

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding polycyclic aromatic hydrocarbons (PAHs) in air, water, and other media are summarized in Table 7-1.

An MRL of 0.6 mg/kg/day has been derived for intermediate-duration oral exposure (15-364 days) to acenaphthene, based on a minimal LOAEL of 175 mg/kg/day for liver weight in mice (EPA 1989c).

An MRL of 0.4 mg/kg/day has been derived for intermediate-duration oral exposure (15-364 days) to fluoranthene, based on a minimal LOAEL of 125 mg/kg/day for increased liver weight in mice (EPA 1988e).

An MRL of 0.4 mg/kg/day has been derived for intermediate-duration oral exposure (15-364 days) to fluorene, based on a minimal LOAEL of 125 mg/kg/day for relative liver weight in mice (EPA 1989e).

Reference doses have been developed by EPA for anthracene (0.3 mg/kg/day), acenaphthene (0.06 mg/kg/day), fluoranthene (0.04 mg/kg/day), fluorene (0.04 mg/kg/day), and pyrene (0.03 mg/kg/day). No reference concentrations exist for any of the PAHs.

PAHs are regulated under The Emergency Planning and Community Right-to-Know (EPCRA) standards of 40 CFR Subpart J. EPCRA requires owners and operators of certain facilities that manufacture, import, process, or otherwise use these chemicals to report annually their release of those chemicals to any environmental media.

OSHA regulates the benzene soluble fraction of coal tar pitch volatiles and mineral oil mist, which contain several of the PAH compounds. Employers of workers who are occupationally exposed must institute engineering controls and work practices to reduce and maintain employee exposure at or below permissible exposure limits (PEL). The employer must use engineering and work controls, if feasible, to reduce exposure to or below an 8-hour time-weighted average (TWA) of 0.2 mg/m³ for coal tar pitch volatiles and 5 mg/m³ for mineral oil mist.

7. REGULATIONS AND ADVISORIES

PAHs are regulated by the Clean Water Effluent Guidelines in Title 40, Sections 400-475, of the Code of Federal Regulations. For each point source category, PAHs may be regulated as a group of chemicals controlled as Total Toxic Organics, may have a specific regulatory limitation, or may have a zero discharge limitation. The point source categories for which the PAHs are controlled as a Total Toxic Organic include electroplating, and metal molding and casting. The point source categories for which the PAHs have specific regulatory limitations include organic chemicals, plastics, and synthetic fibers; cokemaking; and nonferrous metals manufacturing.

Under the Resource Conservation and Recovery Act (RCRA), several PAHs are listed as hazardous wastes when they are discarded commercial chemical products, off-specification species, container residues, and spill residues (40 CFR 261.33).

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons

Agency	Description	Information	Reference
<u>INTERNATIONAL</u>			
IARC	Carcinogenic classification ^a (B[a]A; B[a]P) (B[b]F; B[j]F; B[k]F; I[123cd]P) (Anthracene; B[ghi]P; B[e]P; Chrysene; Fluoranthene; Fluorene; Phenanthrene; Pyrene) (Mineral oil mists)	Group 2A ^b	IARC 1987; IARC 1984; IARC 1984; IARC 1983; IARC 1973
		Group 2B ^c	
		Group 3 ^d	
		Group 1	IARC 1984
	Occupational exposure limits Oil mists, mineral Australia, Belgium, German Democratic Republic, Italy, Netherlands, Switzerland	5 mg/m ³ (TWA)	
	Japan, Finland, Sweden	3 mg/m ³ (TWA)	
	Coal-tar pitch volatiles Australia, Belgium, Italy, Netherlands, Switzerland, Yugoslavia	0.2 mg/m ³ (TWA)	
WHO	European standard for drinking water ^e	0.2 µg/L	WHO 1971
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL, TWA Coal tar pitch volatiles-benzene soluble fraction ^f	0.2 mg/m ³	29 CFR 1910.1000 29 CFR 1910.1002 OSHA 1993 ACGIH 1991
EPA	Oil mist, mineral	5 mg/m ³	29 CFR 1910.1000
	Hazardous Air Pollutants: Proposed Regulations Governing Constructed, Reconstructed or Modified Major Sources	Yes	59 FR 15504 April 1, 1994 (40 CFR 63.44)
b. Non-specific media:			
EPA	Solid Waste		40 CFR Subchapter I
	Criteria for municipal solid waste landfills		40 CFR 258
	List of hazardous inorganic and organic constituents (all PAHs)	Yes	40 CFR App. II
	Identification and Listing of Hazardous Waste Off-specification and discarded materials, and residues (B[a]A, B[a]P, Chrysene, DB[a,h]A, DB[a,i]P, Fluoranthene, I[1,2,3-cd]P)	Yes	40 CFR 261 40 CFR 261.33

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference	
NATIONAL (cont.)	Basis for listing hazardous waste (Acenaphthylene; B[a]A; B[a]P; B[b]F; B[k]F; Chrysene; DB[a,h]A; Fluoranthene; I[1,2,3-cd]P)	Yes	40 CFR 261, App. VII	
	Hazardous constituents of waste (B[a]A; B[b]F; B[j]F; B[k]F; B[a]P; Chrysene; DB[a,e]P; DB[a,h]P; DB[a,i]P; Fluoranthene, I[1,2,3-cd]P)	Yes	40 CFR 261, App. VIII	
	Waste excluded from nonspecific sources	Yes	40 CFR 261, App. IX	
	Carbamate production identification and listing of hazardous waste: oral and inhalation toxicity information for waste constituents (Notice of proposed rulemaking)	Yes	59 FR 9808 March 1, 1994 (40 CFR 261.32) EPA 1994	
	Standards for Owners, and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities Groundwater monitoring list (all PAHs)	Yes	40 CFR 264 40 CFR 264, App. IX	
	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities		40 CFR 266	
	Limits for exclusion of waste-derived residues (B[a]A) (DB[a,h]A)	 1x10 ⁻⁴ mg/kg 7x10 ⁻⁶ mg/kg		40 CFR 266, App. VII
	Land Disposal Restrictions			40 CFR 268
	Waste to be evaluated (B[a]A; B[a]P; Chrysene; DB[a,h]A; I[1,2,3-cd]P)	Yes		40 CFR 268.10
	List of wastes to be identified by May 8, 1990	Yes		40 CFR 268.12
	Land disposal treatment concentrations			40 CFR 268.43
	Waste No. F039		Wastewaters (mg/L)	Non-wastewaters (mg/kg)
	Acenaphthalene		0.059	3.4
Acenaphthene/Anthracene/ Fluorene		0.059	4.0	
B[a]A; Chrysene		0.059	8.2	
B[b]F; B[k]F		0.055	3.4	
B[g,h,i]P		0.055	1.5	
B[a]P		0.061	8.2	
DB[a,h]A		0.055	8.2	
DB[a,e]P		0.061	NA	
Fluoranthene		0.068	8.2	
Phenanthrene		0.059	3.1	
Pyrene		0.067	8.2	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>NATIONAL</u> (cont.)	Waste No. K035		
	Acenaphthrene; Anthracene, B[a]P; DB[a,h]A; Fluorene; I[1,2,3-cd]P	NA	3.4
	B[a]A; Chrysene; Phenanthrene	0.059	3.4
	Fluoranthene	0.068	3.4
	Pyrene	0.067	8.2
	Waste No. K048		
	B[a]P	0.047	12
	Chrysene	0.043	15
	Fluorene	0.011	14
	Phenanthrene	0.033	42
	Pyrene	0.047	36
	Waste No. K087		
	Acenaphthalene; Chrysene; Fluoranthene; I[1,2,3-cd]P; Phenanthrene	0.028	3.4
	Waste No. K049		
	Anthracene	0.039	28
	B[a]P	0.047	12
	Chrysene	0.043	15
	Phenanthrene	0.033	42
	Pyrene	0.047	3.6
	Waste No. K051		
	Acenaphthene	0.05	NA
	Anthracene	0.039	28
	B[a]A	0.043	20
	Phenanthrene	0.011	14
	Pyrene	0.033	42
	Waste No. U018, U050 (B[a]A; Chrysene)	0.059	8.2
	U022 (B[a]P)	0.061	8.2
	U063 (DB[a,h]A)	0.055	8.2
	U120 (Fluoranthene)	0.068	8.2
	U137 (I[1,2,3-cd]P)	0.0055	8.2
	Requirements Authorization of State Hazardous Waste Programs		40 CFR 271

