Table 2.2-4
RAO 1 PRG Derivation
Portland Harbor Superfund Site
Portland, Oregon

	RAO 1 **Reduce cancer and noncancer risks to people from incidental ingestion of and dermal contact with COCs in sediments and beaches to exposure levels that are acceptable for fishing, occupational, recreational, and ceremonial uses.**											
	Beach Sediment						**Sediment**					
Contaminant	**Units**	**Risk-based PRG (10^{-6})**	**Risk-based PRG (HQ=1)**	**ARAR**	**Background**	**PRG**	**Units**	**Risk-based PRG (10^{-6})**	**Risk-based PRG (HQ=1)**	**ARAR**	**Background**	**PRG**
Arsenic	mg/kg	0.4	37	NA	3	3	mg/kg	1	435	NA	3	3
PCBs	µg/kg			NA			µg/kg	370	14,760	NA	9	370
cPAHs (BaP Eq)	µg/kg	12		NA	12	12	µg/kg	106		NA	12	106
Dioxins/Furans (2,3,7,8-TCDD eq)	µg/kg			NA			µg/kg	0.01	1.0	NA		0.01

Notes:

ARAR - Applicable or relevant and appropriate requirement
NA - Not applicable
PRG - Preliminary Remediation Goal
RAO - Remedial Action Objective
HQ - Hazard Quotient

Table 2.2-5
RAO 2 PRG Derivation
Portland Harbor Superfund Site
Portland, Oregon

	RAO 2										
	Reduce cancer and noncancer risks to acceptable exposure levels (direct and indirect) for human consumption of COCs in fish and shellfish.										
	Tissue (fillet)					**Sediment**					
Contaminant	**Units**	**Risk-based PRGs (10-6)**	**Risk-based PRGs (HQ=1)**	**ARAR**	**Target Level**	**Units**	**Risk-based PRG (10-6)**	**Risk-based PRG (HQ=1)**	**ARAR**	**Background**	**PRG**
Aldrin	µg/kg	0.06	8	NA	0.06	µg/kg	2	260	NA		2
Arsenic	mg/kg	0.001	0.08	NA	0.001	mg/kg			NA	3	
BEHP	µg/kg	72	5,246	NA	72	µg/kg			NA	61	
Chlordanes	µg/kg	3	131	NA	3	µg/kg	1.5	181	NA	0.6	1.5
DDx	µg/kg	3	94	NA	3	µg/kg	6.1	307	NA	3	6.1
Dieldrin	µg/kg	0.06	13	NA	0.06	µg/kg	0.07	40	NA		0.07
Hexachlorobenzene	µg/kg	0.6	210	NA	0.6	µg/kg	0.2	63	NA	0.3	0.3
Mercury	mg/kg	--	26[1]	0.03[1]	0.03[1]	mg/kg			NA	0.034	
Pentachlorophenol	µg/kg	130		NA	130	µg/kg			NA		
PBDEs	µg/kg		26	NA	26	µg/kg			NA		
PCBs	µg/kg	0.5	0.25	NA	0.25	µg/kg	0.2	0.1	NA	9	9
cPAHs (BaP Eq)	µg/kg	7.1[2]		NA	7.1	µg/kg	3,950		NA	12	3,950
1,2,3,4,7,8-HxCDF	µg/kg	0.00008	0.00006	NA	0.00006	µg/kg	0.00001	0.000002	NA		0.000002
1,2,3,7,8-PeCDD	µg/kg	0.000008	0.000006	NA	0.000006	µg/kg	0.00001	0.00001	NA	0.0001	0.0001
2,3,4,7,8-PeCDF	µg/kg	0.00003	0.00002	NA	0.00002	µg/kg	0.0001	0.0001	NA	0.0002	0.0002
2,3,7,8-TCDD	µg/kg	0.000008	0.000006	NA	0.000006	µg/kg	0.00001	0.00001	NA	0.0001	0.0001
2,3,7,8-TCDF	µg/kg	0.00008	0.00006	NA	0.00006	µg/kg	0.0005	0.0004	NA	0.0002	0.0004

