

Lower Duwamish Waterway Group

Port of Seattle / City of Seattle / King County / The Boeing Company

Sections 1 through 13 Draft Final Feasibility Study

Lower Duwamish Waterway
Seattle, Washington

FOR SUBMITTAL TO:

The U.S. Environmental Protection Agency
Region 10
Seattle, WA

The Washington State Department of Ecology
Northwest Regional Office
Bellevue, WA

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List of Acronyms

AET	Apparent Effects Threshold
AOC	Administrative Order on Consent
AOPC	area of potential concern
API	Asian and Pacific Islander
ARAR	applicable or relevant and appropriate requirement
BAZ	biologically active zone
BCA	bias corrected accelerated
BCM	Bed Composition Model
BEHP	bis(2-ethylhexyl)phthalate
Bg	natural background
bgs	below ground surface
BHC	benzene hexachloride
BMP	best management practices
BOD	biological oxygen demand
C	combined technology
CAD	contained aquatic disposal
CAP	Cleanup Action Plan
CDF	contained disposal facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CLU-IN	EPA Hazardous Waste Clean-up Information
cm	centimeter
COC	chemical of concern
COPC	chemical of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	cleanup screening level
CSM	conceptual site model
CSO	combined sewer overflow
CSTAG	Contaminated Sediment Technical Advisory Group
CT	central tendency



CTM	Candidate Technologies Memorandum
CWA	Clean Water Act
cy	cubic yards
D ₅₀	median grain size
DAIS	Dredged Analysis Information System
DCA	disproportionate cost analysis
DDT	dichlorodiphenyl-trichloroethane
DEA	David Evans and Associates
DMMP	Dredged Material Management Program
DMMU	Dredged Material Management Unit
DNS	Determination of Non-Significance
DOH	Department of Health
DPD	City of Seattle Department of Planning and Development
DRCC	Duwamish River Cleanup Coalition
dw	dry weight
EAA	early action area
EE/CA	Engineering Evaluation/Cost Analysis
EB/DRP	Elliott Bay / Duwamish Restoration Program
Ecology	Washington State Department of Ecology
ENR	enhanced natural recovery
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ESA	Endangered Species Act
f _{oc}	fraction of organic carbon
ft	feet
FEMA	Federal Emergency Management Act
FRTR	Federal Remediation Technologies Roundtable
FS	Feasibility Study
g/cm ³	gram per cubic centimeter
GAC	granular activated carbon
GIS	geographic information system
HHRA	human health risk assessment



HI	Hazard index
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HQ	hazard quotient
HTTD	high-temperature thermal desorption
IC	institutional control
IDW	inverse distance weighting
JARPA	Joint Aquatic Resource Permit Application
KCDOT	King County Department of Transportation
Koc	organic carbon coefficient
lb/ft ³	pound per cubic foot
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LOAEL	lowest-observed-adverse-effect level
LOEC	lowest-observed-effect concentration
LTTD	low-temperature thermal desorption
μg/kg	microgram per kilogram
μg/kg dw	microgram per kilogram dry weight
μm	micrometer
mm	millimeter
MCUL	minimum cleanup level
mg/kg	milligram per kilogram
mg/kg dw	milligram per kilogram dry weight
mg/kg OC	milligram per kilogram organic carbon
MHHW	mean higher high water
ML	maximum level
MLLW	mean lower low water
MNR	monitored natural recovery
MT	metric ton
MTCA	Model Toxics Control Act
MUP	master use permit
n/a	not applicable
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
ng/kg	nanogram per kilogram



NOAA	National Oceanic and Atmospheric Administration
NOAEL	no-observed-adverse-effect level
NOEC	no-observed-effect concentration
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
O&M	operations and maintenance
oc	organic carbon (carbon normalized)
OM&M	operations, maintenance, and monitoring
OSV	ocean survey vessel
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
PEF	potency equivalency factor
pg/g dw	picograms per gram dry weight
PM ₁₀	particulate matter less than 10 microns in diameter
ppt	parts per thousand
PQL	practical quantitation limit
PRG	preliminary remediation goal
PSAMP	Puget Sound Ambient Monitoring Program
PSEP	Puget Sound Estuary Program
PSNS	Puget Sound Naval Shipyard Complex
PSR	Pacific Sound Resources
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
R	removal emphasis
RAL	remedial action level
RAO	remedial action objective
RBC	risk-based concentration
RBTC	risk-based threshold concentration
RCRA	Resource Conservation and Recovery Act
RCM	reactive core mat
RCW	Revised Code of Washington
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation



RI/FS	Remedial Investigation/Feasibility Study
RL	reporting limit
RM	river mile
RME	reasonable maximum exposure
RNA	restricted navigation areas
RP/PEIS	Restoration Plan and Programmatic Environmental Impact Statement
ROD	Record of Decision
R-T	removal with physical treatment
SARA	Superfund Amendments and Reauthorization Act
SCA	Source Control Area
SCAP	Source Control Action Plan
SCWG	Source Control Work Group
SD	storm drain
SDOT	Seattle Department of Transportation
SEPA	State Environmental Policy Act
SI	site investigation
SIM	selected ion monitoring
SITE	Superfund Innovative Technology Evaluation
SL	screening level
SMS	Sediment Management Standards
SPI	Sediment Profile Imaging
SPU	Seattle Public Utilities
SQS	sediment quality standards
STAR	Sediment Transport Analysis Report
STM	Sediment Transport Model
SVOC	semivolatile organic compound
SWAC	spatially-weighted average concentration
TBD	to be determined
TBT	tributyltin
TCDD	Tetrachlorodibenzo-p-dioxin
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TEF	toxic equivalency factor
TEQ	toxic equivalent



TI	technical impracticability
TIN	triangulated irregular network
TOC	total organic carbon
TRV	toxicity reference value
TSCA	Toxic Substances Control Act
TSS	total suspended solid
U&A	Usual and Accustomed
UCL95	95% upper confidence limit
UECA	Uniform Environmental Covenants Act
UL	upper limit
USACE	U.S. Army Corps of Engineers
USC	United States Code
USGS	U.S. Geological Survey
VOC	volatile organic compound
VM	verification monitoring
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WQC	water quality criteria
WQS	water quality standards
WSDOT	Washington State Department of Transportation
ww	wet weight

