Source Pollution Monitoring in Industrial Areas

Point-Source Stormwater Pollution Forum
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Source Pollution Monitoring in Industrial Areas

Purpose of Presentation

To provide an overview of the source pollution monitoring project in Greater Dandenong's industrial areas

Key messages

- Wetlands are:
  - increasingly used to improve water quality
  - effective at trapping sediment, including pollutants
- Stormwater pollution from industrial areas impacts downstream wetlands
- Pollution from industrial areas can be through lack of awareness, poor practices or deliberate actions
- Industrial polluters usually within broader IN1Z
- Able to identify source pollution
- Engagement can change businesses practices

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Wetlands are increasingly used to improve water quality

- Melbourne Water
  - Currently ~400 sediment ponds*
  - ~400 more planned over next 20 years*
- local government

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*2012 report titled 'Sediment accumulation in constructed wetland sedimentation ponds and the risk to wetland systems' (Authors: D. Sharley, D. Carew & V. Pettigrove).

Wetlands are effective at trapping sediment, including pollutants

A 2012 report* identified that:

- these wetlands are doing the job they were designed for – including trapping large amounts of sediment
- However, ~ 50% of the sediments sampled in this study exceeded EPA contaminated soils Class C thresholds

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*2012 report titled 'Sediment accumulation in constructed wetland sedimentation ponds and the risk to wetland systems' (Authors: D. Sharley, D. Carew & V. Pettigrove).

Stormwater pollution from industrial areas impacts downstream wetlands

Another recent study* identified that:

- it only takes ~10% of a catchment to be industrialised for stormwater to significantly pollute downstream receiving wetlands

- Reducing pollution from industrial areas will:
  - protect downstream wetlands
  - reduce management costs to Melbourne Water / Local Government

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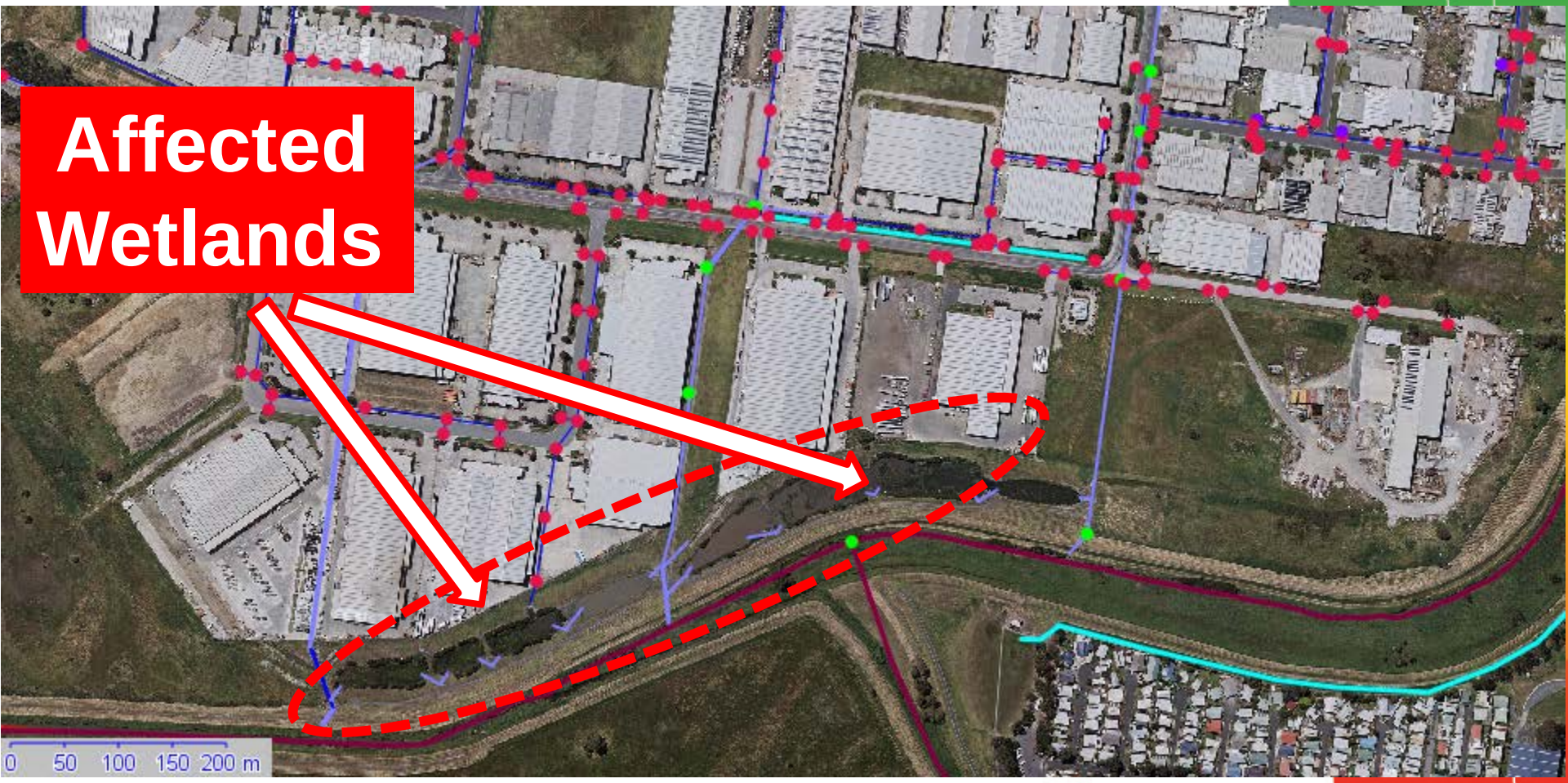
*Sharley, D. J., Sharp, S. M., Marshall, S., Jeppe, K., Pettigrove, V. J., 2017, Linking urban land use to pollutants in constructed wetlands: Implications for stormwater and urban planning, Landscape and Urban Planning 162:80-91.