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>NATIONAL</u> (cont.)	Regulations implementing the HSWA of 1984	Yes	40 CFR 271.1
	Proposed rule: Universal treatment standards for organics	Yes	58 FR 48092 Sept. 14, 1993
	Maximum grab sample (non-wastewaters)		(40 CFR 148, 260, 261, 268, 271)
	Acenaphthalene; acenaphthene; anthracene; B[a]A; B[a]P; chrysene; fluoranthene; fluorene; I[1,2,3-cd]P	3.4 mg/kg	
	B[b]F; B[k]F	6.8 mg/kg	
	B[g,h,i]P	1.8 mg/kg	
	DB[a,h]A; pyrene	8.2 mg/kg	
	Phenanthrene	5.6 mg/kg	
	Maximum grab sample (wastewaters)		
	Acenaphthalene; acenaphthene; anthracene; B[a]A; chrysene; fluorene; phenanthrene	0.059 mg/L	
	B[a]P; DB[a,e]P	0.061 mg/L	
	B[b]F; B[k]F	0.11 mg/L	
	B[g,h,i]P; I[1,2,3-cd]P	0.0055 mg/L	
	DB[a,h]A	0.055 mg/L	
	Fluoranthene	0.068 mg/L	
	Pyrene	0.067 mg/L	
	Proposed rule: BDAT standard		
	Maximum grab sample (non-wastewaters)		
	B[a]A; B[a]P; chrysene; I[1,2,3-cd]P	3.4 mg/kg	
	B[b]F; B[k]F	6.8 mg/kg	
	DB[a,h]A	8.2 mg/kg	
	Maximum grab samples (wastewaters)		
	B[a]A; chrysene	0.059 mg/L	
	B[a]P	0.061 mg/L	
	B[b]F; B[k]F	0.11 mg/L	
	I[1,2,3-cd]P	0.0055 mg/L	
	DB[a,h]A	0.055 mg/L	
Superfund, Emergency Planning, and Community Right-To-Know Programs			40 CFR Subchapter J

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
NATIONAL (cont.)	Designation, Reportable Quantities and Notification		40 CFR 302
	Designation and Reportable Quantities of Hazardous Waste		40 CFR 302.4
	Acenaphthene; chrysene, fluoranthene, I[1,2,3-cd]P	100 pounds	
	Acenaphthylene; anthracene, B[k]F; B[g,h,i]P; fluorene; phenanthrene, pyrene	5,000 pounds	
	B[a]A	10 pounds	
	B[b]F; B[a]P; DB[a,h]A	1 pound	
	Emergency Planning and Notification		40 CFR 355
	List of extremely hazardous substances and threshold planning quantities		40 CFR 355, App. A
	Pyrene	1,000/10,000 lbs.	
	Toxic Chemical Release Reporting: Community Right-to-Know		40 CFR 372
	Toxic chemical listing (anthracene)	Yes	40 CFR 272.65
	Proposed Rule: National oil and hazardous substance pollution contingency plan; QA/QC of chemical analysis of oil composition using GC/MS	Yes	58 FR 54702 October 22, 1993 40 CFR 300
	Proposed Rule: Addition of certain chemicals; toxic chemical release reporting; community right-to-know	Yes	59 FR 1788 January 12, 1994 40 CFR 372
	Toxic Substances Control Act		40 CFR Subchapter R
	Reporting and Recordkeeping Requirements		40 CFR 704
	Chemical substance matrix for CAIR reporting (Phenanthrene, pyrene)	Yes	40 CFR 704.225
	Health and Safety Data Reporting		40 CFR 716
	Listing of substances and mixtures (anthracene)	Yes	40 CFR 716.120
	Significant New Uses of Chemical Substances		40 CFR 721
	Fluorene substituted aromatic amines	Yes	40 CFR 721.3764
Provisional Test Guidelines		40 CFR 795	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information		Reference
<u>NATIONAL</u> (cont.)	Protocol for determining anaerobic microbiological transformation rate data for chemicals in the subsurface environment	Yes		40 CFR 795.54
DOT	Hazardous materials transport	Yes		49 CFR 171 DOT 1991
c. Water				
EPA	Water Programs			40 CFR Subchapter D
	National Pollution Discharge Elimination System (NPDES)			40 CFR 122
	Testing requirements for NPDES permits			
	B[a]P; acenaphthene; aenaphthalene	Yes		40 CFR 122, App. D
	Guidelines Establishing Test Procedures for the Analysis of Pollutants			40 CFR 136
	Guidelines for testing pollutants under the CWA (all PAHs)			40 CFR 136.3
	Testing procedures for PAHs base/neutrals and acids, semivolatile organic compounds (all PAHs)	Yes		40 CFR 136, App. A Methods 610, 625, 1625 (Revision B)
	National Primary Drinking Water Regulations			40 CFR 141
	Effective dates (B[a]P)	Yes		40 CFR 141.6
	Sampling and Analytical Requirements for organic chemicals (B[a]P)	Yes		40 CFR 141.24
	Public notification under the SDWA (B[a]P)	0.002 ppm		40 CFR 141.32
	Special monitoring for organic and inorganic compounds (B[a]P)	Yes		40 CFR 141.40
	Maximum contaminant levels for organic contaminants (B[a]P)	0.0002 mg/L		40 CFR 141.61
	Final Rule: Water quality standards; numeric criteria for priority toxic pollutants; states' compliance	Yes		57 FR 60848 Dec. 22, 1992 (40 CFR 131)
	Human health (10^{-6} risk for carcinogens); for consumption of ($\mu\text{g/L}$):	Water and Organism	Organism Only	
	Anthracene	9,600	110,000	
	B[a]A; B[a]P; B[b]F; B[k]F; chrysene; DB[a,h]A; I[1,2,3-cd]P	0.0028	0.031	
	Fluoranthene	300	370	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information		Reference	
NATIONAL (cont.)	Fluorene	1,300	14,000		
	Pyrene	960	11,000		
	Proposed Rule: National primary and secondary drinking water regulations; analytical methods for regulated drinking water contaminants (B[a]P)	Yes		58 FR 5622 Dec. 15, 1993 (40 CFR 141, 143)	
	Effluent Guidelines and Standards			40 CFR Subchapter N	
	General Provisions			40 CFR 401	
	Toxic pollutants under Sec. 307(a) of the CWA (Acenaphthene, fluoranthene)	Yes		40 CFR 401.15	
	General Pretreatment Regulations for Existing and New Sources of Pollution			40 CFR 403	
	Pretreatment regulations for POTWs (acenaphthene, fluoranthene)	Yes		40 CFR 403, App. B	
	Electroplating Point Source Category			40 CFR 413	
	Definition of total toxic organic (TTO) (all PAHs, excluding acenaphthene)	Yes		40 CFR 413.02	
	Organic Chemicals, Plastics, and Synthetic Fiber			40 CFR 414	
	Toxic effluent standards for point sources that use end-of-pipe biological treatment		Daily maximum (µg/L)	Monthly Maximum (µg/L)	40 CFR 414.91 (58 FR 36872) July 9, 1993
	Acenaphthene; acenaphthylene; anthracene; B[a]A; B[k]F; Chrysene; fluorene; phenanthrene	59		22	
	Fluoranthene	68		25	
	B[a]P	61		23	
	Pyrene	67		25	
	Toxic pollutant standards for point sources that do not use end-of-pipe biological treatment				58 FR 36872 (40CFR 414.101)
	Acenaphthene; acenaphthylene; anthracene; B[a]A; B[k]F; Chrysene; fluorene; phenanthrene	47		19	
	B[a]P; pyrene	48		20	
	Fluoranthene	54		22	
	Toxic pollutant standards for indirect discharge point sources				58 FR 36872 40 CFR 414.111
Acenaphthene; anthracene; fluorene; phenanthrene	47		19		

