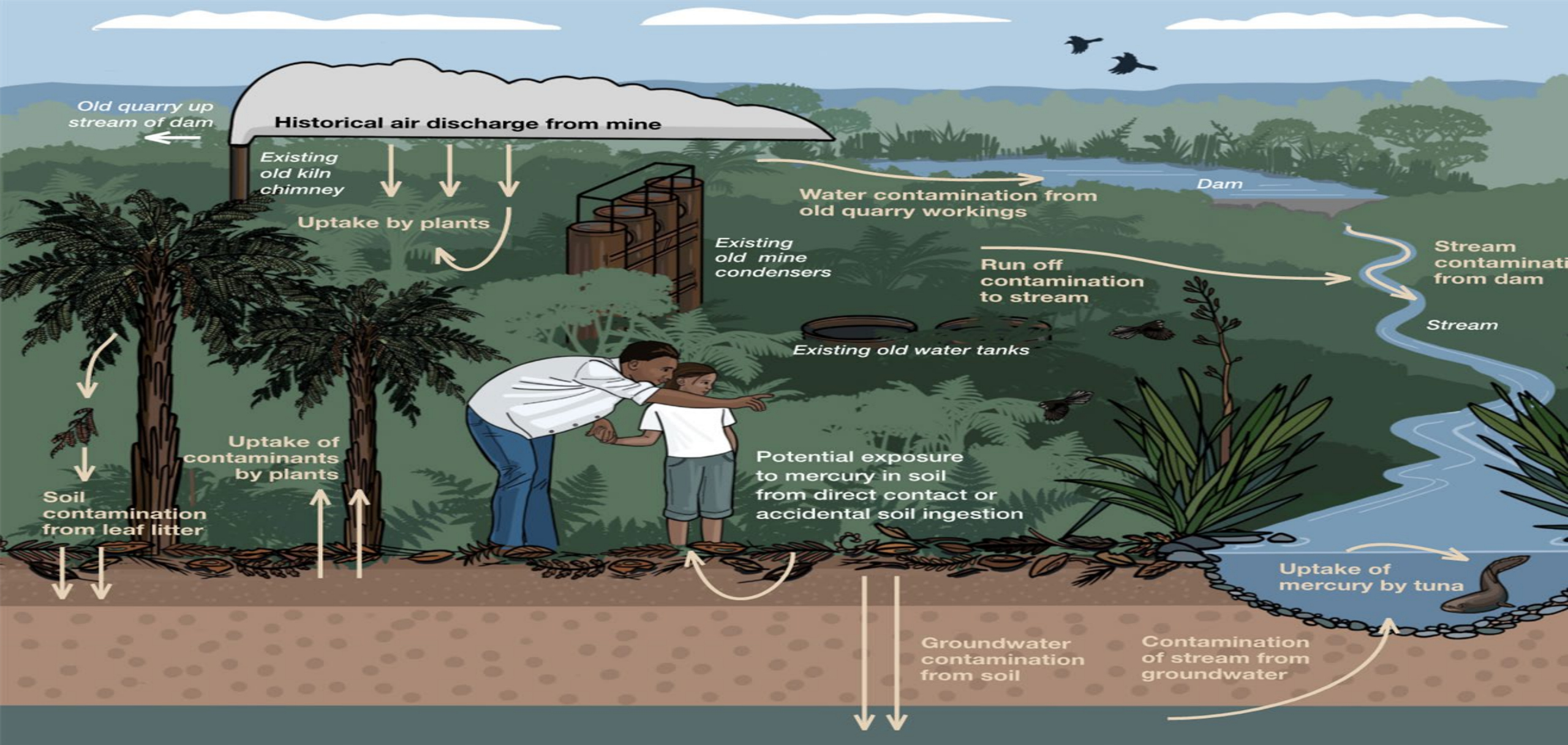
40 surface water samples (8 sampling events over 2 years)

