Appendix A

Tables Referenced in Chapter 3

Table A-1

Metal and Elemental Constituents Measured Under the Industrial Laundries Sampling Program
(EPA Method 1620)

Metal and Elemental Constituents		
Aluminum	Cobalt	Selenium
Antimony	Copper	Silver
Arsenic	Iron	Sodium
Barium	Lead	Thallium
Beryllium	Magnesium	Tin
Boron	Manganese	Titanium
Cadmium	Mercury	Vanadium
Calcium	Molybdenum	Yttrium
Chromium	Nickel	Zinc
Additional Metal and Elemental Constituents[1] Not Subject to Rigorous QA/QC Procedures Per Method 1620:		
Bismuth	Lanthanum	Samarium
Cerium	Lithium	Scandium
Dysprosium	Lutetium	Silicon
Erbium	Neodymium	Strontium
Europium	Niobium	Sulfur
Gadolinium	Osmium	Tantalum
Gallium	Palladium	Tellurium
Germanium	Phosphorus	Terbium
Gold	Platinum	Thorium
Hafnium	Potassium	Thulium
Holmium	Praseodymium	Tungsten
Indium	Rhenium	Uranium
Iodine	Rhodium	Ytterbium
Iridium	Ruthenium	Zirconium

[1]Analyses for these metals and elements were used for screening purposes, and the metals were not selected for regulation in this rulemaking.

Table A-2

Organic Constituents Measured Under the Industrial Laundries Sampling Program
(EPA Methods 1624 and 1625)

Volatile Organic Constituents (EPA Method 1624)	
Acrylonitrile	trans-1,4-Dichloro-2-butene
Benzene	Tribromomethane
Bromodichloromethane	Trichloroethene
Bromomethane	Trichlorofluoromethane
Carbon Disulfide	Vinyl Acetate
Chloroacetonitrile	Vinyl Chloride
Chlorobenzene	1,1-Dichloroethane
Chloroethane	1,1-Dichloroethene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,1,2-Tetrachloroethane
Cis-1,3-dichloropropene	1,1,2-Trichloroethane
Crotonaldehyde	1,1,2,2-Tetrachloroethane
Dibromochloromethane	1,2-Dibromoethane
Dibromomethane	1,2-Dichloroethane
Diethyl Ether	1,2-Dichloropropane
Ethyl Cyanide	1,2,3-Trichloropropane
Ethyl Methacrylate	1,3-Butadiene, 2-Chloro
Ethylbenzene	1,3-Dichloropropane
Iodomethane	1,4-Dioxane
Isobutyl Alcohol	2-Butanone
m-Xylene	2-Chloroethyl Vinyl Ether
Methyl Methacrylate	2-Hexanone
Methylene Chloride	2-Propanone
o+p-Xylene	2-Propen-1-ol
Tetrachloroethene	2-Propenal
Tetrachloromethane	2-Propenenitrile, 2-Methyl-
Toluene	3-Chloropropene
trans-1,2-Dichloroethene	4-Methyl-2-pentanone
trans-1,3-Dichloropropene	

Table A-2 (Continued)

Semivolatile Organic Constituents (EPA Method 1625)	
Acenaphthene	Fluoranthene
Acenaphthylene	Hexachlorobenzene
Acetophenone	Hexachlorobutadiene
alpha-Terpineol	Hexachlorocyclopentadiene
Aniline	Hexachloroethane
Aniline, 2,4,5-Trimethyl-	Hexachloropropene
Anthracene	Hexanoic Acid
Aramite	Indeno(1,2,3-Cd)pyrene
Benzanthrone	Isophorone
Benzenethiol	Isosafrole
Benzidine	Longifolene
Benzo(a)anthracene	Malachite Green
Benzo(a)pyrene	Mestranol
Benzo(b)fluoranthene	Methapyrilene
Benzo(ghi)perylene	Methyl Methanesulfonate
Benzo(k)fluoranthene	n-Decane
Benzoic Acid	n-Docosane
Benzonitrile, 3,5-Dibromo-4-hydroxy-	n-Dodecane
Benzyl Alcohol	n-Eicosane
beta-Naphthylamine	n-Hexacosane
Biphenyl	n-Hexadecane
Biphenyl, 4-Nitro	N-Nitrosodi-n-butylamine
Bis(2-Chloroethoxy)methane	N-Nitrosodiethylamine
Bis(2-Chloroethyl) ether	N-Nitrosodimethylamine
Bis(2-Chloroisopropyl) ether	N-Nitrosodiphenylamine
Bis(2-ethylhexyl) phthalate	N-Nitrosomethylethylamine
Butyl benzyl phthalate	N-Nitrosomethylphenylamine
Carbazole	N-Nitrosomorpholine
Chrysene	N-Nitrosopiperidine
Ciodrin	n-Octacosane
Crotoxyphos	n-Octadecane
Di-n-butyl phthalate	n-Tetracosane
Di-n-octyl phthalate	n-Tetradecane
Di-n-Propylnitrosamine	n-Triacontane
Dibenzo(a,h)anthracene	N,N-Dimethylformamide
Dibenzofuran	Naphthalene
Dibenzothiophene	Nitrobenzene
Diethyl Phthalate	o-Anisidine
Dimethyl Phthalate	o-Cresol
Dimethyl Sulfone	o-Toluidine
Diphenyl Ether	o-Toluidine, 5-Chloro-
Diphenylamine	p-Chloroaniline
Diphenyldisulfide	p-Cresol
Ethane, Pentachloro-	p-Cymene
Ethyl Methanesulfonate	p-Dimethylaminoazobenzene
Ethylenethiourea	p-Nitroaniline

Table A-2 (Continued)

Semivolatile Organic Constituents (EPA Method 1625) (Continued)	
Pentachlorobenzene	1,4-Naphthoquinone
Pentachlorophenol	1,5-Naphthalenediamine
Pentamethylbenzene	2-(Methylthio)benzothiazole
Perylene	2-Chloronaphthalene
Phenacetin	2-Chlorophenol
Phenanthrene	2-Isopropylnaphthalene
Phenol	2-Methylbenzothioazole
Phenol, 2-Methyl-4,6-Dinitro-	2-Methylnaphthalene
Phenothiazine	2-Nitroaniline
Pronamide	2-Nitrophenol
Pyrene	2-Phenylnaphthalene
Pyridine	2-Picoline
Resorcinol	2,3-Benzofluorene
Safrole	2,3-Dichloroaniline
Squalene	2,3-Dichloronitrobenzene
Styrene	2,3,4,6-Tetrachlorophenol
Thianaphthene	2,3,6-Trichlorophenol
Thioacetamide	2,4-Dichlorophenol
Thioxanthe-9-one	2,4-Dimethylphenol
Toluene, 2,4-Diamino-	2,4-Dinitrophenol
Triphenylene	2,4-Dinitrotoluene
Tripropyleneglycol Methyl Ether	2,4,5-Trichlorophenol
1-Bromo-2-chlorobenzene	2,4,6-Trichlorophenol
1-Bromo-3-chlorobenzene	2,6-Di-tert-butyl-p-benzoquinone
1-Chloro-3-nitrobenzene	2,6-Dichloro-4-nitroaniline
1-Methylfluorene	2,6-Dichlorophenol
1-Methylphenanthrene	2,6-Dinitrotoluene
1-Naphthylamine	3-Methylcholanthrene
1-Phenylnaphthalene	3-Nitroaniline
1,2-Dibromo-3-chloropropane	3,3'-Dichlorobenzidine
1,2-Dichlorobenzene	3,3'-Dimethoxybenzidine
1,2-Diphenylhydrazine	3,6-Dimethylphenanthrene
1,2,3-Trichlorobenzene	4-Aminobiphenyl
1,2,3-Trimethoxybenzene	4-Bromophenyl Phenyl Ether
1,2,4-Trichlorobenzene	4-Chloro-2-nitroaniline
1,2,4,5-Tetrachlorobenzene	4-Chloro-3-methylphenol
1,2:3,4-Diepoxybutane	4-Chlorophenyl Phenyl Ether
1,3-Dichloro-2-propanol	4-Nitrophenol
1,3-Dichlorobenzene	4,4'-Methylenebis(2-chloroaniline)
1,3,5-Trithiane	4,5-Methylene Phenanthrene
1,4-Dichlorobenzene	5-Nitro-o-toluidine
1,4-Dinitrobenzene	7,12-Dimethylbenz(a)anthracene

Table A-3

Additional Parameters Measured in the Industrial Laundries Sampling Program

Parameter	EPA Method
Biochemical Oxygen Demand (BOD_5)	405.1[1]
Chemical Oxygen Demand (COD)	410.1[1] 410.2[1]
Hexane Extractable Material (oil and grease)	1664 (proposed)[2]
pH	150.1[1]
Phosphorus, Total	365.2[1]
Silica Gel Treated-Hexane Extractable Material (total petroleum hydrocarbons)	1664 (proposed)[2]
Surfacants	5540C, 5540D[3]
Total Solids	160.3[1]
Total Hydrolyzable Phosphorus	365.2[1]
Total Organic Carbon	415.1[1]
Total Orthophosphate	365.2[1]
Total Suspended Solids (TSS)	160.2[1]

[1]U.S. Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. EPA-800-4-79-020, Revised March 1983.

[2]U.S. Environmental Protection Agency. Method 1664: N-Hexane Extractable Material (HEM) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM) by Extraction and Gravimetry (Oil and Grease and Total Petroleum Hydrocarbons). EPA-821-B-94-004b, April 1995.

[3]Standard Methods for the Examination of Water and Wastewater. A.D. Eaton, L.S. Clesceri and A.E. Greenberg, eds. 19th Edition. American Public Health Association, Washington, D.C., 1995.

Appendix B

Table Referenced In Chapter 4

Table B-1

Industries for Which EPA Has Established Effluent Limitations Guidelines and Standards

CWA Part	Industry
405	Diary Products Processing
406	Grain Mills
407	Canned and Preserved Fruits and Vegetables Processing
408	Canned and Preserved Seafood Processing
409	Sugar Processing
410	Textile Mills
411	Cement Manufacturing
412	Feedlots
413	Electroplating
414	Organic Chemicals, Plastics and Synthetic Fibers
415	Inorganic Chemical Manufacturing
417	Soap and Detergent Manufacturing
418	Fertilizer Manufacturing
419	Petroleum Refining
420	Iron and Steel Manufacturing
421	Nonferrous Metals Manufacturing
422	Phosphate Manufacturing
423	Steam Electric Power Generating
424	Ferroalloy Manufacturing
425	Leather Tanning and Finishing
426	Glass Manufacturing
427	Asbestos Manufacturing
428	Rubber Manufacturing
429	Timber Products Processing
430	Pulp, Paper and Paperboard
431	The Builders' Paper and Boardmills
432	Meat Products
433	Metal Finishing
434	Coal Mining
435	Oil and Gas Extraction
436	Mineral and Mining Processing

Table B-1 (Continued)

CWA Part	Industry
439	Pharmaceutical Manufacturing
440	Ore Mining and Dressing
443	Paving and Roofing Materials (Tars and Asphalt)
446	Paint Formulating
447	Ink Formulating
454	Gum and Wood Chemicals Manufacturing
455	Pesticide Chemicals
457	Explosives Manufacturing
458	Carbon Black Manufacturing
459	Photographic Processing
460	Hospital
461	Battery Manufacturing
463	Plastics Molding and Forming
464	Metal Molding and Casting
465	Coil Coating
466	Porcelain Enameling
467	Aluminum Forming
468	Copper Forming
469	Electrical and Electronic Components
471	Nonferrous Metals Forming and Metal Powder

Appendix C

Tables Referenced in Chapter 5

Table C-1

Priority Pollutant List[1]

1 Acenaphthene	66 Bis(2-Ethylhexyl) Phthalate
2 Acrolein (2-Propenal)	67 Butyl Benzyl Phthalate
3 Acrylonitrile	68 Di-n-butyl Phthalate
4 Benzene	69 Di-n-octyl Phthalate
5 Benzidine	70 Diethyl Phthalate
6 Carbon Tetrachloride (Tetrachloromethane)	71 Dimethyl Phthalate
7 Chlorobenzene	72 Benzo(a)anthracene (1,2-Benzanthracene)
8 1,2,4-Trichlorobenzene	73 Benzo(a)pyrene (3,4-Benzopyrene)
9 Hexachlorobenzene	74 Benzo(b)fluoranthene (3,4-Benzo fluoranthene)
10 1,2-Dichloroethane	75 Benzo(k)fluoranthene
11 1,1,1-Trichloroethane	76 Chrysene
12 Hexachloroethane	77 Acenaphthylene
13 1,1-Dichloroethane	78 Anthracene
14 1,1,2-Trichloroethane	79 Benzo(ghi)perylene (1,12-Benzoperylene)
15 1,1,2,2-Tetrachloroethane	80 Fluorene
16 Chloroethane	81 Phenanthrene
17 Removed	82 Dibenzo(a,h)anthracene (1,2,5,6-Dibenzanthracene)
18 Bis(2-chloroethyl) Ether	83 Indeno(1,2,3-cd)pyrene (2,3-o-Phenylenepyrene)
19 2-Chloroethyl Vinyl Ether (mixed)	84 Pyrene
20 2-Chloronaphthalene	85 Tetrachloroethylene (Tetrachloroethene)
21 2,4,6-Trichlorophenol	86 Toluene
22 Parachloro-m-cresol (4-Chloro-3-Methylphenol)	87 Trichloroethylene (Trichloroethene)
23 Chloroform (Trichloromethane)	88 Vinyl Chloride (Chloroethylene)
24 2-Chlorophenol	89 Aldrin
25 1,2-Dichlorobenzene	90 Dieldrin
26 1,3-Dichlorobenzene	91 Chlordane (Technical Mixture & Metabolites)
27 1,4-Dichlorobenzene	92 4,4'-DDT (p,p'-DDT)
28 3,3'-Dichlorobenzidine	93 4,4'-DDE (p,p'-DDX)
29 1,1-Dichloroethene	94 4,4'-DDD (p,p'-TDE)
30 1,2-Trans-Dichloroethene	95 Alpha-endosulfan
31 2,4-Dichlorophenol	96 Beta-endosulfan
32 1,2-Dichloropropane	97 Endosulfan Sulfate
33 1,3-Dichloropropylene (1,3-Dichloropropene)	98 Endrin
34 2,4-Dimethylphenol	99 Endrin Aldehyde
35 2,4-Dinitrotoluene	100 Heptachlor
36 2,6-Dinitrotoluene	101 Heptachlor Epoxide
37 1,2-Diphenylhydrazine	102 Alpha-BHC
38 Ethylbenzene	103 Beta-BHC
39 Fluoranthene	104 Gamma-BHC (Lindane)
40 4-Chlorophenyl Phenyl Ether	105 Delta-BHC
41 4-Bromophenyl Phenyl Ether	106 PCB-1242 (Arochlor 1242)
42 Bis(2-Chloroisopropyl) Ether	107 PCB-1254 (Arochlor 1254)
43 Bis(2-Chloroethoxy) Methane	108 PCB-1221 (Arochlor 1221)
44 Methylene Chloride (Dichloromethane)	109 PCB-1232 (Arochlor 1232)
45 Methyl Chloride (Chloromethane)	110 PCB-1248 (Arochlor 1248)
46 Methyl Bromide (Bromomethane)	111 PCB-1260 (Arochlor 1260)
47 Bromoform (Tribromomethane)	112 PCB-1016 (Arochlor 1016)
48 Dichlorobromomethane (Bromodichloromethane)	113 Toxaphene
49 Removed	114 Antimony (total)
50 Removed	115 Arsenic (total)
51 Chlorodibromomethane (Dibromochloromethane)	116 Asbestos (fibrous)
52 Hexachlorobutadiene	117 Beryllium (total)
53 Hexachlorocyclopentadiene	118 Cadmium (total)
54 Isophorone	119 Chromium (total)
55 Naphthalene	120 Copper (total)
56 Nitrobenzene	121 Cyanide (total)
57 2-Nitrophenol	122 Lead (total)
58 4-Nitrophenol	123 Mercury (total)
59 2,4-Dinitrophenol	124 Nickel (total)
60 4,6-Dinitro-o-Cresol (Phenol, 2-methyl-4,6-dinitro)	125 Selenium (total)
61 N-Nitrosodimethylamine	126 Silver (total)
62 N-Nitrosodiphenylamine	127 Thallium (total)
63 N-Nitrosodi-n-propylamine (Di-n-propylnitrosamine)	128 Zinc (total)
64 Pentachlorophenol	129 2,3,7,8-Tetrachlorodibenzo-p-Dioxin
65 Phenol	

[1]Priority pollutants are numbered 1 through 129 but include 126 pollutants since EPA removed three pollutants from the list (Numbers 17, 49, and 50).
Source: 40 CFR Part 423, Appendix A.

Table C-2

Pollutants Considered for Regulation

POLLUTANT	ANALYTICAL METHOD
1,1,1,2-TETRACHLOROETHANE	1624
1,1,1-TRICHLOROETHANE	1624
1,1,2,2-TETRACHLOROETHANE	1624
1,1,2-TRICHLOROETHANE	1624
1,1-DICHLOROETHANE	1624
1,1-DICHLOROETHENE	1624
1,2,3-TRICHLOROBENZENE	1625
1,2,3-TRICHLOROPROPANE	1624
1,2,3-TRIMETHOXYBENZENE	1625
1,2,4,5-TETRACHLOROBENZENE	1625
1,2,4-TRICHLOROBENZENE	1625
1,2-DIBROMO-3-CHLOROPROPANE	1625
1,2-DIBROMOETHANE	1624
1,2-DICHLOROBENZENE	1625
1,2-DICHLOROETHANE	1624
1,2-DICHLOROPROPANE	1624
1,2-DIPHENYLHYDRAZINE	1625
1,2:3,4-DIEPOXYBUTANE	1625
1,3,5-TRITHIANE	1625
1,3-BUTADIENE, 2-CHLORO	1624
1,3-DICHLORO-2-PROPANOL	1625
1,3-DICHLOROBENZENE	1625
1,3-DICHLOROPROPANE	1624
1,4-DICHLOROBENZENE	1625
1,4-DINITROBENZENE	1625
1,4-DIOXANE	1624
1,4-NAPHTHOQUINONE	1625
1,5-NAPHTHALENEDIAMINE	1625
1-BROMO-2-CHLOROBENZENE	1625
1-BROMO-3-CHLOROBENZENE	1625
1-CHLORO-3-NITROBENZENE	1625
1-METHYLFLUORENE	1625

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
1-METHYLPHENANTHRENE	1625
1-NAPHTHYLAMINE	1625
1-PHENYLNAPHTHALENE	1625
2,3,4,6-TETRACHLOROPHENOL	1625
2,3,6-TRICHLOROPHENOL	1625
2,3-BENZOFLUORENE	1625
2,3-DICHLOROANILINE	1625
2,3-DICHLORONITROBENZENE	1625
2,4,5-TRICHLOROPHENOL	1625
2,4,6-TRICHLOROPHENOL	1625
2,4-DICHLOROPHENOL	1625
2,4-DIMETHYLPHENOL	1625
2,4-DINITROPHENOL	1625
2,4-DINITROTOLUENE	1625
2,6-DI-TERT-BUTYL-P-BENZOQUINONE	1625
2,6-DICHLORO-4-NITROANILINE	1625
2,6-DICHLOROPHENOL	1625
2,6-DINITROTOLUENE	1625
2-(METHYLTHIO)BENZOTHIAZOLE	1625
2-BUTANONE	1624
2-CHLOROETHYLVINYL ETHER	1624
2-CHLORONAPHTHALENE	1625
2-CHLOROPHENOL	1625
2-HEXANONE	1624
2-ISOPROPYLNAPHTHALENE	1625
2-METHYLBENZOTHIOAZOLE	1625
2-METHYLNAPHTHALENE	1625
2-NITROANILINE	1625
2-NITROPHENOL	1625
2-PHENYLNAPHTHALENE	1625
2-PICOLINE	1625
2-PROPANONE	1624
2-PROPEN-1-OL	1624
2-PROPENAL	1624

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
2-PROPENENITRILE, 2-METHYL-	1624
3,3'-DICHLOROBENZIDINE	1625
3,3'-DIMETHOXYBENZIDINE	1625
3,6-DIMETHYLPHENANTHRENE	1625
3-CHLOROPROPENE	1624
3-METHYLCHOLANTHRENE	1625
3-NITROANILINE	1625
4,4'-METHYLENEBIS(2-CHLOROANILINE)	1625
4,5-METHYLENE PHENANTHRENE	1625
4-AMINOBIPHENYL	1625
4-BROMOPHENYL PHENYL ETHER	1625
4-CHLORO-2-NITROANILINE	1625
4-CHLORO-3-METHYLPHENOL	1625
4-CHLOROPHENYL PHENYL ETHER	1625
4-METHYL-2-PENTANONE	1624
4-NITROPHENOL	1625
5-NITRO-O-TOLUIDINE	1625
7,12-DIMETHYLBENZ(A)ANTHRACENE	1625
ACENAPHTHENE	1625
ACENAPHTHYLENE	1625
ACETOPHENONE	1625
ACRYLONITRILE	1624
ALPHA-TERPINEOL	1625
ALUMINUM	1620
ANILINE	1625
ANILINE, 2,4,5-TRIMETHYL-	1625
ANTHRACENE	1625
ANTIMONY	1620
ARAMITE	1625
ARSENIC	1620
BARIUM	1620
BENZANTHRONE	1625
BENZENE	1624
BENZENETHIOL	1625

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
BENZIDINE	1625
BENZO(A)ANTHRACENE	1625
BENZO(A)PYRENE	1625
BENZO(B)FLUORANTHENE	1625
BENZO(GHI)PERYLENE	1625
BENZO(K)FLUORANTHENE	1625
BENZOIC ACID	1625
BENZONITRILE, 3,5-DIBROMO-4-HYDROXY-	1625
BENZYL ALCOHOL	1625
BERYLLIUM	1620
BETA-NAPHTHYLAMINE	1625
BIPHENYL	1625
BIPHENYL, 4-NITRO	1625
BIS(2-CHLOROETHOXY)METHANE	1625
BIS(2-CHLOROETHYL) ETHER	1625
BIS(2-CHLOROISOPROPYL) ETHER	1625
BIS(2-ETHYLHEXYL) PHTHALATE	1625
BISMUTH	1620
BOD 5-DAY (CARBONACEOUS)	405.1
BORON	1620
BROMODICHLOROMETHANE	1624
BROMOMETHANE	1624
BUTYL BENZYL PHTHALATE	1625
CADMIUM	1620
CALCIUM	1620
CARBAZOLE	1625
CARBON DISULFIDE	1624
CERIUM	1620
CHEMICAL OXYGEN DEMAND (COD)	410.4
CHLOROACETONITRILE	1624
CHLOROBENZENE	1624
CHLOROETHANE	1624
CHLOROFORM	1624
CHLOROMETHANE	1624

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
CHROMIUM	1620
CHRYSENE	1625
CIS-1,3-DICHLOROPROPENE	1624
COBALT	1620
COPPER	1620
CROTONALDEHYDE	1624
CROTOXYPHOS	1625
DI-N-BUTYL PHTHALATE	1625
DI-N-OCTYL PHTHALATE	1625
DI-N-PROPYLNITROSAMINE	1625
DIBENZO(A,H)ANTHRACENE	1625
DIBENZOFURAN	1625
DIBENZOTHIOPHENE	1625
DIBROMOCHLOROMETHANE	1624
DIBROMOMETHANE	1624
DIETHYL ETHER	1624
DIETHYL PHTHALATE	1625
DIMETHYL PHTHALATE	1625
DIMETHYL SULFONE	1625
DIPHENYL ETHER	1625
DIPHENYLAMINE	1625
DIPHENYLDISULFIDE	1625
DYSPROSIUM	1620
ERBIUM	1620
ETHANE, PENTACHLORO-	1625
ETHYL CYANIDE	1624
ETHYL METHACRYLATE	1624
ETHYL METHANESULFONATE	1625
ETHYLBENZENE	1624
ETHYLENETHIOUREA	1625
EUROPIUM	1620
FLUORANTHENE	1625
FLUORENE	1625
GADOLINIUM	1620

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
GALLIUM	1620
GERMANIUM	1620
GOLD	1620
HAFNIUM	1620
HEXACHLOROBENZENE	1625
HEXACHLOROBUTADIENE	1625
HEXACHLOROCYCLOPENTADIENE	1625
HEXACHLOROETHANE	1625
HEXACHLOROPROPENE	1625
HEXANOIC ACID	1625
HOLMIUM	1620
INDENO(1,2,3-CD)PYRENE	1625
INDIUM	1620
IODINE	1620
IODOMETHANE	1624
IRIDIUM	1620
IRON	1620
ISOBUTYL ALCOHOL	1624
ISOPHORONE	1625
ISOSAFROLE	1625
LANTHANUM	1620
LEAD	1620
LITHIUM	1620
LONGIFOLENE	1625
LUTETIUM	1620
M-XYLENE	1624
MAGNESIUM	1620
MALACHITE GREEN	1625
MANGANESE	1620
MERCURY	1620
MESTRANOL	1625
METHAPYRILENE	1625
METHYL METHACRYLATE	1624
METHYL METHANESULFONATE	1625

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
METHYLENE CHLORIDE	1624
MOLYBDENUM	1620
N,N-DIMETHYLFORMAMIDE	1625
N-DECANE	1625
N-DOCOSANE	1625
N-DODECANE	1625
N-EICOSANE	1625
N-HEXACOSANE	1625
N-HEXADECANE	1625
N-NITROSODI-N-BUTYLAMINE	1625
N-NITROSODIETHYLAMINE	1625
N-NITROSODIMETHYLAMINE	1625
N-NITROSODIPHENYLAMINE	1625
N-NITROSOMETHYLETHYLAMINE	1625
N-NITROSOMETHYLPHENYLAMINE	1625
N-NITROSOMORPHOLINE	1625
N-NITROSOPIPERIDINE	1625
N-OCTACOSANE	1625
N-OCTADECANE	1625
N-TETRACOSANE	1625
N-TETRADECANE	1625
N-TRIACONTANE	1625
NAPHTHALENE	1625
NEODYMIUM	1620
NICKEL	1620
NIOBIUM	1620
NITROBENZENE	1625
O+P XYLENE	1624
O-ANISIDINE	1625
O-CRESOL	1625
O-TOLUIDINE	1625
O-TOLUIDINE, 5-CHLORO-	1625
OIL AND GREASE (measured as HEM)	1664
OSMIUM	1620

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
P-CHLOROANILINE	1625
P-CRESOL	1625
P-CYMENE	1625
P-DIMETHYLAMINOAZOBENZENE	1625
P-NITROANILINE	1625
PALLADIUM	1620
PENTACHLOROBENZENE	1625
PENTACHLOROPHENOL	1625
PENTAMETHYLBENZENE	1625
PERYLENE	1625
PH	150.1
PHENACETIN	1625
PHENANTHRENE	1625
PHENOL	1625
PHENOL, 2-METHYL-4,6-DINITRO-	1625
PHENOTHIAZINE	1625
PHOSPHORUS	1620
PLATINUM	1620
POTASSIUM	1620
PRASEODYMIUM	1620
PRONAMIDE	1625
PYRENE	1625
PYRIDINE	1625
RESORCINOL	1625
RHENIUM	1620
RHODIUM	1620
RUTHENIUM	1620
SAFROLE	1625
SAMARIUM	1620
SCANDIUM	1620
SELENIUM	1620
SILICON	1620
SILVER	1620
SODIUM	1620

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
SQUALENE	1625
STRONTIUM	1620
STYRENE	1625
SULFUR	1620
SURFACTANTS (CTAS)	5540D
SURFACTANTS (MBAS)	5540C
TANTALUM	1620
TELLURIUM	1620
TERBIUM	1620
TETRACHLOROETHENE	1624
TETRACHLOROMETHANE	1624
THALLIUM	1620
THIANAPHTHENE	1625
THIOACETAMIDE	1625
THIOXANTHE-9-ONE	1625
THORIUM	1620
THULIUM	1620
TIN	1620
TITANIUM	1620
TOLUENE	1624
TOLUENE, 2,4-DIAMINO-	1625
TOTAL HYDROLYZABLE PHOSPHORUS	365.2
TOTAL ORGANIC CARBON (TOC)	415.1
TOTAL ORTHOPHOSPHATE	365.2
TOTAL PETROLEUM HYDROCARBON (measured as SGT-HEM)	1664
TOTAL PHOSPHORUS	365.2
TOTAL SOLIDS	160.3
TOTAL SUSPENDED SOLIDS	160.2
TRANS-1,2-DICHLOROETHENE	1624
TRANS-1,3-DICHLOROPROPENE	1624
TRANS-1,4-DICHLORO-2-BUTENE	1624
TRIBROMOMETHANE	1624
TRICHLOROETHENE	1624