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information		Reference
<u>NATIONAL</u> (cont.)	Fluoranthene	54	22	
	Pyrene	48	20	
	Iron and Steel Manufacturing Point Source Category			40 CFR 420
	Definition (B[a]P)	Yes		40 CFR 420.02
	Effluent limitations attainable using BAT for cokemaking B[a]P--1 day maximum (kg/kkg of product)			40 CFR 420.13
	cokemaking--iron and steel	0.0000319		
	--iron and steel with physical chemical treatment	0.0000215		
	--merchant	0.0000355		
	--merchant with physical chemical treatment	0.0000250		
	New source performance standards (B[a]P)--1 day maximum (kg/kkg of product)	Yes		40 CFR 420.14
	cokemaking--iron and steel	0.0000319		
	--merchant	0.0000355		
	Nonferrous Metals Manufacturing Point Source Category			40 CFR 421
	Definition of B[a]P for primary aluminum smelting	Yes		40 CFR 421.21
	Effluent limitations attainable by application of BAT for primary aluminum smelting plants (mg/kg)	Max. 1-day limit	Max. monthly avg.	40 CFR 421.23
	Anode and cathode plastic plant wet air pollution control	0.005	0.002	
	Anode contact cooling and briquette quenching	0.007	0.003	
	Anode bake plant wet air pollution control (closed top)	0.146	0.067	
	Anode bake plant wet air pollution control (open top ring furnace with spray tower only)	0.002	0.001	
	Anode bake plant wet air pollution control (open top ring furnace with wet ESP and spray tower)	0.025	0.011	
	Anode bake plant wet air pollution control (tunnel kiln)	0.038	0.018	
	Cathode reprocessing (with dry potline scrubbing and not commigled)	1.181	0.547	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description		Information	Reference
<u>NATIONAL</u> (cont.)	Cathode reprocessing (with wet potline scrubbing)	0.000	na	
	Potline wet air pollution control (w/o cathode reprocessing)	0.028	0.013	
	Potline wet air pollution control (w/cathode reprocessing and not commingled)	0.028	0.013	
	Potline wet air pollution control (w/cathode reprocessing and commingled)	0.028	0.013	
	Pot room wet air pollution control	0.056	0.026	
	Potline SO ₂ emissions wet air pollution control	0.045	0.021	
	Degreasing wet air pollution control	zero	zero	
	Pot repair and pot soaking	0.000	na	
	Direct chill casting contact cooling	zero	zero	
	Continuous rod casting contact cooling	zero	zero	
	Stationary casting or shot casting contact cooling	0.000	na	
	New Source Performance Standards for Primary Aluminum Smelting (B[a]P) (mg/kg)	Max. 1-day limit	Max. monthly avg.	40 CFR 421.24
	Anode and cathode paste plant wet air pollution control	0.000	na	
	Anode contact cooling and briquette quenching	0.007	0.003	
	Anode bake plant wet air pollution control	0.000	na	
	Cathode reprocessing (operating with dry potline scrubbing and commingled)	1.181	0.547	
	Potline wet air pollution control	0.000	na	
	Potroom wet air pollution control	0.000	na	
	Potline SO ₂ emissions wet air pollution control	0.045	0.021	
	Degassing wet air pollution control	0.000	na	
	Pot repair and pot soaking	0.000	na	
	Direct chill casting contact cooling	zero	zero	
	Continuous rod casting contact cooling	zero	zero	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information		Reference
<u>NATIONAL</u> (cont.)	Stationary casting or shot casting contact cooling	0.000	na	
	Pretreatment standards for primary aluminum smelting sources (B[a]P) (mg/kg)	Max. 1-day limit	Max. monthly avg.	40 CFR 421.26
	Anode and cathode paste plant wet air pollution control	0.000	na	
	Anode contact cooling and briquette quenching	0.007	0.003	
	Anode bake plant wet air pollution control	0.000	na	
	Cathode reprocessing (operating with dry potline scrubbing and not commingled)	1.181	0.547	
	Cathode reprocessing (operating with dry potline scrubbing and commingled)	1.181	0.547	
	Potline wet air pollution control	0.000	na	
	Potroom wet air pollution control	0.000	na	
	Potline SO ₂ emissions wet air pollution control	0.045	0.021	
	Degassing wet air pollution control	0.000	na	
	Pot repair and pot soaking	0.000	na	
	Direct chill casting contact cooling	zero	zero	
	Continuous rod casting contact cooling	zero	zero	
	Stationary casting or shot casting contact cooling	0.000	na	
	Steam Electric Power Generating Point Source Category			40 CFR 423
	Priority pollutants for steam power generators (all PAHs)	Yes		40 CFR 423, App. A
	Metal Finishing Point Source Category			40 CFR 433
	Definition of total toxic organics (TTO) for metal refinishing (all PAHs)	Yes		40 CFR 433.11
	Metal Molding and Casting Point Source Category			40 CFR 464
	Definition of TTO for aluminum casting (Acenphthene; anthracene; B[a]A; B[a]P; chrysene; fluorene; fluoranthene; phenanthrene; pyrene)	Yes		40 CFR 464.11

