

### Summary of Analytes from the 1989 National Sewage Sludge Survey

The table below lists 405 analytes from the 1989 National Sewage Sludge Survey (NSSS), along with their Chemical Abstracts Service Registry Numbers (CASRN). A total of 240 samples were collected from 184 publicly owned treatment works (POTWs) that practice secondary sewage treatment. The table indicates whether the analyte was found (detected) during the 1989 NSSS. "No" means that it was not found in any of the 240 samples, "once" means that it was found in only 1 of the 240 samples, "twice" means that it was found in 2 of the 240 samples, and "yes" means that it was found in more than 2 of the 240 samples.

The final column in the table indicates whether the analyte could be considered for analysis in another survey at this time. There are four reasons that an analyte would not be considered for a survey; any analyte that has "no" under the "Proposed Survey?" columns, falls under one or a combination of the following statements:

- 1) The analyte does not have human health benchmark data to support evaluation of the risk it poses.
- 2) The analyte was not found in the 1988-89 NSSS, or found in fewer than 1% of the samples.
- 3) The effort to develop a method for the analysis of the analyte would be significant.
- 4) The analyte was included in the 2001 NSSS, so recent data are available.

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
1,4-Dichlorobenzene	106467	Yes	Yes	Yes
2-Chloronaphthalene	91587	Yes	Yes	Yes
2,4-D	94757	Yes	Yes	Yes
2,4,5-T	93765	Yes	Yes	Yes
2,4,5-TP	93721	Yes	Yes	Yes
4,4'-DDD	72548	Twice	Yes	Yes
4,4'-DDE	72559	Yes	Yes	Yes
4,4'-DDT	50293	Yes	Yes	Yes
Acenaphthene	83329	Once	Yes	Yes
Acetophenone	98862	Twice	Yes	Yes
Aldrin	309002	Yes	Yes	Yes
alpha-BHC	319846	Yes	Yes	Yes
Aluminum	7429905	Yes	Yes	Yes
Anthracene	120127	Twice	Yes	Yes
Antimony	7440360	Yes	Yes	Yes
Arsenic	7440382	Yes	Yes	Yes
Benzo(a)anthracene	56553	Yes	Yes	Yes
Benzo(a)pyrene	50328	Yes	Yes	Yes
Benzo(b)fluoranthene	205992	Yes	Yes	Yes
Benzo(k)fluoranthene	207089	Yes	Yes	Yes

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
Beryllium	7440417	Yes	Yes	Yes
beta-BHC	319857	Yes	Yes	Yes
bis(2-Ethylhexyl) Phthalate	117817	Yes	Yes	Yes
Boron	7440428	Yes	Yes	Yes
Cadmium	7440439	Yes	Yes	Yes
Captan	133062	Yes	Yes	Yes
Chlordane	57749	Twice	Yes	Yes
Chlorobenzilate	510156	Yes	Yes	Yes
Chlorofenvinphos	470906	No	Yes	Yes
Chlorpyrifos	2921882	Yes	Yes	Yes
Chromium	7440473	Yes	Yes, but as Cr <sup>+6</sup>	Yes, but as Cr <sup>+6</sup>
Chrysene	218019	Yes	Yes	Yes
Cobalt	7440484	Yes	Yes	Yes
Demeton	8065483	No	Yes	Yes
Diallate	2303164	Yes	Yes	Yes
Diazinon	333415	Once	Yes	Yes
Dibenzo(a,h)anthracene	53703	No	Yes	Yes
Dichlorvos	62737	No	Yes	Yes
Dicrotophos (Bidrin)	141662	Twice	Yes	Yes
Dieldrin	60571	Yes	Yes	Yes
Diethyl Phthalate	84662	No	Yes	Yes
Disulfoton	298044	No	Yes	Yes
Endrin	72208	Yes	Yes	Yes
Ethion	563122	No	Yes	Yes
Fluoranthene	206440	Yes	Yes	Yes
Fluorene	86737	No	Yes	Yes
Heptachlor Epoxide	1024573	Yes	Yes	Yes
Heptachlor	76448	Twice	Yes	Yes
Indeno(1,2,3-cd)pyrene	193395	No	Yes	Yes
Lead	7439921	Yes	Yes	Yes
Lindane (gamma-BHC)	58899	Yes	Yes	Yes
Malathion	121755	No	Yes	Yes
Mercury	7439976	Yes	Yes	Yes
Methoxychlor	72435	Once	Yes	Yes
Methyl Parathion	298000	No	Yes	Yes
Mirex	2385855	Once	Yes	Yes

