



# **Biennial Review of 40 CFR Part 503 As Required Under the Clean Water Act Section 405(d)(2)(C)**

**Biosolids Biennial Review  
Reporting Period 2016–2017**

## Appendix A. Pollutants Identified in Biosolids

Table A-1. Chemical Pollutants Identified in Biosolids

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Acetaminophen	103-90-2	Other drugs	X	2005BR	2005
Albuterol/Salbutamol	18559-94-9	Other drugs	X	2005BR	2013
Alprazolam	28981-97-7	Other drugs		2013BR	2013
Aluminum	7429-90-5	Metals	X	2005BR	2007
Amitriptyline	549-18-8	Other drugs		2013BR	2013
Amlodipine	88150-42-9	Other drugs		2013BR	2013
Amphetamine	300-62-9	Other drugs		2007BR	2007
Androstenedione	63-05-8	Hormones	X	2009 TNSSS	2009
Androsterone	53-41-8	Hormones	X	2009 TNSSS	2009
Anhydrochlortetracycline	13803-65-1	Antibiotics	X	2009 TNSSS	2009
Anhydrotetracycline	4496-85-9	Antibiotics	X	2009 TNSSS	2009
Antimony	7440-36-0	Metals	X	2005BR	2005
Aspirin	50-78-2	Other drugs		2005BR	2005
Atenolol	29122-68-7	Other drugs		2013BR	2013
Atorvastatin	134523-00-5	Other drugs		2013BR	2013
Azithromycin	83905-01-5	Antibiotics	X	2007BR	2011
Barium	7440-39-3	Metals	X	2009 TNSSS	2009
BDE-17 (2,2',4-TrBDE)	147217-75-2	PBDEs		2017BR	2017
BDE-28 (2,4,4'-TrBDE)	6430-90-6	PBDEs	X	2009 TNSSS	2017
BDE-47 (2,2',4,4'-TeBDE)	5436-43-1	PBDEs	X	2009 TNSSS	2017
BDE-66 (2,3',4,4'-TeBDE)	84303-45-7	PBDEs	X	2009 TNSSS	2017
BDE-85 (2,2',3,4,4'-PeBDE)	32534-81-9	PBDEs	X	2009BR	2009
BDE-99 (2,2',4,4',5-PeBDE)	60348-60-9	PBDEs	X	2009 TNSSS	2017
BDE-100 (2,2',4,4',6-PeBDE)	97038-97-6	PBDEs	X	2009 TNSSS	2017
BDE-138 (2,2',3,4,4',5'-HxBDE)	67888-98-6	PBDEs	X	2009 TNSSS	2009
BDE-153 (2,2',4,4',5,5'-HxBDE)	68631-49-2	PBDEs	X	2009 TNSSS	2017
BDE-154 (2,2',4,4',5,6'-HxBDE)	207122-15-4	PBDEs	X	2009 TNSSS	2017
BDE-183 (2,2',3,4,4',5',6-HpBDE)	207122-16-5	PBDEs	X	2009 TNSSS	2017
BDE-184 (HpBDE, 2,2',3,4,4',6,6'-)	117948-63-7	PBDEs		2017BR	2017
BDE-191 (HpBDE, 2,3,3',4,4',5',6-)	446255-30-7	PBDEs		2017BR	2017
BDE-196 (OcBDE, 2,2',3,3',4,4',5,6'-)	446255-39-6	PBDEs		2017BR	2017
BDE-197 (OcBDE, 2,2',3,3',4,4',6,6'-)	117964-21-3	PBDEs		2017BR	2017
BDE-206 (NoBDE, 2,2',3,3',4,4',5,5',6-)	63936-56-1	PBDEs		2017BR	2017
BDE-207 (NoBDE, 2,2',3,3',4,4',5,6,6'-)	437701-79-6	PBDEs		2017BR	2017
BDE-209 (2,2',3,3',4,4',5,5',6,6'-DeBDE)	1163-19-5	PBDEs	X	2009BR	2017
Benz(a)anthracene	56-55-3	PAHs		2005BR	2005