Pollution hotspots identified in sediment of wetlands draining into Eumemmering Creek*



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*A project under Action 9 of “A Cleaner Yarra River and Port Phillip Bay – A Plan of Action” by MW, EPA & CAPIM

Pollution from industrial areas can be through:

- lack of awareness
- poor practices
- deliberate actions

Hydraulic oil leak

Hydraulic oil spill

Lead acid batteries exposed to the elements – no bunding.


19.10.2016 14:06


28.10.2016 08:13


16.08.2016 10:27


24.03.2016 09:30

Engine oils not contained
& no spill kit.

Illegal installation of waste drain from service area directly into stormwater pit.

Diesel fuel waste…..

Liquid from radiators…..

Paint…..

Stormwater pit adjacent engine dismantling bay.
Sediment sock installed. Heavily soaked in waste oil.


30.01.2015 10:37

Industrial polluters usually within broader IN1Z

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Target: Industrial Zone 1

- IN1Z applies to most industrial areas across the state
- Provides for manufacturing, storage & distribution of goods and associated uses.
- includes requirements for separation distances to protect the safety and amenity of local communities.
- Many of these land uses do not require planning approval, which exempts the need for a planning permit which would place controls on land use.
- 2,174ha in CGD

Target: Industrial Zone 2

- IN2Z limited across the state
- Provides for manufacturing, including noxious industries, storage of goods (incl. hazardous goods) & associated uses.
- This zone is intended for high impact industrial uses which require a substantial separation distance from residential areas.

- As there is limited land zoned IN2Z within Victoria, this area needs to be protected for its intended purpose.

- 290 ha in CGD

Able to identify source pollution

passive sampling of stormwater drains

- Granular Activated Carbon
- effective for selected heavy metals and oil based pollutants