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
Molybdenum	7439987	Yes	Yes	Yes
Naled (Dibrom)	300765	Yes	Yes	Yes
Naphthalene	91203	Yes	Yes	Yes
p-Cresol	106445	Yes	Yes	Yes
Parathion	56382	No	Yes	Yes
Pentachloronitrobenzene	82688	Yes	Yes	Yes
Phorate	298022	No	Yes	Yes
Phosmet	732116	No	Yes	Yes
Phosphoric Acid, Trimethyl Ester	512561	No	Yes	Yes
Pyrene	129000	Yes	Yes	Yes
Pyridine	110861	No	Yes	Yes
Santox (EPN)	2104645	Yes	Yes	Yes
Selenium	7782492	Yes	Yes	Yes
Silver	7440224	Yes	Yes	Yes
Terbufos	13071799	No	Yes	Yes
Tetrachloroethene	127184	Yes	Yes	Yes
Tetrachlorvinphos	961115	No	Yes	Yes
Tetraethyldithiopyrophosphate	3689245	No	Yes	Yes
Tin	7440315	Yes	Yes	Yes
Trifluralin (Treflan)	1582098	Yes	Yes	Yes
Vanadium	7440622	Yes	Yes	Yes
Zinc	7440666	Yes	Yes	Yes
1-Bromo-2-chlorobenzene	694804	No	No	No
1-Bromo-3-chlorobenzene	108372	No	No	No
1-Chloro-3-nitrobenzene	121733	No	No	No
1-Methylfluorene	1730376	No	No	No
1-Methylphenanthrene	832699	Once	No	No
1-Naphthylamine	134327	No	No	No
1-Phenylnaphthalene	605027	No	No	No
1,1-Dichloroethane	75343	Once	No	No
1,1-Dichloroethene	75354	No	No	No
1,1,1-Trichloroethane	71556	Yes	No	No
1,1,1,2-Tetrachloroethane	630206	No	No	No
1,1,2-Trichloroethane	79005	No	No	No
1,1,2,2-Tetrachloroethane	79345	Once	No	No
1,2:3,4-Diepoxybutane	1464535	Yes	No	No
1,2-Dibromo-3-chloropropane	96128	No	No	No

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
1,2-Dibromoethane	106934	No	No	No
1,2-Dichlorobenzene	95501	Yes	No	No
1,2-Dichloroethane	107062	No	No	No
1,2-Dichloropropane	78875	Once	No	No
1,2-Diphenylhydrazine	122667	No	No	No
1,2,3-Trichlorobenzene	87616	Twice	No	No
1,2,3-Trichloropropane	96184	No	No	No
1,2,3-Trimethoxybenzene	634366	No	No	No
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	Yes	Yes	No
1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin	35822469	Yes	Yes	No
1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	39227286	Yes	Yes	No
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	Yes	Yes	No
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673897	Yes	Yes	No
1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	57653857	Yes	Yes	No
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	Yes	Yes	No
1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	40321764	Yes	Yes	No
1,2,3,7,8-Pentachlorodibenzofuran	57117416	Yes	Yes	No
1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	19408743	Yes	Yes	No
1,2,3,7,8,9-Hexachlorodibenzofuran	72918219	Yes	Yes	No
1,2,4-Trichlorobenzene	120821	Yes	No	No
1,2,4,5-Tetrachlorobenzene	95943	No	No	No
1,3-Dichloro-2-propanol	96231	No	No	No
1,3-Dichlorobenzene	541731	Yes	No	No
1,3-Dichloropropane	142289	No	No	No
1,3,5-Trithiane	291214	No	No	No
1,4-Dinitrobenzene	100254	Once	No	No
1,4-Dioxane	123911	Yes	No	No
1,4-Naphthoquinone	130154	No	No	No
1,5-Naphthalenediamine	2243621	No	No	No
2-(Methylthio)benzothiazole	615225	Once	No	No
2-Butanone	78933	Yes	No	No
2-Chloro-1,3-butadiene	126998	No	No	No
2-Chloroethylvinyl Ether	110758	No	No	No
2-Chlorophenol	95578	No	No	No
2-Hexanone	591786	Yes	No	No
2-Isopropyl-naphthalene	2027170	No	No	No
2-Methyl- 2-propenenitrile	126987	Once	No	No