Notes:

ARAR - Appropriate, relavent and applicable requirement
NA - Not available
ND - Not determined or detected
BaP Eq - benzo(a)pyrene equivalent
1 - Tissue values are for methyl mercury.
2 - Tissue concentration is for shellfish assuming a consumption rate of 3.3 g/day

Table 2.2-7
RAO 4 PRG Derivation
Portland Harbor Superfund Site
Portland, Oregon

Contaminant	Units	RAO 4 Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for human exposure. Groundwater Risk (RSL 10^{-6})	MCL	ARAR (AWQC)	PRG
Arsenic	µg/L	0.05	10	0.018	0.018
Benzene	µg/L	0.5	5	0.44	0.44
Chlorobenzene	µg/L	78	100	74	74
Chromium	µg/L	NA	100	100	100
Copper	µg/L	800	1,300	1,300	1300
Cyanide	µg/L	1.5	200	4	4
DDD	µg/L	0.031	NA	0.00003	0.00003
DDE	µg/L	0.23	NA	0.00002	0.00002
DDT	µg/L	0.23	NA	0.00002	0.00002
1,1-DCE	µg/L	280	7	230	7
cis-1,2-DCE	µg/L	36	70	9.90	9.9
2,4-D	µg/L	170	70	NA	70
Ethylbenzene	µg/L	1.5	700	68	68
Manganese	µg/L	430	NA	50	50
Pentachlorophenol	µg/L	0.04	1.0	0.03	0.03
Perchlorate	µg/L	14	15	NA	15
cPAHs (BaP Eq)	µg/L	0.0034	0.2	0.00012	0.00012
Benzo(a)anthracene	µg/L	0.03	NA	0.0012	0.0012
Benzo(a)pyrene	µg/L	0.00	0.2	0.00012	0.00012
Benzo(b)fluoranthene	µg/L	0.03	NA	0.0012	0.0012
Benzo(k)fluoranthene	µg/L	0.34	NA	0.0013	0.0013
Chrysene	µg/L	3.40	NA	0.0013	0.0013
Dibenz(a,h)anthracene	µg/L	0.00	NA	0.0001	0.00012
Indeno(1,2,3-c,d)pyrene	µg/L	0.03	NA	0.0012	0.0012
PCE	µg/L	11	5	0.24	0.24
Toluene	µg/L	1,100	1,000	57	57
TCE	µg/L	0.49	5	0.6	0.6
2,4,5-TP	µg/L	110	50	100	50
Vinyl chloride	µg/L	0.019	2.0	0.022	0.022
Xylenes	µg/L	190	10,000	NA	10000

Notes:
NA - Not available

Table 2.2-8
RAO 5 PRG Derivation
Portland Harbor Superfund Site
Portland, Oregon

Contaminant	Units	RAO 5 Reduce risk to ecological receptors from ingestions of and direct contact with COCs in sediment and riverbank soils to acceptable exposure levels. Sediment Risk-based PRG (HQ=1)	ARAR	Background	PRG
BEHP	µg/kg	135	NA	61	135
Cadmium	mg/kg	5	NA	0.12	5
Chlordanes	µg/kg	18	NA	0.4	18
Copper	mg/kg	149	NA	26	149
DDx	µg/kg	63	NA	3	63
DDE	µg/kg	31	NA		31
Dieldrin	µg/kg	62	NA		62
Lindane	µg/kg	5	NA		5
Lead	mg/kg	128	NA	7.7	128
Mercury	mg/kg	1.1	NA	0.034	1.1
PCBs	µg/kg	64	NA	9	64
PAHs	µg/kg	23,000	NA	73	23,000
TBT	mg/kg	24	NA		24
Zinc	mg/kg	459	NA	77	459

Notes:
NA - Not available