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-amino]	42615-29-2	Other drugs		2005BR	2005
Benzo(a)pyrene	50-32-8	PAHs	X	2005BR	2005
Benzo(b)fluoranthene	205-99-2	PAHs		2005BR	2005
Benzo(k)fluoranthene	207-08-9	PAHs		2005BR	2005
Benzoic acid	65-85-0	Pharmaceuticals		2017BR	2017
Benzoylcegonine	519-09-5	Other drugs		2013BR	2013
Benzotropine	86-13-5	Other drugs		2013BR	2013
Benzyl-4-chlorophenol, 2-	120-32-1	Antimicrobial		2015BR	2015
Benzyl paraben	94-18-8	Preservatives		2017BR	2017
Beryllium	7440-41-7	Metals	X	2009 TNSSS	2009
Bezafibrate	41859-67-0	Other drugs		2005BR	2005
Bis(2,4,6-tribromophenoxy)ethane, 1,2-	37853-59-1	Flame retardant		2017BR	2017
Bis (2-ethylhexyl) phthalate	117-81-7	SVOCs	X	2005BR	2005
Bis (5-chloro-2hydroxyphenyl)methane	97-23-4	Antimicrobial		2015BR	2015
Bisphenol A	80-05-7	Plastics		2007BR	2015
Boron	7440-42-8	Metals	X	2005BR	2005
Butylated hydroxy toluene	128-37-0	Other drugs		2005BR	2005
Butylparaben	94-26-8	Preservatives		2017BR	2017
Caffeine	58-08-2	Other drugs	X	2005BR	2011
Calcium	7440-70-2	Inorganics	X	2007BR	2007
Campesterol	474-62-4	Steroids	X	2009 TNSSS	2009
Carbadox	6804-07-5	Antibiotics	X	2005BR	2005
Carbamazepine	298-46-4	Other drugs	X	2005BR	2013
Carbon tetrachloride	56-23-5	Organics		2005BR	2005
Cefotaxime	63527-52-6	Antibiotics	X	2009 TNSSS	2009
Cerium	7440-45-1	Metals		2005BR	2005
Chloro-4-phenylphenol, 2-	92-04-6	Antimicrobial		2015BR	2015
Chloroaniline, 4-	106-47-8	SVOCs	X	2009 TNSSS	2009
Chloroform	67-66-3	Organics		2005BR	2005
Chloronaphthalene, 2-	91-58-7	Organics		2005BR	2005
Chlortetracycline	57-62-5	Antibiotics	X	2009BR	2009
Cholestanol	80-97-7	Steroids	X	2009 TNSSS	2009
Cholesterol	57-88-5	Steroids	X	2005BR	2007
Chrysene	218-01-9	PAHs		2005BR	2005
Cimetidine	51481-61-9	Other drugs	X	2005BR	2005
Ciprofloxacin	85721-33-1	Antibiotics	X	2005BR	2011
Clarithromycin	81103-11-9	Antibiotics	X	2007BR	2009
Clinafloxacin	105956-97-6	Antibiotics	X	2009 TNSSS	2009
Clindamycin	18323-44-9	Antibiotics		2011BR	2011
Clofibrilic acid	882-09-7	Other drugs		2005BR	2005
Clotrimazole	23593-75-1	Antibiotics		2011BR	2011