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
2-Methyl-4,6-dinitro-phenol	534521	No	No	No
2-Methylbenzothiazole	120752	No	No	No
2-Methylnaphthalene	91576	Yes	No	No
2-Nitroaniline	88744	No	No	No
2-Nitrophenol	88755	No	No	No
2-Phenylnaphthalene	612942	No	No	No
2-Picoline	109068	Yes	No	No
2-Propanone	67641	Yes	No	No
2-Propen-1-ol	107186	Twice	No	No
2-Propenal	107028	No	No	No
2,3-Benzofluorene	243174	No	No	No
2,3-Dichloro-1,4-naphthoquinone	117806	Once	No	No
2,3-Dichloroaniline	608275	No	No	No
2,3-Dichloronitrobenzene	3209221	No	No	No
2,3,4,6-Tetrachlorophenol	58902	No	No	No
2,3,4,6,7,8-Hexachlorodibenzofuran	60851345	Yes	Yes	No
2,3,4,7,8-Pentachlorodibenzofuran	57117314	Yes	Yes	No
2,3,6-Trichlorophenol	933755	No	No	No
2,3,7,8-Tetrachlorodibenzofuran	51207319	Yes	Yes	No
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	1746016	Yes	Yes	No
2,4-Diamino-toluene	95807	No	No	No
2,4-Dichlorophenol	120832	No	No	No
2,4-Dimethylphenol	105679	Once	No	No
2,4-Dinitrophenol	51285	No	No	No
2,4-Dinitrotoluene	121142	No	No	No
2,4,5-Trichlorophenol	95954	No	No	No
2,4,5-Trimethyl-aniline	137177	Once	No	No
2,4,6-Trichlorophenol	88062	No	No	No
2,6-Di-tert-butyl- <i>p</i> -benzoquinone	719222	No	No	No
2,6-Dichloro-4-nitroaniline	99309	No	No	No
2,6-Dichlorophenol	87650	No	No	No
2,6-Dinitrotoluene	606202	Once	No	No
3-Chloropropene	107051	Twice	No	No
3-Methylcholanthrene	56495	No	No	No
3-Nitroaniline	99092	No	No	No
3,3'-Dichlorobenzidine	91941	No	No	No
3,3'-Dimethoxybenzidine	119904	No	No	No