Flow monitoring

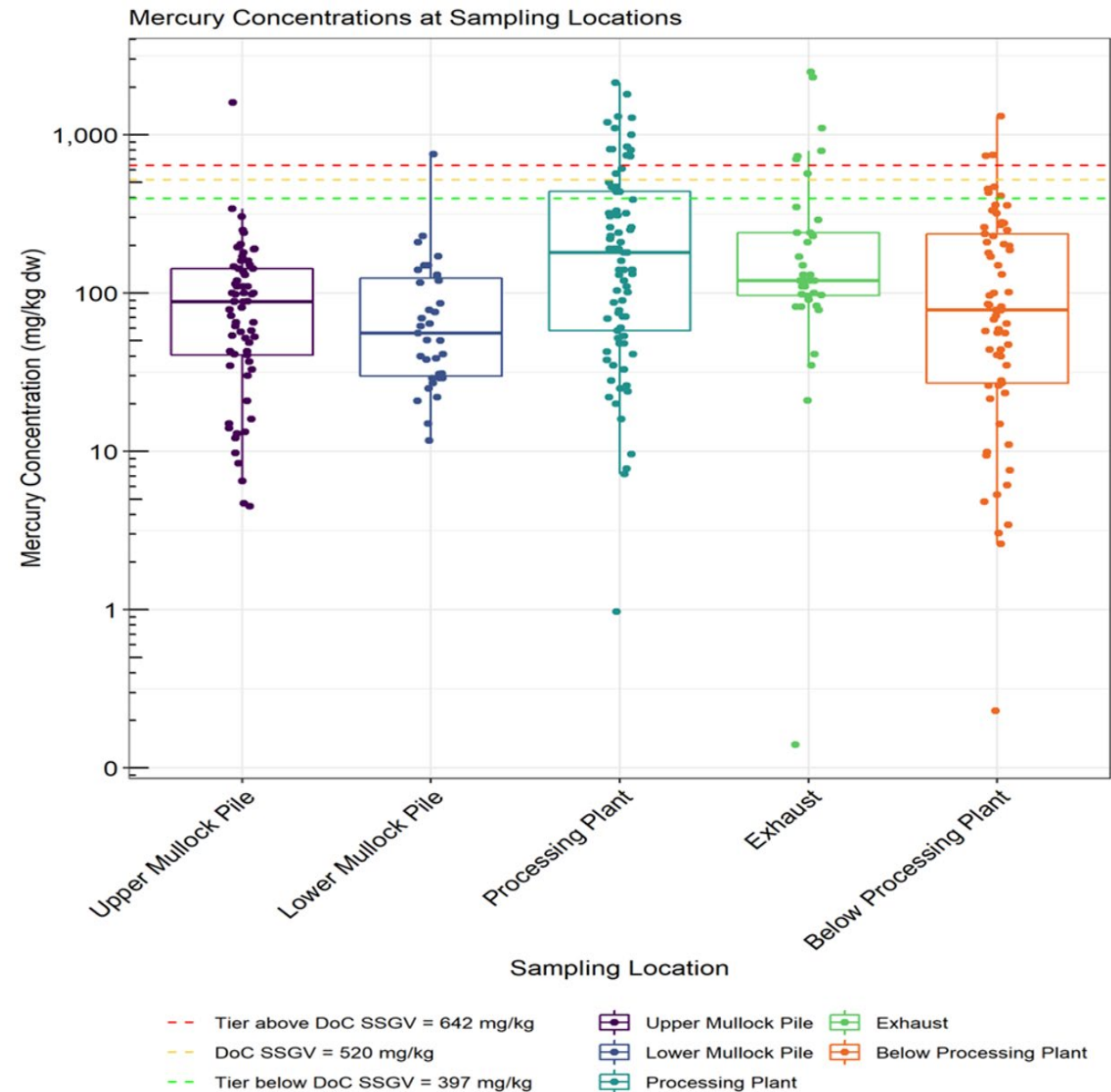
Two rounds of mercury vapour monitoring

CoC As, Cu, Hg, Pb, Sb, Se, Tl, Zn.
Limited MeHg



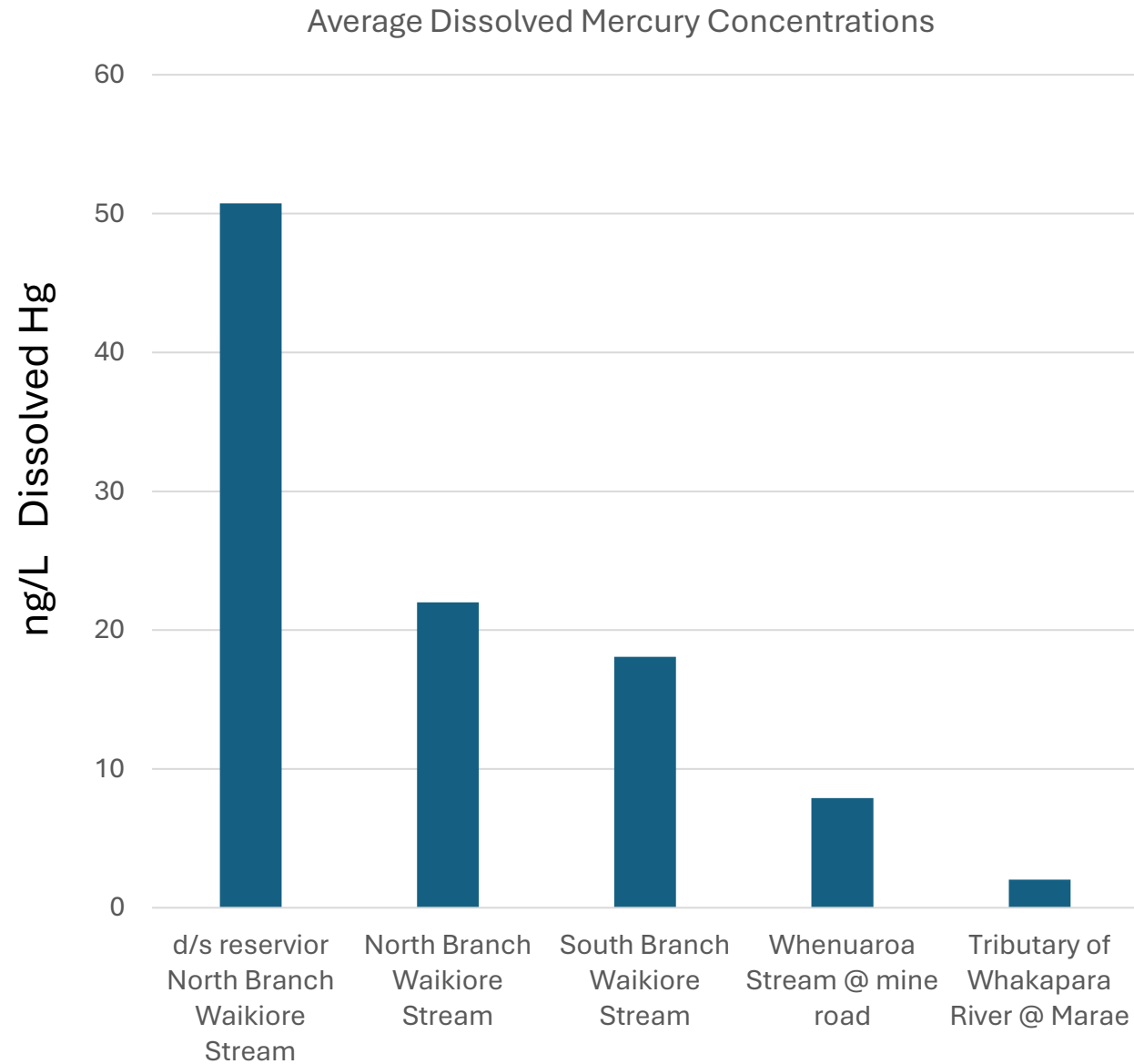


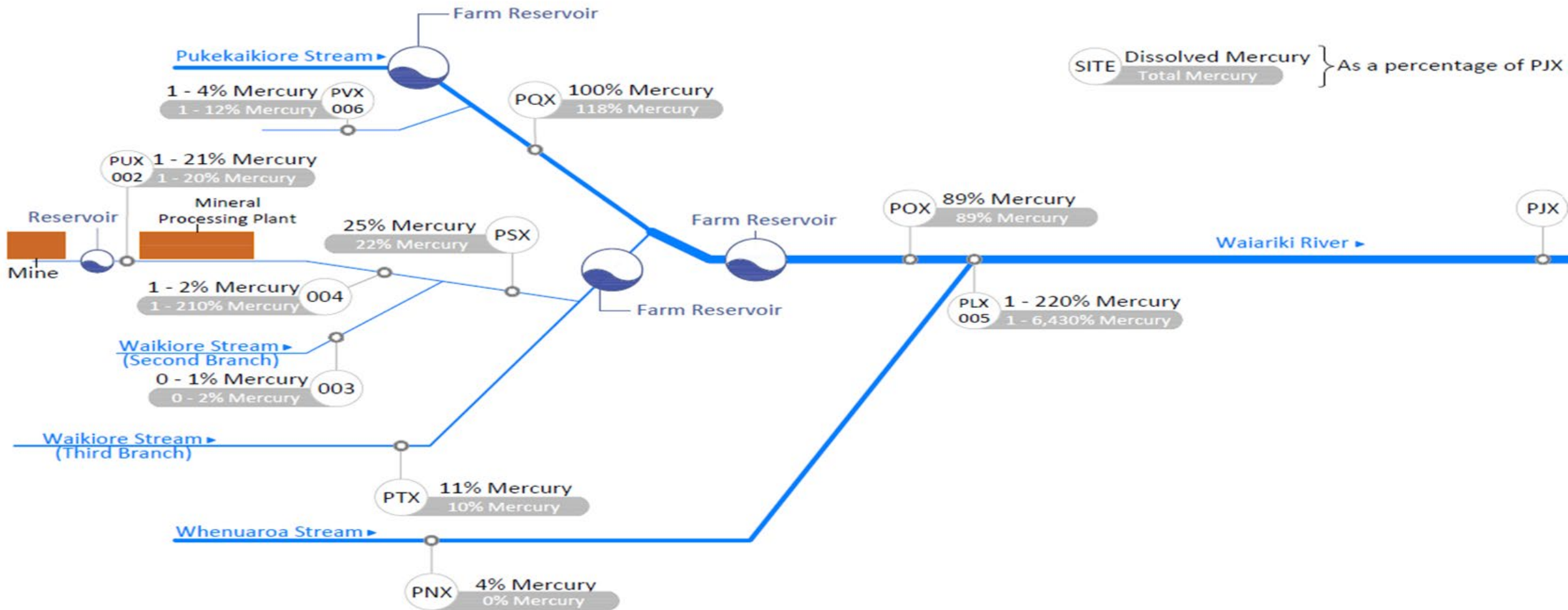
- SSGV for inorganic mercury:
 - 520 mg/kg Type 2 site.
 - 1,300 mg/kg Acute SSGV.
- 20% of soil samples exceeded SSGV (main processing plant).
- Highest Hg conc ~2,300 mg/kg
- As below SSGV.
- SPLP testing indicated leachable Hg & potentially Zn.
- Average RPD was 40% (22 duplicates).
- VSP used to determine the number of samples .



Surface Water

- Mercury below 95% ANZG.
- Mercury concentration decreased with increasing distances downstream.
- Mercury exceeded 99% ANZG
- Cu and Zn exceeded 95% ANZG below the mineral processing plant.
- Bioaccumulation of Hg found in biota.





Summary

- Elevated mercury is present in the soils at the site but unlikely to pose a hazard to human health for short-term exposure (current site use). It may be an issue if the site is regularly visited (especially for pregnant women or women with young children).
- Indication that soils may be leaching mercury into the shallow groundwater system, which together with overland flow are likely to be the major source of mercury.
- Surface water quality does not present a health hazard to on-site or off-site users.
- Up to 25% mercury flux from the Puhipuhi plateau may be coming from the site. Pukekaikiore Stream may be a more significant source of mercury flux.
- Biota and Sediment quality off-site impacted by a number of different sources.