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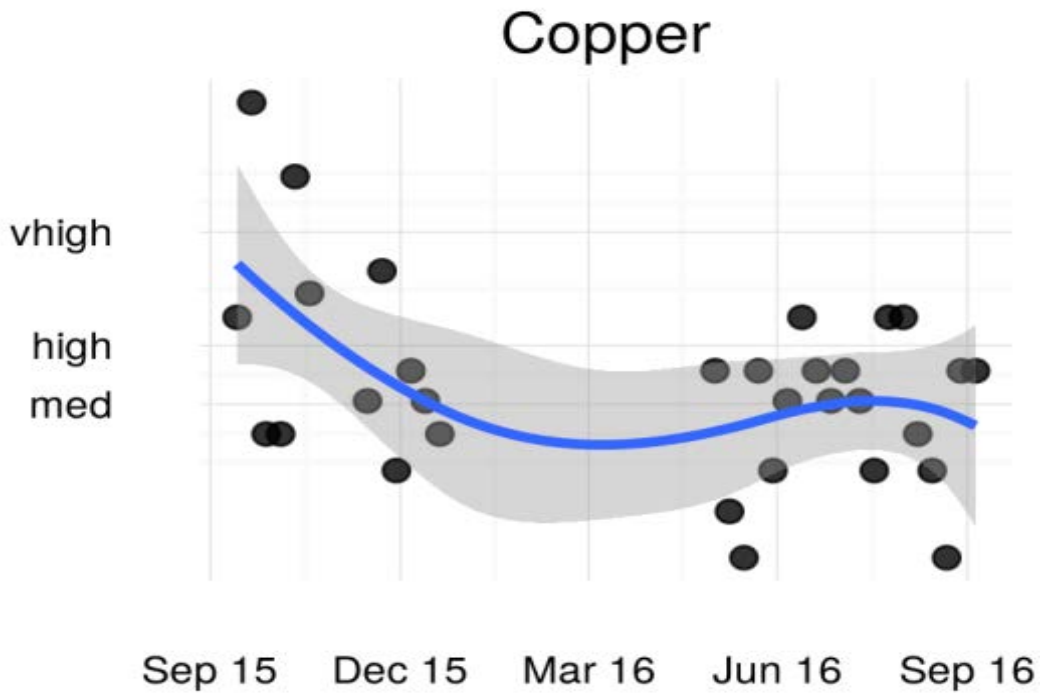
Engagement can change businesses practices



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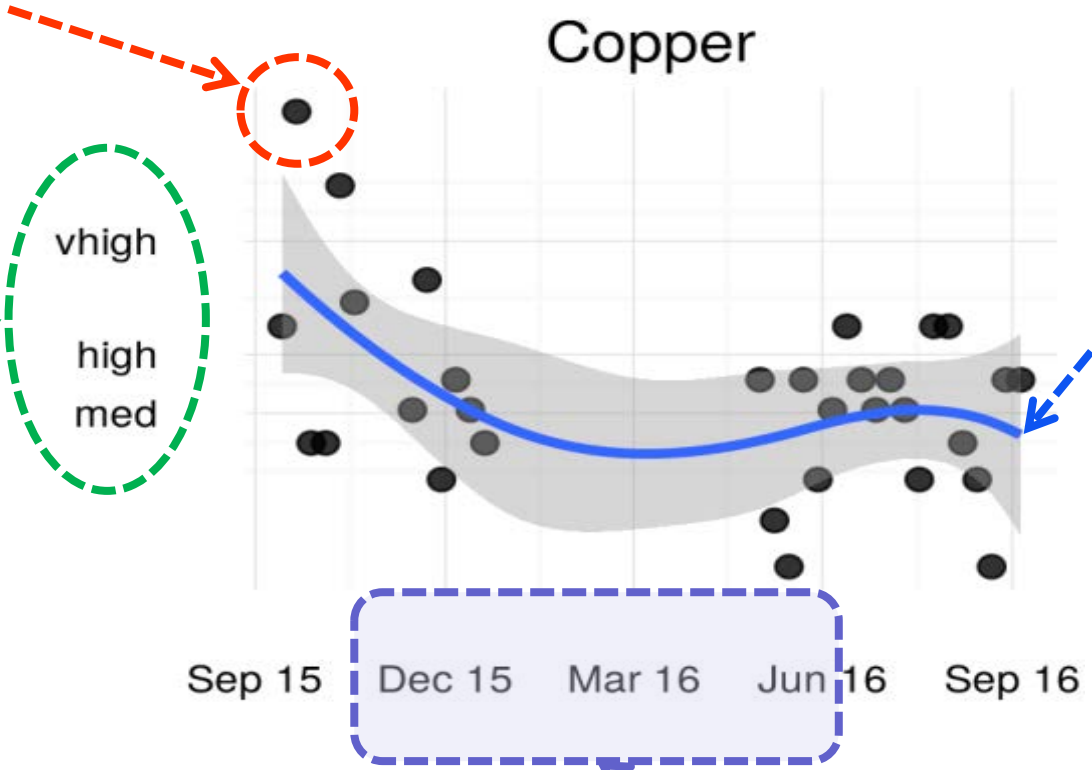
Engagement can change businesses practices