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
3,5-Dibromo-4-hydroxy-benzonitrile	1689845	No	No	No
3,6-Dimethylphenanthrene	1576676	Once	No	No
4-Aminobiphenyl	92671	No	No	No
4-Bromophenyl Phenyl Ether	101553	No	No	No
4-Chloro-2-nitroaniline	89634	No	No	No
4-Chloro-3-methylphenol	59507	Twice	No	No
4-Chlorophenylphenyl Ether	7005723	No	No	No
4-Methyl-2-pentanone	108101	Yes	No	No
4-Nitrobiphenyl	92933	No	No	No
4-Nitrophenol	100027	No	No	No
4,4'-Methylenebis(2-chloroaniline)	101144	No	No	No
4,5-Methylene Phenanthrene	203645	No	No	No
5-Chloro-o-toluidine	95794	No	No	No
5-Nitro-o-toluidine	99558	No	No	No
7,12-Dimethylbenz(a)anthracene	57976	No	No	No
Acenaphthylene	208968	No	No	No
Acrylonitrile	107131	No	No	No
alpha-Terpineol	98555	Yes	No	No
Aniline	62533	No	No	No
Aramite	140578	No	No	No
Aroclor-1016	12674112	Once	Yes	No
Aroclor-1221	11104282	Once	No	No
Aroclor-1232	11141165	Once	No	No
Aroclor-1242	53469219	Once	No	No
Aroclor-1248	12672296	Yes	No	No
Aroclor-1254	11097691	Yes	Yes	No
Aroclor-1260	11096825	Yes	No	No
Azinphos Methyl	86500	Twice	No	No
Azinphos Ethyl	2642719	Twice	No	No
Benzanthrone	82053	No	No	No
Benzene	71432	Yes	No	No
Benzenethiol	108985	Once	No	No
Benzidine	92875	No	No	No
Benzo(ghi)perylene	191242	Twice	No	No
Benzoic Acid	65850	Yes	No	No
Benzyl Alcohol	100516	Yes	No	No
beta-Naphthylamine	91598	No	No	No

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
Biphenyl	92524	Yes	No	No
bis(2-Chloroethoxy)methane	111911	No	No	No
bis(2-Chloroethyl) Ether	111444	No	No	No
bis(2-Chloroisopropyl) Ether	108601	No	No	No
Bismuth	7440699	No	No	No
Bromodichloromethane	75274	No	No	No
Bromomethane	74839	No	No	No
Butyl Benzyl Phthalate	85687	Yes	No	No
Captafol	2425061	Once	No	No
Carbazole	86748	No	No	No
Carbon Disulfide	75150	Yes	No	No
Carbophenothion (Trithion)	786196	Once	No	No
Cerium	7440451	No	No	No
Chloroacetonitrile	107142	No	No	No
Chlorobenzene	108907	Yes	No	No
Chloroethane	75003	Twice	No	No
Chloroform	67663	Yes	No	No
Chloromethane	74873	Twice	No	No
Ciodrin	7700176	Twice	No	No
cis-1,3-Dichloropropene	10061015	No	No	No
Coumaphos	56724	No	No	No
Crotonaldehyde	4170303	Twice	No	No
Crotoxyphos	7700176	No	No	No
Crotoxyphos	7700176	Yes	No	No
Cyanide	57125	Yes	No	No
delta-BHC	319868	Yes	No	No
di-n-Butyl Phthalate	84742	Yes	No	No
di-n-Octyl Phthalate	117840	Yes	No	No
Di-N-propylnitrosamine	621647	No	No	No
Dibenzofuran	132649	Yes	No	No
Dibenzothiophene	132650	Once	No	No
Dibromochloromethane	124481	No	No	No
Dibromomethane	74953	No	No	No
Diethyl Ether	60297	No	No	No
Dimethoate	60515	Yes	No	No
Dimethyl Phthalate	131113	Twice	No	No
Dimethyl Sulfone	67710	Once	No	No