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Cloxacillin	61-72-3	Antibiotics	X	2009 TNSSS	2009
Cobalt	7440-48-4	Metals	X	2005BR	2007
Cocaine	50-36-2	Other drugs		2013BR	2013
Codeine	76-57-3	Other drugs	X	2005BR	2005
Coprostanol (3-beta)	360-68-9	Steroids	X	2007BR	2007
Cotinine	486-56-6	Other drugs	X	2005BR	2005
Cresol, p- (4-methylphenol)	106-44-5	Preservative		2005BR	2007
Cyanide	57-12-5	Organics		2005BR	2005
Cyclophosphamide	50-18-0	Other drugs		2005BR	2005
Decabromodiphenyl ethane	84852-53-9	PBDEs		2017BR	2017
Decamethylcyclopentasiloxane (D5)	541-02-6	Emollients		2015BR	2015
Dechlorane 602	31107-44-5	Flame retardant		2017BR	2017
Dechlorane 603	13560-92-4	Flame retardant		2017BR	2017
Dechlorane Plus	13560-89-9	Flame retardant		2017BR	2017
DEET (N,N-diethyltoluamide)	134-62-3	Pesticides		2005BR	2013
Dehydronifedipine	67035-22-7	Other drugs	X	2009 TNSSS	2009
Demeclocycline	127-33-3	Antibiotics	X	2009 TNSSS	2009
Desmethyldiltiazem	130606-60-9	Other drugs		2013BR	2013
Desmosterol	313-04-2	Steroids	X	2009 TNSSS	2009
Diazepam	439-14-5	Other drugs		2005BR	2005
Dichlorobenzene, 1,3-	541-73-1	Pesticides		2005BR	2005
Dichlorobenzene, 1,4-	106-46-7	Pesticides		2005BR	2005
Dichlorocarbanilide	1219-99-4	Antibiotics		2011BR	2011
Dichlorophenol, 2,4-	120-83-2	Other organics		2017BR	2017
Diclofenac	15307-86-5	Pharmaceuticals		2011BR	2017
Diclofenac sodium	15307-79-6	Other drugs		2005BR	2005
Digoxigenin	1672-46-4	Other drugs	X	2009 TNSSS	2009
Digoxin	20830-75-5	Other drugs	X	2005BR	2005
Dihydroequilin, 17 $\alpha$ -	651-55-8	Hormones	X	2009 TNSSS	2009
Dihydroxybenzoic acid, 3,4-	99-50-3	Metabolites		2017BR	2017
Diltiazem	42399-41-7	Other drugs	X	2005BR	2011
Dimethoate	60-51-5	Pesticides		2005BR	2005
Dimethyl phthalate	131-11-3	Organics		2005BR	2005
Dimethyl-3,5,-dinitro-4-tert-butylacetophenone, 2,6-	81-14-1	Odorants		2005BR	2005
Dimethylaminophenazone	58-15-1	Other drugs		2005BR	2005
Dimethylxanthine, 1,7-	611-59-6	Other drugs	X	2005BR	2005
Di-n-butyl phthalate (Butoxyphosphate ethanol, 2-)	84-74-2	Plasticizers		2005BR	2005
Di-n-octyl phthalate	117-84-0	Organics		2005BR	2005
Diphenhydramine	58-73-1	Other drugs	X	2007BR	2013