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
NATIONAL (cont.)	Definition of TTO for copper casting (Acenphthene; acenaphthylene; anthracene; B[a]A; B[b]F; chrysene; phenanthrene; pyrene)	Yes	40 CFR 464.21
	Definition of TTO for ferrous casting (Acenaphthene; chrysene; acenaphthylene; anthracene; fluoranthene; fluorene; phenanthrene; pyrene)	Yes	40 CFR 464.31
	Definition of TTO for zinc casting (Acenaphthene; fluoranthene)	Yes	40 CFR 464.41
	Aluminum Forming Point Source Category		40 CFR 467
	Definition of TTO for aluminum casting (Acenaphthene; acenaphthylene; anthracene; B[k]F; B[a]P; B[g,h,i]P; chrysene; DB[a,h]A; fluoranthene; fluorene, I[1,2,3-cd]P; phenanthrene; pyrene)	Yes	40 CFR 467.02
	Copper Forming Point Source Category		40 CFR 468
	Definition of TTO for copper forming (Anthracene; phenanthrene)	Yes	40 CFR 468.02
Guidelines:			
a. Air: ACGIH	TLV TWA; Confirmed human carcinogens		ACGIH 1991
	Coal tar pitch volatiles-benzene soluble fraction	0.2 mg/m ³	
	Phenanthrene: cyclohexane extractable fraction	1030 mg/m ³	
	Oil mist, mineral TWA	5 mg/m ³	ACGIH 1991
	STEL	10 mg/m ³	
	NIOSH	REL TWA	
Coal tar pitch volatiles; B[a]P; cyclohexane extractable fraction		Ca ^g ; 0.1 mg/m ³	
Chrysene		Ca ^g ; lowest feasible concentration	
Oil mist, mineral TWA		5 mg/m ³	
STEL		10 mg/m ³	
b. Water: EPA OWRS	Ambient water quality criteria for protection of human health		IRIS 1994
	Ingestion of water and organisms ^h PAHs Fluoranthene	0.0028 µg/L 42 µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>NATIONAL</u> (cont.)	Ingestion of organisms only PAHs Fluoranthene	0.031 µg/L 54 µg/L	
EPA OW	Organoleptic effects (acenaphthene) Drinking water standards and health advisories	0.02 mg/L	EPA 1994
	Maximum contaminant level goal (B[a]P) for organic chemicals	0 mg/L	40 CFR 141.50
	Maximum contaminant level (B[a]A) (B[a]P, B[b]F, B[k]F, chrysene) (DB[ah]A) (I[123cd]P)	0.0001 mg/L 0.0002 mg/L 0.0003 mg/L 0.0004 mg/L	
EPA	Clean Water Act: Toxic pollutants subject to the effluent standards of the Clean Water Act section 301(a)(1)		EPA 1981b (40 CFR 401.15) EPA 1991b (40 CFR 129)
	Polynuclear aromatic hydrocarbons (include: acenaphthene; benzanthracene; benzopyrenes; benzofluoranthene; chrysenes; dibenzoanthracenes; indenopyrenes; fluoranthenes)	Yes	
c. Non-specific media: EPA	Carcinogenic classification ¹		IRIS 1994
	(Fluoranthene, anthracene, acenaphthylene)	Group D	
	(B[a]A, I[123cd]P, DB[ah]A, chrysene, B[k]F, B[b]F, B[a]P)	Group B	
EPA	RfD (Oral)		IRIS 1994
	Anthracene	0.3 mg/kg/day (u.f. 3000)	
	Acenaphthene	0.06 mg/kg/day (u.f. 3000)	
	Fluoranthene	0.04 mg/kg/day (u.f. 3000)	
	Fluorene	0.04 mg/kg/day (u.f. 3000)	
	Pyrene	0.03 mg/kg/day (u.f. 3000)	
	Acenaphthylene; B[a]P; B[e]P; B[a]A; B[b]F; B[ghi]P; B[k]F; B[j]F; chrysene; DB[ah]A; I[123cd]P; BP; phenanthrene	No data	
OSHA	NRC recommendations concerning chemical hygiene in laboratories (B[a]P)	Yes	29 CFR 1910.1450, App. A