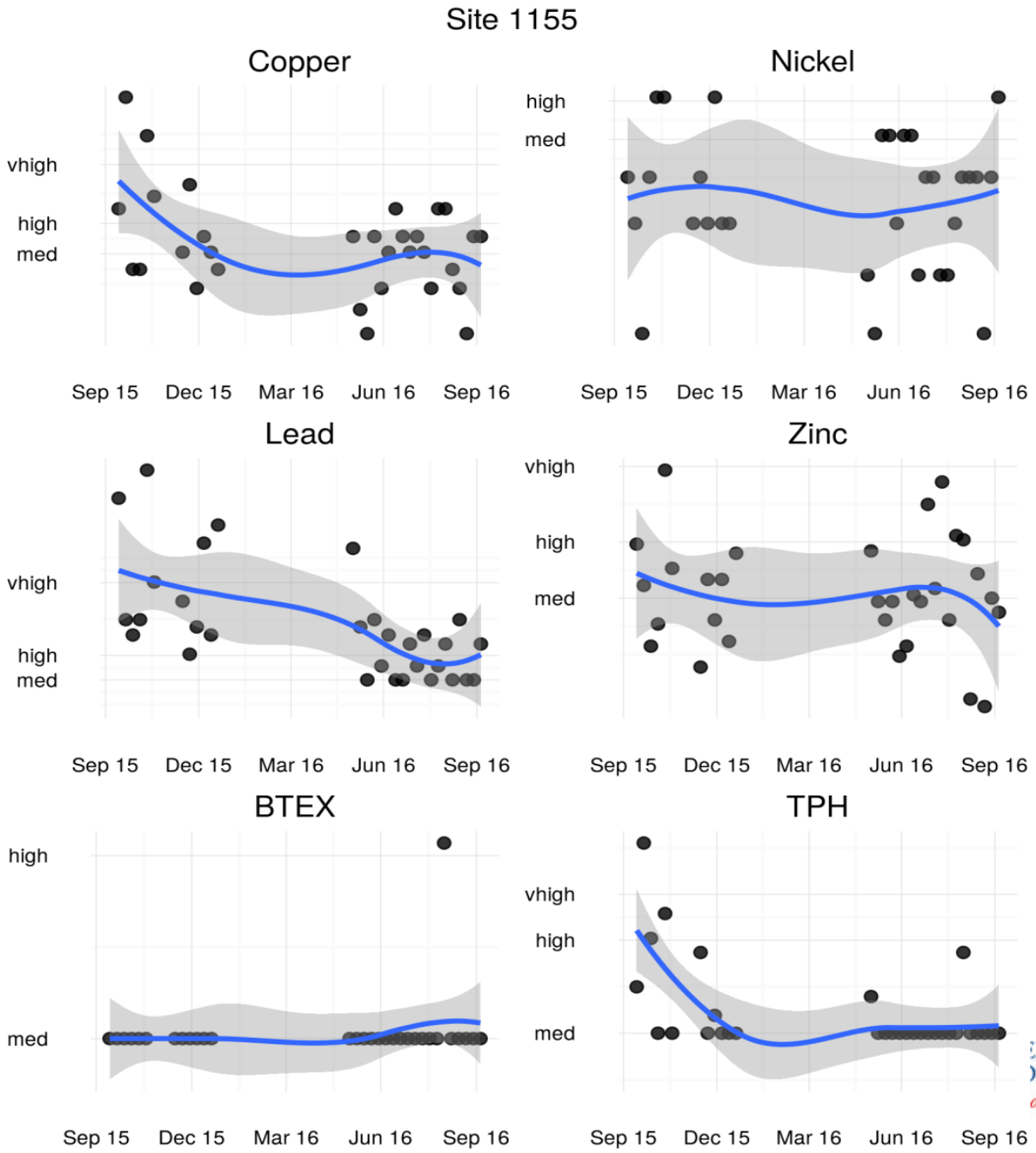
Weekly sample test result



Trend

Pollutant specific risk category

Engagement with businesses



BTEX
(**B**enzene, **T**oluene and 2 other crude oil compounds)

TPH
(Total Petroleum Hydrocarbons)

What triggers engagement?

Includes:

- site observations
- visible presence of compliance officers
- mailout
- face-to-face engagement
- reporting

Officers observed discharge of water from skip when picked up

What triggers engagement?