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Di-tert-butylphenol, 2,6-	128-39-2	Other drugs		2005BR	2005
Doxycycline	564-25-0	Antibiotics	X	2005BR	2009
Endosulfan, $\alpha$	959-98-8	Pesticides		2005BR	2005
Endosulfan, $\beta$	33213-65-9	Pesticides		2005BR	2005
Enrofloxacin	93106-60-6	Antibiotics	X	2009 TNSSS	2009
Epianhydrochlortetracycline, 4-	158018-53-2	Antibiotics	X	2009 TNSSS	2009
Epianhydrotetracycline, 4-	4465-65-0	Antibiotics	X	2009 TNSSS	2009
Epichlortetracycline, 4-	14297-93-9	Antibiotics	X	2009 TNSSS	2009
Epicoprostanol	516-92-7	Steroids	X	2009 TNSSS	2009
Epioxytetracycline, 4-	14206-58-7	Antibiotics	X	2009 TNSSS	2009
Epitetracycline, 4-	23313-80-6	Antibiotics	X	2009 TNSSS	2009
Equilenin	517-09-9	Hormones	X	2009 TNSSS	2009
Equilin	474-86-2	Hormones	X	2005BR	2005
Ergosterol	57-87-4	Steroids	X	2009 TNSSS	2009
Erythromycin	114-07-8	Antibiotics	X	2005BR	2009
Estradiol, 17 $\alpha$ -	57-91-0	Hormones	X	2005BR	2005
Estradiol, 17 $\beta$ -	50-28-2	Hormones	X	2005BR	2009
Estradiol-3-benzoate, $\beta$ -	50-50-0	Hormones	X	2009 TNSSS	2009
Estriol (estradiol)	50-27-1	Hormones	X	2005BR	2005
Estrone	53-16-7	Hormones	X	2005BR	2011
Ethanol, 2-butoxy-phosphate	78-51-3	Organics		2005BR	2005
Ethylbenzene	100-41-4	Organics		2005BR	2005
Ethyl paraben	120-47-8	Preservatives		2017BR	2017
Ethynyl estradiol, 17 $\alpha$ -	57-63-6	Hormones	X	2005BR	2017
Fenofibric acid	26129-32-8	Other drugs		2005BR	2005
Fenthion	55-38-9	Pesticides		2005BR	2005
Fipronil	120068-37-3	Antibiotics		2011BR	2011
Floxacillin	5250-39-5	Antibiotics		2005BR	2005
Flumequine	42835-25-6	Antibiotics	X	2009 TNSSS	2009
Fluoranthene	206-44-0	PAHs	X	2009 TNSSS	2009
Fluoride	16984-48-8	Inorganics	X	2005BR	2005
Fluoxetine	54910-89-3	Other drugs	X	2005BR	2007
Furosemide	54-31-9	Other drugs		2013BR	2013
Galaxolide	1222-05-5	Fragrance		2005BR	2017
Gemfibrozil	25812-30-0	Other drugs	X	2005BR	2011
Glyburide	10238-21-8	Other drugs		2013BR	2013
Heptabromodibenzofuran, 1,2,3,4,6,7,8-	107555-95-3	PBDF		2015BR	2015
Heptabromodibenzofuran, 1,2,3,4,7,8,9-	161880-51-9	PBDF		2015BR	2015
Heptabromodibenzo-p-dioxin, 1,2,3,4,6,7,8-	103456-43-5	PBDD		2015BR	2015
Heptachlor epoxide	1024-57-3	Pesticides		2005BR	2005
Hexabromobenzene	87-82-1	Other organics		2017BR	2017
Hexabromobiphenyl, 2,2',4,4',5,5'-	59080-40-9	PBBs		2005BR	2005

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Hexabromocyclododecane	3194-55-6	Brominated flame retardants		2017BR	2017
Hexabromodibenzofuran, 1,2,3,4,7,8-	70648-26-9	PBDF		2015BR	2015
Hexabromodibenzofuran, 1,2,3,6,7,8-	107555-94-2	PBDF		2015BR	2015
Hexabromodibenzofuran, 1,2,3,7,8,9-	161880-49-5	PBDF		2015BR	2015
Hexabromodibenzofuran, 2,3,4,6,7,8-	60851-34-5	PBDF		2015BR	2015
Hexabromodibenzo-p-dioxin, 1,2,3,4,7,8-	110999-44-5	PBDD		2015BR	2015
Hexabromodibenzo-p-dioxin, 1,2,3,6,7,8-	110999-45-6	PBDD		2015BR	2015
Hexabromodibenzo-p-dioxin, 1,2,3,7,8,9-	110999-46-7	PBDD		2015BR	2015
Hydrocodone	125-29-1	Other drugs		2013BR	2013
Hydroxyamitriptyline, 10-	1246833-15-7	Other drugs		2013BR	2013
Hydroxy benzoic acid, 4-	99-96-7	Preservatives		2017BR	2017
Ibuprofen	15687-27-1	Other drugs	X	2005BR	2005
Indole	120-72-9	Fragrance		2007BR	2007
Indometacine	53-86-1	Other drugs		2005BR	2005
Iron	7439-89-6	Metals	X	2005BR	2005
Isochlortetracycline	514-53-4	Antibiotics	X	2009 TNSSS	2009
Ketoprofen	22071-15-4	Other drugs		2005BR	2005
Limonene, d-	5989-27-5	Fragrance		2007BR	2007
Lincomycin	154-21-2	Antibiotics	X	2009BR	2009
Lomefloxacin	98079-51-7	Antibiotics	X	2009 TNSSS	2009
Magnesium	7439-95-4	Metals	X	2007BR	2007
Manganese	7439-96-5	Metals	X	2009 TNSSS	2009
Mefenamic acid	61-68-7	Other drugs		2005BR	2005
Mesalazine	89-57-6	Other drugs		2005BR	2005
Mestranol	72-33-3	Other drugs		2005BR	2005
Metformin	657-24-9	Other drugs	X	2009 TNSSS	2009
Methamphetamine	537-46-2	Other drugs		2007BR	2009
Methylenedioxymethamphetamine, 3,4-	42542-10-9	Other drugs		2009BR	2009
Methylnaphthalene, 2-	91-57-6	PAHs	X	2005BR	2005
Methylparaben	99-76-3	Preservatives		2017BR	2017
Methyl protocatechuate	2150-43-8	Metabolites		2017BR	2017
Methyl triclosan	4640-01-1	Metabolites		2017BR	2017
Metoprolol	37350-58-6	Other drugs		2005BR	2013
Miconazole	22916-47-8	Other drugs	X	2009 TNSSS	2009
Minocycline	10118-90-8	Antibiotics	X	2009 TNSSS	2009
Molybdenum	7439-98-7	Metals	X	2009 TNSSS	2009
Monuron	150-68-5	Pesticides		2005BR	2005