Table C-2 (Continued)

POLLUTANT	ANALYTICAL METHOD
TRICHLOROFLUOROMETHANE	1624
TRIPHENYLENE	1625
TRIPROPYLENEGLYCOL METHYL ETHER	1625
TUNGSTEN	1620
URANIUM	1620
VANADIUM	1620
VINYL ACETATE	1624
VINYL CHLORIDE	1624
YTTERBIUM	1620
YTTRIUM	1620
ZINC	1620
ZIRCONIUM	1620

Table C-3

Wastewater Characterization for Item-Specific Wastewater at Industrial Laundries

Industrial Garments						
	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
Constituent Name	**Minimum**	**Maximum**	**Mean**			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	218	600	350	6	6	100
Oil and Grease (measured as HEM)	18.8	358	149	6	6	100
Total Suspended Solids (TSS)	129	524	304	6	6	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	0.100	0.0400	6	0	0
1,2-Diphenylhydrazine	0.0200	0.200	0.110	6	0	0
4-Chloro-3-methylphenol	0.0100	0.504	0.130	6	2	33
Bis(2-ethylhexyl) Phthalate	0.100	3.97	0.838	6	5	83
Butyl Benzyl Phthalate	0.0100	0.431	0.111	6	2	33
Chlorobenzene	0.0100	0.100	0.0400	6	0	0
Chloroform	0.0100	0.100	0.0400	6	0	0
Di-*n*-butyl Phthalate	0.0100	0.211	0.0736	6	1	17
Di-*n*-octyl Phthalate	0.0100	0.100	0.0583	6	2	33
Ethylbenzene	0.0100	0.482	0.104	6	1	17
Isophorone	0.0100	0.933	0.194	6	1	17
Methylene Chloride	0.0100	0.100	0.0406	6	1	17
Naphthalene	0.0100	0.415	0.107	6	1	17
Phenol	0.0200	0.127	0.0544	6	5	83
Tetrachloroethene	0.0100	0.100	0.0400	6	0	0
Toluene	0.0100	0.128	0.0486	6	3	50
trans-1,2-Dichloroethene	0.0100	0.100	0.0400	6	0	0
Trichloroethene	0.0100	0.100	0.0400	6	0	0
Nonconventional Organics						
2-Butanone	0.0500	0.500	0.200	6	0	0
2-Methylnaphthalene	0.0100	0.383	0.102	6	1	17
2-Propanone	0.0500	0.5000	0.226	6	1	17
4-Methyl-2-pentanone	0.0500	0.500	0.200	6	0	0

Table C-3 (Continued)

Industrial Garments						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
∝-Terpineol	0.0100	0.100	0.0550	6	0	0
Benzoic Acid	0.100	0.500	0.353	6	3	50
Benzyl Alcohol	0.0291	0.484	0.132	6	4	67
Hexanoic Acid	0.0471	0.176	0.0962	6	4	67
m-Xylene	0.0100	0.0100	0.0100	4	0	0
n-Decane	0.0100	4.61	0.807	6	1	17
n-Docosane	0.0118	1.35	0.271	6	5	83
n-Dodecane	0.0100	7.32	1.26	6	2	33
n-Eicosane	0.0140	2.52	0.471	6	4	67
n-Hexacosane	0.0190	0.226	0.117	6	6	100
n-Hexadecane	0.0100	3.30	0.602	6	3	50
n-Octacosane	0.0100	0.220	0.0821	6	4	67
n-Octadecane	0.0100	2.46	0.445	6	5	83
n-Tetracosane	0.0188	1.37	0.281	6	4	67
n-Tetradecane	0.0100	3.41	0.612	6	2	33
n-Triacontane	0.0115	0.479	0.123	6	4	67
o-&*p*-Xylene	0.0100	0.0100	0.0100	4	0	0
p-Cresol	0.0100	0.100	0.0417	6	0	0
p-Cymene	0.0100	0.208	0.0873	6	2	33
Pentamethylbenzene	0.0100	0.100	0.0550	6	0	0
Priority Metals and Elements						
Antimony	0.0151	1.57	0.312	6	6	100
Arsenic	0.00110	0.0232	0.00907	6	2	33
Beryllium	0.000300	0.00100	0.000605	6	2	33
Cadmium	0.00500	0.0459	0.0269	6	5	83
Chromium	0.0159	0.161	0.0959	6	6	100
Copper	0.148	1.31	0.688	6	6	100
Lead	0.0460	0.407	0.238	6	5	83
Mercury	0.000200	0.000760	0.000395	6	3	50
Nickel	0.0180	0.164	0.0999	6	5	83

Table C-3 (Continued)

Industrial Garments						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Selenium	0.000500	0.0200	0.00767	6	2	33
Silver	0.00230	0.0431	0.0146	6	3	50
Thallium	0.00100	0.0100	0.00293	6	0	0
Zinc	0.264	3.07	1.50	6	6	100
Nonconventional Metals and Elements						
Aluminum	3.20	8.73	4.85	6	6	100
Barium	0.0404	0.560	0.273	6	6	100
Boron	0.0306	0.369	0.187	6	6	100
Cobalt	0.00230	0.0461	0.0134	6	2	33
Iron	1.42	17.4	10.9	6	6	100
Manganese	0.0732	0.209	0.148	6	6	100
Molybdenum	0.00450	0.0539	0.0213	6	4	67
Tin	0.0246	0.267	0.0722	6	5	83
Titanium	0.0842	0.223	0.150	6	6	100
Vanadium	0.00200	0.0120	0.00707	6	1	17
Yttrium	0.000300	0.00400	0.00178	6	1	17
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	1,070	2,760	1,710	6	6	100
Total Organic Carbon (TOC)	163	540	367	6	6	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	5.00	74.5	47.4	6	5	83

Table C-3 (Continued)

Shop Towels						
	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
Constituent Name	**Minimum**	**Maximum**	**Mean**			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	1,130	5,640	2,780	6	6	100
Oil and Grease (measured as HEM)	2,090	5,360	3,250	4	4	100
Total Suspended Solids (TSS)	2,540	6,730	4,450	4	4	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	38.3	4.13	6	3	50
1,2-Diphenylhydrazine	0.0700	2.00	1.07	4	0	0
4-Chloro-3-methylphenol	0.0200	2.06	0.795	4	1	25
Bis(2-ethylhexyl) Phthalate	0.633	9.44	3.63	5	4	80
Butyl Benzyl Phthalate	0.0350	3.79	1.46	4	1	25
Chlorobenzene	0.0100	1.00	0.252	5	1	20
Chloroform	0.0100	1.00	0.292	4	1	25
Di-*n*-butyl Phthalate	0.0350	1.00	0.558	4	1	25
Di-*n*-octyl Phthalate	0.0350	1.00	0.538	4	1	25
Ethylbenzene	0.556	36.0	5.27	6	6	100
Isophorone	0.0350	36.3	9.58	4	1	25
Methylene Chloride	0.0100	39.9	4.22	6	3	50
Naphthalene	0.329	5.16	2.91	5	4	80
Phenol	0.0350	1.00	0.310	4	1	25
Tetrachloroethene	0.170	55.5	8.92	6	5	83
Toluene	1.11	11.6	5.33	5	5	100
trans-1,2-Dichloroethene	0.0100	1.00	0.367	5	1	20
Trichloroethene	0.0100	1.00	0.247	5	2	40
Nonconventional Organics						
2-Butanone	0.0898	15.8	5.40	4	3	75
2-Methylnaphthalene	0.465	1.21	0.826	4	3	75
2-Propanone	1.00	5.95	3.98	4	3	75
4-Methyl-2-pentanone	0.132	5.00	1.88	4	2	50
∝-Terpineol	0.0350	1.59	0.956	4	2	50
Benzoic Acid	0.301	5.00	2.55	4	2	50
Benzyl Alcohol	0.0350	35.0	9.26	4	1	25

Table C-3 (Continued)

Shop Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.0200	1.00	0.305	4	0	0
m-Xylene	0.884	2.99	2.12	3	3	100
n-Decane	4.70	154	42.2	5	5	100
n-Docosane	0.313	1.55	1.10	4	3	75
n-Dodecane	13.3	23.7	19.1	4	4	100
n-Eicosane	1.44	84.6	25.1	4	4	100
n-Hexacosane	0.100	4.01	1.40	4	2	50
n-Hexadecane	2.85	17.4	10.0	5	5	100
n-Octacosane	0.100	2.21	0.858	4	2	50
n-Octadecane	1.06	22.1	11.2	5	5	100
n-Tetracosane	0.328	5.30	1.95	4	3	75
n-Tetradecane	6.51	36.8	15.0	4	4	100
n-Triacontane	0.0689	1.71	0.719	4	2	50
o-&*p*-Xylene	0.482	3.27	1.47	3	3	100
p-Cresol	0.0200	1.00	0.305	4	0	0
p-Cymene	0.0350	8.11	2.05	5	2	40
Pentamethylbenzene	0.0350	1.00	0.534	4	0	0
Priority Metals and Elements						
Antimony	0.0973	0.369	0.198	6	6	100
Arsenic	0.00800	0.0511	0.0224	5	4	80
Beryllium	0.000560	0.00100	0.000890	4	1	25
Cadmium	0.105	0.856	0.358	6	6	100
Chromium	0.119	1.17	0.490	6	6	100
Copper	2.44	9.79	6.48	6	6	100
Lead	2.04	20.5	6.52	6	6	100
Mercury	0.000200	0.00425	0.00183	5	3	60
Nickel	0.175	1.61	0.599	6	6	100
Selenium	0.0100	0.0200	0.0145	4	2	50
Silver	0.00270	0.877	0.139	6	3	50
Thallium	0.00100	0.0120	0.00390	4	0	0

Table C-3 (Continued)

Shop Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	6.82	29.4	13.5	6	6	100
Nonconventional Metals and Elements						
Aluminum	5.57	20.1	13.1	6	6	100
Barium	0.730	10.3	4.08	6	6	100
Boron	0.0500	3.81	1.99	6	5	83
Cobalt	0.0720	0.795	0.288	6	6	100
Iron	24.6	114	55.8	6	6	100
Manganese	0.510	1.95	1.09	6	6	100
Molybdenum	0.153	1.27	0.382	6	6	100
Tin	0.0290	0.808	0.370	6	5	83
Titanium	0.0177	0.574	0.232	6	6	100
Vanadium	0.0106	0.113	0.0420	6	6	100
Yttrium	0.00320	0.0171	0.00794	4	4	100
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	7,700	26,300	13,300	6	6	100
Total Organic Carbon (TOC)	750	2,950	2,030	6	6	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	520	3,410	1,760	4	4	100

Table C-3 (Continued)

Printer Towels						
	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
Constituent Name	**Minimum**	**Maximum**	**Mean**			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	3,360	4,250	3,940	3	3	100
Oil and Grease (measured as HEM)	936	11,800	5,890	3	3	100
Total Suspended Solids (TSS)	810	1,600	1,250	3	3	100
Priority Organics						
1,1,1-Trichloroethane	1.00	8.26	4.50	3	2	67
1,2-Diphenylhydrazine	0.200	2.00	1.00	3	0	0
4-Chloro-3-methylphenol	0.100	1.00	0.433	3	0	0
Bis(2-ethylhexyl) Phthalate	3.83	36.4	19.0	3	3	100
Butyl Benzyl Phthalate	1.00	9.34	5.55	3	2	67
Chlorobenzene	0.100	1.00	0.467	3	1	33
Chloroform	0.0100	1.00	0.370	3	0	0
Di-*n*-butyl Phthalate	0.844	7.75	3.20	3	2	67
Di-*n*-octyl Phthalate	0.100	2.61	1.24	3	1	33
Ethylbenzene	0.521	29.2	13.2	3	3	100
Isophorone	0.100	1.00	0.500	3	0	0
Methylene Chloride	0.140	1.54	0.614	3	3	100
Naphthalene	3.73	12.7	9.64	3	3	100
Phenol	0.100	1.00	0.500	3	0	0
Tetrachloroethene	2.40	6.16	3.92	3	3	100
Toluene	14.1	33.2	20.5	3	3	100
trans-1,2-Dichloroethene	0.0118	1.00	0.371	3	1	33
Trichloroethene	0.100	1.00	0.476	3	1	33
Nonconventional Organics						
2-Butanone	2.05	5.00	3.09	3	2	67
2-Methylnaphthalene	0.100	1.71	0.836	3	2	67
2-Propanone	23.4	96.6	49.7	3	3	100
4-Methyl-2-pentanone	0.500	5.00	2.07	3	1	33
∝-Terpineol	0.100	1.58	1.07	3	2	67
Benzoic Acid	1.50	5.00	3.30	3	2	67
Benzyl Alcohol	0.100	1.00	0.500	3	0	0

Table C-3 (Continued)

Printer Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.100	1.00	0.433	3	0	0
m-Xylene	0.100	2.79	1.44	2	1	50
n-Decane	10.1	158	90.6	3	3	100
n-Docosane	0.100	1.00	0.668	3	1	33
n-Dodecane	12.9	41.8	23.1	3	3	100
n-Eicosane	1.22	1.38	1.29	3	3	100
n-Hexacosane	1.00	3.73	2.01	3	2	67
n-Hexadecane	4.34	15.4	9.51	3	3	100
n-Octacosane	0.100	1.01	0.402	3	1	33
n-Octadecane	1.73	3.62	2.43	3	3	100
n-Tetracosane	0.100	1.00	0.605	3	1	33
n-Tetradecane	3.08	15.8	7.89	3	3	100
n-Triacontane	0.100	1.00	0.626	3	1	33
o-&*p*-Xylene	0.100	2.05	1.08	2	1	50
p-Cresol	0.100	1.00	0.433	3	0	0
p-Cymene	8.10	19.8	12.4	3	3	100
Pentamethylbenzene	0.100	1.00	0.500	3	0	0
Priority Metals and Elements						
Antimony	0.0200	0.104	0.0556	3	2	67
Arsenic	0.00100	0.00530	0.00313	3	2	67
Beryllium	0.00100	0.00100	0.00100	3	0	0
Cadmium	0.0129	0.0444	0.0253	3	3	100
Chromium	0.278	7.31	2.65	3	3	100
Copper	8.20	14.9	11.0	3	3	100
Lead	1.12	23.8	8.91	3	3	100
Mercury	0.000200	0.000290	0.000230	3	1	33
Nickel	0.0962	0.108	0.101	3	3	100
Selenium	0.0100	0.0230	0.0177	3	0	0
Silver	0.00900	0.555	0.207	3	3	100
Thallium	0.00100	0.0120	0.00767	3	0	0

Table C-3 (Continued)

Printer Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	2.84	4.21	3.62	3	3	100
Nonconventional Metals and Elements						
Aluminum	3.30	17.4	8.22	3	3	100
Barium	3.14	6.97	4.53	3	3	100
Boron	0.614	0.777	0.670	3	3	100
Cobalt	0.222	0.942	0.614	3	3	100
Iron	5.58	10.0	8.51	3	3	100
Manganese	0.305	1.29	0.898	3	3	100
Molybdenum	0.328	5.17	2.10	3	3	100
Tin	0.0431	0.138	0.0990	3	3	100
Titanium	0.0797	0.313	0.184	3	3	100
Vanadium	0.00700	0.0120	0.00900	3	0	0
Yttrium	0.00400	0.00810	0.00570	3	1	33
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	15,800	19,100	16,900	3	3	100
Total Organic Carbon (TOC)	2,220	3,520	2,740	3	3	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	133	4,540	1,730	3	3	100

Table C-3 (Continued)

Mats						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	98.0	248	179	3	3	100
Oil and Grease (measured as HEM)	84.3	153	105	3	3	100
Total Suspended Solids (TSS)	365	1,020	690	3	3	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	1.60	0.806	3	1	33
1,2-Diphenylhydrazine	0.0200	0.0200	0.0200	3	0	0
4-Chloro-3-methylphenol	0.0100	0.0100	0.0100	3	0	0
Bis(2-ethylhexyl) Phthalate	1.18	2.02	1.70	3	3	100
Butyl Benzyl Phthalate	0.0100	0.0907	0.0350	3	2	67
Chlorobenzene	0.0100	0.0100	0.0100	3	0	0
Chloroform	0.0100	0.0100	0.0100	3	0	0
Di-*n*-butyl Phthalate	0.0100	0.315	0.114	3	2	67
Di-*n*-octyl Phthalate	0.0192	0.0494	0.0369	3	3	100
Ethylbenzene	0.0100	0.283	0.147	3	1	33
Isophorone	0.0100	0.361	0.186	3	2	67
Methylene Chloride	0.0100	0.442	0.226	3	1	33
Naphthalene	0.0100	0.0244	0.0172	3	1	33
Phenol	0.0100	0.0238	0.0134	3	1	33
Tetrachloroethene	0.0100	0.125	0.0676	3	1	33
Toluene	0.0100	1.29	0.654	3	2	67
trans-1,2-Dichloroethene	0.0100	0.0100	0.0100	3	0	0
Trichloroethene	0.0100	0.0100	0.0100	3	0	0
Nonconventional Organics						
2-Butanone	0.0500	0.579	0.314	3	1	33
2-Methylnaphthalene	0.0100	0.0100	0.0100	3	0	0
2-Propanone	0.0500	2.11	1.10	3	2	67
4-Methyl-2-pentanone	0.0500	0.458	0.254	3	1	33
∝-Terpineol	0.0100	0.0825	0.0463	3	1	33
Benzoic Acid	0.0500	0.231	0.156	3	2	67
Benzyl Alcohol	0.0185	0.0724	0.0520	3	3	100

Table C-3 (Continued)

Mats						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.0152	0.0817	0.0611	3	3	100
m-Xylene	0.0100	0.520	0.265	3	1	33
n-Decane	0.0100	1.98	0.995	3	1	33
n-Docosane	0.0130	0.0272	0.0175	3	3	100
n-Dodecane	0.0100	0.121	0.0654	3	1	33
n-Eicosane	0.0166	0.0318	0.0206	3	3	100
n-Hexacosane	0.0184	0.0265	0.0211	3	3	100
n-Hexadecane	0.0100	0.0305	0.0206	3	2	67
n-Octacosane	0.0100	0.0168	0.0134	3	2	67
n-Octadecane	0.0112	0.0222	0.0160	3	3	100
n-Tetracosane	0.0100	0.0934	0.0394	3	2	67
n-Tetradecane	0.0100	0.0190	0.0145	3	1	33
n-Triacontane	0.0274	0.0306	0.0292	3	3	100
o-&*p*-Xylene	0.0100	0.291	0.151	3	1	33
p-Cresol	0.0100	0.0100	0.0100	3	0	0
p-Cymene	0.0100	0.0100	0.0100	3	0	0
Pentamethylbenzene	0.0100	0.0100	0.0100	3	0	0
Priority Metals and Elements						
Antimony	0.0200	0.0209	0.0204	3	3	100
Arsenic	0.00380	0.0143	0.00905	3	2	67
Beryllium	0.000540	0.00100	0.000775	3	2	67
Cadmium	0.00950	0.0267	0.0147	3	3	100
Chromium	0.0806	0.303	0.167	3	3	100
Copper	0.220	3.97	1.31	3	3	100
Lead	0.307	1.64	0.711	3	3	100
Mercury	0.000430	0.00392	0.00142	3	3	100
Nickel	0.0543	0.297	0.152	3	3	100
Selenium	0.00150	0.00460	0.00305	3	0	0
Silver	0.0155	0.0176	0.0168	3	3	100
Thallium	0.00160	0.0120	0.00680	3	0	0

Table C-3 (Continued)

Mats						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	1.06	4.31	2.42	3	3	100
Nonconventional Metals and Elements						
Aluminum	3.42	17.4	10.3	3	3	100
Barium	0.214	0.551	0.376	3	3	100
Boron	0.0500	0.123	0.0818	3	2	67
Cobalt	0.0135	0.0256	0.0184	3	3	100
Iron	6.87	47.7	24.7	3	3	100
Manganese	0.115	0.553	0.318	3	3	100
Molybdenum	0.0240	0.0417	0.0321	3	3	100
Tin	0.0439	0.205	0.0938	3	3	100
Titanium	0.0100	0.828	0.364	3	2	67
Vanadium	0.00920	0.0465	0.0273	3	3	100
Yttrium	0.00500	0.00874	0.00675	3	2	67
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	80.0	968	515	3	3	100
Total Organic Carbon (TOC)	33.0	186	111	3	3	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	33.2	72.5	48.5	3	2	67

Table C-3 (Continued)

Mops						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	140	2,160	1,150	2	2	100
Oil and Grease (measured as HEM)	9	564	286	2	2	100
Total Suspended Solids (TSS)	332	1,860	1,100	2	2	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	2.08	1.04	2	1	50
1,2-Diphenylhydrazine	0.200	0.200	0.200	2	0	0
4-Chloro-3-methylphenol	0.100	0.100	0.100	2	0	0
Bis(2-ethylhexyl) Phthalate	1.08	1.13	1.10	2	2	100
Butyl Benzyl Phthalate	0.166	1.62	0.895	2	2	100
Chlorobenzene	0.0100	0.100	0.0550	2	0	0
Chloroform	0.0130	0.100	0.0565	2	1	50
Di-*n*-butyl Phthalate	0.100	0.768	0.434	2	1	50
Di-*n*-octyl Phthalate	0.100	0.116	0.108	2	1	50
Ethylbenzene	0.0100	0.100	0.0550	2	0	0
Isophorone	0.100	0.100	0.100	2	0	0
Methylene Chloride	0.0100	0.143	0.0767	2	1	50
Naphthalene	0.443	0.500	0.471	2	2	100
Phenol	0.100	0.100	0.100	2	0	0
Tetrachloroethene	0.0100	0.100	0.0550	2	0	0
Toluene	0.0194	0.100	0.0597	2	1	50
trans-1,2-Dichloroethene	0.0100	0.100	0.0550	2	0	0
Trichloroethene	0.0100	0.100	0.0550	2	0	0
Nonconventional Organics						
2-Butanone	0.0500	2.21	1.13	2	1	50
2-Methylnaphthalene	0.100	0.763	0.432	2	1	50
2-Propanone	0.0500	4.40	2.22	2	1	50
4-Methyl-2-pentanone	0.0500	0.500	0.275	2	0	0
∝-Terpineol	0.100	0.100	0.100	2	0	0
Benzoic Acid	1.91	2.78	2.35	2	2	100
Benzyl Alcohol	0.100	1.12	0.610	2	1	50

Table C-3 (Continued)

Mops						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.185	0.246	0.216	2	2	100
m-Xylene	0.100	0.100	0.100	1	0	0
n-Decane	0.271	1.66	0.965	2	2	100
n-Docosane	0.137	0.178	0.157	2	2	100
n-Dodecane	0.100	16.0	8.07	2	1	50
n-Eicosane	0.246	0.336	0.291	2	2	100
n-Hexacosane	0.207	0.213	0.210	2	2	100
n-Hexadecane	0.286	1.86	1.07	2	2	100
n-Octacosane	0.168	0.275	0.221	2	2	100
n-Octadecane	0.392	1.36	0.875	2	2	100
n-Tetracosane	0.100	0.100	0.100	2	0	0
n-Tetradecane	1.13	1.80	1.47	2	2	100
n-Triacontane	0.0941	0.232	0.163	2	2	100
o-&*p*-Xylene	0.100	0.100	0.100	1	0	0
p-Cresol	0.100	0.100	0.100	2	0	0
p-Cymene	0.100	0.100	0.100	2	0	0
Pentamethylbenzene	0.100	0.100	0.100	2	0	0
Priority Metals and Elements						
Antimony	0.003100	0.0556	0.0294	2	2	100
Arsenic	0.00260	0.0178	0.0102	2	2	100
Beryllium	0.00100	0.00100	0.00100	2	0	0
Cadmium	0.00500	0.0373	0.0212	2	1	50
Chromium	0.0178	0.184	0.101	2	2	100
Copper	0.427	3.52	1.97	2	2	100
Lead	0.0460	1.76	0.903	2	1	50
Mercury	0.000910	0.00840	0.00466	2	2	100
Nickel	0.0180	0.195	0.106	2	1	50
Selenium	0.00460	0.0200	0.0123	2	0	0
Silver	0.00620	0.0160	0.0111	2	2	100
Thallium	0.00240	0.0100	0.00620	2	0	0

Table C-3 (Continued)

Mops						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	0.686	5.32	3.00	2	2	100
Nonconventional Metals and Elements						
Aluminum	2.25	17.3	9.78	2	2	100
Barium	0.189	0.953	0.571	2	2	100
Boron	0.0533	0.327	0.190	2	2	100
Cobalt	0.0100	0.0620	0.0360	2	1	50
Iron	3.90	31.9	17.9	2	2	100
Manganese	0.0783	0.638	0.358	2	2	100
Molybdenum	0.0284	0.0940	0.0612	2	2	100
Tin	0.0290	0.128	0.0785	2	1	50
Titanium	0.0602	0.307	0.184	2	2	100
Vanadium	0.0120	0.0320	0.0220	2	1	50
Yttrium	0.00400	0.00500	0.004500	2	0	0
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	720	10,100	5,410	2	2	100
Total Organic Carbon (TOC)	133	902	518	2	2	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	5	218	111	2	1	50

Table C-3 (Continued)

Steam-Tumbled Printer Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	1,440	1,440	1,440	1	1	100
Oil and Grease (measured as HEM)	1,720	1,720	1,720	1	1	100
Total Suspended Solids (TSS)	1,320	1,320	1,320	1	1	100
Priority Organics						
1,1,1-Trichloroethane	0.0118	0.0118	0.0118	1	1	100
1,2-Diphenylhydrazine	0.0800	0.0800	0.0800	1	0	0
4-Chloro-3-methylphenol	0.0400	0.0400	0.0400	1	0	0
Bis(2-ethylhexyl) Phthalate	8.77	8.77	8.77	1	1	100
Butyl Benzyl Phthalate	0.366	0.366	0.366	1	1	100
Chlorobenzene	0.0100	0.0100	0.0100	1	0	0
Chloroform	0.0100	0.0100	0.0100	1	0	0
Di-*n*-butyl Phthalate	0.117	0.117	0.117	1	1	100
Di-*n*-octyl Phthalate	0.325	0.325	0.325	1	1	100
Ethylbenzene	0.0100	0.0100	0.0100	1	0	0
Isophorone	0.0400	0.0400	0.0400	1	0	0
Methylene Chloride	0.0100	0.0100	0.0100	1	0	0
Naphthalene	0.226	0.226	0.226	1	1	100
Phenol	0.0432	0.0432	0.0432	1	1	100
Tetrachloroethene	0.0100	0.0100	0.0100	1	0	0
Toluene	0.0436	0.0436	0.0436	1	1	100
trans-1,2-Dichloroethene	0.0100	0.0100	0.0100	1	0	0
Trichloroethene	0.0100	0.0100	0.0100	1	0	0
Nonconventional Organics						
2-Butanone	0.0500	0.0500	0.0500	1	0	0
2-Methylnaphthalene	0.0400	0.0400	0.0400	1	0	0
2-Propanone	0.681	0.681	0.681	1	1	100
4-Methyl-2-pentanone	0.0500	0.0500	0.0500	1	0	0
∝-Terpineol	0.0400	0.0400	0.0400	1	0	0
Benzoic Acid	0.977	0.977	0.977	1	1	100
Benzyl Alcohol	0.819	0.819	0.819	1	1	100

Table C-3 (Continued)

Steam-Tumbled Printer Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.384	0.384	0.384	1	1	100
m-Xylene	0.0151	0.0151	0.0151	1	1	100
n-Decane	0.499	0.499	0.499	1	1	100
n-Docosane	0.131	0.131	0.131	1	1	100
n-Dodecane	2.65	2.65	2.65	1	1	100
n-Eicosane	3.05	3.05	3.05	1	1	100
n-Hexacosane	0.0904	0.0904	0.0904	1	1	100
n-Hexadecane	91.6	91.6	91.6	1	1	100
n-Octacosane	0.0633	0.0633	0.0633	1	1	100
n-Octadecane	1.48	1.48	1.48	1	1	100
n-Tetracosane	0.0724	0.0724	0.0724	1	1	100
n-Tetradecane	12.8	12.8	12.8	1	1	100
n-Triacontane	0.0587	0.0587	0.0587	1	1	100
o-&*p*-Xylene	0.0146	0.0146	0.0146	1	1	100
p-Cresol	0.0400	0.0400	0.0400	1	0	0
p-Cymene	0.0400	0.0400	0.0400	1	0	0
Pentamethylbenzene	0.0400	0.0400	0.0400	1	0	0
Priority Metals and Elements						
Antimony	0.0261	0.0261	0.0261	1	1	100
Arsenic	0.00380	0.00380	0.00380	1	0	0
Beryllium	0.00100	0.00100	0.00100	1	0	0
Cadmium	0.0358	0.0358	0.0358	1	1	100
Chromium	0.275	0.275	0.275	1	1	100
Copper	4.86	4.86	4.86	1	1	100
Lead	0.957	0.957	0.957	1	1	100
Mercury	0.000200	0.000200	0.000200	1	0	0
Nickel	0.0372	0.0372	0.0372	1	1	100
Selenium	0.0230	0.0230	0.0230	1	0	0
Silver	0.0653	0.0653	0.0653	1	1	100
Thallium	0.0120	0.0120	0.0120	1	0	0

