

# OIEWG PETROLEUM SITE DISCHARGE GUIDELINES – AN UPDATE

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## PROGRAMME ABSTRACT

The OIEWG was formed in the mid-1990s to provide a forum for environmental management in the downstream petroleum industry. One of the first OIEWG activities was the development of a set of "Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand".

These guidelines are almost 20 years old. There have been significant developments in Stormwater management since the guidelines were published in 1998. The guidelines have been included by reference in Plans but there is now a feeling in some quarters that they may be out of date.

Accordingly the OIEWG has over the past 5 years conducted a range of assessments of the performance of sites designed under the 1998 guidelines.

Martin will look at how these guidelines have fared. He will outline the results of trials of treatment device effectiveness for service stations and findings from monitoring of *Guideline-compliant* sites. He will address a number of gaps in the guidelines such as Diesel emission fluid DEF and dewatering.

Simon will address the update to the guidelines and the process that will be followed to finalize the guidelines and will be seeking feedback on the development of an updated guideline.

## KEYWORDS

**Guidelines, Petroleum Industry, Hydrocarbons, Dewatering, Stormwater Treatment**

## LONGER ABSTRACT

The Oil Industry Environment Working Group (OIEWG) formed mid 1990s - a forum for environmental management in the downstream petroleum industry. One of the first OIEWG activities was the development of a set of "Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand". The Guidelines were developed by an MfE Task Group (OIEWG and Councils) with predominantly Oil Industry funding.

These guidelines are almost 20 years old. There have been significant developments in Stormwater management since the guidelines were published in 1998. The guidelines have been included by reference in Plans with reducing frequency over the years but are still incorporated by reference in to numerous plans and bylaws.

There is in some quarters a perception that the 1998 guideline is dated. The OIEWG set out to assess the performance of guideline compliant sites and to identify any performance gaps. Over the last ten years in particular Industry has conducted a considerable amount of new work on Stormwater issues to support new resource consents. This work has, for the large part not been widely disseminated.

OIEWG is active in submitting on plan changes and raising industry standards across the board. An updated guideline was considered to be an effective means of incorporating the new knowledge base into wider industry practice.

Some key areas that will be discussed and results shared are

- Dewatering Contaminated sites
- Wider variety of treatment devices such as tree pits, swales and in drain filters
- Targeting of general vehicle related contaminants in parking areas (balance areas)
- Introduction of diesel emission fluids (DEF) to treat nitrous oxide emissions

A considerable body of evidence was developed by Z leading to the OIEWG project to update the guidelines. Key pieces of research conducted include:

- "Stormwater and Sediment Monitoring Data from Service Stations and Control Sites in Auckland Region" (URS 2008).
- "Stormwater Treatment Devices Monitoring at Representative Z Service Stations in Auckland Region" (PDP 2013).
- "Diesel Exhaust Fluid Stormwater Management" (Easton et al, 2015).
- "Dewatering Hydrocarbon Impacted Sites" (Robertson and Lukey 2017).
- Related work by Golder on fate of hydrocarbons in stormwater and a sediment study (vacuuming roads and forecourt) in prep.
- PDP Stormfilter assessment (Easton and Robertson 2017).

State of knowledge

Some of the key findings of this review are.

- Well maintained API interceptors achieve a high standard of control over hydrocarbons.
- Dissolved hydrocarbon is short lived in stormwater systems.
- TSS and metals treatment efficiencies (from settlement) are high in large volume API stormwater treatment devices (interceptors) treating forecourt area.
- Sediment load on site has been associated with adjacent road traffic (Kennedy in press).
- The industry standard for non-forecourt areas (catchment areas that do not include refuelling activities) is to use simple sumps. Z has moved towards trapped sumps with ability to retain product if vehicle fuel tanks are leaking (this often becomes evident when cars are refuelled). Increasing frequency of vehicle tank failures suggests trapped sumps in balance areas should be considered.
- A visual approach to monitoring dewatering is protective of the environment.

- Sediment load from service stations is low compared to the load from the surrounding urban catchments. Catchment approaches to Stormwater management may be more cost effective than targeting low contaminant load sites.
- In particularly sensitive catchments use of stormfilters may be appropriate to protect water quality. I.e. Stormfilters to manage non-forecourt discharges should be considered on a case-by-case basis, not as a blanket requirement for every service station. A site specific assessment approach is recommended for the assessment of environmental effects associated from Diesel Exhaust Fluid use (Easton et al, 2015).
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#### Finalization of the Guidelines

The OIEWG will be incorporating the findings of this work into the guideline review. This will be circulated to key Stormwater practitioners at Regional Councils and Local Authorities in advance of the Stormwater 2018 Conference