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE			
Regulations and Guidelines:			
a. Air			
	Average acceptable ambient air concentrations		NATICH 1992
Arizona			
(B[a]P; B[a]A; DB[ah]A)	1-hour average	0.79 $\mu\text{g}/\text{m}^3$	
	24-hour average	0.21 $\mu\text{g}/\text{m}^3$	
	Annual	0.00057 $\mu\text{g}/\text{m}^3$	
Connecticut			
(B[a]P;)	8-hour average	0.1000 $\mu\text{g}/\text{m}^3$	
(Coal tar pitch volatiles)	8-hour average	2.0000 $\mu\text{g}/\text{m}^3$	
(Fluorene)	8-hour average	50.000 $\mu\text{g}/\text{m}^3$	
(Naphthalene)	8-hour average	10000.0000 $\mu\text{g}/\text{m}^3$	
Florida- Ft Ldle			
Coal tar pitch volatiles	8-hour average	2.00x10 ⁻³ $\mu\text{g}/\text{m}$	
Florida-Pinella			
(B[a]P)	Annual	0.0003 $\mu\text{g}/\text{m}^3$	
(B[a]A)	8- and 24-hour average	0.00 $\mu\text{g}/\text{m}^3$	
	Annual	0.00110 $\mu\text{g}/\text{m}^3$	
(DB[ah]A)	Annual	7.10x10 ⁻⁵ $\mu\text{g}/\text{m}^3$	
Coal tar pitch volatiles	8-hour average	2.00 $\mu\text{g}/\text{m}^3$	
	24-hour average	0.48 $\mu\text{g}/\text{m}^3$	
Indiana			
(B[a]P)	8-hour average	0.100 $\mu\text{g}/\text{m}^3$	
	Annual	0.0006 $\mu\text{g}/\text{m}^3$	
Kansas			
(B[a]P)	Annual	3.03x10 ⁻⁴ $\mu\text{g}/\text{m}^3$	
(Coal tar pitch volatiles)	Annual	0.00161 $\mu\text{g}/\text{m}^3$	
Kansas-KC			
(B[a]P)	Annual	3.03x10 ⁻⁴ $\mu\text{g}/\text{m}^3$	
Louisiana			
(Fluoranthene)	Annual	0.0600 $\mu\text{g}/\text{m}^3$	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
Maryland (B[a]P; B[a]A; DB[ah]A; Fluorene; Fluoranthene; Acenaphthene; Acenaphthylene; Anthracene; B[b]F; B[k]F; B[ghi]P; Chrysene; I[123cd]P; Phenanthrene; Pyrene; B[e]P)		0.00 $\mu\text{g}/\text{m}^3$	
Maine (B[a]P)	Annual	5.70×10^{-4} $\mu\text{g}/\text{m}^3$	
Michigan (B[a]P)	Annual	3.00×10^{-4} $\mu\text{g}/\text{m}^3$	
Nevada (Coal tar pitch volatiles)	8-hour average	0.0050 mg/m^3	
New York (B[a]P)		0.00 $\mu\text{g}/\text{m}^3$	NATICH 1992
North Carolina (B[a]P)	Annual	3.30×10^{-5} mg/m^3	
(Coal tar pitch volatiles)	Annual	3.30×10^{-5} mg/m^3	
North Dakota (B[a]P; B[a]A; DB[ah]A; B[b]F; Chrysene; I[123cd]P)		0.00 $\mu\text{g}/\text{m}^3$	
Pennsylvania- Phila (B[a]P)	1-year average Annual	7.00×10^{-4} $\mu\text{g}/\text{m}^3$ 7.00×10^{-4} $\mu\text{g}/\text{m}^3$	
(Coal tar pitch volatiles)	1-year average	0.4800 $\mu\text{g}/\text{m}^3$	
Texas (B[a]P)	30-minute average Annual	0.03 $\mu\text{g}/\text{m}^3$ 0.003 $\mu\text{g}/\text{m}^3$	
(Chrysene)	30-minute average Annual	0.500 $\mu\text{g}/\text{m}^3$ 0.05 $\mu\text{g}/\text{m}^3$	
Virginia (B[a]P; chrysene)	24-hour average	0.00 $\mu\text{g}/\text{m}^3$	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
(Coal tar pitch volatiles)	24-hour average	2.0000 $\mu\text{g}/\text{m}^3$	
Vermont (B[a]P)	Annual	3.00×10^{-14} $\mu\text{g}/\text{m}^3$	
(Phenanthrene)	Annual	1.30 $\mu\text{g}/\text{m}^3$	
(Pyrene)	Annual	3.40 $\mu\text{g}/\text{m}^3$	
Washington-SWest (B[a]P)	Annual	6.00×10^{-4} $\mu\text{g}/\text{m}^3$	
Kentucky	Significant emission levels of toxic air pollutants B[a]P; B[b]F; B[a]A; DB[ah]A; I[123cd]P	5.100×10^{-7} pounds/hour	401 KAR 63:022 NREPC 1991
	Chrysene; coal tar pitch volatiles	5.103×10^{-5} pounds/hour	
b. Water:	Water quality standards		NYSDEC 1994
New York Acenaphthene		20 $\mu\text{g}/\text{L}$	
	Drinking water quality standards		
Arizona (B[a]P)		0.003 $\mu\text{g}/\text{L}$	FSTRAC 1990
Kansas (B[a]P)		0.03 $\mu\text{g}/\text{L}$	
(All other PAHs)		0.029 $\mu\text{g}/\text{L}$	
Maine (PAHs)		25 $\mu\text{g}/\text{L}$	
Minnesota (PAHs)		0.028 $\mu\text{g}/\text{L}$	
New Hampshire (B[a]P)		0.003 $\mu\text{g}/\text{L}$	
New Mexico (B[a]P)		10 $\mu\text{g}/\text{L}$	
(All other PAHs)		30 $\mu\text{g}/\text{L}$	
New Jersey (All PAHs)		1 $\mu\text{g}/\text{L}$	NJDEP 1989

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>State (cont.)</u>			
ACENAPHTHYLENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	** (no value recorded)	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria	0.003 µg/L	
	Domestic Water Supply (DWS)	0.002 µg/L	
	Fish Consumption (FC)	0.12 µg/L	
	Full Body Contact (FBC)	NNS (no numerical standard)	
	Partial Body Contact (PBC)		
MO	Human Health Protection-Fish Consumption	0.03 µg/L	
	Drinking Water Supply	0.003 µg/L	
	(This concentration is allowed for each of a group of PAHs)		
	Groundwater	0.003 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
ACENAPHTHENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	20(0) µg/L	
	Fish Consumption Only	20(0) µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
AZ	Numeric Water Quality Criteria		
	Domestic Water Source (DWS)	420 µg/L	
	Fish Consumption (FC)	2600 µg/L	
	Full Body Contact (FBC)	8400 µg/L	
	Partial Body Contact (PBC)	8400 µg/L	
MO	Class II Human Health Protection- Fish Consumption	2700 µg/L	
	Class III Drinking Water Supply	20 µg/L	
WI	Threshold conc. for substances causing taste and odor in water (not toxic to humans)	20 µg/L	
OH	Water Supply		
	Public Water Supply		
	Outside mixing zone		
	Human health 30 day-average	20 µg/L	
DC	Numerical Standards for Water Quality Criteria for Classes (Maximum)		
	Classes A, B, C	50.0 µg/L	
	Classes D, E	20.0 µg/L	
	Water Quality: Aquatic Life		CELDs 1994
AZ	Acute Criteria for Aquatic and Wildlife Uses		
	Cold Water Fishery (A&Wc)	850	
	Warm Water Fishery (A&Ws)	850	
	Effluent Dominated Water (A&Wedw)	850	
	Ephemeral (A&We)	NNS	
	Chronic Criteria for Aquatic and Wildlife Uses		
	Cold Water Fishery (A&Wc)	550 µg/L	
	Warm Water Fishery (A&Ws)	5,500 µg/L	
	Effluent Dominated Water (A&Wedw)	NNS	
	Ephemeral (A&We)		
CO	Aquatic life segments-organic compounds to the second power		
	Standard (acute)	1,700 µg/L	
	Standard (chronic)	520 µg/L	
HI	Numeric Standards for Toxic Pollutants Applied to All Waters	570 µg/L	
	Freshwater (acute)	320 µg/L	
	Saltwater (acute)	NS (no standard developed)	
	Fish Consumption		
OH	Aquatic Life Habitat-Coldwater		
	Outside mixing zone (maximum)	67 µg/L	
	Outside mixing zone (30-day average)	67 µg/L	
	Inside mixing zone (maximum)	134 µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
	Aquatic Life Habitat-Limited Resource Warmwater		
	Outside mixing zone (maximum)	67 µg/L	
	Inside mixing zone (maximum)	134 µg/L	
NY	Water Classes-A, A-S, AA, AA-S Standards µg/L	20 µg/L	
	Type-health (water source) Basis code-chem.correlation		
	Groundwater Monitoring		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Groundwater Quality Standards		CELDs 1994
MO	Class VII-Groundwater	20 µg/L	
ANTHRACENE			
	Water Quality: Human Health		CELDs 1994
AZ	Numeric Water Quality Criteria		
	Domestic Water Source (DWS)	2100 µg/L	
	Fish Consumption (FC)	6300 µg/L	
	Full Body Contact (FBC)	420000µg/L	
	Partial Body Contact (PBC)	NNS	
MO	Human Health Protection-Fish Consumption	0.03 µg/L 0.003 µg/L	
	Drinking Water Supply Groundwater	0.003 µg/L	
OH	Water Supply Public Water Supply		