Table C-3 (Continued)

Steam-Tumbled Printer Towels						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	2.10	2.10	2.10	1	1	100
Nonconventional Metals and Elements						
Aluminum	2.80	2.80	2.80	1	1	100
Barium	1.63	1.63	1.63	1	1	100
Boron	0.0500	0.0500	0.0500	1	0	0
Cobalt	0.202	0.202	0.202	1	1	100
Iron	2.62	2.62	2.62	1	1	100
Manganese	0.277	0.277	0.277	1	1	100
Molybdenum	2.64	2.64	2.64	1	1	100
Tin	0.0761	0.0761	0.0761	1	1	100
Titanium	0.0178	0.0178	0.0178	1	1	100
Vanadium	0.0221	0.0221	0.0221	1	1	100
Yttrium	0.00500	0.00500	0.00500	1	0	0
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	9,000	9,000	9,000	1	1	100
Total Organic Carbon (TOC)	1,770	1,770	1,770	1	1	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	468	468	468	1	1	100

Table C-3 (Continued)

Items Dry Cleaned Prior to Water Washing						
	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
Constituent Name	**Minimum**	**Maximum**	**Mean**			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	110	120	113	3	3	100
Total Suspended Solids (TSS)	70	93	82	3	3	100
Priority Organics						
Ethylbenzene	0.00200	0.232	0.0458	11	8	73
Toluene	0.00200	1.23	0.225	11	8	73
Priority Metals and Elements						
Arsenic	0.00500	0.00500	0.00500	3	0	0
Cadmium	0.0100	0.150	0.0825	4	3	75
Chromium	0.0200	0.1700	0.0933	3	3	100
Copper	0.0600	0.940	0.668	4	4	100
Lead	0.00500	1.50	0.519	3	2	67
Mercury	0.000100	0.000200	0.000150	4	0	0
Nickel	0.0200	0.0200	0.0200	3	0	0
Silver	0.00500	0.00500	0.00500	5	0	0
Zinc	0.350	0.640	0.450	3	3	100
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	528	804	638	3	3	100

Table C-3 (Continued)

Linen Supply Items						
	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
Constituent Name	**Minimum**	**Maximum**	**Mean**			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	50	2,520	881	9	9	100
Oil and Grease (measured as HEM)	72	142	108	3	3	100
Total Suspended Solids (TSS)	35	1,060	269	9	9	100
Priority Organics						
1,1,1-Trichloroethane	0.00500	0.0100	0.00833	5	0	0
1,2-Diphenylhydrazine	0.0200	0.0200	0.0200	3	0	0
4-Chloro-3-methylphenol	0.0100	0.0100	0.0100	3	0	0
Bis(2-ethylhexyl) Phthalate	0.0410	1.49	0.574	3	3	100
Butyl Benzyl Phthalate	0.0100	0.263	0.0944	3	1	33
Chlorobenzene	0.00500	0.0100	0.00833	5	0	0
Chloroform	0.0100	2.58	0.889	5	5	100
Di-*n*-butyl Phthalate	0.0100	0.0717	0.0306	3	1	33
Di-*n*-octyl Phthalate	0.0100	0.130	0.0572	3	2	67
Ethylbenzene	0.00500	0.0100	0.00833	5	0	0
Isophorone	0.0100	0.0100	0.0100	3	0	0
Methylene Chloride	0.0100	0.0130	0.0112	5	2	40
Naphthalene	0.0100	0.304	0.108	3	1	33
Phenol	0.0467	0.104	0.0674	3	3	100
Tetrachloroethene	0.00500	0.0100	0.00833	5	0	0
Toluene	0.00500	0.152	0.0241	5	1	20
trans-1,2-Dichloroethene	0.00500	0.0100	0.00833	5	0	0
Trichloroethene	0.00500	0.0100	0.00833	5	0	0
Nonconventional Organics						
2-Butanone	0.0500	0.0500	0.0500	3	0	0
2-Methylnaphthalene	0.01000	0.0291	0.0164	3	1	33
2-Propanone	0.0500	0.0804	0.0607	3	2	67
4-Methyl-2-pentanone	0.0500	0.0500	0.0500	3	0	0
∝-Terpineol	0.0100	0.0817	0.0339	3	1	33
Benzoic Acid	0.116	0.216	0.150	3	3	100
Benzyl Alcohol	0.0100	0.575	0.202	3	2	67

Table C-3 (Continued)

Linen Supply Items						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.0100	0.0418	0.0279	3	2	67
m-Xylene	0.0100	0.0100	0.0100	3	0	0
n-Decane	0.0100	7.87	2.63	3	1	33
n-Docosane	0.0100	0.0732	0.0392	3	2	67
n-Dodecane	0.0100	0.513	0.270	3	2	67
n-Eicosane	0.0100	0.209	0.0862	3	2	67
n-Hexacosane	0.0100	0.0598	0.0267	3	2	67
n-Hexadecane	0.0100	0.458	0.160	3	2	67
n-Octacosane	0.0100	0.0436	0.0212	3	1	33
n-Octadecane	0.0100	0.169	0.0720	3	2	67
n-Tetracosane	0.0100	0.128	0.0630	3	2	67
n-Tetradecane	0.0100	0.400	0.140	3	1	33
n-Triacontane	0.0100	0.126	0.0551	3	2	67
o-&*p*-Xylene	0.0100	0.0100	0.0100	3	0	0
p-Cresol	0.0100	0.0100	0.0100	3	0	0
p-Cymene	0.0100	0.305	0.108	3	1	33
Pentamethylbenzene	0.0100	0.0100	0.0100	3	0	0
Priority Metals and Elements						
Antimony	0.00810	0.3130	0.114	3	2	67
Arsenic	0.00880	0.300	0.156	4	3	75
Beryllium	0.00100	0.00100	0.00100	3	0	0
Cadmium	0.00500	0.0500	0.0219	15	2	13
Chromium	0.0100	0.140	0.0492	15	7	47
Copper	0.0500	2.50	0.527	15	14	93
Lead	0.0400	0.500	0.151	15	8	53
Mercury	0.000200	0.00300	0.00165	4	2	50
Nickel	0.0150	0.280	0.0771	15	6	40
Selenium	0.00200	0.300	0.151	4	0	0
Silver	0.00500	0.0700	0.0291	14	6	43
Thallium	0.00100	0.0100	0.00700	3	0	0

Table C-3 (Continued)

Linen Supply Items						
Constituent Name	Concentration (mg/L)[1]			Number of Times Analyzed for	Number of Times Detected	Percentage Detected
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	0.120	1.10	0.381	17	17	100
Nonconventional Metals and Elements						
Aluminum	1.35	4.70	3.08	3	3	100
Barium	0.0804	0.646	0.301	3	3	100
Boron	0.0310	0.229	0.0970	3	1	33
Cobalt	0.00900	0.0117	0.00990	3	1	33
Iron	1.09	8.93	3.26	5	5	100
Manganese	0.0285	0.147	0.0812	3	3	100
Molybdenum	0.0100	0.0588	0.0263	3	1	33
Tin	0.0290	0.0290	0.0290	3	0	0
Titanium	0.0267	0.105	0.0654	3	3	100
Vanadium	0.00800	0.0133	0.00990	3	2	67
Yttrium	0.00300	0.00810	0.00470	3	1	33
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	197	1,520	844	7	7	100
Total Organic Carbon (TOC)	310	494	401	3	3	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	9	19	12	3	3	100

[1]The detection limit concentration was used in calculations for data points reported as nondetects.

Table C-4

Wastewater Characterization Data for Wastewater Streams at Industrial Laundries

Wastewater Characterization Data for Heavy Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	1,600	9,810	4,160	18	18	100
Oil and Grease (measured as HEM)	612	6,410	2,950	18	18	100
Total Suspended Solids (TSS)	213	7,000	2,320	18	18	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	10.3	1.16	18	5	28
1,2-Diphenylhydrazine	0.0200	41.3	2.60	18	3	17
4-Chloro-3-methylphenol	0.0100	1.00	0.260	18	2	11
Bis(2-ethylhexyl) Phthalate	0.0353	42.0	11.3	18	16	89
Butyl Benzyl Phthalate	0.0100	74.4	8.89	18	5	28
Chlorobenzene	0.00992	1.00	0.271	18	0	0
Chloroform	0.0100	1.00	0.296	18	5	28
Di-*n*-butyl Phthalate	0.0100	9.98	1.30	18	12	67
Di-*n*-octyl Phthalate	0.100	1.69	0.599	18	6	33
Ethylbenzene	0.100	18.7	3.65	18	17	94
Isophorone	0.0100	1.00	0.207	18	0	0
Methylene Chloride	0.0100	6.62	0.854	18	7	39
Naphthalene	0.388	18.8	4.76	18	18	100
Phenol	0.0100	1.00	0.303	18	3	17
Tetrachloroethene	0.0100	7.88	1.79	18	11	61
Toluene	0.321	41.8	9.69	18	18	100
trans-1,2-Dichloroethene	0.00992	1.00	0.271	18	0	0
Trichloroethene	0.00992	20.0	1.27	18	1	6
Nonconventional Organics						
2-Butanone	0.0500	272	25.5	18	11	61
2-Methylnaphthalene	0.100	2.24	0.892	18	12	67
2-Propanone	0.552	52.7	8.49	18	16	89
4-Methyl-2-pentanone	0.0500	69.9	5.82	18	11	61

Table C-4 (Continued)

Wastewater Characterization Data for Heavy Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
∝-Terpineol	0.100	2.26	0.379	18	6	33
Benzoic Acid	0.0500	12.2	3.36	18	9	50
Benzyl Alcohol	0.0100	10.7	1.56	18	4	22
Hexanoic Acid	0.0100	1.00	0.210	18	1	6
m-Xylene	0.0751	25.0	4.47	13	13	100
n-Decane	0.100	419	86.5	18	17	94
n-Docosane	0.100	2.50	0.504	18	7	39
n-Dodecane	0.0459	106	29.5	18	17	94
n-Eicosane	0.100	26.5	4.28	18	17	94
n-Hexacosane	0.100	1.28	0.354	18	5	28
n-Hexadecane	0.269	38.4	9.11	18	18	100
n-Octacosane	0.100	1.44	0.370	18	4	22
n-Octadecane	0.100	13.6	4.00	18	17	94
n-Tetracosane	0.0100	1.00	0.289	18	3	17
n-Tetradecane	0.100	41.6	7.23	18	15	83
n-Triacontane	0.0100	1.00	0.366	18	4	22
o-&*p*-Xylene	0.0438	17.8	3.59	13	13	100
p-Cresol	0.0100	1.00	0.204	18	0	0
p-Cymene	0.0100	12.2	3.16	18	11	61
Pentamethylbenzene	0.0100	1.97	0.412	18	6	33
Priority Metals and Elements						
Antimony	0.0200	8.24	0.788	18	14	78
Arsenic	0.00100	0.0396	0.0125	18	9	50
Beryllium	0.000970	0.00341	0.00142	18	7	39
Cadmium	0.0236	0.331	0.121	18	18	100
Chromium	0.0990	0.726	0.296	18	18	100
Copper	2.08	11.6	5.37	18	18	100
Lead	0.3500	3.78	1.60	18	18	100
Mercury	0.000200	0.00665	0.000816	18	9	50
Nickel	0.0541	0.861	0.266	18	18	100

Table C-4 (Continued)

Wastewater Characterization Data for Heavy Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Selenium	0.000500	0.0451	0.0174	18	7	39
Silver	0.00230	1.25	0.199	18	13	72
Thallium	0.000900	0.0526	0.00989	18	4	22
Zinc	2.54	15.7	7.79	18	18	100
Nonconventional Metals and Elements						
Aluminum	4.10	21.0	9.97	18	18	100
Barium	1.25	7.22	3.63	18	18	100
Boron	0.0310	37.2	4.93	18	17	94
Cobalt	0.0620	3.10	0.449	18	18	100
Iron	6.89	96.6	42.1	18	18	100
Manganese	0.381	6.31	1.51	18	18	100
Molybdenum	0.145	2.29	0.668	18	18	100
Tin	0.0290	0.589	0.130	18	15	83
Titanium	0.0843	1.32	0.344	18	18	100
Vanadium	0.00800	0.0892	0.0381	18	16	89
Yttrium	0.000300	0.0417	0.0101	18	11	61
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	1,620	29,300	13,700	18	18	100
Total Organic Carbon (TOC)	106	6,240	2,790	18	18	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	101	4,120	1,440	18	18	100

Table C-4 (Continued)

Wastewater Characterization Data for Light Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	120	1,280	568	14	14	100
Oil and Grease (measured as HEM)	14.3	430	154	14	14	100
Total Suspended Solids (TSS)	124	804	344	14	14	100
Priority Organics						
1,1,1-Trichloroethane	0.0100	0.100	0.0160	14	0	0
1,2-Diphenylhydrazine	0.0200	1.62	0.220	14	2	14
4-Chloro-3-methylphenol	0.0100	0.100	0.0411	14	2	14
Bis(2-ethylhexyl) Phthalate	0.116	6.02	1.10	14	14	100
Butyl Benzyl Phthalate	0.0100	0.353	0.0690	14	7	50
Chlorobenzene	0.0100	0.100	0.0160	14	0	0
Chloroform	0.0100	0.100	0.0455	14	12	86
Di-*n*-butyl Phthalate	0.0100	1.04	0.104	14	4	29
Di-*n*-octyl Phthalate	0.0100	0.177	0.0667	14	7	50
Ethylbenzene	0.0100	0.282	0.0620	14	12	86
Isophorone	0.0100	0.100	0.0400	14	0	0
Methylene Chloride	0.0100	0.100	0.0213	14	2	14
Naphthalene	0.0195	1.04	0.358	14	11	79
Phenol	0.0100	0.580	0.105	14	7	50
Tetrachloroethene	0.0100	0.797	0.0977	14	9	64
Toluene	0.0225	0.110	0.0553	14	13	93
trans-1,2-Dichloroethene	0.0100	0.100	0.0160	14	0	0
Trichloroethene	0.0100	0.100	0.0160	14	0	0
Nonconventional Organics						
2-Butanone	0.0500	0.862	0.147	14	4	29
2-Methylnaphthalene	0.0100	0.198	0.0566	14	8	57
2-Propanone	0.0759	2.52	0.518	14	13	93
4-Methyl-2-pentanone	0.0500	2.29	0.240	14	3	21
∝-Terpineol	0.0100	0.449	0.123	14	9	64
Benzoic Acid	0.0500	0.772	0.306	14	5	36
Benzyl Alcohol	0.0100	0.283	0.102	14	8	57

Table C-4 (Continued)

Wastewater Characterization Data for Light Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.0100	0.103	0.0557	14	4	29
m-Xylene	0.0173	0.143	0.0555	9	9	100
n-Decane	0.0447	1.62	0.354	14	13	93
n-Docosane	0.0100	0.293	0.0591	14	8	57
n-Dodecane	0.0100	10.8	0.973	14	9	64
n-Eicosane	0.0123	0.756	0.124	14	10	71
n-Hexacosane	0.0100	0.102	0.0465	14	5	36
n-Hexadecane	0.0107	1.13	0.330	14	11	79
n-Octacosane	0.0100	0.100	0.0432	14	6	43
n-Octadecane	0.0100	0.253	0.0850	14	11	79
n-Tetracosane	0.0100	0.456	0.0680	14	5	36
n-Tetradecane	0.0100	0.771	0.103	14	8	57
n-Triacontane	0.0100	0.109	0.0492	14	6	43
o-&*p*-Xylene	0.0108	0.241	0.0765	9	9	100
p-Cresol	0.0100	0.100	0.0400	14	0	0
p-Cymene	0.0100	0.100	0.0473	14	2	14
Pentamethylbenzene	0.0100	0.264	0.0787	14	4	29
Priority Metals and Elements						
Antimony	0.0201	13.8	1.32	14	10	71
Arsenic	0.00100	0.0200	0.00653	14	4	29
Beryllium	0.000470	0.00148	0.000938	14	5	36
Cadmium	0.00120	0.0434	0.0211	14	9	64
Chromium	0.0165	0.317	0.113	14	14	100
Copper	0.200	1.95	0.858	14	14	100
Lead	0.0460	0.810	0.348	14	13	93
Mercury	0.000200	0.00141	0.000715	14	9	64
Nickel	0.0180	0.339	0.101	14	11	79
Selenium	0.000500	0.0308	0.0133	14	2	14
Silver	0.00230	0.00820	0.00432	14	4	29
Thallium	0.000900	0.0100	0.00313	14	0	0

Table C-4 (Continued)

Wastewater Characterization Data for Light Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	0.624	2.79	1.47	14	14	100
Nonconventional Metals and Elements						
Aluminum	1.87	7.43	4.65	14	14	100
Barium	0.108	0.752	0.421	14	14	100
Boron	0.0360	3.07	0.391	14	11	79
Cobalt	0.00230	0.137	0.0264	14	6	43
Iron	2.26	27.5	10.3	14	14	100
Manganese	0.0628	0.353	0.184	14	14	100
Molybdenum	0.0100	0.0868	0.0357	14	11	79
Tin	0.0290	0.211	0.0625	14	10	71
Titanium	0.0404	0.724	0.206	14	14	100
Vanadium	0.00200	0.0393	0.0138	14	4	29
Yttrium	0.00030	0.0114	0.00313	14	1	7
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	500	2,360	1,410	14	14	100
Total Organic Carbon (TOC)	117	540	338	14	14	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	5	282	85	14	12	86

Table C-4 (Continued)

Wastewater Characterization Data for Total Stream Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Conventionals						
Biochemical Oxygen Demand 5-Day (BOD_5)	82.0	3,470	933	56	56	100
Oil and Grease (measured as HEM)	558	2,460	1,670	13	13	100
Total Suspended Solids (TSS)	60.0	4,860	1,200	56	56	100
Priority Organics						
1,1,1-Trichloroethane	0.00100	5.56	0.283	23	16	70
1,2-Diphenylhydrazine	0.000025	0.200	0.0918	20	0	0
4-Chloro-3-methylphenol	0.000005	0.315	0.0684	21	6	29
Bis(2-ethylhexyl) Phthalate	0.000420	38.9	4.99	21	21	100
Butyl Benzyl Phthalate	0.000005	1.23	0.140	21	8	38
Chlorobenzene	0.000100	1.41	0.131	23	7	30
Chloroform	0.00200	0.100	0.0359	23	17	74
Di-*n*-butyl Phthalate	0.000005	3.49	0.245	21	7	33
Di-*n*-octyl Phthalate	0.000005	0.493	0.0910	21	5	24
Ethylbenzene	0.00200	3.95	0.634	43	37	86
Isophorone	0.000005	1.77	0.154	21	7	33
Methylene Chloride	0.00500	4.13	0.336	32	16	50
Naphthalene	0.000014	13.6	1.47	21	18	86
Phenol	0.000005	0.464	0.0777	24	9	38
Tetrachloroethene	0.00100	46.2	3.91	23	20	87
Toluene	0.000500	20.9	2.64	52	46	88
trans-1,2-Dichloroethene	0.00500	0.100	0.0204	19	0	0
Trichloroethene	0.000020	0.262	0.0346	23	9	39
Nonconventional Organics						
2-Butanone	0.00500	47.5	2.51	25	17	68
2-Methylnaphthalene	0.0150	0.405	0.166	17	13	76
2-Propanone	0.00500	61.8	10.9	25	23	92
4-Methyl-2-pentanone	0.00500	16.7	1.67	19	14	74
∝-Terpineol	0.0100	2.27	0.258	16	7	50
Benzoic Acid	0.0200	3.13	0.648	17	9	53
Benzyl Alcohol	0.0100	1.29	0.143	17	7	41

Table C-4 (Continued)

Wastewater Characterization Data for Total Stream Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Nonconventional Organics (Continued)						
Hexanoic Acid	0.0100	0.327	0.125	16	6	38
m-Xylene	0.0393	25.3	4.35	18	18	100
n-Decane	1.31	712	73.6	16	16	100
n-Docosane	0.0200	3.04	0.659	16	13	81
n-Dodecane	1.13	17.5	6.16	16	16	100
n-Eicosane	0.0200	6.41	1.97	16	15	94
n-Hexacosane	0.0200	3.28	0.413	16	14	88
n-Hexadecane	0.0200	22.5	4.76	16	15	94
n-Octacosane	0.0100	0.250	0.0853	16	6	38
n-Octadecane	0.0382	8.97	1.78	16	16	100
n-Tetracosane	0.0200	8.34	1.51	16	14	88
n-Tetradecane	0.236	19.9	4.44	16	16	100
n-Triacontane	0.0296	0.531	0.144	16	11	69
o-&*p*-Xylene	0.125	9.45	2.48	18	18	100
p-Cresol	0.0100	0.100	0.0585	16	0	0
p-Cymene	0.0100	0.360	0.138	16	10	62
Pentamethylbenzene	0.0100	2.33	0.242	16	1	6
Priority Metals and Elements						
Antimony	0.0463	0.144	0.0913	17	13	76
Arsenic	0.00100	0.180	0.0183	36	22	61
Beryllium	0.000880	0.0200	0.00598	17	9	53
Cadmium	0.00300	0.290	0.0641	47	44	94
Chromium	0.00360	3.59	0.315	50	40	80
Copper	0.0357	7.86	1.74	49	49	100
Lead	0.00500	3.26	0.955	50	49	98
Mercury	0.000100	0.00800	0.00128	36	25	69
Nickel	0.0100	3.07	0.305	46	40	87
Selenium	0.00100	0.258	0.0550	30	18	60
Silver	0.000500	0.500	0.0316	53	36	68
Thallium	0.00100	0.130	0.0190	17	2	12

Table C-4 (Continued)

Wastewater Characterization Data for Total Stream Wastewater						
Pollutant of Concern	Concentration (mg/L)[1]			Number of Times Analyzed	Number of Times Detected	Percentage Detected (%)
	Minimum	Maximum	Mean			
Priority Metals and Elements (Continued)						
Zinc	0.139	12.5	2.85	50	50	100
Nonconventional Metals and Elements						
Aluminum	0.441	25.3	8.24	24	24	100
Barium	0.240	2.93	1.31	23	23	100
Boron	0.0500	1.89	0.689	17	15	88
Cobalt	0.0619	0.289	0.169	17	13	76
Iron	13.6	111	39.5	17	17	100
Manganese	0.190	2.19	0.627	20	20	100
Molybdenum	0.110	0.793	0.363	17	17	100
Tin	0.0290	1.12	0.278	17	12	70
Titanium	0.0190	0.747	0.251	17	17	100
Vanadium	0.00820	0.190	0.0678	17	14	82
Yttrium	0.00200	0.0575	0.0199	17	8	47
Bulk Nonconventionals						
Chemical Oxygen Demand (COD)	528	10,600	6,090	27	27	100
Total Organic Carbon (TOC)	229	2,700	1,160	17	17	100
Total Petroleum Hydrocarbon (measured as SGT-HEM)	139	1,170	682	13	13	100

[1]The detection limit concentration was used in calculations for data points reported as nondetects.

Appendix D

References Used in Chapter 7
Calculations of Long-Term Averages and Variability Factors and Facility Level and Performance Data for Pollutants of Concern

Reference D-1
Description Of Data Conventions

This section discusses the types of data in the IL analytical database and the hierarchy and procedures for aggregating multiple sampling observations within a sampling day.

1.1 Data Review

The EPA wastewater sampling data in the analytical database were thoroughly reviewed and validated by the EPA's Sample Control Center (further discussions of this data are at times referred to as the "SCC" data for this reason). During this review, the integrity of each sample was assessed to ensure that all specifications of the sampling protocol were met. The reviewers determined that some samples should be excluded from the analyses. Samples with flags of "EXCLUDE" or "DETECTED," which indicate a value was detected but the concentration value was not recorded, were excluded from the analyses.

Also during the data review, several samples were qualified with a greater than (>) sign, indicating the reported concentration value is considered a lower limit of the actual value. This is because the reported concentration was outside the range of the analytical method. When possible, these samples are diluted and reanalyzed. Otherwise these samples were handled as right-censored samples and excluded from all calculations.

An engineering review of the database was also conducted and a few additional data values were excluded from the analyses for the reasons summarized in Chapter 9 of the *Technical Development Document for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category* (EPA Report No. EPA-821-R-97-007). One reason for such an exclusion would be if a pollutant was not detected in sufficient concentrations to evaluate treatment effectiveness.

1.2 Data Types

The IL analytical database (from the SCC and DMQ data) contains the following three different types of samples delineated by certain qualifiers in the database:

- **Noncensored (NC):** a measured value, i.e., a sample measured above the level at which the detection decision was made.

- **Nondetect (ND):** samples for which analytical measurement did not yield a concentration above the sample-specific detection limit.

- **Right-censored (RC):** samples qualified with a greater than (>) sign, signifying that the reported value is considered a lower limit of the actual concentration. All RC values were excluded from the analyses because these values could not be quantified with certainty.

Reference D-1 (Continued)

1.3 Data Aggregation

Data aggregation for the IL analytical data was performed at two levels. This section discusses the different levels and approaches for data aggregation, including multiple grab samples (one or more samples collected for a particular sampling point over time, assigned different sample numbers, and not physically composited) and field duplicates (one or more samples collected for a particular sampling point at approximately the same time, assigned different sample numbers, and flagged as duplicates for a single episode number).

1.3.1 Data Aggregation Across Multiple Grab Samples

The first type of data aggregation performed was for multiple grab samples. Within the SCC database, SGT-HEM was reported as concentrations of multiple grab samples taken during one-day sampling periods. Since long-term averages (LTAs) and limitations were based on daily concentrations, multiple observations on a single day at the same sample point were averaged. When all of the samples in a set were NC, i.e., detected samples, the arithmetic average of the samples was straightforward. However, when one or more of the samples were censored, or ND, multiple grab samples were aggregated within each sampling day/sample point combination using the methods identified in Table 1-1.

Table 1-1
Method for Averaging Multiple Grab Samples

If observations are:	Label of "average"	Value of "average" is:
All NC	NC	$\Sigma NC_i/n$
All ND	ND	Maximum Detection Limit
NC and ND 1. Max. NC > Max. Detection Limit	NC	$(\Sigma NC_i + \Sigma ND_i)/n$
2. Max. NC ≤ Max. Detection Limit	ND	Max. Detection Limit

n=number of grab samples per day.
NC = noncensored values
ND = nondetected values

1.3.2 Aggregation of Field Duplicates

Another type of data aggregation for the IL SCC data was performed due to the identification of field duplicates in the database. The field duplicates are defined as one or more samples collected for a particular sampling point at approximately the same time, assigned different sample numbers, and flagged as duplicates for a single episode number/sampling point. Duplicates were collected for purposes of quality assurance/quality control. Table 1-2 presents the methods used to aggregate duplicates. Note that within the DMQ data no field duplicates

Reference D-1 (Continued)

were labeled, but for a few sample days, two concentrations were reported. Since there were only two concentrations reported within sample day, the aggregation method would be the same regardless of whether they were treated as grab samples or duplicate samples. Thus, these concentrations were classified as duplicate samples and were aggregated according to the methods outlined in Table 1-2.

Table 1-2
Method for Averaging Field Duplicate Samples

If observations are:	Label of "average"	Value of "average" is:
Both NC	NC	$\Sigma NC_i/2$
Both ND	ND	Maximum Detection Limit
NC and ND 1. NC > Detection Limit 2. NC ≤ Detection Limit	 NC ND	 (NC + ND)/2 Detection Limit

NC = noncensored values
ND = nondetected values

If a sample had both multiple grabs and field duplicates, the multiple grabs were aggregated first.