<b>Analyte</b>	<b>CASRN</b>	<b>Found in 1989?</b>	<b>Human Health Benchmark?</b>	<b>Proposed Survey?</b>
Dioxathion	78342	No	No	No
Diphenyl Ether	101848	Yes	No	No
Diphenylamine	122394	Once	No	No
Diphenyldisulfide	882337	No	No	No
Dysprosium	7429916	No	No	No
Endosulfan Sulfate	1031078	Once	No	No
Endosulfan-I	959988	Yes	No	No
Endosulfan-II	33213659	Yes	No	No
Endrin Ketone	53494705	Once	No	No
Endrin Aldehyde	7421934	Once	No	No
Erbium	7440520	No	No	No
Ethyl Cyanide	107120	Once	No	No
Ethyl Methacrylate	97632	No	No	No
Ethyl Methanesulfonate	62500	No	No	No
Ethylbenzene	100414	Yes	No	No
Ethylenethiourea	96457	No	No	No
Europium	7440531	No	No	No
Famphur	52857	No	No	No
Fensulfothion	115902	No	No	No
Fenthion	55389	No	No	No
Fluoride	16984488	Yes	No	No
Gadolinium	7440542	No	No	No
Gallium	7440553	No	No	No
Germanium	7440564	No	No	No
Gold	7440575	No	No	No
Hafnium	7440586	No	No	No
Hexachlorobenzene	118741	No	No	No
Hexachlorobutadiene	87683	No	No	No
Hexachlorocyclopentadiene	77474	No	No	No
Hexachloroethane	67721	No	No	No
Hexachloropropene	1888717	No	No	No
Hexanoic Acid	142621	Yes	No	No
Holmium	7440600	No	No	No
Indium	7440746	No	No	No
Iodine	7553562	Once	No	No
Iodomethane	74884	No	No	No
Iridium	7439885	No	No	No



Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
Isobutyl Alcohol	78831	Yes	No	No
Isodrin	465736	Once	No	No
Isophorone	78591	No	No	No
Isosafrole	120581	No	No	No
Lanthanum	7439910	No	No	No
Leptophos	21609905	Yes	No	No
Lithium	7439932	No	No	No
Longifolene	475207	No	No	No
Lutetium	7439943	No	No	No
m-Xylene	108383	Yes	No	No
Malachite Green	569642	No	No	No
Mestranol	72333	No	No	No
Methapyrilene	91805	No	No	No
Methyl Methanesulfonate	66273	No	No	No
Methyl Methacrylate	80626	No	No	No
Methylene Chloride	75092	Yes	No	No
Mevinphos (Phosdrin)	7786347	Twice	No	No
Monocrotophos	6923224	No	No	No
n-Decane	124185	Yes	No	No
n-Docosane	629970	Yes	No	No
n-Dodecane	112403	Yes	No	No
n-Eicosane	112958	Yes	No	No
n-Hexacosane	630013	Yes	No	No
n-Hexadecane	544763	Yes	No	No
N-Nitrosodi-n-butylamine	924163	No	No	No
N-Nitrosodiethylamine	55185	No	No	No
N-Nitrosodimethylamine	62759	No	No	No
N-Nitrosodiphenylamine	86306	Twice	No	No
N-Nitrosomethylethylamine	10595956	No	No	No
N-Nitrosomethylphenylamine	614006	No	No	No
N-Nitrosomorpholine	59892	No	No	No
N-Nitrosopiperidine	100754	No	No	No
n-Octacosane	630024	Yes	No	No
n-Octadecane	593453	Yes	No	No
n-Tetracosane	646311	Yes	No	No
n-Tetradecane	629594	Yes	No	No
n-Triacontane	638686	Yes	No	No

Analyte	CASRN	Found in 1989?	Human Health Benchmark?	Proposed Survey?
Neodymium	7440008	No	No	No
Nickel	7440020	Yes	No	No
Niobium	7440031	No	No	No
Nitrate	14797558	Yes	No	No
Nitrite	14797650	Yes	No	No
Nitrobenzene	98953	Twice	No	No
Nitrofen (TOK)	1836755	Yes	No	No
N,N-Dimethylformamide	68122	No	No	No
o+p Xylene		Yes	No	No
o-Anisidine	90040	No	No	No
o-Cresol	95487	Yes	No	No
o-Toluidine	95534	No	No	No
Octachlorodibenzo- <i>p</i> -dioxin	3268879	Yes	Yes	No
Octachlorodibenzofuran	39001020	Yes	Yes	No
Osmium	7440042	No	No	No
p-Chloroaniline	106478	Yes	No	No
p-Cymene	99876	Yes	No	No
p-Dimethylaminoazobenzene	60117	No	No	No
p-Nitroaniline	100016	No	No	No
Palladium	7440053	No	No	No
Pentachlorobenzene	608935	No	No	No
Pentachloroethane	76017	No	No	No
Pentachlorophenol	87865	Twice	No	No
Pentamethylbenzene	700129	No	No	No
Perylene	198550	Once	No	No
Phenacetin	62442	No	No	No
Phenanthrene	85018	Yes	No	No
Phenol	108952	Yes	No	No
Phenothiazine	92842	No	No	No
Phosphamidon	13171216	Yes	No	No
Phosphoric Acid, Tri- <i>o</i> -tolyl Ester	78308	Yes	No	No
Phosphoric Triamide, Hexamethyl-	680319	No	No	No
Phosphorus	7723140	Yes	No	No
Phosphorus	7723140	Twice	No	No
Platinum	7440064	No	No	No
Potassium	7440097	Once	No	No
Praseodymium	7440100	No	No	No