Includes:

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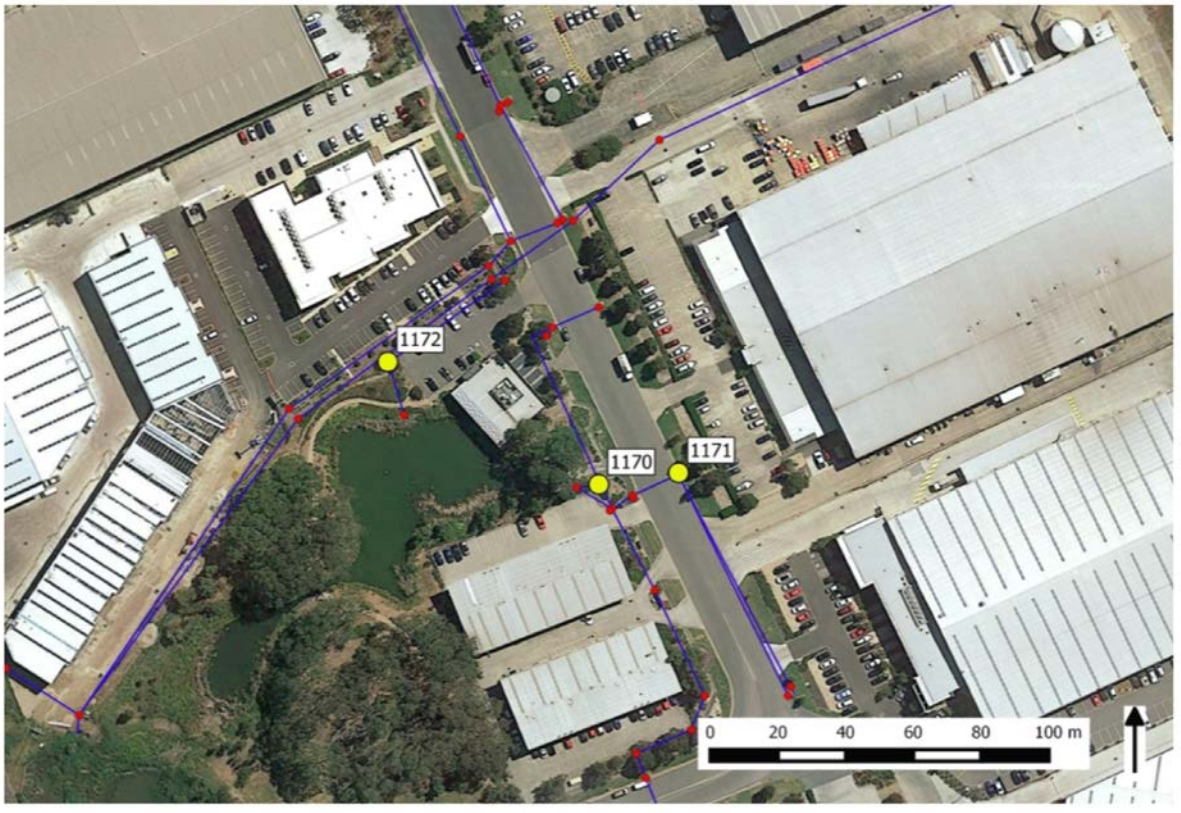
Neighbours complained of foul smell from dead carp in wetland



Key Project Outcomes

These include:

- Identification of high levels of harmful contaminants
- Ability to identify source polluters
- Efficient use of Council's resources:
  - through a proactive collaborative approach
  - reduces damage to Council's fixed assets
- Overall improvement in businesses site management practices
- Allows informed comment on land use applications
- The support from local businesses engaged through this project has been demonstrated through their voluntarily improved site management and willingness to report polluters

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Lessons Learnt :

These include:

- Industrial 1 Zone areas tested have returned higher readings than Industrial 2 Zones
- Industrial 2 Zone areas tested have been found to have better site management practices
- Council has found areas with primarily small business operators (i.e. less than 5 employees) returned the highest pollution readings
- Engagement processes found that pollution generally resulted from poor site management (including a failure to properly maintain and/or upgrade plant and equipment) as opposed to deliberate actions

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Lessons Learnt

These include (cont.):

- engagement leads to improved practices
- no negative feedback
- post engagement monitoring demonstrated a drop in pollution levels
- to maintain improved practices, long term monitoring and engagement needs to become embedded into councils processes
- increased engagement encouraged:
  - self monitoring and incident reporting
  - businesses are in need of assistance to improve their own site management practices

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Next Steps

Council is now considering opportunities to embed this approach into Council's management of stormwater

This includes:

- development of engagement material
- review of as-of-right uses and permit conditions
- introduction of a user pay approach through:
  - specific permit conditions requiring monitoring
  - evaluation of mechanisms to fund an ongoing source pollution monitoring program.

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Thank you

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