Reference D-2
Statistical Methodology - Modified Delta-Lognormal Model

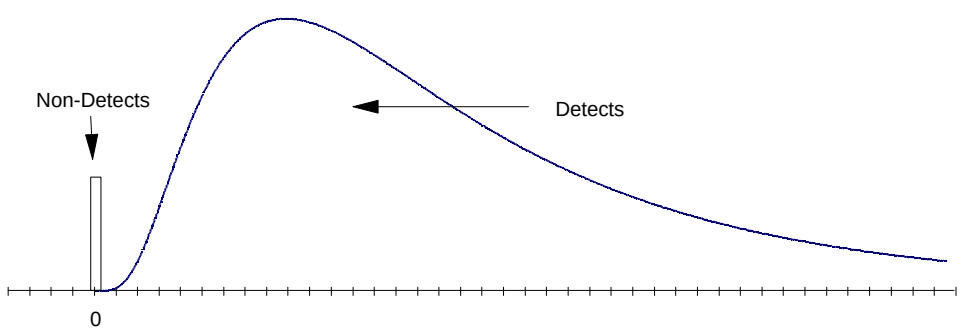
2.1 Basic Overview of Delta-lognormal Distribution

The lognormal distribution is often appropriate for modeling effluent data. However, the presence of ND and very low concentration measurements in the IL effluent data led to the consideration of a modification to the lognormal distribution in modeling such data for several reasons. First, the lognormal model assumes that all concentration values are positively valued. Second, the actual values of NDs are not known, though each ND has a concentration somewhere between zero and the reported detection limit. In this sense, ND measurements represent, in statistical terms, what are known as censored samples.

In general, censored samples are measurements for which the exact value is not known but are bounded either by an upper or lower numerical limit. Nondetects qualify in this framework as left-censored samples, which have an upper bound at the detection limit and a lower bound at zero. To model NDs as left-censored samples under a strictly lognormal density model, it is necessary to assume that the exact (but unknown) values of these measurements follow the same lognormal distributional pattern as the rest of the detected measurements and that they are positively valued (i.e., greater than zero).

Therefore, two reasonably simple modifications to the lognormal density model have been used by the EPA for several years. The first modification is known as the classical delta-lognormal model (Figure 2-1), first used in economic analysis to model income and revenue patterns (see Atchison and Brown, 1955). In this adaptation of the simple lognormal density, the model is expanded to include zero amounts. To do this, all positive (dollar) amounts are grouped together and fit to a lognormal density. Then all zero amounts are segregated into another group of measurements representing a discrete distributional "spike" at zero. The resulting mixed distribution, combining a continuous density portion with a discrete-valued spike, is known as the delta-lognormal distribution. The delta in the name refers to the percentage of the overall distribution contained in the spike at zero, that is, the percentage of zero amounts.

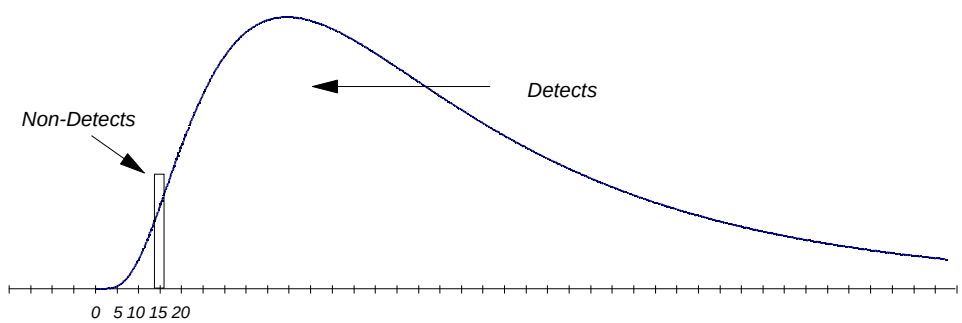
Figure 2-1
Delta-Lognormal Model



Reference D-2 (Continued)

Researchers at the EPA (see Kahn and Rubin, 1989) further adapted the classical delta-lognormal model ("adapted model") to account for ND measurements in the same fashion that zero measurements were handled in the original delta-lognormal. Instead of zero amounts and non-zero (positive) amounts, the data consisted of NDs and detects. Rather than assuming that NDs represented a spike of zero concentrations, these samples were allowed to have a single positive value, usually equal to the minimum level of the analytical method (Figure 2-2). Since each ND was assigned the same positive value, the distributional spike in this adapted model was located not at zero, but at the minimum level. This adaptation is appropriate since it is known that the NDs are some value greater than zero. This adapted model was used in developing limitations for the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) and pesticides manufacturing rulemaking.

Figure 2-2
Adapted Delta-Lognormal Model



In the adapted delta-lognormal model, the delta again referred to those measurements contained in the discrete spike, this time representing the proportion of ND values observed within the data set. By using this approach, computation of estimates for the population mean and variance could be done easily by hand, and NDs were not assumed to follow the same distributional pattern as the detected measurements. The adapted delta-lognormal model can be expressed mathematically as follows:

$$Pr\ (U \le u) = \begin{cases} (1-\delta)\ \Phi\ [(\log(u) - \mu)/\sigma] & \text{if} \quad 0 < u < D \\ \delta + (1-\delta)\ \Phi\ [(\log(D) - \mu)/\sigma] & \text{if} \quad u = D \\ \delta + (1-\delta)\ \Phi\ [(\log(u) - \mu)/\sigma] & \text{if} \quad u > D \end{cases} \tag{2.1}$$

where δ represents the true proportion of NDs (or the probability that any randomly drawn measurement will be a ND), D equals the minimum level value of the discrete spike assigned to all NDs, $\Phi(\cdot)$ represents the standard normal cumulative distribution function, and μ and σ are the parameters of the lognormal density portion of the model. This model assumes that all nondetected values have a single detection limit D.

It is also possible to represent the adapted delta-lognormal model in another mathematical form, one in which it is particularly easy to derive formulas for the expected value (i.e., LTA) and

Reference D-2 (Continued)

variance of the model. In this case, a random variable distributed according to the adapted delta-lognormal distribution can be represented as the stochastic combination of three other independent random variables. The first of these variables is an indicator variable, I_u, equal to one when the measurement u is a ND and equal to zero when u is a detected value. The second variable, X_D, represents the value of a ND measurement (discrete). In the adapted delta-lognormal, this variable is always a constant equal to the concentration value assigned to each ND (i.e., equal to D in the adapted delta-lognormal model). In general, however, X_D need not be a constant, as will be seen below in the modified delta-lognormal model. The final random variable, X_C, represents the value of a detected measurement, and is distributed according to a lognormal distribution (continuous) with parameters μ and σ.

Using this formulation, a random variable from the adapted delta-lognormal model can be written as:

$$U = I_u X_D + (1 - I_u) X_C \tag{2.2}$$

and the expected value of U is then derived by substituting the expected value of each quantity in the right-hand side of the equation. Because the variables I_u, X_D, and X_C are mutually independent, this leads to the expression:

$$E(U) = \delta E(X_D) + (1-\delta) E(X_C) = \delta D + (1-\delta)\exp(\mu + 0.5\sigma^2) \tag{2.3}$$

where again δ is the probability that any random measurement will be ND and the exponentiated expression is the familiar mean of a lognormal distribution. In a similar fashion, the variance of the adapted delta-lognormal model can be established by squaring the expression for U above, taking expectations, and subtracting the square of E(U) to get:

$$Var(U) = E(U^2) - [E(U)]^2 = \delta Var(X_D) + (1-\delta) Var(X_C) + \delta(1-\delta)[E(X_D) - E(X_C)]^2. \tag{2.4}$$

Since, in the adapted delta-lognormal formulation, X_D is a constant, this expression can be reduced to the following:

$$Var(U) = (1-\delta)\exp(2\mu + \sigma^2)[\exp(\sigma^2) - (1-\delta)] + \delta(1-\delta) D[D - 2\exp(\mu + 0.5\sigma^2)]. \tag{2.5}$$

In order to estimate the adapted delta-lognormal mean and variance from a set of observed sample measurements, it is necessary to derive sample estimates for the parameters δ, μ, and σ. δ is typically estimated by the observed proportion of NDs in the data set. μ and σ are estimated using the log values of the detected samples where μ is estimated using the arithmetic mean of the log detected measurements and σ is estimated using the standard deviation of these same log values; NDs are not included in the calculations. Once the parameter estimates are obtained, they are used in the formulas above to derive the estimated adapted delta-lognormal mean and variance.

Reference D-2 (Continued)

To calculate effluent limitations and/or standards, it is also necessary to estimate upper percentiles from the underlying data model. Using the delta-lognormal formulation above in equation (2.1), letting U_α represent the $100*\alpha^{th}$ percentile of random variable U, and adopting the standard notation of z_s for the sth percentile of the standard normal distribution, an arbitrary delta-lognormal percentile can be expressed as the following:

$$U_\alpha = \begin{cases} \exp(\mu+\sigma\ z_{\alpha/1-\delta}) & if \quad (1-\delta)\Phi((\log(D)-\mu)/\sigma) \geq \alpha \\ D & if \quad \delta+(1-\delta)\Phi((\log(D)-\mu)/\sigma) \geq \alpha \\ \exp(\mu+\sigma\ z_{\alpha-\delta/1-\delta}) & if \quad \delta+(1-\delta)\Phi((\log(D)-\mu)/\sigma) < \alpha \end{cases} \tag{2.6}$$

The daily maximum limitations are established on the basis of an estimated upper 99th percentile from the underlying data model, so that 0.99 would be substituted for α in the above expression. To derive the daily VF for the 99th percentile based on the adapted delta-lognormal model, divide $U_{.99}$ in the expression above by the previous formula for the LTA, namely $U_{.99}/E(U)$.

2.2 Motivations for Modifications to the Adapted Delta-Lognormal Model

While the adapted delta-lognormal model has been used successfully for years by the EPA in a variety of settings, the model makes two key assumptions about the observed data that are not fully satisfied within the IL analytical database. First, the discrete spike portion of the adapted delta-lognormal model is a fixed, single-valued probability mass associated (typically) with all ND measurements. If all ND samples in the IL database had roughly the same reported detection limit, this assumption would be adequately satisfied. However, the detection limits reported are sample specific and, therefore, varied as a result of factors such as dilution. Because of this variation in detection limits, a single-valued discrete spike could not adequately represent the set of ND measurements observed in the IL database and a modification to the model was considered.

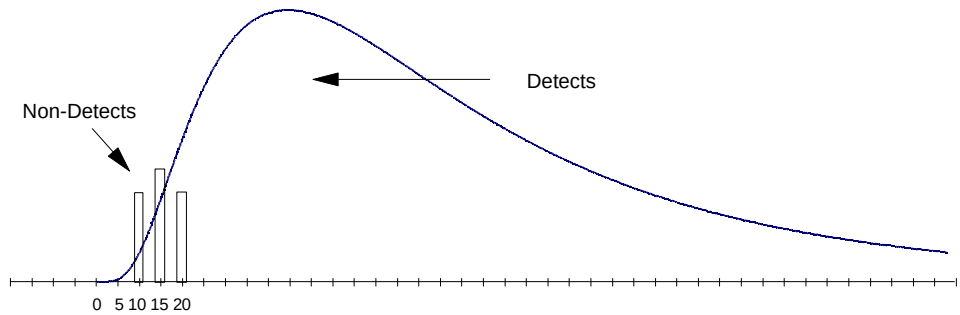
In addition, the adapted delta-lognormal model sets all NC values below the detection to the minimum level of the analytical method. For example, if the minimum level for Toluene was .10 mg/l, then any NC samples reported below .10 mg/l were set to .10 mg/l. There were a few instances in the IL analytical studies where a NC value was reported below the minimum level of the analytical method.

2.2.1 Modification of the Discrete Spike

To appropriately modify the adapted delta-lognormal model for the observed IL database, a modification was made to the discrete, single-valued spike representing ND measurements. Because ND samples have varying detection limits, the spike of the delta-lognormal model has been replaced by a discrete distribution made up of multiple spikes. Each spike in this modification is associated with a distinct detection limit observed in the IL database. Thus, instead of assigning all NDs to a single, fixed value, as in the adapted model, NDs can be associated with multiple values depending on how the detection limits vary (Figure 2-3).

Reference D-2 (Continued)

Figure 2-3
Modified Adapted Delta-Lognormal Model



In particular, because the detection limit associated with a ND sample is considered to be an upper bound on the true value, which could range conceivably from zero up to the detection limit, the modified delta-lognormal model used here assigns each ND sample to its reported detection limit.

Once each ND has been associated with its reported detection limit, the discrete "delta" portion of the modified model is estimated in a way similar to the adapted delta-lognormal distribution, where multiple spikes are constructed and linked to the distinct detection limits observed in the data set. In the adapted model, the parameter δ is estimated by computing the proportion of NDs. In the modified model, δ again represents the proportion of NDs, but is divided into the sum of smaller fractions, δ_i, each representing the proportion of NDs associated with a particular and distinct detection limit. This can be written as:

$$\delta = \sum_i (\delta_i). \tag{2.7}$$

If D_i equals the value of the ith smallest distinct detection limit in the data set, and the random variable X represents a randomly chosen ND sample, then the discrete distribution portion of the modified delta-lognormal model can be mathematically expressed as:

$$Pr(X_D \le x) = \sum_{i:D_i \le x} \delta_i. \tag{2.8}$$

The mean and variance of this discrete distribution can be calculated using the following formulas:

$$E(X_D) = \frac{1}{\delta}\sum_i \delta_i D_i \quad \text{and} \quad Var(X_D) = \frac{1}{\delta^2}\sum_i \sum_{i<j} \sum_j \delta_i \delta_j (D_j - D_i)^2. \tag{2.9}$$

Reference D-2 (Continued)

It is important to recognize that, while replacing the single discrete spike in the adapted delta-lognormal distribution with a more general discrete distribution of multiple spikes increases the complexity of the model, the discrete portion with multiple spikes plays a role in limitations and standards development identically parallel to the single spike case and offers flexibility for handling multiple observed detection limits.

Reference D-3
Estimation Under The Modified Delta-Lognormal Model

Once the modifications to the adapted delta-lognormal distribution are made, it is possible to fit a wide variety of observed effluent data sets to the modified model. Multiple detection limits for NDs can be handled. The same basic framework can be used even if there are no ND values or censored data.

Combining the discrete portion of the model with the continuous portion, the cumulative probability distribution of the modified delta-lognormal model can be expressed as follows, where D_n denotes the largest distinct detection limit observed among the NDs, and the first summation is taken over all those values, D_i, that are less than u:

$$Pr(U \le u) = \begin{cases} \sum_{i:D_i<u} \delta_i + (1-\delta)\Phi\left[(\log(u)-\mu)/\sigma)\right] & if \quad u < D_n \\ \delta + (1-\delta)\Phi\left[(\log(u)-\mu)/\sigma)\right] & if \quad u \ge D_n \end{cases} \tag{3.1}$$

Again combining the discrete and continuous portions of the modified model, the expected value of the random variable U can be derived as a weighted sum of the expected values of the discrete and continuous lognormal portions of the distribution. This follows because the modified delta-lognormal random variable U can be expressed again as a combination of three other independent variables, that is:

$$U = I_u X_D + (1 - I_u) X_C \tag{3.2}$$

where this time X_D represents a random ND from the discrete portion of the model, X_C represents a random detected measurement from the continuous lognormal portion, and I_u is an indicator variable signaling whether any particular random measurement is detected or not. Then the expected value and variance of U have forms somewhat similar to the standard delta-lognormal model, namely:

$$E(U) = \sum_i \delta_i D_i + (1-\delta)\exp(\mu + 0.5\sigma^2) \tag{3.3}$$

$$Var(U) = \frac{\sum_i \sum_{j\ i<j} \delta_i \delta_j (D_i - D_j)^2}{\delta} + (1-\delta)\exp(2\mu+\sigma^2)(\exp(\sigma^2)-1) + \delta(1-\delta)\left[\frac{\sum_i \delta_i D_i}{\delta} - \exp(\mu + 0.5\sigma^2)\right]^2 \tag{3.4}$$

where the D_i = detection limit for the ith ND value
D_j = detection limit for the jth ND value, where $i < j$
δ_i = proportion of NDs with detection limit = D_i

Reference D-3 (Continued)

δ_j = proportion of NDs with detection limit = D_j
δ = proportion of all NDs
μ = mean log concentrations of noncensored (NC) values
σ = standard deviation of log NC values.

For example, consider a facility that has 10 samples with the following concentrations:

Sample number	Measurement Type	Concentration (mg/L)
1	ND	10
2	ND	15
3	ND	15
4	ND	20
5	NC	25
6	NC	25
7	NC	30
8	NC	35
9	NC	35
10	NC	40

Then the mean and variance of the log NC values are calculated as follows:

$$\mu = \frac{\sum_{i=1}^{n} \ln(x_i)}{n}$$

$$= \frac{(2*\ln(25) + \ln(30) + 2*\ln(35) + \ln(40))}{6} = 3.44$$

$$\sigma^2 = \frac{1}{n-1} \sum_{i=1}^{n} \left(\ln(x_i) - \mu\right)^2$$

$$= \frac{1}{5} \left(2*(\ln(25)-3.44)^2) + (\ln(30)-3.44)^2 + 2*(\ln(35)-3.44)^2) + (\ln(40)-3.44)^2\right) = .0376$$

Reference D-3 (Continued)

The ND components of the variance equation are:

$D_1 = 10$, $\delta_1 = 1/10$
$D_2 = 15$, $\delta_2 = 1/5$
$D_3 = 20$, $\delta_3 = 1/10$.

As such, the variance for this example is:

$$Var(x) = \frac{\frac{1}{10}*\frac{1}{5}(10-15)^2 + \frac{1}{10}*\frac{1}{10}(10-20)^2 + \frac{1}{5}*\frac{1}{10}(15-20)^2}{\frac{2}{5}} + \left(1-\frac{2}{5}\right)\exp(2*3.44+.0376)(\exp(.0376)-1) +$$

$$\frac{2}{5}\left(1-\frac{2}{5}\right)\left[\frac{\left(\frac{1}{10}*10\right)+\left(\frac{1}{5}*15\right)+\left(\frac{1}{10}*20\right)}{\frac{2}{5}} - \exp(3.44+0.5*.0376)\right]^2 = 95.8.$$

3.1 Facility-Specific Estimates

3.1.1 Estimation of Facility-Specific LTAs

For the purposes of estimating facility-specific LTAs (equal to the expected value in the equation (3.3)), the EPA chose to divide the IL data sets into two groups based on their size (number of samples) and the type of samples in the subset because the computations differ for each group. The groups were defined as follows:

Group 1: Less than 2 NC samples or less than 4 total samples.

Group 2: Two or more NC samples or 4 or more total samples.

For Group 1, the LTAs were calculated as the arithmetic average of the samples, since the sample sizes for either the discrete portion or the continuous lognormal portion of the data were too small to allow distributional assumptions to be made. Specifically, Group 1 contained all data subsets with all NDs or only one detect. Sample-specific detection limits were substituted as the values associated with nondetectable samples.

For Group 2, the LTAs were calculated using the procedures outlined in the preceding section using equation (3.3) and the Maximum Likelihood Estimates (MLEs) for μ and σ.

Reference D-3 (Continued)

3.1.2 Estimation of Facility-Specific VFs

After determining estimated LTA values for each pollutant, facility, and option combination, the EPA developed 1-day variability factors (VF1) and/or 4-day variability factors (VF4) depending on the proposed frequency of monitoring, as outlined in Table 3-1.

Table 3-1
EPA Proposed Monitoring Frequencies

Pollutant Category	Frequency of Monitoring
Metals, Organics	Monthly (VF1)
Classicals	Weekly (VF1, VF4)

Similar to the calculations for the LTAs, the data were divided into the same two computation groups based on the number and type of samples in each data subset for purposes of estimating variability factor. These computation groups are defined as follows:

Group 1: Less than 2 NC samples or less than 4 total samples. Upper percentiles and VFs could not be computed using the modified delta-lognormal methodology.

Group 2: Two or more NC samples and 4 or more total samples. The estimates of the parameters for the modified delta-lognormal distribution of the data were calculated using maximum likelihood estimation in the log-domain. Upper percentiles and VFs were calculated using these estimated parameters.

Several data subsets belong in Group 1, and therefore have missing 99th percentiles and VFs.

3.1.2.1 Estimation of Facility-Specific VF1

The VF1 are a function of the LTA, E(U), and the 99th percentile. An iterative approach was used in finding the 99th percentile of each data subset using the modified delta-lognormal methodology by first defining D_0=0, δ_0=0, and $D_{k+1} = \infty$ as boundary conditions, where D_i equals the ith smallest detection limit, and δ_i is the associated proportion of NDs at the ith detection limit. A cumulative distribution function, p, for each data subset was computed as a step function ranging from 0 to 1. The general form, for a given value c, is

$$p = \sum_{i=0}^{m} \hat{\delta}_i + (1-\hat{\delta})\ \Phi\left[\frac{\log(c)-\hat{\mu}}{\hat{\sigma}}\right], \quad D_m \le c < D_{m+1},\ m=0,1,\ldots k \qquad (3.5)$$

Reference D-3 (Continued)

where Φ is the standard normal cumulative distribution function. The following steps were completed to compute the estimated 99th percentile of each data subset:

1. k values of p at $c=D_m$, m=1,...k were computed and labeled p_m.

2. The smallest value of m, such that $p_m \geq 0.99$, was determined and labeled as p_j. If no such m existed, steps 3 and 4 were skipped and step 5 was computed instead.

3. Computed $p^* = p_j - \delta_j$.

4. If $p^* < 0.99$, then $P_{99} = D_j$,
   else if $p^* \geq 0.99$, then

$$\hat{P}99 = \exp\left[\hat{\mu} + \Phi^{-1}\left[\frac{\left(0.99 - \sum_{i=0}^{j-1} \hat{\delta}_i\right)}{(1-\hat{\delta})}\right]\hat{\sigma}\right]. \tag{3.6}$$

5. If no such m exists, such that $p_m \geq 0.99$ (m=1,...k), then

$$\hat{P}99 = \exp\left[\hat{\mu} + \Phi^{-1}\left[\frac{0.99 - \hat{\delta}}{(1-\hat{\delta})}\right]\hat{\sigma}\right]. \tag{3.7}$$

The daily variability factor, VF1, was then calculated as

$$VF1 = \frac{\hat{P}99}{\hat{E}(U)}. \tag{3.8}$$

3.1.2.2 Estimation of Facility-Specific VF4

Since the EPA is assuming for costing purposes that the Classical Pollutant, SGT-HEM, will be monitored weekly (approximately 4 times a month), the EPA calculated a VF for monthly averages based on the distribution of 4-day averages. In order to calculate the VF4, the assumption was made that the approximating distribution of $\bar{U}_4$, the sample mean for a random sample of 4 independent concentration values, is also derived from this modified delta-lognormal distribution, with the same mean as the distribution of the concentration values. The mean of this distribution of 4-day averages is

$$E(\bar{U}_4) = \delta_4 E(\bar{X}_4)_D + (1-\delta_4)E(\bar{X}_4)_C \tag{3.9}$$

Reference D-3 (Continued)

where $(X_4)_D$ denotes the mean of the discrete portion of the distribution of the average of four independent concentration values (i.e., when all observations are not detected), and $(X_4)_C$ denotes the mean of the continuous lognormal portion of the distribution.

First, it is assumed that the probability of detection (δ) on each of the four days is independent of that on the other days, since these samples are not taken on consecutive days and are therefore not correlated such that $\delta_4 = \delta^4$. Also, since

$$E(\bar{X}_4)_D = E(X_D)$$

then

$$E(\bar{U}_4) = \delta^4 \sum_{i=1}^{k} \frac{\delta_i D_i}{\delta} + (1-\delta^4)\exp(\mu_4 + 0.5\sigma^2{}_4) \tag{3.10}$$

and since $E(\bar{U}_4) = E(U)$, then

$$\mu_4 = \log\left[\frac{E(U) - \delta^3 \sum_{i=1}^{k} \delta_i D_i}{(1-\delta^4)}\right] - 0.5\sigma^2{}_4. \tag{3.11}$$

The expression for $\sigma^2{}_4$ was derived from the following relationship:

$$Var(\bar{U}_4) = \delta_4 Var((\bar{X}_4)_D) + (1-\delta_4)Var((\bar{X}_4)_C) + \delta_4(1-\delta_4)[E(\bar{X}_4)_D - E(\bar{X}_4)_C]^2. \tag{3.12}$$

Since

$$Var((\bar{X}_4)_D) = \frac{Var(X_D)}{4}, \quad E(\bar{X}_4)_D = E(X_D), \quad and \quad \delta_4 = \delta^4 \tag{3.13}$$

then

$$Var(\bar{U}_4) = \delta^4 \frac{Var(X_D)}{4} + (1-\delta^4)Var((\bar{X}_4)_C) + \delta^4(1-\delta^4)[E(X_D) - E(\bar{X}_4)_C]^2. \tag{3.14}$$

Reference D-3 (Continued)

This further simplifies to

$$Var(\bar{U}_4) = \frac{\delta^4 \sum_{i=1}^{k} \sum_{i<j}^{k} \sum_{j=1}^{k} \delta_i \delta_j (D_i - D_j)^2}{4\delta^2} + (1-\delta^4)\exp(2\mu_4 + \sigma^2{}_4)[\exp(\sigma^2{}_4) - 1] + \delta^4(1-\delta^4)\left[\sum_{i=1}^{k} \frac{\delta_i D_i}{\delta} - \exp(\mu_4 + 0.5\sigma^2{}_4)\right]^2 \tag{3.15}$$

and furthermore,

$$\exp(\sigma^2{}_4) - 1 = \frac{\left[Var(\bar{U}_4) - \frac{\delta^2 \sum_{i=1}^{k} \sum_{i<j}^{k} \sum_{j=1}^{k} \delta_i \delta_j (D_i - D_j)^2}{4} - \delta^2(1-\delta^4)\left[\sum_{i=1}^{k} \delta_i D_i - \delta \exp(\mu_4 + 0.5\sigma^2{}_4)\right]^2\right]}{(1-\delta_4)\exp(2\mu_4 + \sigma^2{}_4)}. \tag{3.16}$$

Then, from (3.10) above,

$$\exp(\mu_4 + 0.5\sigma^2{}_4) = \frac{(E(\bar{U}_4) - \delta^3 \sum_{i=1}^{k} \delta_i D_i)}{(1-\delta^4)} = \frac{(E(U) - \delta^3 \sum_{i=1}^{k} \delta_i D_i)}{(1-\delta^4)}, \quad \text{since } E(\bar{U}_4) = E(U) \tag{3.17}$$

and letting

$$\eta = E(U) - \delta^3 \sum_{i=1}^{k} \delta_i D_i, \quad \text{then,} \quad \exp(\mu_4 + 0.5\sigma^2{}_4) = \frac{\eta}{(1-\delta^4)}. \tag{3.18}$$

Furthermore,

$$\sigma^2{}_4 = \log\left[1 + \frac{\left[Var(\bar{U}_4) - \frac{\delta^2 \sum_{i=1}^{k} \sum_{i<j}^{k} \sum_{j=1}^{k} \delta_i \delta_j (D_i - D_j)^2}{4} - \delta^2(1-\delta^4)\left(\sum_{i=1}^{k} \delta_i D_i - \frac{\delta\eta}{(1-\delta^4)}\right)^2\right]}{\frac{(1-\delta^4)\eta^2}{(1-\delta^4)^2}}\right]. \tag{3.19}$$

Reference D-3 (Continued)

Since $Var(\bar{U}_4) = Var(U)/4$, then, by rearranging terms,

$$\sigma^2_4 = \log\left[1 + \frac{(1-\delta^4)\,Var(U)}{4\eta^2} - \frac{(1-\delta^4)\,\delta^2 \sum_{i=1}^{k}\sum_{i<j}^{k}\sum_{j=1}^{k} \delta_i\delta_j(D_i - D_j)^2}{4\eta^2} - \frac{\delta^2\left[\sum_{i=1}^{k}\delta_i D_i(1-\delta^4) - \delta\eta\right]^2}{\eta^2}\right]. \tag{3.20}$$

Thus, estimates of μ_4 and σ_4 were derived by using estimates of $\delta_1,\ldots\delta_k$ (sample proportion of NDs at observed detection limits $D_1,\ldots D_k$), μ (MLE of logged values), and σ^2 (MLE logvariance with sample bias adjustment) in the equations above.