<b>Analyte</b>	<b>CASRN</b>	<b>Found in 1989?</b>	<b>Human Health Benchmark?</b>	<b>Proposed Survey?</b>
Pronamide	23950585	No	No	No
Resorcinol	108463	No	No	No
Rhenium	7440155	No	No	No
Rhodium	7440166	No	No	No
Ruthenium	7440188	No	No	No
Safrole	94597	No	No	No
Samarium	7440199	No	No	No
Scandium	7440202	No	No	No
Silicon	7440213	Twice	No	No
Squalene	7683649	Twice	No	No
Strontium	7440246	Twice	No	No
Styrene	100425	Yes	No	No
Sulfur	7704349	Twice	No	No
Tantalum	7440257	No	No	No
Tellurium	13494809	No	No	No
Terbium	7440279	No	No	No
Tetrachloromethane	56235	Yes	No	No
Tetraethylpyrophosphate	107493	Yes	No	No
Thallium	7440280	Yes	No	No
Thianaphthene	95158	No	No	No
Thioacetamide	62555	No	No	No
Thioxanthe-9-one	492228	Once	No	No
Thorium	7440291	No	No	No
Thulium	7440304	No	No	No
Titanium	7440326	Yes	No	No
Toluene	108883	Yes	No	No
Total Heptachlorodibenzo- <i>p</i> -dioxins	37871004	Yes	No	No
Total Heptachlorodibenzofurans	38998753	Yes	No	No
Total Pentachlorodibenzofurans	30402154	Yes	No	No
Total Hexachlorodibenzo- <i>p</i> -dioxins	344654608	Yes	No	No
Total Residue		Yes	No	No
Total Pentachlorodibenzo- <i>p</i> -dioxins	36088229	Yes	No	No
Total Hexachlorodibenzofurans	55684941	Yes	No	No
Total Kjeldahl Nitrogen		Yes	No	No
Total Tetrachlorodibenzo- <i>p</i> -dioxins	41903575	Yes	No	No
Total Tetrachlorodibenzofurans	55722275	Yes	No	No
Toxaphene	8001352	Once	Yes	No

<b>Analyte</b>	<b>CASRN</b>	<b>Found in 1989?</b>	<b>Human Health Benchmark?</b>	<b>Proposed Survey?</b>
trans-1,2-Dichloroethene	156605	Yes	No	No
trans-1,3-Dichloropropene	10061026	No	No	No
trans-1,4-Dichloro-2-butene	110576	No	No	No
Tribromomethane	75252	No	No	No
Trichloroethene	79016	Yes	No	No
Trichlorofluoromethane	75694	Yes	No	No
Trichlorofon	52686	Twice	No	No
Triphenylene	217594	Once	No	No
Tripropyleneglycol Methyl Ether	20324338	No	No	No
Tungsten	7440337	No	No	No
Uranium	7440611	No	No	No
Vinyl Chloride	75014	No	No	No
Vinyl Acetate	108054	No	No	No
Ytterbium	7440644	No	No	No
Yttrium	7440655	Yes	No	No
Zirconium	7440677	No	No	No