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Nadolol	42200-33-9	Other drugs		2005BR	2005
Naproxen	22204-53-1	Other drugs	X	2005BR	2015
Napthalene	91-20-3	PAHs		2005BR	2005
Nitrate	14797-55-8	Inorganics	X	2009 TNSSS	2009
Nitrite	14797-65-0	Inorganics	X	2009 TNSSS	2009
Nitrofen	1836-75-5	Pesticides		2005BR	2005
Nitrogen	7727-37-9	Inorganics		2007BR	2007
Nitrogen, organic	14798-03-9	Organics		2007BR	2007
Nitrophenol, p-	100-02-7	Organics		2005BR	2005
N-nitrosodibutylamine (NDBA)	924-16-3	Nitrosamines		2015BR	2015
N-nitrosodiethylamine (NDEA)	55-18-5	Nitrosamines		2015BR	2015
N-nitrosodimethylamine (NDMA)	62-75-9	Nitrosamines		2015BR	2015
N-nitroso-di-n-propylamine (NDPA)	621-64-7	Nitrosamines		2015BR	2015
N-nitrosodiphenylamine (NDPhA)	86-30-6	Nitrosamines		2015BR	2015
N-nitrosopiperidine (NPIP)	100-75-4	Nitrosamines		2015BR	2015
N-nitrosopyrrolidine (NPYR)	930-55-2	Nitrosamines		2015BR	2015
Nonylphenol	25154-52-3	Surfactants		2005BR	2017
Nonylphenol (branched), 4-	84852-15-3	Surfactants		2005BR	2005
Nonylphenol monoethoxylate	27986-36-3	Surfactants		2007BR	2017
Nonylphenol, 4-	104-40-5	Surfactants		2005BR	2007
Nonylphenol diethoxylate	30-53-3	Surfactants		2007BR	2017
Norethindrone (norethisterone)	68-22-4	Hormones	X	2005BR	2005
Norfloxacin	70458-96-7	Antibiotics	X	2005BR	2011
Norfluoxetine	57226-68-3	Antibiotics		2011BR	2013
Norgestimate	35189-28-7	Other drugs	X	2009 TNSSS	2009
Norgestrel (levonorgestrel)	797-63-7	Hormones	X	2005BR	2005
Norverapamil	67812-42-4	Other drugs		2013BR	2013
Octabromodibenzofuran, 1,2,3,4,6,7,8,9-	103582-29-2	PBDF		2015BR	2015
Octabromodibenzo-p-dioxin, 1,2,3,4,6,7,8,9-	2170-45-8	PBDD		2015BR	2015
Octylphenol	67554-50-1	Organics		2005BR	2005
Octylphenol, 4-	1806-26-4	Organics		2007BR	2007
Ofloxacin	82419-36-1	Antibiotics	X	2009 TNSSS	2009
Ormetoprim	6981-18-6	Antibiotics	X	2009 TNSSS	2009
Oxacillin	66-79-5	Antibiotics	X	2009 TNSSS	2009
Oxolinic acid	14698-29-4	Antibiotics	X	2009 TNSSS	2009
Oxycodone	76-42-6	Other drugs		2013BR	2013
Oxytetracycline	79-57-2	Antibiotics	X	2005BR	2009
Paroxetine	61869-08-7	Other drugs		2013BR	2013
Penicillin G	61-33-6	Antibiotics	X	2009 TNSSS	2009
Penicillin V (phenoxymethylpenicillin)	87-08-1	Antibiotics	X	2005BR	2005
Pentabromodibenzofuran, 1,2,3,7,8-	107555-93-1	PBDF		2015BR	2015