In finding the estimated 95th percentile of the average of four observations (four NDs, not all at the same detection limit), an average can be generated that is not necessarily equal to D_1, D_2,..., or D_k. Consequently, more than k discrete points exist in the distribution of the 4-day averages. For example, the average of four NDs at k=2 detection limits are at the following discrete points with the associated probabilities:

i	D^*_i	δ^*_i
1	D_1	δ_1^4
2	$(3D_1 + D_2)/4$	$4\delta_1^3\delta_2$
3	$(2D_1 + 2D_2)/4$	$6\delta_1^2\delta_2^2$
4	$(D_1 + 3D_2)/4$	$4\delta_1\delta_2^3$
5	D_2	δ_2^4

In general, when all four observations are not detected, and when k detection limits exist, the multinomial distribution can be used to determine associated probabilities, that is,

$$Pr\left[\bar{U}_4 = \frac{\sum_{i=1}^{k} u_i D_i}{4}\right] = \frac{4!}{u_1!\,u_2!\ldots u_k!}\prod_{i=1}^{k}\delta_i^{u_i}. \tag{3.21}$$

The number of possible discrete points, k^*, for k=1,2,3,4, and 5 are given below:

k	k^*
1	1
2	5
3	15
4	35
5	70

Reference D-3 (Continued)

To find the estimated 95th percentile of the distribution of the average of four observations, the same basic steps (described in Section 3.1.2.1) as used for the 99th percentile of the distribution of daily observations were followed with the following changes:

1. Change P_{99} to P_{95}, and 0.99 to 0.95.
2. Change D_m to D_m^*, the weighted averages of the detection limits.
3. Change δ_i to δ_i^*.
4. Change k to k^*, the number of possible discrete points based on k detection limits.
5. Change the estimates of δ, μ, and σ to estimates of δ^4, μ_4, and σ_4, respectively.

Then, the estimate of the 95th percentile 4-day mean VF is:

$$VF4 = \frac{\hat{P}95}{\hat{E}(U)}, \qquad since \quad E(\bar{U}_4) = E(U). \tag{3.22}$$

Reference D-4
Long-Term Averages and Variability Factors
Chemical Emulsion Breaking (CEB)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
2-METHYLNAPHTHALENE	S1	5	0	1.59	4	0	0.05	3.57	1.65
2-PROPANONE	S1	5	0	3.90	4	0	1.21	1.81	1.24
4-CHLORO-3-METHYLPHENOL	S1	5	4	0.18	4	1	0.21	3.80	1.81
4-METHYL-2-PENTANONE	S1	5	0	2.75	4	2	0.07	1.33	1.25
ALPHA-TERPINEOL	S1	5	4	0.10	4	4	0.01	.	.
ALUMINUM	S1	5	0	16.90	4	0	6.33	1.85	1.25
ANTIMONY	S1	5	0	0.26	4	0	0.20	1.20	1.07
BIS(2-ETHYLHEXYL) PHTHALATE	S1	5	0	312.00	4	0	0.46	3.67	1.68
BOD 5-DAY (CARBONACEOUS)	S1	5	0	2400.00	4	0	1040.00	1.65	1.20
BORON	S1	5	0	1.93	4	0	1.64	1.90	1.26
CADMIUM	S1	5	0	0.20	4	0	0.13	1.24	1.08
CHEMICAL OXYGEN DEMAND (COD)	S1	5	0	11900.00	4	0	2460.00	1.21	1.07
CHROMIUM	S1	5	0	0.59	4	0	0.15	1.41	1.13
COPPER	S1	5	0	4.40	4	0	0.44	1.76	1.23
DI-N-BUTYL PHTHALATE	S1	5	2	4.78	4	4	0.01	.	.
DI-N-OCTYL PHTHALATE	S1	5	2	0.49	4	0	0.03	3.70	1.68
ETHYLBENZENE	S1	5	0	0.88	4	0	0.31	4.74	1.91
HEXANOIC ACID	S1	5	4	0.12	4	1	0.13	1.94	1.52
IRON	S1	5	0	68.70	4	0	47.30	1.45	1.14
LEAD	S1	5	0	2.49	4	0	0.91	1.32	1.10
M-XYLENE	S1	5	0	2.52	4	0	0.37	1.61	1.19
MANGANESE	S1	5	0	0.79	4	0	0.60	1.37	1.12

Reference D-4 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
MOLYBDENUM	S1	5	0	1.12	4	0	0.21	1.80	1.24
N-DECANE	S1	5	0	41.30	4	0	0.28	4.24	1.80
N-DOCOSANE	S1	5	3	0.84	4	0	0.03	3.67	1.68
N-DODECANE	S1	5	0	3220.00	4	3	0.57	.	.
N-EICOSANE	S1	5	0	13.80	4	0	0.08	3.28	1.59
N-HEXACOSANE	S1	5	4	0.34	4	4	0.01	.	.
N-HEXADECANE	S1	5	0	12.00	4	0	0.04	3.42	1.62
N-OCTACOSANE	S1	5	4	0.37	4	4	0.01	.	.
N-OCTADECANE	S1	5	0	4.17	4	2	0.06	10.90	3.18
N-TETRADECANE	S1	5	0	2.87	4	0	0.12	2.87	1.50
NAPHTHALENE	S1	5	0	5.38	4	0	0.10	1.82	1.25
NICKEL	S1	5	0	0.60	4	0	0.26	1.67	1.21
O+P XYLENE	S1	5	0	2.59	4	0	0.36	1.72	1.22
OIL AND GREASE (AS HEM)	S1	5	0	5140.00	4	0	268.00	3.54	1.65
TETRACHLOROETHENE	S1	5	1	3.30	4	0	0.29	2.91	1.51
TITANIUM	S1	5	0	0.52	4	0	0.08	1.28	1.09
TOLUENE	S1	5	0	2.06	4	0	0.54	1.79	1.24
TOTAL ORGANIC CARBON (TOC)	S1	5	0	1260.00	4	0	626.00	1.41	1.13
TOTAL PETROLEUM HYDROCARBON (AS SGT-HEM)	S1	5	0	3090.00	4	0	200.00	3.51	1.64
TOTAL SUSPENDED SOLIDS	S1	5	0	4320.00	4	0	259.00	2.51	1.42
ZINC	S1	5	0	8.71	4	0	6.78	1.33	1.11

Reference D-5
Long-Term Averages and Variability Factors
Dissolved Air Flotation - Heavy (DAF-Heavy)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
2-BUTANONE	S2	5	4	5.65	4	2	4.68	4.41	1.82
2-METHYLNAPHTHALENE	S2	5	3	0.64	4	2	0.13	3.85	1.71
2-PROPANONE	S2	5	2	8.07	4	0	7.42	2.69	1.46
4-METHYL-2-PENTANONE	S2	5	4	18.00	4	2	9.55	3.94	1.73
ALPHA-TERPINEOL	S2	5	1	1.34	4	3	0.47	.	.
ALUMINUM	S2	5	0	6.58	4	0	1.34	2.12	1.32
BARIUM	S2	5	0	5.44	4	0	0.70	2.65	1.45
BIS(2-ETHYLHEXYL) PHTHALATE	Q10	.	.	.	9	1	0.57	6.72	2.35
	S2	5	0	4.77	4	0	0.64	5.03	1.97
	Median	.	.	4.77	.	.	0.60	5.88	2.16
BOD 5-DAY (CARBONACEOUS)	S2	4	0	3040.00	4	0	1310.00	1.39	1.13
CHEMICAL OXYGEN DEMAND (COD)	S2	5	0	10400.00	4	0	3320.00	1.71	1.22
CHROMIUM	S2	5	0	0.20	4	0	0.07	2.31	1.37
COPPER	S2	5	0	8.03	4	0	1.45	1.90	1.27
DI-N-BUTYL PHTHALATE	S2	5	3	0.79	4	0	0.17	3.80	1.70
ETHYLBENZENE	Q10	.	.	.	9	0	1.18	2.59	1.43
	S2	5	0	5.82	4	1	1.56	2.86	1.48
	Median	.	.	5.82	.	.	1.37	2.73	1.46
IRON	S2	5	0	43.80	4	0	19.00	2.90	1.50
LEAD	Q10	.	.	.	9	0	0.11	2.69	1.46
	S2	5	0	1.83	4	0	0.36	6.18	2.23
	Median	.	.	1.83	.	.	0.24	4.43	1.84
MANGANESE	S2	5	0	3.59	4	0	0.88	3.88	1.72
N-DECANE	S2	2	0	10.40	4	0	1.26	4.98	1.96
N-DOCOSANE	S2	5	4	0.53	4	1	0.11	1.28	1.28

Reference D-5 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
N-EICOSANE	S2	5	0	2.14	4	2	0.15	1.82	1.46
N-HEXADECANE	S2	5	0	9.42	4	0	0.49	4.81	1.93
N-OCTADECANE	S2	5	0	7.21	4	0	0.42	4.45	1.85
N-TETRADECANE	S2	4	0	5.50	4	0	0.98	4.92	1.95
NAPHTHALENE	S2	5	0	1.57	4	0	0.80	4.41	1.84
OIL AND GREASE (AS HEM)	S2	5	0	1090.00	4	0	230.00	3.87	1.72
P-CYMENE	S2	5	0	3.74	4	1	0.61	9.10	2.86
SILVER	S2	5	0	0.78	4	0	0.08	2.48	1.41
TETRACHLOROETHENE	Q10	.	.	.	4	3	0.14	.	.
TITANIUM	S2	5	0	0.24	4	0	0.09	2.85	1.49
TOLUENE	Q10	.	.	.	9	0	10.20	1.80	1.24
	S2	5	0	6.32	4	0	2.50	1.96	1.28
	Median	.	.	6.32	.	.	6.35	1.88	1.26
TOTAL ORGANIC CARBON (TOC)	S2	5	0	3250.00	4	0	1610.00	3.79	1.70
TOTAL PETROLEUM HYDROCARBON (AS SGT-HEM)	S2	5	0	263.00	4	0	42.10	2.31	1.37
TOTAL PETROLEUM HYDROCARBONS	Q10	.	.	.	9	0	43.90	7.32	2.49
TOTAL RECOVERABLE OIL AND GREASE	Q10	.	.	.	9	0	130.00	3.68	1.68
TOTAL SUSPENDED SOLIDS	S2	5	0	1810.00	4	0	487.00	2.51	1.41
ZINC	S2	5	0	6.45	4	0	0.90	2.68	1.45

Reference D-6
Long-Term Averages and Variability Factors
Chemical Precipitation - Heavy (CP-Heavy)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
1,2-DIPHENYLHYDRAZINE	S3	4	3	10.50	5	3	45.20	6.82	1.03
2-METHYLNAPHTHALENE	S3	5	3	0.20	5	5	0.01	.	.
ALUMINUM	S3	5	0	11.20	5	3	0.08	8.13	2.60
BARIUM	S3	5	0	2.43	5	0	0.15	3.47	1.63
BIS(2-ETHYLHEXYL) PHTHALATE	S3	5	2	1.94	5	4	0.05	.	.
BOD 5-DAY (CARBONACEOUS)	S3	5	0	7850.00	5	0	1390.00	1.83	1.25
BORON	S3	5	0	16.30	5	0	11.40	5.88	2.16
BUTYL BENZYL PHTHALATE	S3	5	3	0.24	5	5	0.01	.	.
CADMIUM	S3	5	0	0.16	5	5	0.01	.	.
CHEMICAL OXYGEN DEMAND (COD)	S3	5	0	15300.00	5	0	2510.00	1.86	1.25
CHROMIUM	S3	5	0	0.26	5	3	0.01	2.64	1.44
COPPER	S3	5	0	3.42	5	0	0.53	4.06	1.76
DI-N-BUTYL PHTHALATE	S3	5	1	0.41	5	5	0.01	.	.
ETHYLBENZENE	S3	5	1	0.96	5	1	0.09	4.37	1.80
IRON	S3	5	0	40.30	5	2	0.37	10.80	3.15
LEAD	S3	5	0	1.55	5	4	0.05	.	.
M-XYLENE	S3	5	0	1.36	5	1	0.10	2.66	1.42
MANGANESE	S3	5	0	1.02	5	3	0.01	10.30	3.02
MOLYBDENUM	S3	5	0	0.82	5	0	0.77	7.49	2.53
N-DECANE	S3	4	1	3.25	5	4	0.02	.	.
N-DOCOSANE	S3	5	4	0.12	5	4	0.01	.	.
N-DODECANE	S3	5	1	8.77	5	5	0.01	.	.

Reference D-6 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
N-EICOSANE	S3	5	1	1.02	5	3	0.04	10.10	3.01
N-HEXACOSANE	S3	5	3	0.54	5	4	0.01	.	.
N-HEXADECANE	S3	5	0	3.26	5	4	0.03	.	.
N-OCTACOSANE	S3	5	3	0.50	5	5	0.01	.	.
N-OCTADECANE	S3	5	1	1.15	5	5	0.01	.	.
N-TETRACOSANE	S3	5	4	0.17	5	4	0.03	.	.
N-TETRADECANE	S3	5	3	1.67	5	4	0.61	.	.
N-TRIACONTANE	S3	5	4	0.25	5	3	0.03	10.10	3.01
NAPHTHALENE	S3	5	0	2.16	5	0	0.11	3.14	1.56
O+P XYLENE	S3	5	0	1.24	5	0	0.09	3.63	1.67
OIL AND GREASE (AS HEM)	S3	5	0	4550.00	5	0	38.20	2.11	1.32
P-CYMENE	S3	5	2	1.73	5	4	0.02	.	.
PENTAMETHYLBENZENE	S3	5	2	0.71	5	5	0.01	.	.
TETRACHLOROETHENE	S3	4	0	2.06	5	2	0.13	4.48	1.90
TITANIUM	S3	5	0	0.56	5	3	0.00	4.92	1.88
TOLUENE	S3	5	0	2.86	5	0	0.82	6.79	2.37
TOTAL ORGANIC CARBON (TOC)	S3	5	0	2680.00	5	0	910.00	2.71	1.46
TOTAL PETROLEUM HYDROCARBON (AS SGT-HEM)	S3	5	0	2330.00	5	4	7.20	.	.
TOTAL SUSPENDED SOLIDS	S3	5	0	2840.00	5	0	56.30	10.70	3.29
TRICHLOROETHENE	S3	4	4	0.06	5	2	0.05	0.43	1.60
ZINC	S3	5	0	9.03	5	0	0.06	6.19	2.23

Reference D-7
Long-Term Averages and Variability Factors
Dissolved Air Flotation - All (DAF-All)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
1,1,1-TRICHLOROETHANE	Q2	.	.	.	13	12	0.00	.	.
	S5	5	1	0.31	5	1	0.05	4.310	1.94
	Median	.	.	0.31	.	.	0.03	4.310	1.94
1,2-DIPHENYLHYDRAZINE	Q1	.	.	.	5	5	0.22	.	.
2-BUTANONE	S4	5	0	58.60	5	0	33.80	14.900	3.48
	S5	5	0	1.88	5	0	0.99	3.010	1.53
	Median	.	.	30.20	.	.	17.40	8.960	2.50
2-METHYLNAPHTHALENE	Q1	.	.	.	5	5	0.22	.	.
	S4	5	0	0.31	5	3	0.01	1.060	1.02
	Median	.	.	0.31	.	.	0.12	1.060	1.02
2-PROPANONE	S5	5	0	20.90	5	0	13.60	3.580	1.66
4-CHLORO-3-METHYLPHENOL	Q1	.	.	.	5	4	0.45	.	.
	Q2	.	.	.	12	11	0.00	.	.
	S5	4	1	0.33	5	1	0.22	4.560	1.86
	Median	.	.	0.33	.	.	0.22	4.560	1.86
4-METHYL-2-PENTANONE	S4	5	1	1.04	5	1	1.05	12.500	3.59
	S5	5	3	5.23	5	5	0.14	.	.
	Median	.	.	3.14	.	.	0.60	12.500	3.59
ALPHA-TERPINEOL	S4	5	3	0.64	5	0	0.47	14.400	3.86
ALUMINUM	S4	5	0	47.70	5	0	2.41	2.150	1.33
	S5	5	0	2.77	5	0	0.20	2.620	1.44
	Median	.	.	25.20	.	.	1.31	2.380	1.38
ANTIMONY	S4	5	3	0.33	5	5	0.08	.	.
ARSENIC	Q1	.	.	.	14	8	0.00	4.410	1.80
BARIUM	Q1	.	.	.	14	1	0.19	4.690	1.91
BENZOIC ACID	Q1	.	.	.	5	5	0.67	.	.
	S4	5	0	2.65	5	0	2.48	1.340	1.11
BENZOIC ACID	Median	.	.	2.65	.	.	1.58	1.340	1.11
BENZYL ALCOHOL	Q1	.	.	.	5	4	0.45	.	.
BIS(2-ETHYLHEXYL) PHTHALATE	Q1	.	.	.	5	3	0.42	3.430	1.82

Reference D-7 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S4	5	1	2.36	5	0	0.03	2.730	1.47
	S5	4	0	38.10	5	1	0.14	3.060	1.52
	Median	.	.	20.20	.	.	0.14	3.060	1.52
BOD 5-DAY (CARBONACEOUS)	Q1	.	.	.	46	0	660.00	3.820	1.71
	Q3	.	.	.	4	0	448.00	2.250	1.35
	S4	5	0	773.00	5	0	545.00	1.780	1.23
	S5	5	0	1490.00	5	0	366.00	1.680	1.21
	Median	.	.	1130.00	.	.	497.00	2.020	1.29
BUTYL BENZYL PHTHALATE	Q1	.	.	.	5	5	0.40	.	.
CADMIUM	Q1	.	.	.	15	14	0.02	.	.
	Q3	.	.	.	4	2	0.01	1.120	1.43
	Q4	.	.	.	8	8	0.01	.	.
	S4	5	0	0.14	5	0	0.02	2.790	1.48
	Median	.	.	0.14	.	.	0.02	1.950	1.45
CHEMICAL OXYGEN DEMAND (COD)	Q2	.	.	.	12	0	715.00	1.680	1.21
	S4	5	0	6320.00	5	0	1400.00	1.630	1.19
	S5	5	0	6730.00	5	0	998.00	1.270	1.09
	Median	.	.	6530.00	.	.	998.00	1.630	1.19
CHLOROBENZENE	Q1	.	.	.	6	6	0.77	.	.
	Q2	.	.	.	13	13	0.00	.	.
	S5	5	0	0.24	5	5	0.03	.	.
	Median	.	.	0.24	.	.	0.03	.	.
CHLOROFORM	Q1	.	.	.	6	6	2.71	.	.
	Q2	.	.	.	13	7	0.03	4.250	1.99
	S4	5	0	0.17	5	0	0.19	10.400	3.23
	Median	.	.	0.17	.	.	0.19	7.350	2.61
CHROMIUM	Q1	.	.	.	15	0	0.13	4.640	1.89
CHROMIUM	Q4	.	.	.	8	2	0.10	2.910	1.52
	S4	5	0	0.58	5	1	0.04	1.190	1.09
	S5	5	0	0.27	5	0	0.03	1.520	1.16
	Median	.	.	0.43	.	.	0.07	2.220	1.34

Reference D-7 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
COPPER	Q1	.	.	.	15	0	0.67	6.400	2.28
	Q2	.	.	.	13	1	0.59	4.520	1.87
	Q3	.	.	.	5	0	0.57	6.950	2.40
	Q4	.	.	.	8	0	0.39	3.150	1.56
	S4	5	0	3.40	5	0	0.36	3.070	1.54
	S5	5	0	2.14	5	0	0.17	1.590	1.18
	Median	.	.	2.77	.	.	0.48	3.830	1.72
DI-N-BUTYL PHTHALATE	Q1	.	.	.	5	5	0.22	.	.
	S5	4	1	0.67	5	5	0.03	.	.
	Median	.	.	0.67	.	.	0.13	.	.
DI-N-OCTYL PHTHALATE	Q1	.	.	.	5	5	0.44	.	.
	S5	4	3	0.30	5	5	0.03	.	.
	Median	.	.	0.30	.	.	0.24	.	.
ETHYLBENZENE	Q2	.	.	.	13	10	0.00	3.540	1.90
	S5	5	0	7.05	5	0	0.37	4.160	1.78
	Median	.	.	7.05	.	.	0.19	3.850	1.84
IRON	S4	5	0	38.00	5	0	0.93	2.660	1.45
	S5	5	0	19.10	5	0	4.65	2.230	1.35
	Median	.	.	28.60	.	.	2.79	2.450	1.40
ISOPHORONE	Q1	.	.	.	5	0	3.60	11.500	3.46
LEAD	Q1	.	.	.	15	1	0.22	5.050	1.99
	Q2	.	.	.	14	3	0.23	2.990	1.57
	Q3	.	.	.	4	2	0.32	1.550	1.47
	Q4	.	.	.	8	8	0.10	.	.
	S4	5	0	1.46	5	2	0.14	3.720	1.75
	S5	5	0	0.77	5	2	0.06	1.390	1.13
	Median	.	.	1.11	.	.	0.18	2.990	1.57
M-XYLENE	S5	5	0	16.10	5	0	0.60	3.550	1.65
MANGANESE	S4	5	0	0.50	5	0	0.02	1.880	1.26
	S5	5	0	0.40	5	0	0.05	1.640	1.20
	Median	.	.	0.45	.	.	0.03	1.760	1.23
MERCURY	Q1	.	.	.	14	14	0.00	.	.
	Q3	.	.	.	5	2	0.00	1.010	1.00
	Q4	.	.	.	8	8	0.00	.	.
	Median	.	.	.	.	.	0.00	1.010	1.00
METHYLENE CHLORIDE	Q1	.	.	.	6	6	1.16	.	.
	Q2	.	.	.	13	13	0.00	.	.

Reference D-7 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S5	5	0	0.91	4	0	0.55	7.380	2.50
	Median	.	.	0.91	.	.	0.55	7.380	2.50
MOLYBDENUM	S4	5	0	0.38	5	0	0.16	2.830	1.49
	S5	5	0	0.15	5	0	0.08	1.450	1.14
	Median	.	.	0.26	.	.	0.12	2.140	1.31
N-DECANE	S4	5	1	2.47	5	1	0.03	4.340	1.84
	S5	4	0	140.00	5	1	0.91	2.510	1.54
	Median	.	.	71.30	.	.	0.47	3.430	1.69
N-DOCOSANE	S4	5	2	0.43	5	4	0.01	.	.
	S5	4	0	0.23	5	3	0.04	1.720	1.97
	Median	.	.	0.33	.	.	0.02	1.720	1.97
N-DODECANE	S4	5	0	1.51	5	5	0.01	.	.
	S5	4	0	45.40	5	1	0.38	3.590	1.70
	Median	.	.	23.40	.	.	0.20	3.590	1.70
N-EICOSANE	S4	5	1	1.06	5	3	0.01	2.370	1.32
	S5	4	0	2.16	5	1	0.08	4.340	1.80
	Median	.	.	1.61	.	.	0.05	3.350	1.56
N-HEXACOSANE	S4	5	0	0.66	5	4	0.01	.	.
	S5	4	0	2.50	5	4	0.03	.	.
	Median	.	.	1.58	.	.	0.02	.	.
N-HEXADECANE	S4	5	1	1.15	5	1	0.01	1.800	1.23
	S5	4	0	39.10	5	1	0.16	3.280	1.57
	Median	.	.	20.10	.	.	0.08	2.540	1.40
N-OCTADECANE	S4	5	0	0.37	5	2	0.02	2.200	1.40
	S5	4	0	19.40	5	1	0.12	6.310	2.25
	Median	.	.	9.88	.	.	0.07	4.260	1.82
N-TETRACOSANE	S4	5	0	0.72	5	5	0.01	.	.
	S5	4	0	2.38	5	3	0.03	2.320	2.04
	Median	.	.	1.55	.	.	0.02	2.320	2.04
N-TETRADECANE	S4	5	1	0.66	5	2	0.01	2.340	1.35
	S5	4	0	11.50	5	1	0.14	7.150	2.45
	Median	.	.	6.09	.	.	0.08	4.740	1.90
N-TRIACONTANE	S4	5	0	0.17	5	5	0.01	.	.
NAPHTHALENE	Q2	.	.	.	13	13	0.00	.	.
	S4	5	0	0.66	5	2	0.08	4.730	2.00

Reference D-7 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S5	4	0	7.07	5	1	0.18	1.570	1.24
	Median	.	.	3.86	.	.	0.08	3.150	1.62
NICKEL	Q1	.	.	.	15	4	0.03	3.040	1.53
	Q3	.	.	.	5	0	0.07	4.510	1.86
	Q4	.	.	.	8	7	0.04	.	.
	S4	5	0	0.54	5	2	0.07	1.040	1.48
	Median	.	.	0.54	.	.	0.05	3.040	1.53
O+P XYLENE	S4	5	0	0.19	5	0	0.12	3.150	1.56
	S5	5	0	11.80	5	0	0.42	4.070	1.76
	Median	.	.	5.99	.	.	0.27	3.610	1.66
OIL AND GREASE (AS HEM)	S4	5	0	789.00	5	0	24.00	3.300	1.59
	S5	5	0	1530.00	5	0	51.60	2.300	1.36
	Median	.	.	1160.00	.	.	37.80	2.800	1.48
P-CRESOL	Q1	.	.	.	5	4	0.22	.	.
P-CYMENE	S4	5	3	0.12	5	5	0.01	.	.
	S5	4	1	6.93	5	4	0.13	.	.
	Median	.	.	3.52	.	.	0.07	.	.
PHENOL	Q1	.	.	.	5	4	0.61	.	.
	Q2	.	.	.	12	11	0.01	.	.
	S4	5	0	0.22	5	0	0.21	3.090	1.55
	Median	.	.	0.22	.	.	0.21	3.090	1.55
SELENIUM	Q1	.	.	.	14	11	0.01	10.100	3.20
	S4	5	3	0.10	5	3	0.09	0.896	1.85
	Median	.	.	0.10	.	.	0.05	5.490	2.52
SILVER	Q1	.	.	.	15	15	0.02	.	.
	Q3	.	.	.	4	3	0.02	.	.
	Median	.	.	.	.	.	0.02	.	.
TETRACHLOROETHENE	Q1	.	.	.	6	2	25.10	15.400	3.87
	Q2	.	.	.	13	4	0.02	4.970	2.00
	S4	5	0	0.14	5	0	0.07	3.080	1.54
	S5	5	1	9.58	5	0	0.43	5.870	2.16
	Median	.	.	4.86	.	.	0.25	5.420	2.08
TIN	S4	5	3	0.36	5	5	0.10	.	.
TITANIUM	S4	5	0	0.27	5	4	0.02	.	.
TOLUENE	Q2	.	.	.	13	6	0.05	13.500	3.66

Reference D-7 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S4	5	0	0.81	5	0	0.71	7.930	2.63
	S5	5	0	37.80	5	0	4.20	2.800	1.48
	Median	.	.	19.30	.	.	0.71	7.930	2.63
TOTAL ORGANIC CARBON (TOC)	S4	5	0	881.00	4	0	456.00	1.780	1.23
	S5	5	0	1100.00	5	0	195.00	1.750	1.23
	Median	.	.	989.00	.	.	326.00	1.770	1.23
TOTAL PETROLEUM HYDROCARBON (AS SGT-HEM)	S4	5	0	318.00	5	1	11.40	3.640	1.68
	S5	5	0	683.00	5	0	16.00	2.620	1.44
	Median	.	.	500.00	.	.	13.70	3.130	1.56
TOTAL SUSPENDED SOLIDS	Q1	.	.	.	48	3	48.70	4.160	1.79
	Q2	.	.	.	12	0	85.50	4.320	1.82
	Q3	.	.	.	5	0	504.00	3.970	1.74
	S4	5	0	2150.00	5	0	147.00	2.090	1.31
	S5	5	0	886.00	5	0	65.80	2.710	1.46
	Median	.	.	1520.00	.	.	85.50	3.970	1.74
TOTAL XYLENES	Q2	.	.	.	13	8	0.01	9.580	2.92
TRANS-1,2-DICHLOROETHENE	Q1	.	.	.	6	4	2.84	0.564	2.35
	Q2	.	.	.	13	13	0.00	.	.
	Median	.	.	.	.	.	1.42	0.564	2.35
TRICHLOROETHENE	Q1	.	.	.	6	6	1.55	.	.
	Q2	.	.	.	13	11	0.37	19.200	3.97
	Median	.	.	.	.	.	0.96	19.200	3.97
ZINC	Q1	.	.	.	15	0	0.90	7.340	2.49
	Q2	.	.	.	12	0	1.22	5.110	1.99
	Q3	.	.	.	5	0	0.91	6.270	2.25
	Q4	.	.	.	8	0	0.78	2.960	1.52
	S4	5	0	4.69	5	0	0.51	3.170	1.57
	S5	5	0	3.07	5	0	0.27	1.580	1.18
	Median	.	.	3.88	.	.	0.84	4.140	1.78