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
	Outside mixing zone Human Health 30-day average	0.028 0.003 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CA		Yes	
IL		Yes	
KY		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater Outside mixing zone Human Health 30-day average	0.31 µg/L*	
	Aquatic Life Habitat-Limited Resource Warmwater Outside mixing zone Human Health 30-day average	0.31 µg/L*	
*This value applies to the sum of PAHs			
BENZ(a)ANTHRACENE			
	Hazardous Constituents		CELDs 1994
AL		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NH		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
NJ		Yes	
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
	Water Quality: Human Health		CELDs 1994
AL	Human Health Criteria: Consumption of Water and Fish Fish Consumption Only -Classified as a carcinogen	** **	
AZ	Numeric Water Quality Criteria: Domestic Water Source (DWS) Fish Consumption (FC) Full Body Contact (FBC) Partial Body Contact (PBC) -known, probable, or possible human carcinogen	0.03 µg/L 0.00008 µg/L 0.12 µg/L NNS	
MO	Human Health Protection-Fish Consumption Drinking Water Supply Groundwater Water Supply Public Water Supply	0.03 µg/L 0.003 µg/L 0.003 µg/L	
OH	Outside mixing zone Human health 30-day average	0.028 µg/L	
WI	Human Cancer Criteria* Public Water Supplies Warm Water Sport Fish Communities Cold Water Communities Great Lakes	0.023 mg/L 0.023 mg/L 0.023 mg/L	
	*Human cancer criteria for PAHs are applicable to any combination of 10 PAHs (specific)		

