

MEMO

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From:

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Date:

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Arcadis Project No.:

Subject:

Comments on Washington State Department of Ecology Draft
Implementation Memorandum No. 23

This memorandum provides comments on the Draft Implementation Memorandum No. 23 prepared by Washington State Department of Ecology (Ecology) Toxic Cleanup Program (TCP) and dated March 7, 2019.

Comment #1

Single point estimates of chronic toxicity to four aquatic species (two freshwater and two marine) are not sufficient to form the basis of a screening level. As evident in the reported results there is inherent variability in:

- a. Test organism response both within and between species.
- b. Gasoline and diesel constituents (e.g. dominant carbon ranges, additives) based on the wide variation in total petroleum hydrocarbon (TPH) sources materials and refining methods.
- c. How the Water-accommodated Fraction (WAF) concentrations are prepared and the degree to which these fractions can degrade quickly.

- i. Actual test concentrations of gasoline were 59-85% of the nominal concentrations and actual concentrations of diesel were 3-30% of the nominal concentrations.
- ii. This variability in WAF concentrations was demonstrated by comparing measured “fresh” as compared to “stale” concentrations. Since these screening levels are intended to be used to screen fresh TPH samples, what will be considered as “fresh”?

Given these uncertainties, additional testing should be conducted to confirm and verify the results prior to proposing protective values.

Comment #2

These proposed values are overall lower than other recently published screening levels as summarized in the Interstate Technology & Regulatory Council (ITRC) 2018 report *TPH Risk Evaluation at Petroleum-Contaminated Sites*, and values reported in the ESL Workbook dated February 2016 (rev 3) by the San Francisco (SF) Regional Water Quality Control Board (RWQCB). Comparative screening levels are summarized in the table below.

Hazardous Substance	Washington State		Cited in Table 7-1 ITRC 2018 (except BET values)				
	2019 Draft Protective Value		SF RWQCB (Feb 2016 rev 3) ¹		Hawaii (HIDOH 2017)		Canada Atlantic Partnership (2012)
	Fresh	Marine	Fresh	Marine	Fresh	Marine	Fresh and Marine
Gasoline Range Organics	1000	1700	443	3700	500	3700	1500
Diesel Range Organics	150	50	640	640	640	640	100
Benzene	10	23	46	700			
Toluene	53	102	130	5000			
Ethylbenzene	12	21	290				
Total Xylenes	57	106					

Notes:

Units are µg/L

Fresh = freshwater

BET = benzene ethylbenzene toluene

SF = San Francisco

RWQCB = Regional Water Quality Control Board

HIDOH = Hawaii Department of Health

¹ ESL Workbook Table IP-5 Aquatic Habitat Goals for TPH and Table IP-6 for BET

Lower than the proposed Washington State Draft Protective Value

The benzene, ethylbenzene, toluene and xylene (BTEX) screening levels are particularly uncertain since only the SF RWQCB has screening levels to compare against and none for xylene. The marine values are consistently higher than the freshwater values (except for where the marine value was adopted as the freshwater value) making the Washington State proposed marine value for Diesel Range Organics suspicious since it is lower than the freshwater value. This lack of consistency with other values provides further support for the conclusion that additional testing is necessary before protective values are proposed.