

Letter Health Consultation

Duwamish Waterway Park Beach Sediment, King County, Washington

June 12, 2023

Prepared by

**The Washington State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**



DOH 334-507 June 2023

Foreword

The Washington State Department of Health (DOH) has prepared this letter health consultation with funds from a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the U.S. Department of Health and Human Services and is the principal federal public health agency responsible for health issues related to hazardous substances. ATSDR's mission is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

The purpose of a letter health consultation is to assess the health threat posed by hazardous substances in the environment and if needed, recommend steps or actions to protect public health. Letter health consultations are initiated in response to health concerns raised by residents or agencies about exposure to hazardous substances.

This letter health consultation was prepared in accordance with ATSDR methodologies and guidelines. However, the report has not been reviewed and cleared by ATSDR. The findings in this report are relevant to conditions at the site during the time of this letter health consultation and should not be relied upon if site conditions or land use changes in the future.

Use of trade names is for identification only and does not imply endorsement by DOH, the Centers for Disease Control and Prevention, ATSDR, the Public Health Service, or the U.S. Department of Health and Human Services.

For additional information, please contact us at 1-877-485-7316 or visit our web site at <http://www.doh.wa.gov/consults>.

For persons with disabilities this document is available on request in other formats. To submit a request, please call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov

For more information about ATSDR, contact the Center for Disease Control and Prevention (CDC) Information Center at 1-800-CDC-INFO (1-800-232-4636) or visit the agency's web site at www.atsdr.cdc.gov.



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Re: Duwamish Waterway Park Beach Sediment, King County, Washington

Dear Linn and Christian:

Statement of Issues

On May 2, 2023, Just Health Action (JHA) and the Duwamish River Community Coalition (DRCC) met with the Washington State Department of Health (DOH), Agency for Toxic Substances and Disease Registry (ATSDR) Cooperative Agreement Program regarding potential human health effects from exposure to contaminants in sediment at the Duwamish Waterway Park beach. DOH obtained current available site data from the Washington State Department of Ecology (Ecology) to complete its review of the sediment data for the Duwamish Waterway Park (Park). A summary of our findings is included in this letter.

Background

The Park is located at 7900 10th Avenue South along the Lower Duwamish Waterway (LDW) in Seattle, Washington. The Park is owned by the City of Seattle Department of Parks and Recreation (SPR) and previous sampling has shown concentrations of arsenic, lead, and other contaminants above the Washington State Model Toxics Control Act (MTCA) cleanup standards. Currently, the Park is under an Agreed Order with Ecology to conduct a Remedial Investigation/Feasibility Study work plan to further characterize on-site contamination [1]. The Beach Area is located at the north end of the Park in an area that ramps down towards the LDW. Sediment samples were collected in the Beach Area during low tide in 2021. The Beach Area of the Park is separate from the Environmental Protection Agency (EPA) LDW Superfund Site.

Results and Discussion

Contaminants of concern (COCs) in sediments were determined by employing a screening process. Maximum contaminant concentrations in sediment were screened against ATSDR's health-based residential soil comparison values (CV). Comparisons were also made to MTCA

Method A standards for Washington State or the EPA's Regional Screening Levels (RSLs). In general, if a chemical contaminant's maximum concentration is greater than its CV, then the contaminant is evaluated further.

The maximum levels of chemical contaminants detected in sediments are shown in Tables 1 and 2. None of the contaminants found in the sediment samples exceeded ATSDR CVs and they are below the RSL, and MTCA Method A, residential soil standards for everyday exposure. Therefore, exposures through contact with sediments will not be evaluated any further.

There is no new LDW surface water data to evaluate. However, based on the previous LDW Public Health Assessment (PHA), "Exposure to chemical contaminants in surface water while swimming represents no apparent public health hazard. The King County Water Quality Assessment concluded that there is little risk to swimmers associated with chemical contaminants in LDW water. Outreach efforts have not indicated that swimming is a common practice, but it is important to note that Public Health Seattle and King County (PHSKC) has a current advisory against swimming near any of the nine combined sewer overflows (CSOs) in the LDW. This advisory is based on potential exposure to pathogens associated with sporadic releases of raw sewage into the river [2]."

Conclusions

DOH concludes that touching, breathing, or accidentally eating sediment from Duwamish Waterway Park beach is not expected to harm people's health. Maximum levels of contaminants in sediments are below levels of concern.

DOH concludes that, based on the previous PHA, exposure to chemical contaminants in surface water while swimming is not expected to harm people's health.

Recommendations

DOH recommends the public follows SPR signs at the Park on Wash Your Hands and Feet after playing in sediment or surface water.

DOH recommends the public follows PHSKC advisory against swimming near CSOs because of potentially high levels of pathogens.

DOH strongly advises against the use of untreated surface water as a drinking water source anywhere in the state.

DOH appreciates this opportunity to review the sediment data and assist with these technical issues. Please contact me at 360-236-3376 if you have any questions.

Sincerely,

/s/ Lenford O'Garro

Lenford O'Garro
Toxicologist
Site Assessments Program

cc: Maureen Sanchez, Department of Health

Table 1. Maximum concentrations of inorganic and organic chemicals in sediments collected at the Duwamish Waterway Park beach in 2021, Seattle, King County, Washington.