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
WI	Human Cancer Criteria* Non-Public Water Supplies Warmwater Sport Fish Communities Cold Water Communities Warm Water and Limited Fish and Limited Aquatic	0.1 mg/L 0.1 mg/L 6.1 mg/L	
	*Human cancer criteria are applicable to any combination of 9 PAHs.		
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater Outside mixing zone Human Health 30-day average	0.31 µg/L*	
	Aquatic Life Habitat-Limited Resource Warmwater Outside mixing zone Human Health 30-day average	0.31 µg/L*	
	* This value applied to the sum of 13 PAHs		
BENZO(b)FLUORANTHENE			
	Water Quality: Human Health		CELDs 1994
OH	Water Supply-Public Water Supply Outside Mixing Zone Human Health 30-day average	0.028 µg/L*	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE (cont.)</u>			
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 µg/L	
	Cold Water Communities	0.023 µg/L	
	Great Lakes	0.023 µg/L	
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater		
	Outside Mixing Zone		
	Human Health		
	30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource		
	Warmwater		
Outside Mixing Zone			
Human Health			
30-day average	0.31 mg/L		
Groundwater Monitoring Parameters		CELDs 1994	
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
IL		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
LA		Yes	
KY		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
BENZO(k)FLUORANTHENE			
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource Warmwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE (cont.)</u>			
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
IL		Yes	
MD		Yes	
MT		Yes	
NE		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WY		Yes	
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish Fish Consumption Only	** **	
AZ	Numeric Water Quality Criteria Domestic Water Source (DWS) Fish Consumption (FC) Full Body Contact (FBC) Partial Body Contact (PBC)	0.003 µg/L 0.00001 µg/L 0.12 µg/L NNS	
OH	Water Supply Public Water Supply Outside Mixing Zone Human Health 30-day average	0.028 µg/L	
WI	Human Cancer Criteria Public Water Supplies Warm Water Sport Fish Communities Cold Water Communities Great Lakes Non-Public Water Supplies Warm Water Sport Fish Communities Cold Water Communities Warm Water and Limited Fish and Limited Aquatic	0.023 mg/L 0.023 mg/L 0.023 mg/L 0.1 mg/L 0.1 mg/L 6.1 mg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
BENZO(g,h,i)PERYLENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish Fish Consumption Only	** **	
AZ	Numeric Water Quality Criteria Domestic Water Source (DWS) Fish Consumption (FC) Full Body Contact (FBC) Partial Body Contact (PBC)	0.003 µg/L 0.0001 µg/L 0.12 µg/L NNS	
OH	Water Supply Public Water Supply Outside Mixing Zone Human Health 30-day average	0.028 µg/L	
WI	Human Cancer Criteria Public Water Supplies Warm Water Sport Fish Communities Cold Water Communities Great Lakes	0.023 mg/L 0.023 mg/L 0.023 mg/L	
	Non-Public Water Supplies Warm Water Sport Fish Communities Cold Water Communities Warm Water and Limited Fish and Limited Aquatic	0.1 mg/L 0.1 mg/L 6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource Warmwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
BENZO(a)PYRENE			
	Water Quality: Human Health Criteria		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
	-Carcinogen		
AZ	Numeric Water Quality Criteria		
	Domestic Water Supply (DWS)	0.003 µg/L	
	Fish Consumption (FC)	0.002 µg/L	
	Full Body Contact (FBC)	0.12 µg/L	
	Partial Body Contact (PBC)	NNS	
MO	Human Health Protection-Fish	0.03 µg/L	
	Consumption	0.003 µg/L	
	Drinking Water Supply*	0.003 µg/L	
	Groundwater*		
*These conclusions are allowed for each of the PAHs			
NM	Groundwater Standards		
	Human Health Standards	0.0007 mg/L	
OH	Water Supply-Public Water Supply		
	Outside Mixing Zone		
	Human Health		
	30-day average	0.028 µg/L	
OK	Maximum Allowable Levels for Organic Chemicals	0.4 mg/L	
TN	National Primary Drinking Water Standard Organic Chemicals	0.002 mg/L	
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Human Cancer Criteria		
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE (cont.)</u>			
	Special Monitoring, Reporting and Public Notification Requirements for Unregulated Organic and Inorganic Contaminants Nonregulated Organic Contaminants	Yes	
	Water Quality: Aquatic Life		CELDs 1994
NY	Water Classes-GA Standards ($\mu\text{g/L}$)-ND Type-H(W) Basis code-F		
OH	Aquatic Life Habitat-Coldwater Outside Mixing Zone Human Health 30-day average	0.31 $\mu\text{g/L}$ *	
	Aquatic Life Habitat-Limited Resource Warm Water Outside Mixing Zone Human Health 30-day average	0.31 $\mu\text{g/L}$ *	
	*This value applies to the sum of 13 PAHs		
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NH		Yes	
NJ		Yes	
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Groundwater Quality Standards		CELDs 1994
NY	Groundwater Effluent Standard	Not detectable	
WI	Public Health Groundwater Quality Standards		
	Enforcement Standard	0.003 µg/L	
	Preventive Action	0.0003 µg/L	
CHRYSENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Supply (DWS)	0.03 µg/L	
	Fish Consumption (FC)	0.0001 µg/L	
	Full Body Contact (FBC)	0.12 µg/L	
	Partial Body Contact (PBC)	NNS µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
MO	Human Health Protection-Fish Consumption	0.03 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater	0.003 µg/L	
OH	Water Supply-Public Water Supply Outside Mixing Zone		
	Human Health		
	30-day average	0.028 µg/L	
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Human Cancer Criteria		
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater		
	Outside Mixing Zone		
	Human Health		
	30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource		
	Warmwater		
	Outside Mixing Zone		
	Human Health		
	30-day average	0.31 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
WI		Yes	
WV		Yes	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NH		Yes	
NJ		Yes	
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
	DIBENZ(a,j)ACRIDINE		
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
IL		Yes	
LA		Yes	
KY		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
MD		Yes	
MN		Yes	
MT		Yes	
NE		Yes	
ND		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
DIBENZO(a,h)ANTHRACENE			
	Water Quality: Human Health		CELDs 1994
MO	Human Health Protection-Fish Consumption	0.03 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater	0.003 µg/L	
AL	Human Health Criteria		
	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Supply (DWS)	0.003 µg/L	
	Fish Consumption (FC)	0.00003 µg/L	
	Full Body Contact (FBC)	0.12 µg/L	
	Partial Body Contact (PBC)	NNS	
OH	Water Supply-Public Water Supply		
	Outside Mixing Zone		
	Human Health		
	30-day average	0.028 µg/L	
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Human Cancer Criteria		
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
OH	Aquatic Life Habitat-Coldwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource Warmwater Outside Mixing Zone Human Health 30-day average	0.31 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
IL		Yes	
KY		Yes	
LA		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CA		Yes	
CO		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MT		Yes	
NH		Yes	
NJ		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
FLUORANTHENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Source (DWS)	280 µg/L	
	Fish Consumption (FC)	130 µg/L	
	Full Body Contact (FBC)	5600 µg/L	
	Partial Body Contact (PBC)	5600 µg/L	
IN	Continuous Criterion Concentration		
	(4-Day) Average for Human Health		
	Outside of Mixing Zone	54 (T)*	
	Point of Water	42	
	*(T) - T is derived from threshold toxicity		
KY	Water Quality Criteria for Protection of Human Health from the Consumption of Fish Tissue Substances Not Linked to Cancer	54 µg/L	
	Organics		
	Domestic Water Supply Source Criteria		
	Substances Not Linked to Cancer		
	Maximum Contaminant Level (organics)	0.042 mg/L	
MO	Drinking Water Supply	40 µg/L	
	Human Health Protection-Fish Consumption	54 µg/L	
	Groundwater	40 µg/L	
OH	Water Supply-Public Water Supply		
	Outside Mixing Zone		
	Human Health		
	30-day average	42 µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
WI	Human Threshold Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	28 µg/L	
	Cold Water Communities	9.1 µg/L	
	Great Lakes	9.3 µg/L	
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	32 µg/L	
	Cold Water Communities	9.5 µg/L	
	Warm Water and Limited Fish and Limited Aquatic	41,000 µg/L	
	HI	(Water Quality Standards: Basic Water Quality Criteria for All Waters)	
Numeric Standards for Toxic Pollutants Applicable to All Waters			
Freshwater			
Acute		1,300 µg/L	
Chronic		NS	
Saltwater			
Acute		13 µg/L	
Chronic		NS	
Fish Consumption		18 µg/L	
Water Quality: Aquatic Life			CELDs 1994
AZ	Acute Criteria for Aquatic and Wildlife Uses		
	A&Wc: Cold Water Fishery	2000 µg/L	
	A&Ws: Warm Water Fishery	2000 µg/L	
	A&Wedw: Effluent Dominated Water	NNS	
	A&We: Ephemeral		
	Chronic Criteria for Aquatic and Wildlife Uses		
	A&Wc: Cold Water Fishery	1600 µg/L	
	A&Ws: Warm Water Fishery	1600 µg/L	
	A&Wedw: Effluent Dominated Water	NNS	
	A&We: Ephemeral		
CO	Aquatic Life Segments (organic compounds to the second power)	3,980 µg/L	
	Standard (acute)		
FL	Maximum Concentration Levels for Mixing Zone Pollutants	540 µg/L	
OH	Aquatic Life Habitat-Coldwater		
	Outside mixing zone		
	Maximum	200 µg/L	
	30-day average	8.9 µg/L	
	Human Health		
30-day average	54 µg/L		
Inside Mixing Zone			
Maximum	400 µg/L		