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Pentabromodibenzofuran, 2,3,4,7,8-	131166-92-2	PBDF		2015BR	2015
Pentabromodibenzo-p-dioxin, 1,2,3,7,8-	109333-34-8	PBDD		2015BR	2015
Pentabromoethylbenzene	85-22-3	Other organics		2017BR	2017
Pentachloronitrobenzene	82-68-8	Pesticides		2005BR	2005
Perfluorobutanesulfonate (PFBS)	45187-15-3	PFASs		2013BR	2017
Perfluorobutanoate (PFBA)	375-22-4	PFASs		2013BR	2017
Perfluorodecanoate (PFDA)	335-76-2	PFASs		2013BR	2017
Perfluorododecanoate (PFDoDA)	307-55-1	PFASs		2013BR	2017
Perfluoroheptanoate (PFHpA)	375-85-9	PFASs		2013BR	2017
Perfluorohexanesulfonate (PFHxS)	108427-53-8	PFASs		2013BR	2017
Perfluorohexanoate (PFHxA)	307-24-4	PFASs		2013BR	2017
Perfluorononanoate (PFNA)	375-95-1	PFASs		2013BR	2017
Perfluorooctane sulfonamide (PFOSA)	754-91-6	PFASs		2013BR	2017
Perfluorooctanesulfonate (PFOS)	2795-39-3	PFASs		2013BR	2017
Perfluorooctanoate (PFOA)	335-67-1	PFASs		2013BR	2017
Perfluoropentanoate (PFPeA)	2706-90-3	PFASs		2013BR	2017
Perfluorotetradecanoate (PFTeDA)	376-06-7	PFASs		2017BR	2017
Perfluorotridecanoate (PFTrDA)	72629-94-8	PFASs		2017BR	2017
Perfluoroundecanoate (PFUnDA)	2058-94-8	PFASs		2013BR	2017
Phenanthrene	85-01-8	PAHs		2007BR	2007
Phenazone	60-80-0	Other drugs		2005BR	2005
Phosphate (total)	14265-44-2	Inorganics		2005BR	2005
Phosphorus	7723-14-0	Inorganics	X	2007BR	2007
Polyethylene glycol	25322-68-3	Organics		2005BR	2005
Potassium	7440-09-7	Metals		2007BR	2007
Progesterone	57-83-0	Hormones	X	2005BR	2009
Promethazine	60-87-7	Other drugs		2013BR	2013
Propoxyphene	469-62-5	Other drugs		2013BR	2013
Propranolol	525-66-6	Other drugs		2005BR	2013
Propyl paraben	94-13-3	Preservatives		2017BR	2017
Pyrene	129-00-0	PAHs	X	2009 TNSSS	2009
Quinine sulfate	7778-93-0	Other drugs		2005BR	2005
Ranitidine	66357-35-5	Other drugs	X	2005BR	2005
Roxithromycin	80214-83-1	Antibiotics	X	2007BR	2007
Rubidium	7440-17-7	Metals		2005BR	2005
Salicylic acid	69-72-7	Other drugs		2005BR	2005
Sarafloxacin	98105-99-8	Antibiotics	X	2009 TNSSS	2009
Sertraline	79617-96-2	Other drugs		2013BR	2013
Silver	7440-22-4	Metals	X	2009 TNSSS	2009
Sitosterol, $\beta$ -	83-46-5	Steroids	X	2007BR	2007
Skatole	83-34-1	NA		2007BR	2007
Sodium	7440-23-5	Metals	X	2009 TNSSS	2009



Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Sodium valproate	1069-66-5	Other drugs		2005BR	2005
Stigmasterol, $\beta$ -	19466-47-8	Steroids	X	2007BR	2007
Stigmasterol	83-45-4	Steroids	X	2009 TNSSS	2009
Styrene	100-42-5	Organics		2005BR	2005
Sulfachloropyridazine	80-32-0	Antibiotics	X	2009 TNSSS	2009
Sulfadiazine	68-35-9	Antibiotics	X	2009 TNSSS	2009
Sulfadimethoxine	122-11-2	Antibiotics	X	2009BR	2009
Sulfamerazine	127-79-7	Antibiotics	X	2005BR	2005
Sulfamethazine	57-68-1	Antibiotics	X	2005BR	2009
Sulfamethizole	144-82-1	Antibiotics	X	2009 TNSSS	2009
Sulfamethoxazole	723-46-6	Antibiotics	X	2009 TNSSS	2009
Sulfanilamide	63-74-1	Antibiotics	X	2009 TNSSS	2009
Sulfasalazine	599-79-1	Other drugs		2005BR	2005
Sulfathiazole	72-14-0	Antibiotics	X	2009 TNSSS	2009
tert-Butyl-4-hydroxy anisole, 3-	25013-16-5	Other drugs		2005BR	2005
Testosterone	58-22-0	Hormones	X	2009BR	2009
Tetrabromobisphenol A	79-94-7	Organics		2005BR	2005
Tetrabromodibenzofuran, 2,3,7,8-	67733-57-7	PBDF		2015BR	2015
Tetrabromodibenzo-p-dioxin, 2,3,7,8-	50585-41-6	PBDD		2015BR	2015
Tetrachloroethylene	127-18-4	Solvents		2005BR	2005
Tetracycline	60-54-8	Antibiotics	X	2009BR	2009
Thallium	7440-28-0	Metals	X	2005BR	2005
Thiabendazole	148-79-8	Other drugs	X	2009 TNSSS	2009
Tin	7440-31-5	Metals	X	2005BR	2005
Titanium	7440-32-6	Metals	X	2009 TNSSS	2009
Toluene	108-88-3	Solvents		2005BR	2005
Tonalide (AHTN)	21145-77-7	Fragrance		2007BR	2017
Triamterene	396-01-0	Other drugs		2013BR	2013
Trichlorobenzene, 1,3,5-	108-70-3	Organics		2005BR	2005
Trichlorofon	52-68-6	Pesticides		2005BR	2005
Trichlorophenol, 2,4,5-	95-95-4	Antimicrobial		2015BR	2015
Triclocarban	101-20-2	Antibiotics	X	2007BR	2017
Triclosan	3380-34-5	Antibiotics	X	2005BR	2017
Trimethoprim	738-70-5	Antibiotics	X	2005BR	2009
Triphenyl phosphate	115-86-6	Pesticides		2005BR	2005
Tris(2-chloroethyl) phosphate	115-96-8	Organics		2005BR	2005
Tylosin	1401-69-0	Antibiotics	X	2005BR	2007
Valsartan	137862-53-4	Other drugs		2013BR	2013
Vanadium	7440-62-2	Metals	X	2005BR	2005
Verapamil	52-53-9	Other drugs		2013BR	2013
Virginiamycin	11006-76-1	Antibiotics	X	2005BR	2009
Warfarin	81-81-2	Other drugs	X	2009 TNSSS	2009
Xylene, m-	108-38-3	Solvents		2005BR	2005

Pollutant	CAS No.	Category	TNSSS analyte	When Identified	Last BR Mention <sup>a</sup>
Xylene, musk	81-15-2	Odorants		2005BR	2005
Xylene, o-	95-47-6	Solvents		2005BR	2005
Xylene, p	106-42-3	Solvents		2005BR	2005
Yttrium	7440-65-5	Metals	X	2005BR	2005