Reference D-8
Long-Term Averages and Variability Factors
Chemical Precipitation - All (CP-All)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
1,1,1-TRICHLOROETHANE	Q5	.	.	.	4	4	0.39	.	.
	Q7	.	.	.	3	3	0.04	.	.
	Q9	.	.	.	4	0	0.55	9.460	3.00
	S6	5	1	1.53	4	0	1.19	9.670	3.05
	Median	.	.	1.53	.	.	0.47	9.560	3.02
1,2-DIPHENYLHYDRAZINE	Q7	.	.	.	3	3	0.13	.	.
2-BUTANONE	S6	5	1	3.21	4	0	3.23	1.830	1.25
2-METHYLNAPHTHALENE	S6	5	0	0.33	4	0	0.01	1.680	1.21
	S7	4	0	0.22	5	4	0.01	.	.
	Median	.	.	0.27	.	.	0.01	1.680	1.21
2-PROPANONE	S7	5	0	1.81	4	0	1.54	2.240	1.35
4-CHLORO-3-METHYLPHENOL	Q7	.	.	.	3	3	0.06	.	.
4-METHYL-2-PENTANONE	S6	5	2	2.51	4	0	3.13	12.400	3.64
	S7	5	0	1.14	5	0	0.78	7.080	2.43
	Median	.	.	1.82	.	.	1.96	9.730	3.04
ALUMINUM	S6	5	0	11.30	4	0	0.47	4.240	1.80
	S7	5	0	17.90	5	0	2.19	2.580	1.43
	Median	.	.	14.60	.	.	1.33	3.410	1.62
BENZYL ALCOHOL	S7	4	0	0.46	5	0	0.34	6.380	2.27
BIS(2-ETHYLHEXYL) PHTHALATE	Q7	.	.	.	3	2	0.15	.	.
	S6	5	0	2.97	4	0	0.07	1.210	1.07
	S7	4	0	2.96	5	0	0.04	2.960	1.52
	Median	.	.	2.97	.	.	0.07	2.080	1.29
BOD 5-DAY (CARBONACEOUS)	Q8	.	.	.	3	0	623.00	.	.
	S6	5	0	2200.00	4	0	376.00	1.240	1.08
	S7	2	0	1380.00	5	0	399.00	1.660	1.20
	Median	.	.	1790.00	.	.	399.00	1.450	1.14
BUTYL BENZYL PHTHALATE	Q7	.	.	.	3	3	0.06	.	.
BUTYL BENZYL PHTHALATE	S6	5	2	0.13	4	4	0.01	.	.
	S7	4	1	0.16	5	5	0.01	.	.
	Median	.	.	0.14	.	.	0.01	.	.
CADMIUM	Q5	.	.	.	16	14	0.01	3.180	1.55

Reference D-8 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	Q6	.	.	.	7	0	0.02	2.590	1.43
	S6	5	0	0.07	4	3	0.00	.	.
	S7	5	0	0.11	5	0	0.01	3.280	1.59
	Median	.	.	0.09	.	.	0.01	3.180	1.55
CHEMICAL OXYGEN DEMAND (COD)	Q9	.	.	.	4	0	1270.00	3.190	1.57
	S6	5	0	7540.00	4	0	891.00	1.370	1.12
	S7	5	0	10100.00	5	0	1290.00	1.910	1.27
	Median	.	.	8830.00	.	.	1270.00	1.910	1.27
CHLOROBENZENE	Q5	.	.	.	4	4	0.39	.	.
	Q7	.	.	.	3	3	0.03	.	.
	Q9	.	.	.	4	4	0.02	.	.
	Median	.	.	.	.	.	0.03	.	.
CHLOROFORM	Q5	.	.	.	4	2	0.41	0.509	1.82
	Q7	.	.	.	3	1	0.07	.	.
	Q9	.	.	.	4	4	0.00	.	.
	Median	.	.	.	.	.	0.07	0.509	1.82
CHROMIUM	Q5	.	.	.	16	12	0.04	0.593	1.09
	Q6	.	.	.	7	0	0.05	3.030	1.53
	S6	5	0	0.23	4	0	0.02	4.860	1.94
	S7	5	0	0.75	5	0	0.05	5.150	2.00
	Median	.	.	0.49	.	.	0.05	3.940	1.73
COPPER	Q5	.	.	.	16	0	0.14	1.710	1.22
	Q6	.	.	.	7	0	0.40	1.560	1.17
	S6	5	0	3.13	4	0	0.06	3.570	1.65
	S7	5	0	4.85	5	0	0.44	2.370	1.38
	Median	.	.	3.99	.	.	0.27	2.040	1.30
DI-N-BUTYL PHTHALATE	Q7	.	.	.	3	3	0.06	.	.
DI-N-OCTYL PHTHALATE	Q7	.	.	.	3	3	0.06	.	.
	S6	5	0	0.24	4	4	0.01	.	.
	Median	.	.	0.24	.	.	0.03	.	.
ETHYLBENZENE	Q7	.	.	.	3	1	0.04	.	.
	Q9	.	.	.	4	0	0.34	9.680	3.05
	S6	5	1	0.52	4	0	0.27	2.470	1.41
	S7	5	0	0.31	5	0	0.04	2.720	1.46
	Median	.	.	0.41	.	.	0.15	2.720	1.46
HEXANOIC ACID	S7	4	0	0.25	5	1	0.20	1.810	1.47
IRON	Q6	.	.	.	4	0	7.30	5.710	2.12

Reference D-8 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S6	5	0	39.50	4	0	0.93	2.650	1.45
	S7	5	0	66.60	5	0	1.78	7.910	2.63
	Median	.	.	53.00	.	.	1.78	5.710	2.12
ISOPHORONE	Q7	.	.	.	3	3	0.06	.	.
	S6	5	1	0.61	4	0	0.54	7.170	2.46
	Median	.	.	0.61	.	.	0.30	7.170	2.46
LEAD	Q5	.	.	.	16	11	0.10	1.290	1.07
	Q6	.	.	.	7	0	0.28	1.520	1.16
	Q7	.	.	.	11	5	0.03	3.890	1.77
	Q8	.	.	.	4	1	0.20	2.660	1.55
	S6	5	0	1.50	4	2	0.06	5.290	2.00
	S7	5	0	2.14	5	0	0.10	5.220	2.02
	Median	.	.	1.82	.	.	0.10	3.270	1.66
M-XYLENE	S6	5	1	4.39	4	1	0.35	3.840	1.83
	S7	5	0	0.76	5	0	0.14	1.890	1.26
	Median	.	.	2.57	.	.	0.24	2.870	1.54
MANGANESE	S6	5	0	0.78	4	0	0.01	1.630	1.19
	S7	5	0	1.14	5	0	0.05	5.540	2.08
	Median	.	.	0.96	.	.	0.03	3.590	1.64
MERCURY	Q5	.	.	.	16	14	0.00	3.540	1.57
	S7	5	0	0.00	5	5	0.00	.	.
MERCURY	Median	.	.	0.00	.	.	0.00	3.540	1.57
METHYLENE CHLORIDE	Q5	.	.	.	4	2	0.86	9.090	3.61
	Q7	.	.	.	3	3	0.17	.	.
	Q9	.	.	.	4	4	0.01	.	.
	Median	.	.	.	.	.	0.17	9.090	3.61
MOLYBDENUM	S6	5	0	0.58	4	0	0.46	1.910	1.27
	S7	5	0	0.30	5	0	0.09	1.630	1.19
	Median	.	.	0.44	.	.	0.28	1.770	1.23
N-DECANE	S6	5	0	7.55	4	0	0.10	1.530	1.17
	S7	4	0	3.77	5	0	0.07	2.970	1.52
	Median	.	.	5.66	.	.	0.09	2.250	1.34
N-DOCOSANE	S6	5	2	0.15	4	2	0.01	1.220	1.08
	S7	4	0	0.64	5	4	0.01	.	.
	Median	.	.	0.40	.	.	0.01	1.220	1.08
N-DODECANE	S6	5	0	6.79	4	0	2.83	10.400	3.23

Reference D-8 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S7	4	0	4.67	5	2	0.09	2.300	1.68
	Median	.	.	5.73	.	.	1.46	6.370	2.45
N-EICOSANE	S6	5	0	0.38	4	0	0.02	1.390	1.12
	S7	4	0	1.71	5	1	0.01	2.220	1.33
	Median	.	.	1.04	.	.	0.02	1.800	1.23
N-HEXACOSANE	S6	5	0	0.20	4	2	0.01	1.560	1.26
N-HEXADECANE	S6	5	0	2.50	4	0	0.07	3.040	1.53
	S7	4	0	2.92	5	1	0.01	2.420	1.38
	Median	.	.	2.71	.	.	0.04	2.730	1.46
N-OCTACOSANE	S6	5	0	0.15	4	1	0.02	1.330	1.21
N-OCTADECANE	S6	5	0	0.39	4	0	0.03	1.430	1.14
	S7	4	0	1.90	5	0	0.03	2.360	1.38
	Median	.	.	1.14	.	.	0.03	1.900	1.26
N-TETRACOSANE	S6	5	0	0.47	4	3	0.01	.	.
	S7	4	0	1.20	5	2	0.01	1.960	1.28
	Median	.	.	0.83	.	.	0.01	1.960	1.28
N-TETRADECANE	S6	5	0	2.12	4	0	0.06	4.230	1.80
	S7	4	0	3.05	5	0	0.02	2.750	1.47
	Median	.	.	2.59	.	.	0.04	3.490	1.63
N-TRIACONTANE	S6	5	0	0.21	4	2	0.01	1.410	1.23
NAPHTHALENE	Q6	.	.	.	3	1	0.06	.	.
	Q7	.	.	.	3	3	0.06	.	.
	S6	5	0	1.53	4	1	0.08	3.900	1.81
	S7	4	0	0.23	5	0	0.04	1.840	1.25
	Median	.	.	0.88	.	.	0.06	2.870	1.53
NICKEL	Q5	.	.	.	16	15	0.04	.	.
	Q6	.	.	.	7	0	0.09	2.770	1.48
	S7	5	0	1.46	5	0	0.04	7.040	2.43
	Median	.	.	1.46	.	.	0.04	4.910	1.95
O+P XYLENE	S6	5	2	2.88	4	1	0.23	4.120	1.87
	S7	5	0	0.90	5	0	0.16	1.920	1.27
	Median	.	.	1.89	.	.	0.20	3.020	1.57
OIL AND GREASE (AS HEM)	S6	5	0	965.00	4	0	28.50	2.540	1.42
	S7	5	0	2100.00	5	0	28.60	1.940	1.27
	Median	.	.	1530.00	.	.	28.50	2.240	1.35

Reference D-8 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
P-CYMENE	S7	4	0	0.14	5	5	0.01	.	.
PHENOL	Q7	.	.	.	3	3	0.06	.	.
SILVER	Q6	.	.	.	7	3	0.03	8.370	2.68
TETRACHLOROETHENE	Q9	.	.	.	4	0	0.08	7.560	2.55
	S6	5	1	1.68	4	0	0.44	5.650	2.11
	S7	5	0	5.13	5	0	0.42	2.100	1.32
	Median	.	.	3.40	.	.	0.42	5.650	2.11
TIN	S7	5	0	0.59	5	0	0.05	2.980	1.52
TITANIUM	S6	5	1	0.12	4	2	0.02	1.540	1.37
	S7	5	0	0.51	5	3	0.07	15.800	3.31
	Median	.	.	0.32	.	.	0.05	8.670	2.34
TOLUENE	Q7	.	.	.	3	1	0.04	.	.
	Q9	.	.	.	4	0	1.05	2.860	1.49
	S6	5	0	2.02	4	0	1.58	2.390	1.39
	S7	5	0	3.90	5	0	0.90	1.670	1.20
	Median	.	.	2.96	.	.	0.97	2.390	1.39
TOTAL ORGANIC CARBON (TOC)	S6	5	0	1700.00	4	0	342.00	1.350	1.11
	S7	5	0	307.00	5	0	277.00	1.310	1.10
	Median	.	.	1000.00	.	.	310.00	1.330	1.11
TOTAL PETROLEUM HYDROCARBON (AS SGT-HEM)	S6	5	0	164.00	4	0	10.80	2.540	1.42
	S7	5	0	991.00	5	0	9.51	1.760	1.23
	Median	.	.	578.00	.	.	10.20	2.150	1.32
TOTAL SUSPENDED SOLIDS	Q8	.	.	.	3	0	282.00	.	.
	Q9	.	.	.	4	0	119.00	5.610	2.10
	S6	5	0	1750.00	4	0	82.10	1.720	1.22
	S7	5	0	4040.00	5	3	114.00	3.560	1.60
	Median	.	.	2900.00	.	.	117.00	3.560	1.60
TOTAL XYLENES	Q9	.	.	.	4	0	1.54	10.500	3.25
TRANS-1,2-DICHLOROETHENE	Q5	.	.	.	4	4	0.39	.	.
	Q7	.	.	.	3	3	0.03	.	.
	Q9	.	.	.	4	4	0.02	.	.
	Median	.	.	.	.	.	0.03	.	.
TRICHLOROETHENE	Q5	.	.	.	4	4	0.39	.	.
	Q7	.	.	.	3	3	0.03	.	.
	Q9	.	.	.	4	4	0.00	.	.

Reference D-8 (Continued)

Analyte	Episode	Inf # Obs	Inf # ND	Inf Est. LTA (mg/L)	Eff # Obs	Eff # ND	Eff Est. LTA (mg/L)	Eff 1-Day VF	Eff 4-day VF
	S7	5	0	0.10	5	0	0.04	3.990	1.75
	Median	.	.	0.10	.	.	0.04	3.990	1.75
ZINC	Q5	.	.	.	16	0	0.10	3.960	1.74
	Q6	.	.	.	7	0	1.72	2.140	1.33
	Q8	.	.	.	4	0	0.30	6.940	2.40
	S6	5	0	3.71	4	0	0.05	1.790	1.24
	S7	5	0	8.45	5	0	0.52	3.080	1.54
	Median	.	.	6.08	.	.	0.30	3.080	1.54

Appendix E

Tables Referenced In Chapter 9

Table E-1

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Entire Industry[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	10,004,982	9,230,263	774,718	91%
Oil and Grease (measured as HEM)	5,007,547	1,990,838	3,016,709	87%
Total Suspended Solids (TSS)	5,627,828	2,893,319	2,734,509	91%
Priority Organics				
1,1,1-Trichloroethane	33,709	18,970	14,739	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,718	1,311	2,407	63%
Bis(2-ethylhexyl) Phthalate	57,572	31,709	25,863	60%
Butyl Benzyl Phthalate	5,553	1,844	3,710	86%
Chlorobenzene	1,890	1,298	592	24%
Chloroform	97,422	97,237	186	24%
Di-*n*-butyl Phthalate	4,109	1,197	2,912	75%
Di-*n*-octyl Phthalate	9,134	6,773	2,361	33%
Ethylbenzene	25,491	8,083	17,408	33%
Isophorone	18,156	9,207	8,949	62%
Methylene Chloride	23,961	9,617	14,344	18%
Naphthalene	34,140	15,641	18,499	18%
Phenol	634	634	0	95%
Tetrachloroethene	28,342	18,473	9,869	33%

Table E-1 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	44,474	34,529	9,944	33%
trans-1,2-Dichloroethene	2,250	2,250	0	33%
Trichloroethene	1,990	1,177	813	33%
Total Priority Organics	**392,545**	**259,950**	**132,595**	**---**
Nonconventional Organics				
2-Butanone	30,404	28,756	1,649	18%
2-Methylnaphthalene	8,223	2,179	6,044	28%
2-Propanone	20,956	12,894	8,062	85%
4-Methyl-2-pentanone	13,076	13,076	0	18%
∝-Terpineol	9,566	6,362	3,204	18%
Benzoic Acid	13,079	13,079	0	81%
Benzyl Alcohol	48,148	35,240	12,908	33%
Hexanoic Acid	5,412	5,408	4	33%
m-Xylene	11,867	9,820	2,047	33%
n-Decane	451,359	232,959	218,400	33%
n-Docosane	999	352	647	94%
n-Dodecane	124,810	86,151	38,659	33%
n-Eicosane	98,135	8,255	89,881	33%
n-Hexacosane	965	257	708	94%
n-Hexadecane	59,075	16,292	42,784	33%
n-Octacosane	603	233	370	94%
n-Octadecane	47,990	7,980	40,010	33%
n-Tetracosane	1,376	536	840	94%

Table E-1 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	75,308	14,486	60,821	33%
n-Triacontane	905	447	458	94%
o-&*p*-Xylene	7,444	6,582	861	33%
p-Cresol	0	0	0	72%
p-Cymene	525	149	376	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**1,030,225**	**501,493**	**528,732**	**---**
Priority Metals and Elements				
Antimony	7,758	4,932	2,826	72%
Arsenic	7,838	7,830	8	40%
Beryllium	15	14	1	61%
Cadmium	481	277	204	91%
Chromium	1,377	844	534	91%
Copper	21,276	11,671	9,604	84%
Lead	5,874	2,183	3,691	92%
Mercury	122	108	15	33%
Nickel	7,338	5,129	2,208	52%
Selenium	266	163	103	34%
Silver	907	686	221	80%
Thallium	0	0	0	28%
Zinc	45,862	15,680	30,182	77%
Total Priority Metals and Elements	**99,114**	**49,517**	**49,597**	**---**

Table E-1 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	87,795	58,955	28,840	88%
Barium	46,815	32,596	14,219	35%
Boron	30,043	28,407	1,636	14%
Cobalt	4,742	2,697	2,046	4%
Iron	216,813	90,380	126,433	83%
Manganese	14,908	7,565	7,343	41%
Molybdenum	4,580	4,554	26	52%
Tin	2,049	908	1,140	65%
Titanium	5,492	3,613	1,879	69%
Vanadium	1,183	1,057	126	42%
Yttrium	329	324	5	58%
Total Nonconventional Metals and Elements	**414,749**	**231,056**	**183,693**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	46,755,318	35,617,305	11,138,013	82%
Total Organic Carbon (TOC)	22,718,738	20,936,851	1,781,887	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,408,559	618,088	2,790,471	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]The entire industrial laundries industry is estimated to consist of 1,742 facilities.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-2

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Entire Industry[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	10,004,982	9,534,919	470,062	91%
Oil and Grease (measured as HEM)	5,007,547	2,084,632	2,922,915	87%
Total Suspended Solids (TSS)	5,627,828	2,689,166	2,938,663	91%
Priority Organics				
1,1,1-Trichloroethane	33,709	1,807	31,902	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,718	3,465	253	63%
Bis(2-ethylhexyl) Phthalate	57,572	34,075	23,497	60%
Butyl Benzyl Phthalate	5,553	3,622	1,931	86%
Chlorobenzene	1,890	1,228	662	24%
Chloroform	97,422	97,418	4	24%
Di-*n*-butyl Phthalate	4,109	3,016	1,092	75%
Di-*n*-octyl Phthalate	9,134	6,490	2,644	33%
Ethylbenzene	25,491	3,846	21,645	33%
Isophorone	18,156	18,156	0	62%
Methylene Chloride	23,961	22,594	1,367	18%
Naphthalene	34,140	16,766	17,374	18%
Phenol	634	634	0	95%
Tetrachloroethene	28,342	13,743	14,599	33%

Table E-2 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	44,474	30,928	13,545	33%
trans-1,2-Dichloroethene	2,250	2,250	0	33%
Trichloroethene	1,990	1,990	0	33%
Total Priority Organics	**392,545**	**262,030**	**130,515**	**---**
Nonconventional Organics				
2-Butanone	30,404	30,404	0	18%
2-Methylnaphthalene	8,223	7,058	1,165	28%
2-Propanone	20,956	20,892	64	85%
4-Methyl-2-pentanone	13,076	12,945	131	18%
∝-Terpineol	9,566	9,547	19	18%
Benzoic Acid	13,079	12,923	156	81%
Benzyl Alcohol	48,148	48,148	0	33%
Hexanoic Acid	5,412	5,412	0	33%
m-Xylene	11,867	11,063	804	33%
n-Decane	451,359	252,676	198,683	33%
n-Docosane	999	409	590	94%
n-Dodecane	124,810	35,065	89,745	33%
n-Eicosane	98,135	10,003	88,133	33%
n-Hexacosane	965	288	677	94%
n-Hexadecane	59,075	18,569	40,506	33%
n-Octacosane	603	203	400	94%
n-Octadecane	47,990	10,084	37,906	33%
n-Tetracosane	1,376	582	794	94%

Table E-2 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	75,308	16,392	58,916	33%
n-Triacontane	905	439	466	94%
o-&*p*-Xylene	7,444	7,235	209	33%
p-Cresol	0	0	0	72%
p-Cymene	525	195	330	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**1,030,225**	**510,533**	**519,692**	**---**
Priority Metals and Elements				
Antimony	7,758	5,471	2,287	72%
Arsenic	7,838	7,838	0	40%
Beryllium	15	15	0	61%
Cadmium	481	325	156	91%
Chromium	1,377	1,007	370	91%
Copper	21,276	14,383	6,892	84%
Lead	5,874	2,686	3,188	92%
Mercury	122	104	18	33%
Nickel	7,338	5,166	2,172	52%
Selenium	266	266	0	34%
Silver	907	813	94	80%
Thallium	0	0	0	28%
Zinc	45,862	25,955	19,907	77%
Total Priority Metals and Elements	**99,114**	**64,029**	**35,086**	**---**

Table E-2 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	87,795	58,738	29,058	88%
Barium	46,815	28,005	18,811	35%
Boron	30,043	29,563	479	14%
Cobalt	4,742	3,555	1,187	4%
Iron	216,813	104,510	112,302	83%
Manganese	14,908	7,664	7,245	41%
Molybdenum	4,580	4,225	355	52%
Tin	2,049	1,727	322	65%
Titanium	5,492	2,831	2,661	69%
Vanadium	1,183	1,038	145	42%
Yttrium	329	311	18	58%
Total Nonconventional Metals and Elements	**414,749**	**242,167**	**172,582**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	46,755,318	32,559,762	14,195,556	82%
Total Organic Carbon (TOC)	22,718,738	21,128,828	1,589,911	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,408,559	694,530	2,714,029	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]The entire industrial laundries industry is estimated to consist of 1,742 facilities.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-3

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Excluding Facilities with Less than 1 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	9,915,334	9,167,360	747,974	91%
Oil and Grease (measured as HEM)	4,926,141	1,976,984	2,949,157	87%
Total Suspended Solids (TSS)	5,556,819	2,873,356	2,683,463	91%
Priority Organics				
1,1,1-Trichloroethane	33,198	18,841	14,357	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,674	1,304	2,370	63%
Bis(2-ethylhexyl) Phthalate	56,981	31,487	25,494	60%
Butyl Benzyl Phthalate	5,491	1,831	3,660	86%
Chlorobenzene	1,860	1,288	572	24%
Chloroform	96,720	96,551	168	24%
Di-*n*-butyl Phthalate	4,048	1,188	2,860	75%
Di-*n*-octyl Phthalate	9,030	6,726	2,305	33%
Ethylbenzene	24,926	8,030	16,896	33%
Isophorone	17,888	9,156	8,732	62%
Methylene Chloride	23,532	9,554	13,978	18%
Naphthalene	33,550	15,534	18,017	18%
Phenol	629	629	0	95%
Tetrachloroethene	27,683	18,350	9,333	33%

Table E-3 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	43,647	34,255	9,392	33%
trans-1,2-Dichloroethene	2,216	2,216	0	33%
Trichloroethene	1,962	1,168	794	33%
Total Priority Organics	**387,038**	**258,109**	**128,929**	**---**
Nonconventional Organics				
2-Butanone	29,922	28,330	1,592	18%
2-Methylnaphthalene	8,109	2,164	5,945	28%
2-Propanone	20,633	12,792	7,841	85%
4-Methyl-2-pentanone	12,863	12,863	0	18%
∝-Terpineol	9,433	6,319	3,114	18%
Benzoic Acid	12,946	12,946	0	81%
Benzyl Alcohol	47,557	35,019	12,537	33%
Hexanoic Acid	5,382	5,378	4	33%
m-Xylene	11,670	9,751	1,919	33%
n-Decane	444,334	231,316	213,018	33%
n-Docosane	988	350	638	94%
n-Dodecane	122,629	85,552	37,076	33%
n-Eicosane	95,866	8,197	87,668	33%
n-Hexacosane	949	255	694	94%
n-Hexadecane	58,025	16,179	41,846	33%
n-Octacosane	594	231	363	94%
n-Octadecane	47,025	7,925	39,100	33%
n-Tetracosane	1,361	532	828	94%

Table E-3 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	73,808	14,386	59,421	33%
n-Triacontane	896	444	451	94%
o-&*p*-Xylene	7,325	6,530	795	33%
p-Cresol	0	0	0	72%
p-Cymene	519	148	371	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**1,012,832**	**497,609**	**515,233**	**---**
Priority Metals and Elements				
Antimony	7,711	4,898	2,813	72%
Arsenic	7,783	7,775	8	40%
Beryllium	15	14	1	61%
Cadmium	475	275	200	91%
Chromium	1,362	838	524	91%
Copper	21,021	11,592	9,429	84%
Lead	5,783	2,169	3,615	92%
Mercury	121	107	14	33%
Nickel	7,271	5,094	2,177	52%
Selenium	264	162	102	34%
Silver	899	681	218	80%
Thallium	0	0	0	28%
Zinc	45,325	15,573	29,752	77%
Total Priority Metals and Elements	**98,031**	**49,178**	**48,852**	**---**

Table E-3 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	87,139	58,547	28,592	88%
Barium	46,263	32,369	13,894	35%
Boron	29,732	28,204	1,527	14%
Cobalt	4,684	2,679	2,005	4%
Iron	214,833	89,764	125,069	83%
Manganese	14,757	7,513	7,244	41%
Molybdenum	4,523	4,509	15	52%
Tin	2,030	902	1,128	65%
Titanium	5,455	3,588	1,867	69%
Vanadium	1,174	1,050	124	42%
Yttrium	326	322	5	58%
Total Nonconventional Metals and Elements	**410,917**	**229,447**	**181,470**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	46,198,588	35,378,302	10,820,286	82%
Total Organic Carbon (TOC)	22,515,816	20,794,885	1,720,931	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,341,399	613,888	2,727,511	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]136 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-4

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 1 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	9,915,334	9,468,820	446,514	91%
Oil and Grease (measured as HEM)	4,926,141	2,070,083	2,856,057	87%
Total Suspended Solids (TSS)	5,556,819	2,670,654	2,886,164	91%
Priority Organics				
1,1,1-Trichloroethane	33,198	1,803	31,396	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,674	3,444	230	63%
Bis(2-ethylhexyl) Phthalate	56,981	33,836	23,146	60%
Butyl Benzyl Phthalate	5,491	3,596	1,895	86%
Chlorobenzene	1,860	1,220	641	24%
Chloroform	96,720	96,716	4	24%
Di-*n*-butyl Phthalate	4,048	2,994	1,054	75%
Di-*n*-octyl Phthalate	9,030	6,445	2,585	33%
Ethylbenzene	24,926	3,822	21,104	33%
Isophorone	17,888	17,888	0	62%
Methylene Chloride	23,532	22,426	1,106	18%
Naphthalene	33,550	16,651	16,900	18%
Phenol	629	629	0	95%
Tetrachloroethene	27,683	13,660	14,023	33%

Table E-4 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	43,647	30,709	12,938	33%
trans-1,2-Dichloroethene	2,216	2,216	0	33%
Trichloroethene	1,962	1,962	0	33%
Total Priority Organics	**387,038**	**260,017**	**127,021**	**---**
Nonconventional Organics				
2-Butanone	29,922	29,922	0	18%
2-Methylnaphthalene	8,109	7,007	1,102	28%
2-Propanone	20,633	20,574	59	85%
4-Methyl-2-pentanone	12,863	12,770	93	18%
∝-Terpineol	9,433	9,415	19	18%
Benzoic Acid	12,946	12,796	150	81%
Benzyl Alcohol	47,557	47,557	0	33%
Hexanoic Acid	5,382	5,382	0	33%
m-Xylene	11,670	10,974	696	33%
n-Decane	444,334	250,890	193,444	33%
n-Docosane	988	406	582	94%
n-Dodecane	122,629	34,847	87,782	33%
n-Eicosane	95,866	9,933	85,933	33%
n-Hexacosane	949	286	664	94%
n-Hexadecane	58,025	18,440	39,585	33%
n-Octacosane	594	202	393	94%
n-Octadecane	47,025	10,014	37,011	33%
n-Tetracosane	1,361	578	783	94%