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
	Outside Mixing Zone		
	Maximum	200 µg/L	
	Human Health		
	30-day average	54 µg/L	
	Inside Mixing Zone		
	Maximum	400 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NH		Yes	
NJ		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
FLUORENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Source (DWS)	280 µg/L	
	Fish Consumption (FC)	580 µg/L	
	Full Body Contact (FBC)	5600 µg/L	
	Partial Body Contact (PBC)	5600 µg/L	
MO	Human Health Protection-Fish	0.03 µg/L	
	Consumption	0.003 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater		
OH	Water Supply		
	Public Water Supply		
	Outside mixing zone		
	Human Health 30-day average	0.028 µg/L	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater		
	Outside mixing zone		
	Human Health		
	30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource		
	Warmwater		
	Outside mixing zone		
	Human Health		
	30-day average	0.31 µg/L	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
INDENO(1,2,3-CD)PYRENE			
	Water Quality: Human Health Criteria		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Supply (DWS)	0.003 µg/L	
	Fish Consumption (FC)	0.000003 µg/L	
	Full Body Contact (FBC)	0.12 µg/L	
	Partial Body Contact (PBC)	NNS µg/L	
MO	Human Health Protection-Fish Consumption	0.03 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater	0.003 µg/L	
OH	Water Supply-Public Water Supply Outside Mixing Zone		
	Human Health 30-day average	0.028 µg/L	
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Human Cancer Criteria		
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE</u> (cont.)			
OH	Aquatic Life Habitat-Coldwater Outside mixing zone Human Health 30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource Warmwater Outside mixing zone Human Health 30-day average	0.31 µg/L*	
	Hazardous Constituents		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MA		Yes	
ME		Yes	
MD		Yes	
MN		Yes	
MT		Yes	
NH		Yes	
NJ		Yes	
NE		Yes	
ND		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
VA		Yes	
VT		Yes	
WI		Yes	
WV		Yes	
WY		Yes	
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
PHENANTHRENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Supply (DWS)	0.003 µg/L	
	Fish Consumption (FC)	0.0005 µg/L	
	Full Body Contact (FBC)	0.12 µg/L	
	Partial Body Contact (PBC)	NNS	
MO	Human Health Protection-Fish	0.03 µg/L	
	Consumption	0.003 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater		
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Non-Public Water Supplies		
	Warm water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994s
AZ	Acute Criteria for Aquatic and Wildlife Uses	30 µg/L	
	A&Wc: Cold Water Fishery	30 µg/L	
	A&Ws: Warm Water Fishery	540 µg/L	
	A&Wedw: Effluent Dominated Water	NNS	
	A&We: Ephemeral		

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
STATE (cont.)			
	Chronic Criteria for Aquatic and Wildlife Uses	6.3 µg/L	
	A&Wc: Cold Water Fishery	6.3 µg/L	
	A&Ws: Warm Water Fishery	6.3 µg/L	
	A&Wedw: Effluent Dominated Water	NNS	
	A&We: Ephemeral		
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	
PYRENE			
	Water Quality: Human Health		CELDs 1994
AL	Consumption of Water and Fish	**	
	Fish Consumption Only	**	
AZ	Numeric Water Quality Criteria		
	Domestic Water Source (DWS)	210 µg/L	
	Fish Consumption (FC)	1100 µg/L	
	Full Body Contact (FBC)	4200 µg/L	
	Partial Body Contact (PBC)	4200 µg/L	
MO	Human Health Protection-Fish Consumption	0.03 µg/L	
	Drinking Water Supply	0.003 µg/L	
	Groundwater	0.003 µg/L	
OH	Water Supply		
	Public Water Supply		
	Outside mixing zone		
	Human Health		
	30-day average	0.028 µg/L	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

Agency	Description	Information	Reference
<u>STATE (cont.)</u>			
WI	Human Cancer Criteria		
	Public Water Supplies		
	Warm Water Sport Fish Communities	0.023 mg/L	
	Cold Water Communities	0.023 mg/L	
	Great Lakes	0.023 mg/L	
	Human Cancer Criteria		
	Non-Public Water Supplies		
	Warm Water Sport Fish Communities	0.1 mg/L	
	Cold Water Communities	0.1 mg/L	
	Warm Water and Limited Fish and Limited Aquatic	6.1 mg/L	
	Water Quality: Aquatic Life		CELDs 1994
OH	Aquatic Life Habitat-Coldwater		
	Outside mixing zone		
	Human Health		
	30-day average	0.31 µg/L	
	Aquatic Life Habitat-Limited Resource		
	Warmwater		
Outside mixing zone			
Human Health			
30-day average	0.31 µg/L		
	Groundwater Monitoring Parameters		CELDs 1994
AL		Yes	
CO		Yes	
CA		Yes	
IL		Yes	
LA		Yes	
KY		Yes	
MN		Yes	
NY		Yes	
OH		Yes	
SC		Yes	
TN		Yes	
VA		Yes	
WI		Yes	
WV		Yes	

^aDegree of evidence in animals revised on the basis of data that appeared after the most recent monograph and/or on the basis of present criteria. Overall evaluation based on evidence of carcinogenicity in monograph 32, 1983.

^bGroup 2A = Probable human carcinogen

^cGroup 2B = Possible human carcinogen

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Polycyclic Aromatic Hydrocarbons (continued)

^dGroup 3 = Not classifiable as to carcinogenicity

^eThe following PAHs were used as indicators in deriving this standard: B[a]P; B[b]F; B[a]F; B[k]F; fluoranthene; and I[123cd]P. Source: EPA 1986b.

^fIncludes anthracene, B[a]P, phenanthrene, acridine, chrysene, and pyrene

^gAgent recommended by NIOSH to be treated as a potential occupational carcinogen.

^hBecause of their carcinogenic potential, the EPA-recommended concentration for PAHs in ambient water is zero. However, because attainment of this level may not be possible, the recommended criteria requires a E-G estimated incremental lifetime cancer risks.

ⁱGroup D = not classifiable as to human carcinogenicity, Group B2 = Probable Human Carcinogen

^jWhen "all PAHs" are listed, it includes the following compounds, unless specified otherwise:

Anthracene, Acenaphthylene, Acenaphthene, B[a]A, B[a]P, B[b]F, B[h]F, B[g,h,i]P, Chrysene, DB[a,h]A, Fluoranthene, Flourene, I[1,2,3-cd]P, Phenanthrene, Pyrene

ACHIH = American Conference of Governmental Industrial Hygienists; B[a]A = Benzo[a]Anthracene; B[a]P = Benzo[a]Pyrene; B[b]F = Benzo[b]Fluoranthene; B[e]P = Benzo[e]Pyrene; B[ghi]P = Benzo(ghi)perylene; B[j]F = Benzo[j]Fluoranthene; B[k]F = Benzo[k]Fluoranthene; B[ghi]P = Benzo[ghi]perylene; BP = Benzopyrene; DB[a,h]A = Dibenz[a,h]Anthracene; DB[a,e]P = Dibenzo[a,e]pyrene; DB[a,i] = Dibenzo[a,i]pyrene; DOT = Department of Transportation; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; I[123cd]P = Indeno[1,2,3-c,d]Pyrene; ng = nanogram; NIOSH = National Institute for Occupational Safety and Health; OERR = Office of Emergency and Remedial Response; OSHA = Occupational Safety and Health Administration; OWRS = Office of Water Regulations and Standards; PAH = Polycyclic Aromatic Hydrocarbons; PEL = Permissible Exposure Limit; RCRA = Resource Conservation and Recovery Act; REL = Recommended Exposure Limit; RfD = Reference Dose; TLV = Threshold Limit Value; TWA = Time-Weighted Average; u.f. = Uncertainty Factor; WHO = World Health Organization