Table A-2. Microbial Pollutants Identified in Biosolids

Pollutant	Category	When Identified	Last BR Mention <sup>a</sup>
Aerobic endospores	Bacteria	2013BR	2013
<i>Aeromonas</i> spp.	Bacteria	2009BR	2009
Antibiotic-resistant bacteria (ARB) or Antibiotic-resistant genes (ARG)	Bacteria	2013BR	2017
<i>Clostridia</i> spp.	Bacteria	2007BR	2011
Coronavirus HKU1	Virus	2013BR	2013
Cosavirus	Virus	2013BR	2013
<i>Cryptosporidium parvum</i>	Protozoan parasite	2007BR	2017
Enterovirus	Virus	2009BR	2013
<i>Escherichia coli</i> ( <i>E. coli</i> )	Bacteria	2009BR	2017
Endotoxin	Microbial toxin	2007BR	2007
<i>Giardia</i> spp.	Protozoan parasite	2009BR	2017
Human adenoviruses	Virus	2009BR	2017
Human polyomaviruses	Virus	2011BR	2011
Klassevirus	Virus	2013BR	2013
<i>Listeria</i> spp.	Bacteria	2009BR	2011
Human norovirus	Virus	2013BR	2017
<i>Salmonella</i> spp.	Bacteria	2007BR	2017

<sup>a</sup> Most recent biennial review that mentions this pollutant. That does not necessarily indicate new data were found.

Table A-3. EPA National Sewage Sludge Surveys Pollutants Identified in Biosolids

Pollutant	CAS No.	Category	When Identified
3,3',4,4'-TeCB (PCB 77)	32598-13-3	PCB	2001
3,4,4',5'-TeCB (PCB 81)	70362-50-4	PCB	2001
2,3,3',4,4'-PeCB (PCB 105)	32598-14-4	PCB	2001
2,3,4,4',5'-PeCB (PCB 114)	74472-37-0	PCB	2001
2,3',4,4',5'-PeCB (PCB 118)	31508-00-6	PCB	2001
2',3,4,4',5'-PeCB (PCB 123)	65510-44-3	PCB	2001
3,3',4,4',5'-PeCB (PCB 126)	57465-28-8	PCB	2001
2,3,3',4,4',5'-HxCB (PCB 156)	38380-08-4	PCB	2001
2,3,3',4,4',5',5'-HxCB (PCB 157)	69782-90-7	PCB	2001
2,3',4,4',5,5'-HxCB (PCB 167)	52663-72-6	PCB	2001
3,3',4,4',5,5'-HxCB (PCB 169)	322774-16-6	PCB	2001

Pollutant	CAS No.	Category	When Identified
2,3,3',4,4',5,5'-HpCB (PCB 189)	39635-31-9	PCB	2001
Octachlorodibenzo-P-Dioxin	3268879	Dioxins/Furans	1989
Octachlorodibenzofuran	39001020	Dioxins/Furans	1989
Total Heptachlorodibenzo-P-Dioxin	37871004	Dioxins/Furans	1989
Total Heptachlorodibenzofurans	38998753	Dioxins/Furans	1989
Total Hexachlorodibenzo-P-Dioxins	344654608	Dioxins/Furans	1989
Total Hexachlorodibenzofurans	1_201	Dioxins/Furans	1989
Total Pentachlorodibenzo-P-Dioxins	36088229	Dioxins/Furans	1989
Total Pentachlorodibenzofurans	30402154	Dioxins/Furans	1989
Total Tetrachlorodibenzo-P-Dioxins	41903575	Dioxins/Furans	1989
Total Tetrachlorodibenzofurans	55722275	Dioxins/Furans	1989
1,2,3,4,6,7,8-Heptachlorodibenzo-P-Dioxin	35822469	Dioxins/Furans	1989
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	39227286	Dioxins/Furans	1989
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	Dioxins/Furans	1989
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673897	Dioxins/Furans	1989
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	57653857	Dioxins/Furans	1989
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	Dioxins/Furans	1989
1,2,3,7,8-Pentachlorodibenzofuran	5711746	Dioxins/Furans	1989
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	19408743	Dioxins/Furans	1989
2,3,4,6,7,8-Hexachlorodibenzofuran	60851345	Dioxins/Furans	1989
2,3,4,7,8-Pentachlorodibenzofuran	57117314	Dioxins/Furans	1989
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	1746016	Dioxins/Furans	1989
2,3,7,8-Tetrachlorodibenzofuran	51207319	Dioxins/Furans	1989
Acetic Acid	94757	Pesticide	1989
Hexanoic Acid	142621	Semivolatile Organic	1989
Methylene Chloride	75092	Volatile Organic	1989
2-Propanone	67641	Volatile Organic	1989