Contaminant	Maximum Concentration (ppm)	Comparison Value (ppm)	EPA Cancer Class	Comparison Value Reference	Contaminant of Concern (COC)
Antimony	1.87	21	D	RMEG	No
Arsenic	12.0	16	A	EMEG	No
Cadmium	0.2 U	5.2	B1	EMEG	No
Chromium	16.4	160 *	A	RMEG	No
Copper	95.8	520	D	IM EMEG	No
Lead	42.4	250	B2	MTCA	No
Mercury	0.1 U	16**	D	EMEG	No
Silver	0.2 U	260	D	RMEG	No
Zinc	67.4	16,000	D	EMEG	No
2,4-Dimethylphenol	0.075 UJ	1,000		RMEG	No
2-Methylphenol	0.047 UJ	2,600	C	RMEG	No
3-Methylphenol + 4-Methylphenol	2 U	5,200	C	EMEG	No
Benzoic acid	5 U	210,000	D	RMEG	No
Benzyl alcohol	0.12 UJ	6,300		RSL	No
Dibenzofuran	0.1 U	78		RSL	No
Phenol	1 U	16,000	D	RMEG	No
N-Nitrosodiphenylamine	0.1 U	79	B2	CREG	No
Bis(2-ethylhexyl) phthalate	0.26 J	5.2	B2	IM EMEG	No
Butylbenzyl phthalate	0.19 UJ	10,000	C	RMEG	No
Diethyl phthalate	1 U	42,000	D	RMEG	No
Dimethyl phthalate	0.084 UJ	5,200	D	RMEG	No
Di-n-butyl phthalate	1 U	5,200	D	RMEG	No
Di-n-octyl phthalate	1 U	21,000		IM EMEG	No
Acenaphthene	0.031	3,100		RMEG	No
Acenaphthylene	0.02 U	3,100***		RMEG	No
Anthracene	0.047	16,000	D	RMEG	No
Benz[a]anthracene	0.068	1.1	B2	RSL	(cPAH)
Total Benzofluoranthenes	0.117	0.42	B2	RSL	(cPAH)
Benzo(a)pyrene	0.063	0.11	B2	CREG	(cPAH)
Chrysene	0.073	110	B2	RSL	(cPAH)

Dibenzo(a,h)anthracene	0.02	0.11	B2	RSL	(cPAH)
Indeno(1,2,3-cd)pyrene	0.02	1.1	B2	RSL	(cPAH)
Benzo(ghi)perylene	0.02	3,100***	D		No
Fluoranthene	0.150	2,100	D	RMEG	No
Fluorene	0.023 U	2,100	D	RMEG	No
2-Methylnaphthalene	0.02 U	210	DI	RMEG	No
Naphthalene	0.02 U	1,000	CN	RMEG	No
Phenanthrene	0.17	3,100***	D		No
Pyrene	0.15	1,600	D	RMEG	No
1,2,4-Trichlorobenzene	0.1 U	520	D	RMEG	No
1,2-Dichlorobenzene	0.1 U	4,700	D	RMEG	No
1,4-Dichlorobenzene	0.1 U	3,600		EMEG	No
Hexachlorobenzene	0.1 U	0.24	B2	CREG	No
Hexachlorobutadiene	0.017 UJ	5	C	CREG	No
Pentachlorophenol	0.2 UJ	0.97	LC	CREG	No
Total cPAH (BaP-EQ)	0.085	0.11†	B2	CREG	No
Total PCBs	0.091 U	1††		EMEG	No

ATSDR – Agency for Toxic Substances and Disease Registry

CREG - ATSDR's Cancer Risk Evaluation Guide (child)

RMEG - ATSDR's Reference Dose Media Evaluation Guide (child)

EMEG - ATSDR's Environmental Media Evaluation Guide (child)

IM EMEG - ATSDR's Intermediate Environmental Media Evaluation Guide (child)

* Hexavalent chromium

** methylmercury

*** Acenaphthene RMEG value was used as a surrogate

cPAHs – Carcinogenic Polycyclic Aromatic Hydrocarbons

BaP-EQ – Benzo(a)pyrene Equivalents: sum of individual cPAHs multiplied by the relative potency factor (RPF) describing the carcinogenic potential relative to BaP.

† Benzo(a)pyrene CREG value was used as a surrogate

†† Arocolor 1254 EMEG value was used as a surrogate

J - data qualifier: The associated numerical result is an estimate

U - data qualifier: Compound analyzed, but not detected above detection limit

UJ - data qualifier: Compound analyzed, but not detected above estimated detection limit

COC – Contaminant of Concern

EPA – Environmental Protection Agency

A - EPA: Human carcinogen

B1 - EPA: Probable human carcinogen (limited human, sufficient animal studies)

B2 - EPA: Probable human carcinogen (inadequate human, sufficient animal studies)

CN - EPA: Carcinogenic potential cannot be determine

D - EPA: Not classifiable as to health carcinogenicity

DI - EPA: Data are inadequate for assessment of human carcinogenic potential

LC - EPA: Likely to be carcinogenic to humans

MTCA - Washington State Model Toxics Control Act

RSL – EPA: Regional Screening Level

ppm -parts per million

References

1. Herrera 2022. Draft Remedial Investigation/Feasibility Study Work Plan – Duwamish Waterway Park. Prepared for City of Seattle Parks and Recreation by Herrera Environmental Consultants, Inc., Seattle, Washington. April 26, 2022.
2. Washington State Department of Health. Public Health Assessment of the Lower Duwamish Waterway site, Seattle, King County, Washington. September 30, 2003.