Table E-4 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	73,808	16,277	57,530	33%
n-Triacontane	896	436	460	94%
o-&*p*-Xylene	7,325	7,166	159	33%
p-Cresol	0	0	0	72%
p-Cymene	519	194	325	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**1,012,832**	**506,064**	**506,768**	**---**
Priority Metals and Elements				
Antimony	7,711	5,434	2,277	72%
Arsenic	7,783	7,783	0	40%
Beryllium	15	15	0	61%
Cadmium	475	322	153	91%
Chromium	1,362	1,001	361	91%
Copper	21,021	14,285	6,736	84%
Lead	5,783	2,668	3,115	92%
Mercury	121	103	18	33%
Nickel	7,271	5,131	2,140	52%
Selenium	264	264	0	34%
Silver	899	807	92	80%
Thallium	0	0	0	28%
Zinc	45,325	25,776	19,549	77%
Total Priority Metals and Elements	**98,031**	**63,589**	**34,442**	**---**

Table E-4 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	87,139	58,331	28,809	88%
Barium	46,263	27,811	18,453	35%
Boron	29,732	29,336	396	14%
Cobalt	4,684	3,531	1,153	4%
Iron	214,833	103,792	111,041	83%
Manganese	14,757	7,610	7,147	41%
Molybdenum	4,523	4,192	331	52%
Tin	2,030	1,716	314	65%
Titanium	5,455	2,811	2,644	69%
Vanadium	1,174	1,031	142	42%
Yttrium	326	309	18	58%
Total Nonconventional Metals and Elements	**410,917**	**240,470**	**170,447**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	46,198,588	32,339,329	13,859,259	82%
Total Organic Carbon (TOC)	22,515,816	20,984,865	1,530,952	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,341,399	689,782	2,651,618	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]136 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-5

Summary of POTW Pollutant Loadings and Removals from the Industrial Laundry Wastewater for CP-IL[1] Excluding Facilities with Less than 3 Million Pounds per Year Total Production and Less than 120,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	9,370,861	8,627,377	743,484	91%
Oil and Grease (measured as HEM)	4,585,069	1,877,385	2,707,684	87%
Total Suspended Solids (TSS)	5,069,715	2,685,202	2,384,513	91%
Priority Organics				
1,1,1-Trichloroethane	30,753	16,546	14,207	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,274	1,141	2,133	63%
Bis(2-ethylhexyl) Phthalate	53,130	30,162	22,968	60%
Butyl Benzyl Phthalate	5,223	1,756	3,467	86%
Chlorobenzene	1,774	1,202	572	24%
Chloroform	93,291	93,123	168	24%
Di-*n*-butyl Phthalate	3,776	1,127	2,649	75%
Di-*n*-octyl Phthalate	8,434	6,305	2,129	33%
Ethylbenzene	22,852	6,937	15,914	33%
Isophorone	16,533	7,996	8,536	62%
Methylene Chloride	21,561	8,392	13,169	18%
Naphthalene	31,471	14,612	16,859	18%
Phenol	594	594	0	95%
Tetrachloroethene	25,275	16,130	9,146	33%

Table E-5 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	41,322	31,963	9,358	33%
trans-1,2-Dichloroethene	2,108	2,108	0	33%
Trichloroethene	1,889	1,095	794	33%
Total Priority Organics	**363,259**	**241,190**	**122,069**	**---**
Nonconventional Organics				
2-Butanone	27,866	26,274	1,592	18%
2-Methylnaphthalene	7,342	2,023	5,320	28%
2-Propanone	19,759	11,936	7,824	85%
4-Methyl-2-pentanone	12,014	12,014	0	18%
∝-Terpineol	8,945	5,866	3,079	18%
Benzoic Acid	12,009	12,009	0	81%
Benzyl Alcohol	44,649	32,259	12,390	33%
Hexanoic Acid	4,899	4,895	4	33%
m-Xylene	10,884	8,973	1,911	33%
n-Decane	418,536	222,769	195,767	33%
n-Docosane	885	332	553	94%
n-Dodecane	111,108	75,061	36,047	33%
n-Eicosane	85,761	7,830	77,931	33%
n-Hexacosane	862	240	622	94%
n-Hexadecane	52,842	15,393	37,449	33%
n-Octacosane	533	215	319	94%
n-Octadecane	42,151	7,483	34,668	33%
n-Tetracosane	1,239	508	731	94%

Table E-5 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	66,629	13,672	52,958	33%
n-Triacontane	825	423	402	94%
o-&*p*-Xylene	6,881	6,086	795	33%
p-Cresol	0	0	0	72%
p-Cymene	499	142	357	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**937,119**	**466,402**	**470,717**	**---**
Priority Metals and Elements				
Antimony	7,025	4,652	2,373	72%
Arsenic	7,482	7,474	8	40%
Beryllium	13	13	1	61%
Cadmium	440	260	180	91%
Chromium	1,266	774	492	91%
Copper	19,404	10,834	8,570	84%
Lead	5,318	2,028	3,291	92%
Mercury	114	101	13	33%
Nickel	6,707	4,759	1,948	52%
Selenium	232	142	91	34%
Silver	850	645	205	80%
Thallium	0	0	0	28%
Zinc	41,047	14,458	26,589	77%
Total Priority Metals and Elements	**89,899**	**46,139**	**43,760**	**---**

Table E-5 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	80,313	55,182	25,131	88%
Barium	43,082	30,380	12,702	35%
Boron	27,728	26,201	1,527	14%
Cobalt	4,411	2,439	1,972	4%
Iron	194,392	84,164	110,228	83%
Manganese	13,563	7,096	6,467	41%
Molybdenum	4,310	4,296	15	52%
Tin	1,796	783	1,013	65%
Titanium	4,980	3,341	1,640	69%
Vanadium	1,096	977	119	42%
Yttrium	310	305	5	58%
Total Nonconventional Metals and Elements	**375,981**	**215,162**	**160,819**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	42,500,624	32,329,719	10,170,905	82%
Total Organic Carbon (TOC)	21,160,935	19,451,423	1,709,511	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,059,232	570,725	2,488,507	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]518 of the 1,742 total industrial laundries are excluded from compliance under this criterion. This exclusion includes the 136 facilities excluded under the 1 Million/255K exclusion shown in Table E-3.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-6

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 3 Million Pounds per Year Total Production and Less than 120,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	9,370,861	8,925,535	445,326	91%
Oil and Grease (measured as HEM)	4,585,069	1,956,843	2,628,226	87%
Total Suspended Solids (TSS)	5,069,715	2,514,180	2,555,535	91%
Priority Organics				
1,1,1-Trichloroethane	30,753	1,714	29,039	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	3,274	3,045	230	63%
Bis(2-ethylhexyl) Phthalate	53,130	32,168	20,962	60%
Butyl Benzyl Phthalate	5,223	3,340	1,883	86%
Chlorobenzene	1,774	1,135	639	24%
Chloroform	93,291	93,287	4	24%
Di-*n*-butyl Phthalate	3,776	2,735	1,041	75%
Di-*n*-octyl Phthalate	8,434	6,069	2,365	33%
Ethylbenzene	22,852	3,371	19,481	33%
Isophorone	16,533	16,533	0	62%
Methylene Chloride	21,561	20,454	1,106	18%
Naphthalene	31,471	15,569	15,902	18%
Phenol	594	593	0	95%
Tetrachloroethene	25,275	11,940	13,335	33%

Table E-6 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	41,322	28,476	12,846	33%
trans-1,2-Dichloroethene	2,108	2,108	0	33%
Trichloroethene	1,889	1,889	0	33%
Total Priority Organics	**363,259**	**244,426**	**118,833**	**---**
Nonconventional Organics				
2-Butanone	27,866	27,866	0	18%
2-Methylnaphthalene	7,342	6,252	1,091	28%
2-Propanone	19,759	19,700	59	85%
4-Methyl-2-pentanone	12,014	11,920	93	18%
∝-Terpineol	8,945	8,926	19	18%
Benzoic Acid	12,009	11,859	150	81%
Benzyl Alcohol	44,649	44,649	0	33%
Hexanoic Acid	4,899	4,899	0	33%
m-Xylene	10,884	10,188	696	33%
n-Decane	418,536	239,478	179,058	33%
n-Docosane	885	381	504	94%
n-Dodecane	111,108	32,676	78,432	33%
n-Eicosane	85,761	9,324	76,438	33%
n-Hexacosane	862	266	595	94%
n-Hexadecane	52,842	17,337	35,505	33%
n-Octacosane	533	190	344	94%
n-Octadecane	42,151	9,287	32,864	33%
n-Tetracosane	1,239	547	692	94%

Table E-6 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	66,629	15,298	51,331	33%
n-Triacontane	825	416	409	94%
o-&*p*-Xylene	6,881	6,722	159	33%
p-Cresol	0	0	0	72%
p-Cymene	499	182	318	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**937,119**	**478,361**	**458,757**	**---**
Priority Metals and Elements				
Antimony	7,025	5,114	1,911	72%
Arsenic	7,482	7,482	0	40%
Beryllium	13	13	0	61%
Cadmium	440	301	139	91%
Chromium	1,266	915	351	91%
Copper	19,404	13,151	6,253	84%
Lead	5,318	2,458	2,860	92%
Mercury	114	98	16	33%
Nickel	6,707	4,790	1,917	52%
Selenium	232	232	0	34%
Silver	850	759	91	80%
Thallium	0	0	0	28%
Zinc	41,047	23,263	17,784	77%
Total Priority Metals and Elements	**89,899**	**58,576**	**31,323**	**---**

Table E-6 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	80,313	54,999	25,314	88%
Barium	43,082	26,533	16,549	35%
Boron	27,728	27,332	396	14%
Cobalt	4,411	3,261	1,150	4%
Iron	194,392	96,236	98,156	83%
Manganese	13,563	7,179	6,384	41%
Molybdenum	4,310	3,979	331	52%
Tin	1,796	1,489	307	65%
Titanium	4,980	2,686	2,294	69%
Vanadium	1,096	962	134	42%
Yttrium	310	292	17	58%
Total Nonconventional Metals and Elements	**375,981**	**224,949**	**151,033**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	42,500,624	29,779,598	12,721,025	82%
Total Organic Carbon (TOC)	21,160,935	19,637,160	1,523,775	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	3,059,232	636,199	2,423,033	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]518 of the 1,742 total industrial laundries are excluded from compliance under this criterion. This exclusion includes the 136 facilities excluded under the 1 Million/255K exclusion shown in Table E-4.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-7

Summary of POTW Pollutant Loadings and Removals from the Industrial Laundry Wastewater for CP-IL[1] Excluding Facilities with Less than 5 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	7,870,550	7,194,216	676,334	91%
Oil and Grease (measured as HEM)	3,713,278	1,571,679	2,141,599	87%
Total Suspended Solids (TSS)	4,023,754	2,176,761	1,846,993	91%
Priority Organics				
1,1,1-Trichloroethane	25,408	12,037	13,371	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	2,549	785	1,764	63%
Bis(2-ethylhexyl) Phthalate	43,102	25,665	17,437	60%
Butyl Benzyl Phthalate	4,497	1,498	2,999	86%
Chlorobenzene	1,560	1,003	557	24%
Chloroform	80,461	80,297	165	24%
Di-*n*-butyl Phthalate	3,057	941	2,116	75%
Di-*n*-octyl Phthalate	6,912	5,141	1,771	33%
Ethylbenzene	18,055	4,612	13,443	33%
Isophorone	13,937	5,688	8,249	62%
Methylene Chloride	17,752	5,928	11,824	18%
Naphthalene	25,700	12,000	13,699	18%
Phenol	499	499	0	95%
Tetrachloroethene	20,338	11,665	8,673	33%

Table E-7 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	34,249	25,789	8,460	33%
trans-1,2-Dichloroethene	1,871	1,871	0	33%
Trichloroethene	1,704	921	783	33%
Total Priority Organics	**301,652**	**196,341**	**105,310**	**---**
Nonconventional Organics				
2-Butanone	23,537	21,945	1,592	18%
2-Methylnaphthalene	5,813	1,639	4,174	28%
2-Propanone	16,989	9,694	7,295	85%
4-Methyl-2-pentanone	10,120	10,120	0	18%
∝-Terpineol	7,670	4,715	2,955	18%
Benzoic Acid	9,960	9,960	0	81%
Benzyl Alcohol	38,061	25,949	12,111	33%
Hexanoic Acid	3,861	3,857	4	33%
m-Xylene	9,110	7,297	1,813	33%
n-Decane	346,475	191,400	155,075	33%
n-Docosane	676	278	398	94%
n-Dodecane	86,417	54,358	32,059	33%
n-Eicosane	66,884	6,629	60,255	33%
n-Hexacosane	670	197	473	94%
n-Hexadecane	41,648	12,927	28,721	33%
n-Octacosane	411	171	239	94%
n-Octadecane	32,751	6,193	26,558	33%
n-Tetracosane	985	429	556	94%

Table E-7 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	52,170	11,458	40,712	33%
n-Triacontane	668	355	313	94%
o-&*p*-Xylene	5,840	5,072	768	33%
p-Cresol	0	0	0	72%
p-Cymene	437	121	316	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**761,153**	**384,765**	**376,388**	**---**
Priority Metals and Elements				
Antimony	5,514	3,892	1,622	72%
Arsenic	6,422	6,415	8	40%
Beryllium	10	9	1	61%
Cadmium	360	215	145	91%
Chromium	1,026	616	411	91%
Copper	15,618	8,801	6,817	84%
Lead	4,277	1,649	2,628	92%
Mercury	95	85	10	33%
Nickel	5,424	3,864	1,560	52%
Selenium	174	99	75	34%
Silver	718	537	181	80%
Thallium	0	0	0	28%
Zinc	32,490	11,583	20,906	77%
Total Priority Metals and Elements	**72,129**	**37,765**	**34,364**	**---**

Table E-7 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	64,518	45,533	18,986	88%
Barium	35,172	24,803	10,369	35%
Boron	23,169	21,649	1,520	14%
Cobalt	3,750	1,891	1,859	4%
Iron	152,254	68,808	83,446	83%
Manganese	10,908	5,880	5,028	41%
Molybdenum	3,668	3,655	14	52%
Tin	1,363	543	819	65%
Titanium	3,919	2,688	1,230	69%
Vanadium	903	798	105	42%
Yttrium	261	257	4	58%
Total Nonconventional Metals and Elements	**299,886**	**176,506**	**123,380**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	34,126,011	25,242,072	8,883,939	82%
Total Organic Carbon (TOC)	17,604,176	16,039,154	1,565,022	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	2,430,965	458,599	1,972,367	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]953 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-8

Summary of POTW Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 5 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	7,870,550	7,462,737	407,813	91%
Oil and Grease (measured as HEM)	3,713,278	1,623,842	2,089,436	87%
Total Suspended Solids (TSS)	4,023,754	2,069,124	1,954,630	91%
Priority Organics				
1,1,1-Trichloroethane	25,408	1,307	24,101	24%
1,2-Diphenylhydrazine	0	0	0	62%
4-Chloro-3-methylphenol	2,549	2,327	221	63%
Bis(2-ethylhexyl) Phthalate	43,102	26,988	16,114	60%
Butyl Benzyl Phthalate	4,497	2,739	1,758	86%
Chlorobenzene	1,560	939	621	24%
Chloroform	80,461	80,457	4	24%
Di-*n*-butyl Phthalate	3,057	2,163	893	75%
Di-*n*-octyl Phthalate	6,912	4,992	1,920	33%
Ethylbenzene	18,055	2,367	15,688	33%
Isophorone	13,937	13,937	0	62%
Methylene Chloride	17,752	16,695	1,058	18%
Naphthalene	25,700	12,639	13,061	18%
Phenol	499	499	0	95%
Tetrachloroethene	20,338	8,320	12,018	33%

Table E-8 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Priority Organics (Continued)				
Toluene	34,249	22,770	11,479	33%
trans-1,2-Dichloroethene	1,871	1,871	0	33%
Trichloroethene	1,704	1,704	0	33%
Total Priority Organics	**301,652**	**202,715**	**98,937**	**---**
Nonconventional Organics				
2-Butanone	23,537	23,537	0	18%
2-Methylnaphthalene	5,813	4,839	975	28%
2-Propanone	16,989	16,930	59	85%
4-Methyl-2-pentanone	10,120	10,026	93	18%
∝-Terpineol	7,670	7,651	19	18%
Benzoic Acid	9,960	9,810	150	81%
Benzyl Alcohol	38,061	38,061	0	33%
Hexanoic Acid	3,861	3,861	0	33%
m-Xylene	9,110	8,440	669	33%
n-Decane	346,475	202,368	144,107	33%
n-Docosane	676	310	366	94%
n-Dodecane	86,417	26,268	60,149	33%
n-Eicosane	66,884	7,628	59,256	33%
n-Hexacosane	670	215	455	94%
n-Hexadecane	41,648	14,221	27,427	33%
n-Octacosane	411	156	255	94%
n-Octadecane	32,751	7,412	25,339	33%
n-Tetracosane	985	454	530	94%

Table E-8 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Organics (Continued)				
n-Tetradecane	52,170	12,540	39,630	33%
n-Triacontane	668	351	317	94%
o-&*p*-Xylene	5,840	5,681	158	33%
p-Cresol	0	0	0	72%
p-Cymene	437	148	289	99%
Pentamethylbenzene	0	0	0	91%
Total Nonconventional Organics	**761,153**	**400,907**	**360,245**	**---**
Priority Metals and Elements				
Antimony	5,514	4,201	1,314	72%
Arsenic	6,422	6,422	0	40%
Beryllium	10	10	0	61%
Cadmium	360	243	117	91%
Chromium	1,026	717	309	91%
Copper	15,618	10,410	5,207	84%
Lead	4,277	1,943	2,334	92%
Mercury	95	83	12	33%
Nickel	5,424	3,885	1,539	52%
Selenium	174	174	0	34%
Silver	718	631	88	80%
Thallium	0	0	0	28%
Zinc	32,490	17,676	14,813	77%
Total Priority Metals and Elements	**72,129**	**46,395**	**25,734**	**---**

Table E-8 (Continued)

Pollutant of Concern	POTW Baseline Wastewater Pollutant Loading (lbs/yr)[3]	POTW Postcompliance Wastewater Pollutant Loading (lbs/yr)[4]	Total Pollutant Removal from POTW Effluents (lbs/yr)	POTW Pollutant Removal Efficiency
Nonconventional Metals and Elements				
Aluminum	64,518	45,418	19,100	88%
Barium	35,172	22,383	12,789	35%
Boron	23,169	22,773	396	14%
Cobalt	3,750	2,642	1,109	4%
Iron	152,254	76,959	75,295	83%
Manganese	10,908	5,934	4,975	41%
Molybdenum	3,668	3,362	307	52%
Tin	1,363	1,081	282	65%
Titanium	3,919	2,272	1,647	69%
Vanadium	903	786	117	42%
Yttrium	261	245	16	58%
Total Nonconventional Metals and Elements	**299,886**	**183,854**	**116,032**	**---**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	34,126,011	23,506,336	10,619,675	82%
Total Organic Carbon (TOC)	17,604,176	16,208,778	1,395,398	71%
Total Petroleum Hydrocarbon (measured as SGT-HEM)[5]	2,430,965	503,145	1,927,820	74%

[1]Numbers in this table were calculated using more significant figures than shown.
[2]953 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]POTW baseline wastewater pollutant loading = industry baseline wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[4]POTW postcompliance wastewater pollutant loading = industry postcompliance wastewater pollutant loading × (1-POTW pollutant removal efficiency).
[5]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-9

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Entire Industry[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	123,053,210	111,166,461	102,558,482	8,607,980
Oil and Grease (measured as HEM)	64,091,381	38,519,591	15,314,139	23,205,452
Total Suspended Solids (TSS)	80,188,009	62,531,426	32,147,990	30,383,436
Priority Organics				
1,1,1-Trichloroethane	59,729	44,354	24,961	19,393
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	11,265	10,048	3,544	6,504
Bis(2-ethylhexyl) Phthalate	198,773	143,930	79,273	64,656
Butyl Benzyl Phthalate	49,117	39,666	13,169	26,497
Chlorobenzene	3,052	2,487	1,708	779
Chloroform	132,500	128,187	127,943	244
Di-*n*-butyl Phthalate	27,638	16,435	4,787	11,648
Di-*n*-octyl Phthalate	17,710	13,633	10,108	3,524
Ethylbenzene	73,755	38,046	12,064	25,982
Isophorone	48,514	47,778	24,228	23,550
Methylene Chloride	36,366	29,221	11,728	17,493
Naphthalene	73,252	41,634	19,075	22,560
Phenol	12,692	12,686	12,686	1
Tetrachloroethene	66,769	42,301	27,571	14,730

Table E-9 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	124,476	66,379	51,536	14,842
trans-1,2-Dichloroethene	3,358	3,358	3,358	0
Trichloroethene	3,033	2,971	1,757	1,214
Total Priority Organics	**941,999**	**683,114**	**429,496**	**253,618**
Nonconventional Organics				
2-Butanone	42,700	37,079	35,068	2,011
2-Methylnaphthalene	14,664	11,420	3,026	8,394
2-Propanone	207,940	139,704	85,958	53,746
4-Methyl-2-pentanone	20,081	15,946	15,946	0
∝-Terpineol	13,811	11,666	7,759	3,907
Benzoic Acid	71,411	68,837	68,837	0
Benzyl Alcohol	73,140	71,863	52,597	19,265
Hexanoic Acid	8,081	8,077	8,072	5
m-Xylene	23,707	17,712	14,657	3,056
n-Decane	1,046,234	673,669	347,700	325,970
n-Docosane	21,935	16,653	5,872	10,780
n-Dodecane	290,183	186,284	128,584	57,700
n-Eicosane	230,589	146,471	12,320	134,150
n-Hexacosane	26,371	16,085	4,279	11,806
n-Hexadecane	142,838	88,172	24,316	63,856
n-Octacosane	13,905	10,047	3,877	6,170
n-Octadecane	109,286	71,627	11,910	59,717
n-Tetracosane	28,108	22,929	8,936	13,993

Table E-9 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	177,656	112,400	21,622	90,778
n-Triacontane	18,215	15,088	7,456	7,632
o-&*p*-Xylene	14,556	11,110	9,824	1,286
p-Cresol	0	0	0	0
p-Cymene	71,555	52,508	14,907	37,601
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,666,967**	**1,805,347**	**893,523**	**911,824**
Priority Metals and Elements				
Antimony	30,491	27,706	17,615	10,091
Arsenic	13,446	13,064	13,050	14
Beryllium	39	39	37	2
Cadmium	6,322	5,345	3,077	2,268
Chromium	21,638	15,303	9,375	5,928
Copper	180,093	132,972	72,944	60,028
Lead	108,384	73,428	27,292	46,137
Mercury	196	182	161	22
Nickel	17,258	15,287	10,686	4,601
Selenium	408	403	247	156
Silver	4,958	4,535	3,428	1,107
Thallium	0	0	0	0
Zinc	240,534	199,400	68,172	131,228
Total Priority Metals and Elements	**623,768**	**487,665**	**226,084**	**261,581**

Table E-9 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	819,659	731,628	491,296	240,332
Barium	94,028	72,023	50,147	21,876
Boron	36,131	34,933	33,031	1,902
Cobalt	5,856	4,940	2,809	2,131
Iron	1,495,967	1,275,369	531,645	743,724
Manganese	30,505	25,269	12,823	12,446
Molybdenum	13,070	9,542	9,488	54
Tin	6,712	5,854	2,595	3,259
Titanium	20,259	17,716	11,656	6,061
Vanadium	2,169	2,040	1,822	218
Yttrium	814	783	771	11
Total Nonconventional Metals and Elements	**2,525,169**	**2,180,096**	**1,148,083**	**1,032,013**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	333,560,152	259,751,769	197,873,919	61,877,850
Total Organic Carbon (TOC)	87,454,482	78,340,477	72,196,038	6,144,439
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	22,888,698	13,109,842	2,377,260	10,732,581

[1]Numbers in this table were calculated using more significant figures than shown.
[2]The entire industrial laundries industry is estimated to consist of 1,742 facilities.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-10

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Entire Industry[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	123,053,210	111,166,461	105,943,546	5,222,915
Oil and Grease (measured as HEM)	64,091,381	38,519,591	16,035,628	22,483,963
Total Suspended Solids (TSS)	80,188,009	62,531,426	29,879,620	32,651,807
Priority Organics				
1,1,1-Trichloroethane	59,729	44,354	2,377	41,976
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	11,265	10,048	9,364	684
Bis(2-ethylhexyl) Phthalate	198,773	143,930	85,188	58,741
Butyl Benzyl Phthalate	49,117	39,666	25,872	13,795
Chlorobenzene	3,052	2,487	1,616	871
Chloroform	132,500	128,187	128,182	5
Di-*n*-butyl Phthalate	27,638	16,435	12,065	4,370
Di-*n*-octyl Phthalate	17,710	13,633	9,687	3,946
Ethylbenzene	73,755	38,046	5,741	32,305
Isophorone	48,514	47,778	47,778	0
Methylene Chloride	36,366	29,221	27,554	1,667
Naphthalene	73,252	41,634	20,447	21,188
Phenol	12,692	12,686	12,679	7
Tetrachloroethene	66,769	42,301	20,512	21,790

Table E-10 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	124,476	66,379	46,162	20,217
trans-1,2-Dichloroethene	3,358	3,358	3,358	0
Trichloroethene	3,033	2,971	2,971	0
Total Priority Organics	**950,999**	**683,114**	**461,552**	**221,562**
Nonconventional Organics				
2-Butanone	42,700	37,079	37,078	0
2-Methylnaphthalene	14,664	11,420	9,803	1,618
2-Propanone	207,940	139,704	139,280	424
4-Methyl-2-pentanone	20,081	15,946	15,786	159
∝-Terpineol	13,811	11,666	11,643	23
Benzoic Acid	71,411	68,837	68,014	823
Benzyl Alcohol	73,140	71,863	71,862	0
Hexanoic Acid	8,081	8,077	8,077	0
m-Xylene	23,707	17,712	16,512	1,200
n-Decane	1,046,234	673,669	377,128	296,541
n-Docosane	21,935	16,653	6,818	9,834
n-Dodecane	290,183	186,284	52,336	133,947
n-Eicosane	230,589	146,471	14,929	131,541
n-Hexacosane	26,371	16,085	4,796	11,289
n-Hexadecane	142,838	88,172	27,715	60,457
n-Octacosane	13,905	10,047	3,383	6,664
n-Octadecane	109,286	71,627	15,051	56,576
n-Tetracosane	28,108	22,929	9,701	13,228

Table E-10 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	177,656	112,400	24,465	87,934
n-Triacontane	18,215	15,088	7,317	7,771
o-&*p*-Xylene	14,556	11,110	10,799	311
p-Cresol	0	0	0	0
p-Cymene	71,555	52,508	19,495	33,013
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,666,967**	**1,805,347**	**951,992**	**853,355**
Priority Metals and Elements				
Antimony	30,491	27,706	19,540	8,167
Arsenic	13,446	13,064	13,063	0
Beryllium	39	39	39	0
Cadmium	6,322	5,345	3,607	1,737
Chromium	21,638	15,303	11,193	4,110
Copper	180,093	132,972	89,894	43,078
Lead	108,384	73,428	33,574	39,854
Mercury	196	182	155	28
Nickel	17,258	15,287	10,763	4,524
Selenium	408	403	403	0
Silver	4,958	4,535	4,063	472
Thallium	0	0	0	0
Zinc	240,534	199,400	112,848	86,553
Total Priority Metals and Elements	**623,768**	**487,665**	**299,142**	**188,523**

Table E-10 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	819,659	731,628	489,482	242,147
Barium	94,028	72,023	43,084	28,939
Boron	36,131	34,933	34,376	557
Cobalt	5,856	4,940	3,704	1,237
Iron	1,495,967	1,275,369	614,767	660,602
Manganese	30,505	25,269	12,989	12,280
Molybdenum	13,070	9,542	8,803	740
Tin	6,712	5,854	4,934	920
Titanium	20,259	17,716	9,132	8,584
Vanadium	2,169	2,040	1,790	249
Yttrium	814	783	740	42
Total Nonconventional Metals and Elements	**2,525,169**	**2,180,096**	**1,223,799**	**956,297**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	333,560,152	259,751,769	180,887,567	78,864,203
Total Organic Carbon (TOC)	87,454,482	78,340,477	72,858,026	5,482,451
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	22,888,698	13,109,842	2,671,268	10,438,574

[1]Numbers in this table were calculated using more significant figures than shown.
[2]The entire industrial laundries industry is estimated to consist of 1,742 facilities.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-11

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Excluding Facilities with Less than 1 Million Pounds per Year Total Production and Less Than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	122,032,841	110,170,372	101,859,551	8,310,821
Oil and Grease (measured as HEM)	63,393,214	37,893,390	15,207,566	22,685,824
Total Suspended Solids (TSS)	79,368,559	61,742,432	31,926,179	29,816,253
Priority Organics				
1,1,1-Trichloroethane	58,992	43,682	24,791	18,890
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	11,146	9,930	3,523	6,406
Bis(2-ethylhexyl) Phthalate	197,147	142,454	78,718	63,736
Butyl Benzyl Phthalate	48,625	39,223	13,078	26,146
Chlorobenzene	3,010	2,448	1,695	753
Chloroform	131,575	127,263	127,041	221
Di-*n*-butyl Phthalate	27,364	16,193	4,754	11,440
Di-*n*-octyl Phthalate	17,546	13,478	10,038	3,440
Ethylbenzene	72,813	37,203	11,985	25,217
Isophorone	47,811	47,075	24,095	22,979
Methylene Chloride	35,843	28,698	11,651	17,047
Naphthalene	72,442	40,915	18,944	21,972
Phenol	12,594	12,588	12,588	1
Tetrachloroethene	65,740	41,317	27,387	13,930

Table E-11 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	123,062	65,145	51,127	14,018
trans-1,2-Dichloroethene	3,308	3,308	3,308	0
Trichloroethene	2,991	2,929	1,743	1,186
Total Priority Organics	**932,009**	**673,848**	**426,467**	**247,381**
Nonconventional Organics				
2-Butanone	42,112	36,490	34,548	1,942
2-Methylnaphthalene	14,503	11,262	3,006	8,257
2-Propanone	205,792	137,556	85,282	52,274
4-Methyl-2-pentanone	19,822	15,687	15,687	0
∝-Terpineol	13,649	11,504	7,707	3,798
Benzoic Acid	70,709	68,136	68,136	0
Benzyl Alcohol	72,258	70,980	52,268	18,712
Hexanoic Acid	8,037	8,033	8,027	5
m-Xylene	23,401	17,418	14,553	2,865
n-Decane	1,034,766	663,185	345,248	317,937
n-Docosane	21,738	16,466	5,832	10,635
n-Dodecane	286,670	183,028	127,690	55,338
n-Eicosane	227,062	143,083	12,235	130,848
n-Hexacosane	26,081	15,821	4,250	11,572
n-Hexadecane	141,149	86,604	24,147	62,457
n-Octacosane	13,754	9,903	3,850	6,053
n-Octadecane	107,779	70,187	11,828	58,359
n-Tetracosane	27,843	22,677	8,874	13,803

Table E-11 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	175,284	110,160	21,472	88,689
n-Triacontane	18,046	14,928	7,403	7,524
o-&*p*-Xylene	14,372	10,933	9,746	1,186
p-Cresol	0	0	0	0
p-Cymene	70,799	51,855	14,803	37,052
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,635,625**	**1,775,897**	**886,592**	**889,305**
Priority Metals and Elements				
Antimony	30,321	27,540	17,494	10,046
Arsenic	13,354	12,972	12,958	14
Beryllium	39	39	37	2
Cadmium	6,258	5,281	3,056	2,226
Chromium	21,450	15,133	9,312	5,821
Copper	178,395	131,381	72,449	58,932
Lead	107,160	72,288	27,106	45,182
Mercury	195	181	160	21
Nickel	17,116	15,148	10,613	4,535
Selenium	406	400	246	154
Silver	4,915	4,494	3,405	1,089
Thallium	0	0	0	0
Zinc	238,137	197,065	67,710	129,355
Total Priority Metals and Elements	**617,745**	**481,921**	**224,544**	**257,377**

Table E-11 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	814,053	726,162	487,891	238,270
Barium	93,127	71,175	49,799	21,376
Boron	35,769	34,572	32,796	1,776
Cobalt	5,791	4,879	2,791	2,089
Iron	1,483,962	1,263,722	528,021	735,701
Manganese	30,237	25,012	12,734	12,279
Molybdenum	12,939	9,423	9,393	30
Tin	6,658	5,799	2,578	3,221
Titanium	20,135	17,597	11,575	6,022
Vanadium	2,153	2,024	1,810	214
Yttrium	808	777	766	11
Total Nonconventional Metals and Elements	**2,505,633**	**2,161,142**	**1,140,153**	**1,020,989**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	330,306,526	256,658,823	196,546,125	60,112,698
Total Organic Carbon (TOC)	86,738,604	77,640,746	71,706,500	5,934,246
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	22,604,163	12,851,536	2,361,108	10,490,428

[1]Numbers in this table were calculated using more significant figures than shown.
[2]136 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-12

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 1 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	122,032,841	110,170,372	105,209,109	4,961,263
Oil and Grease (measured as HEM)	63,393,214	37,893,390	15,923,719	21,969,671
Total Suspended Solids (TSS)	79,368,559	61,742,432	29,673,939	32,068,493
Priority Organics				
1,1,1-Trichloroethane	58,992	43,682	2,372	41,310
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	11,146	9,930	9,309	621
Bis(2-ethylhexyl) Phthalate	197,147	142,454	84,589	57,865
Butyl Benzyl Phthalate	48,625	39,223	25,686	13,537
Chlorobenzene	3,010	2,448	1,605	843
Chloroform	131,575	127,263	127,257	5
Di-*n*-butyl Phthalate	27,364	16,193	11,978	4,216
Di-*n*-octyl Phthalate	17,546	13,478	9,620	3,858
Ethylbenzene	72,813	37,203	5,705	31,498
Isophorone	47,811	47,075	47,075	0
Methylene Chloride	35,843	28,698	27,348	1,349
Naphthalene	72,442	40,915	20,306	20,609
Phenol	12,594	12,588	12,581	7
Tetrachloroethene	65,740	41,317	20,388	20,929

Table E-12 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	123,062	65,145	45,834	19,311
trans-1,2-Dichloroethene	3,308	3,308	3,308	0
Trichloroethene	2,991	2,929	2,929	0
Total Priority Organics	**932,009**	**673,848**	**457,889**	**215,959**
Nonconventional Organics				
2-Butanone	42,112	36,490	36,490	0
2-Methylnaphthalene	14,503	11,262	9,731	1,531
2-Propanone	205,792	137,556	137,160	396
4-Methyl-2-pentanone	19,822	15,687	15,573	114
∝-Terpineol	13,649	11,504	11,482	23
Benzoic Acid	70,709	68,136	67,346	790
Benzyl Alcohol	72,258	70,980	70,980	0
Hexanoic Acid	8,037	8,033	8,033	0
m-Xylene	23,401	17,418	16,380	1,038
n-Decane	1,034,766	663,185	374,463	288,722
n-Docosane	21,738	16,466	6,771	9,696
n-Dodecane	286,670	183,028	52,010	131,018
n-Eicosane	227,062	143,083	14,825	128,258
n-Hexacosane	26,081	15,821	4,763	11,058
n-Hexadecane	141,149	86,604	27,522	59,082
n-Octacosane	13,754	9,903	3,360	6,544
n-Octadecane	107,779	70,187	14,946	55,240
n-Tetracosane	27,843	22,677	9,633	13,044

Table E-12 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	175,284	110,160	24,295	85,866
n-Triacontane	18,046	14,928	7,266	7,662
o-&*p*-Xylene	14,372	10,933	10,696	237
p-Cresol	0	0	0	0
p-Cymene	70,799	51,855	19,359	32,496
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,635,625**	**1,775,897**	**943,083**	**832,814**
Priority Metals and Elements				
Antimony	30,321	27,540	19,407	8,132
Arsenic	13,354	12,972	12,972	0
Beryllium	39	39	39	0
Cadmium	6,258	5,281	3,583	1,699
Chromium	21,450	15,133	11,119	4,014
Copper	178,395	131,381	89,281	42,100
Lead	107,160	72,288	33,345	38,943
Mercury	195	181	154	27
Nickel	17,116	15,148	10,689	4,459
Selenium	406	400	400	0
Silver	4,915	4,494	4,035	459
Thallium	0	0	0	0
Zinc	238,137	197,065	112,070	84,995
Total Priority Metals and Elements	**617,745**	**481,921**	**297,093**	**184,828**

Table E-12 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	814,053	726,162	486,090	240,072
Barium	93,127	71,175	42,786	28,389
Boron	35,769	34,572	34,111	460
Cobalt	5,791	4,879	3,678	1,201
Iron	1,483,962	1,263,722	610,539	653,182
Manganese	30,237	25,012	12,899	12,114
Molybdenum	12,939	9,423	8,734	690
Tin	6,658	5,799	4,903	897
Titanium	20,135	17,597	9,069	8,528
Vanadium	2,153	2,024	1,778	245
Yttrium	808	777	735	42
Total Nonconventional Metals and Elements	**2,505,633**	**2,161,142**	**1,215,322**	**945,820**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	330,306,526	256,658,823	179,662,938	76,995,885
Total Organic Carbon (TOC)	86,738,604	77,640,746	72,361,602	5,279,144
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	22,604,163	12,851,536	2,653,006	10,198,530

[1]Numbers in this table were calculated using more significant figures than shown.
[2]136 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-13

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Excluding Facilities with Less than 3 Million Pounds per Year Total Production and Less than 120,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	115,964,420	104,120,680	95,859,747	8,260,933
Oil and Grease (measured as HEM)	60,754,967	35,269,760	14,441,421	20,828,339
Total Suspended Solids (TSS)	73,909,767	56,330,170	29,835,581	26,494,589
Priority Organics				
1,1,1-Trichloroethane	55,767	40,464	21,771	18,694
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	10,066	8,850	3,084	5,766
Bis(2-ethylhexyl) Phthalate	187,452	132,825	75,404	57,420
Butyl Benzyl Phthalate	46,704	37,307	12,546	24,761
Chlorobenzene	2,897	2,334	1,582	753
Chloroform	127,024	122,751	122,530	221
Di-*n*-butyl Phthalate	26,257	15,102	4,507	10,595
Di-*n*-octyl Phthalate	16,650	12,588	9,410	3,178
Ethylbenzene	69,708	34,107	10,354	23,753
Isophorone	44,243	43,507	21,043	22,464
Methylene Chloride	33,436	26,294	10,235	16,059
Naphthalene	69,883	38,379	17,820	20,559
Phenol	11,878	11,872	11,871	1
Tetrachloroethene	62,141	37,725	24,074	13,650

Table E-13 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	119,592	61,674	47,706	13,968
trans-1,2-Dichloroethene	3,146	3,146	3,146	0
Trichloroethene	2,882	2,820	1,634	1,186
Total Priority Organics	**889,726**	**631,744**	**398,718**	**233,026**
Nonconventional Organics				
2-Butanone	39,572	33,983	32,042	1,942
2-Methylnaphthalene	13,425	10,198	2,809	7,389
2-Propanone	199,924	131,729	79,572	52,157
4-Methyl-2-pentanone	18,786	14,651	14,651	0
∝-Terpineol	13,053	10,908	7,153	3,755
Benzoic Acid	65,777	63,203	63,203	0
Benzyl Alcohol	67,918	66,640	48,148	18,492
Hexanoic Acid	7,312	7,312	7,306	5
m-Xylene	22,228	16,244	13,392	2,853
n-Decane	995,988	624,681	332,492	292,189
n-Docosane	20,009	14,748	5,537	9,212
n-Dodecane	269,195	165,833	112,032	53,801
n-Eicosane	211,886	128,002	11,687	116,315
n-Hexacosane	24,606	14,359	3,996	10,363
n-Hexadecane	133,345	78,869	22,975	55,894
n-Octacosane	12,727	8,887	3,577	5,311
n-Octadecane	100,441	62,912	11,169	51,743
n-Tetracosane	25,812	20,654	8,464	12,190

Table E-13 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	164,472	99,447	20,406	79,041
n-Triacontane	16,864	13,750	7,045	6,705
o-&*p*-Xylene	13,709	10,270	9,084	1,186
p-Cresol	0	0	0	0
p-Cymene	68,867	49,931	14,211	35,720
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,505,916**	**1,647,212**	**830,949**	**816,263**
Priority Metals and Elements				
Antimony	27,861	25,088	16,613	8,475
Arsenic	12,849	12,470	12,457	14
Beryllium	34	34	32	2
Cadmium	5,861	4,886	2,886	2,000
Chromium	20,386	14,070	8,606	5,464
Copper	168,218	121,275	67,715	53,560
Lead	101,327	66,481	25,349	41,131
Mercury	184	170	151	19
Nickel	15,939	13,973	9,914	4,059
Selenium	357	352	215	137
Silver	4,671	4,250	3,224	1,026
Thallium	0	0	0	0
Zinc	219,505	178,466	62,860	115,606
Total Priority Metals and Elements	**577,192**	**441,515**	**210,022**	**231,493**

Table E-13 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	756,848	669,275	459,847	209,428
Barium	88,202	66,280	46,738	19,542
Boron	33,439	32,242	30,466	1,776
Cobalt	5,506	4,594	2,540	2,054
Iron	1,363,427	1,143,483	495,084	648,399
Manganese	28,206	22,988	12,027	10,961
Molybdenum	12,496	8,980	8,949	30
Tin	5,990	5,133	2,238	2,895
Titanium	18,595	16,066	10,776	5,290
Vanadium	2,018	1,890	1,684	205
Yttrium	768	737	726	11
Total Nonconventional Metals and Elements	**2,315,497**	**1,971,667**	**1,071,075**	**900,592**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	309,627,671	236,114,575	179,609,548	56,505,027
Total Organic Carbon (TOC)	82,060,078	72,968,740	67,073,873	5,894,867
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	21,514,802	11,766,277	2,195,097	9,571,180

[1]Numbers in this table were calculated using more significant figures than shown.
[2]518 of the 1,742 total industrial laundries are excluded from compliance under this criterion. This exclusion includes the 136 facilities excluded under the 1 Million/255K exclusion shown in Table E-11.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-14

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 3 Million Pounds per Year Total Production and Less than 120,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	115,964,420	104,120,680	99,172,611	4,948,069
Oil and Grease (measured as HEM)	60,754,967	35,269,760	15,052,637	20,217,122
Total Suspended Solids (TSS)	73,909,767	56,330,170	27,935,334	28,394,836
Priority Organics				
1,1,1-Trichloroethane	55,767	40,464	2,255	38,210
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	10,066	8,867	8,229	621
Bis(2-ethylhexyl) Phthalate	187,452	132,825	80,421	52,404
Butyl Benzyl Phthalate	46,704	37,307	23,856	13,451
Chlorobenzene	2,897	2,334	1,493	841
Chloroform	127,024	122,751	122,746	5
Di-*n*-butyl Phthalate	26,257	15,102	10,939	4,163
Di-*n*-octyl Phthalate	16,650	12,588	9,058	3,530
Ethylbenzene	69,708	34,107	5,031	29,076
Isophorone	44,243	43,507	43,507	0
Methylene Chloride	33,436	26,294	24,944	1,349
Naphthalene	69,883	38,379	18,987	19,392
Phenol	11,878	11,872	11,865	7
Tetrachloroethene	62,141	37,725	17,821	19,904

Table E-14 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	119,592	61,674	42,501	19,173
trans-1,2-Dichloroethene	3,146	3,146	3,146	0
Trichloroethene	2,882	2,820	2,820	0
Total Priority Organics	**889,726**	**631,744**	**429,619**	**202,126**
Nonconventional Organics				
2-Butanone	39,572	33,983	33,983	0
2-Methylnaphthalene	13,425	10,198	8,683	1,515
2-Propanone	199,924	131,729	131,334	396
4-Methyl-2-pentanone	18,786	14,651	14,537	114
∝-Terpineol	13,053	10,908	10,885	23
Benzoic Acid	65,777	63,203	62,413	790
Benzyl Alcohol	67,918	66,640	66,640	0
Hexanoic Acid	7,312	7,312	7,312	0
m-Xylene	22,228	16,244	15,206	1,038
n-Decane	995,988	624,681	357,429	267,251
n-Docosane	20,009	14,748	6,345	8,403
n-Dodecane	269,195	165,833	48,770	117,063
n-Eicosane	211,886	128,002	13,916	114,086
n-Hexacosane	24,606	14,359	4,438	9,921
n-Hexadecane	133,345	78,869	25,876	52,992
n-Octacosane	12,727	8,887	3,162	5,726
n-Octadecane	100,441	62,912	13,862	49,051
n-Tetracosane	25,812	20,654	9,114	11,540

Table E-14 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	164,472	99,447	22,833	76,614
n-Triacontane	16,864	13,750	6,929	6,821
o-&*p*-Xylene	13,709	10,270	10,033	237
p-Cresol	0	0	0	0
p-Cymene	68,867	49,931	18,155	31,776
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,505,916**	**1,647,212**	**891,855**	**755,357**
Priority Metals and Elements				
Antimony	27,861	25,088	18,264	6,824
Arsenic	12,849	12,470	12,470	0
Beryllium	34	34	34	0
Cadmium	5,861	4,886	3,342	1,544
Chromium	20,386	14,070	10,171	3,898
Copper	168,218	121,275	82,192	39,082
Lead	101,327	66,481	30,729	35,752
Mercury	184	170	146	24
Nickel	15,939	13,973	9,979	3,994
Selenium	357	352	352	0
Silver	4,671	4,250	3,793	457
Thallium	0	0	0	0
Zinc	219,505	178,466	101,143	77,323
Total Priority Metals and Elements	**577,192**	**441,515**	**272,614**	**168,901**

Table E-14 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	756,848	669,275	458,327	210,948
Barium	88,202	66,280	40,820	25,460
Boron	33,439	32,242	31,782	460
Cobalt	5,506	4,594	3,397	1,198
Iron	1,363,427	1,143,483	566,093	577,390
Manganese	28,206	22,988	12,167	10,821
Molybdenum	12,496	8,980	8,290	690
Tin	5,990	5,133	4,255	878
Titanium	18,595	16,066	8,665	7,400
Vanadium	2,018	1,890	1,659	231
Yttrium	768	737	696	41
Total Nonconventional Metals and Elements	**2,315,497**	**1,971,667**	**1,136,150**	**835,517**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	309,627,671	236,114,575	165,442,212	70,672,363
Total Organic Carbon (TOC)	82,060,078	72,968,740	67,714,343	5,254,397
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	21,514,802	11,766,277	2,446,918	9,319,359

[1]Numbers in this table were calculated using more significant figures than shown.
[2]518 of the 1,742 total industrial laundries are excluded from compliance under this criterion. This exclusion includes the 136 facilities excluded under the 1 Million/255K exclusion shown in Table E-12.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-15

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for CP-IL[1] Excluded Facilities with Less than 5 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	99,192,358	87,450,551	79,935,733	7,514,818
Oil and Grease (measured as HEM)	53,740,259	28,563,674	12,089,837	16,473,837
Total Suspended Solids (TSS)	61,877,538	44,708,381	24,186,232	20,522,150
Priority Organics				
1,1,1-Trichloroethane	48,625	33,432	15,838	17,593
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	8,056	6,888	2,122	4,766
Bis(2-ethylhexyl) Phthalate	161,531	107,755	64,163	43,592
Butyl Benzyl Phthalate	41,313	32,124	10,699	21,425
Chlorobenzene	2,615	2,053	1,320	733
Chloroform	109,927	105,870	105,654	216
Di-*n*-butyl Phthalate	23,258	12,228	3,762	8,465
Di-*n*-octyl Phthalate	14,324	10,317	7,673	2,644
Ethylbenzene	62,226	26,947	6,884	20,064
Isophorone	37,412	36,677	14,969	21,708
Methylene Chloride	28,625	21,649	7,229	14,420
Naphthalene	62,534	31,341	14,635	16,706
Phenol	9,991	9,985	9,985	1
Tetrachloroethene	54,652	30,356	17,410	12,945

Table E-15 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	108,899	51,118	38,492	12,626
trans-1,2-Dichloroethene	2,793	2,793	2,793	0
Trichloroethene	2,605	2,543	1,375	1,168
Total Priority Organics	**779,386**	**524,074**	**325,002**	**199,072**
Nonconventional Organics				
2-Butanone	34,293	28,704	26,763	1,942
2-Methylnaphthalene	11,207	8,074	2,277	5,798
2-Propanone	181,455	113,260	64,625	48,634
4-Methyl-2-pentanone	16,476	12,341	12,341	0
∝-Terpineol	11,481	9,354	5,750	3,604
Benzoic Acid	54,993	52,420	52,420	0
Benzyl Alcohol	57,962	56,807	38,730	18,077
Hexanoic Acid	5,762	5,762	5,757	5
m-Xylene	19,580	13,596	10,891	2,706
n-Decane	883,722	517,127	285,672	231,455
n-Docosane	16,395	11,271	4,633	6,638
n-Dodecane	231,406	128,980	81,131	47,849
n-Eicosane	181,967	99,826	9,894	89,933
n-Hexacosane	21,259	11,166	3,280	7,885
n-Hexadecane	115,783	62,162	19,295	42,867
n-Octacosane	10,598	6,844	2,858	3,987
n-Octadecane	85,626	48,883	9,244	39,639
n-Tetracosane	21,409	16,413	7,146	9,267

Table E-15 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	141,678	77,866	17,101	60,765
n-Triacontane	14,145	11,128	5,916	5,212
o-&*p*-Xylene	12,155	8,716	7,570	1,146
p-Cresol	0	0	0	0
p-Cymene	62,378	43,735	12,143	31,593
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,191,730**	**1,344,436**	**685,436**	**659,000**
Priority Metals and Elements				
Antimony	22,340	19,694	13,900	5,794
Arsenic	11,063	10,704	10,691	13
Beryllium	26	26	24	2
Cadmium	4,950	4,002	2,393	1,608
Chromium	17,660	11,402	6,840	4,562
Copper	143,842	97,610	55,004	42,605
Lead	87,767	53,467	20,616	32,851
Mercury	154	141	126	15
Nickel	13,210	11,300	8,050	3,251
Selenium	268	264	151	114
Silver	4,002	3,591	2,685	906
Thallium	0	0	0	0
Zinc	180,941	141,259	50,361	90,897
Total Priority Metals and Elements	**486,220**	**353,460**	**170,841**	**182,618**

Table E-15 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	622,122	537,651	379,438	158,214
Barium	75,689	54,111	38,159	15,952
Boron	28,138	26,941	25,173	1,767
Cobalt	4,807	3,907	1,970	1,936
Iron	1,107,535	895,613	404,754	490,858
Manganese	23,557	18,489	9,966	8,523
Molybdenum	11,154	7,642	7,614	28
Tin	4,719	3,893	1,552	2,341
Titanium	15,094	12,641	8,672	3,969
Vanadium	1,682	1,556	1,375	181
Yttrium	651	621	612	10
Total Nonconventional Metals and Elements	**1,895,150**	**1,563,066**	**879,286**	**683,780**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	262,258,089	189,588,950	140,233,731	49,355,219
Total Organic Carbon (TOC)	69,718,257	60,704,055	55,307,428	5,396,627
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	18,965,925	9,349,866	1,763,841	7,586,025

[1]Numbers in this table were calculated using more significant figures than shown.
[2]953 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.

Table E-16

Summary of Pollutant Loadings and Removals from Industrial Laundry Wastewater for DAF-IL[1] Excluding Facilities with Less than 5 Million Pounds per Year Total Production and Less than 255,000 Pounds per Year Shop and Printer Towel/Rag Production[2]

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Conventionals				
Biochemical Oxygen Demand 5-Day (BOD_5)	99,192,358	87,450,551	82,919,296	4,531,255
Oil and Grease (measured as HEM)	53,740,259	28,563,674	12,491,092	16,072,582
Total Suspended Solids (TSS)	61,877,538	44,708,381	22,990,267	21,718,114
Priority Organics				
1,1,1-Trichloroethane	48,625	33,432	1,719	31,712
1,2-Diphenylhydrazine	0	0	0	0
4-Chloro-3-methylphenol	8,056	6,888	6,290	598
Bis(2-ethylhexyl) Phthalate	161,531	107,755	67,470	40,286
Butyl Benzyl Phthalate	41,313	32,124	19,564	12,560
Chlorobenzene	2,615	2,053	1,236	817
Chloroform	109,927	105,870	105,865	5
Di-*n*-butyl Phthalate	23,258	12,228	8,654	3,574
Di-*n*-octyl Phthalate	14,324	10,317	7,451	2,866
Ethylbenzene	62,226	26,947	3,533	23,414
Isophorone	37,412	36,677	36,677	0
Methylene Chloride	28,625	21,649	20,359	1,290
Naphthalene	62,534	31,341	15,414	15,927
Phenol	9,991	9,985	9,978	7
Tetrachloroethene	54,652	30,356	12,418	17,937

Table E-16 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Priority Organics (Continued)				
Toluene	108,899	51,118	33,985	17,132
trans-1,2-Dichloroethene	2,793	2,793	2,793	0
Trichloroethene	2,605	2,543	2,543	0
Total Priority Organics	**779,386**	**524,074**	**355,948**	**168,127**
Nonconventional Organics				
2-Butanone	34,293	28,704	28,704	0
2-Methylnaphthalene	11,207	8,074	6,721	1,354
2-Propanone	181,455	113,260	112,864	395
4-Methyl-2-pentanone	16,476	12,341	12,227	114
∝-Terpineol	11,481	9,354	9,331	23
Benzoic Acid	54,993	52,420	51,630	790
Benzyl Alcohol	57,962	56,807	56,807	0
Hexanoic Acid	5,762	5,762	5,762	0
m-Xylene	19,580	13,596	12,597	999
n-Decane	883,722	517,127	302,042	215,085
n-Docosane	16,395	11,271	5,173	6,098
n-Dodecane	231,406	128,980	39,205	89,775
n-Eicosane	181,967	99,826	11,384	88,442
n-Hexacosane	21,259	11,166	3,576	7,590
n-Hexadecane	115,783	62,162	21,226	40,936
n-Octacosane	10,598	6,844	2,597	4,247
n-Octadecane	85,626	48,883	11,063	37,820
n-Tetracosane	21,409	16,413	7,574	8,839

Table E-16 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Organics (Continued)				
n-Tetradecane	141,678	77,866	18,716	59,149
n-Triacontane	14,145	11,128	5,843	5,284
o-&*p*-Xylene	12,155	8,716	8,480	237
p-Cresol	0	0	0	0
p-Cymene	62,378	43,735	14,814	28,922
Pentamethylbenzene	0	0	0	0
Total Nonconventional Organics	**2,191,730**	**1,344,436**	**748,338**	**596,098**
Priority Metals and Elements				
Antimony	22,340	19,694	15,002	4,692
Arsenic	11,063	10,704	10,704	0
Beryllium	26	26	26	0
Cadmium	4,950	4,002	2,699	1,303
Chromium	17,660	11,402	7,964	3,438
Copper	143,842	97,610	65,063	32,547
Lead	87,767	53,467	24,289	29,178
Mercury	154	141	123	18
Nickel	13,210	11,300	8,094	3,206
Selenium	268	264	264	0
Silver	4,002	3,591	3,153	438
Thallium	0	0	0	0
Zinc	180,941	141,259	76,854	64,405
Total Priority Metals and Elements	**486,220**	**353,460**	**214,235**	**139,225**

Table E-16 (Continued)

Pollutant of Concern	Industry Raw Wastewater Pollutant Loading (lbs/yr)	Industry Baseline Wastewater Pollutant Loading (lbs/yr)	Industry Postcompliance Wastewater Pollutant Loading (lbs/yr)	Industry Pollutant Removal from Baseline (lbs/yr)
Nonconventional Metals and Elements				
Aluminum	622,122	537,651	378,481	159,170
Barium	75,689	54,111	34,436	19,675
Boron	28,138	26,941	26,481	460
Cobalt	4,807	3,907	2,752	1,155
Iron	1,107,535	895,613	452,699	442,913
Manganese	23,557	18,489	10,057	8,432
Molybdenum	11,154	7,642	7,003	639
Tin	4,719	3,893	3,089	805
Titanium	15,094	12,641	7,330	5,312
Vanadium	1,682	1,556	1,354	202
Yttrium	651	621	584	37
Total Nonconventional Metals and Elements	**1,895,150**	**1,563,066**	**924,266**	**638,800**
Bulk Nonconventionals				
Chemical Oxygen Demand (COD)	262,258,089	189,588,950	130,590,755	58,998,195
Total Organic Carbon (TOC)	69,718,257	60,704,055	55,892,337	4,811,719
Total Petroleum Hydrocarbon (measured as SGT-HEM)[3]	18,965,925	9,349,866	1,935,173	7,414,694

[1]Numbers in this table were calculated using more significant figures than shown.
[2]953 of the 1,742 total industrial laundries are excluded from compliance under this criterion.
[3]SGT-HEM is measured by Method 1664 (promulgated at 64 FR 26315; May 14, 1999). In this method, EPA defines SGT-HEM as non-polar material (NPM). Throughout this document and the Industrial Laundries Administrative Record, EPA refers to SGT-HEM as total petroleum hydrocarbon (TPH).

HEM - Hexane extractable material.
SGT-HEM - Silica gel treated-hexane extractable material.