



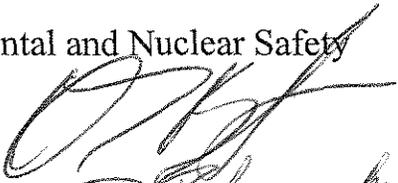
# Constituents of Potential Concern for the WTP Air and Dangerous Waste Permits

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## Acronyms

|         |  |
|---------|--|
| BBI     | best basis inventory   |
| BNI     | Bechtel National, Inc.   |
| CAS     | Chemical Abstracts Registry Service  |
| CCN     | correspondence control number  |
| CFR     | Code of Federal Regulations  |
| CHG     | CH2M HILL Hanford Group, Inc.  |
| COPC    | chemical of potential concern  |
| DQO     | data quality objective   |
| DST     | double shell tank  |
| DOE     | US Department of Energy  |
| RDQO    | <i>Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project (Wiemers and others 1998)</i> |
| DQO     | data quality objectives  |
| Ecology | Washington State Department of Ecology   |
| EPA     | US Environmental Protection Agency   |
| HHRAP   | Human Health Risk Assessment Protocol  |
| HLW     | high-level waste   |
| IRIS    | Integrated Risk Information System   |
| LAW     | low-activity waste   |
| PAH     | polycyclic aromatic hydrocarbon  |
| PCB     | polychlorinated biphenyl   |
| PIC     | product of incomplete combustion   |
| PRA     | pre-demonstration test risk assessment   |
| RDQO    | regulatory data quality objective  |
| ROPC    | radionuclide of potential concern  |
| SST     | single shell tank  |
| TAP     | toxic air pollutant  |
| TWINS   | Tank Waste Information Network System  |
| UHC     | underlying hazardous constituent   |
| UTS     | universal treatment standard   |
| VSL     | Vitreous State Laboratory of the Catholic University of America  |
| WAC     | Washington Administrative Code   |
| WSPS    | Waste Stream Profile Sheet   |
| WTP     | Hanford Tank Waste Treatment and Immobilization Plant  |

## Executive Summary

This report identifies the list of constituents of potential concern that will be used for input to the Hanford Tank Waste Treatment and Immobilization Plant (WTP) environmental air permits and the dangerous waste permit environmental risk assessment. Chemicals of potential concern (COPC), radionuclides of potential concern (ROPC), and constituents possessing both radioactive and non-radioactive effects are addressed. Sources of information include the *Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project* (Wiemers and others 1998), produced by Pacific Northwest National Laboratory, as modified by the subsequent *Regulatory Data Quality Objectives Optimization Report* (BNI 2004); COPCs identified by the CH2M HILL Hanford Group, Inc.; COPCs added as a result of an update to the toxic air permit regulations (WAC 171-460); COPCs added as a result of updates to the underlying hazardous constituents (UHC), universal treatment standards (UTS) (40 CFR 268.48), and Double Shell Tank (DST) Part A (Ecology 2008); COPCs added at the request of the Washington State Department of Ecology (Ecology) and the US Environmental Protection Agency (EPA); EPA Products of Incomplete Combustion (PIC); COPCs detected during research and testing of scale model vitrification units by the Catholic University of America, Vitreous State Laboratory (VSL); and radionuclides of potential concern identified in the Hanford underground tanks in *Standard Inventories of Chemicals and Radionuclides in Hanford Site Tank Wastes* (Kupfer and others 1997).

The resulting list of compounds totals 363 COPCs and 46 ROPCs, including 11 compounds that will be evaluated for radioactive and non-radioactive effects.

# 1 Introduction

Hanford tank waste consists of approximately 54 million US gallons (204 million liters) of radioactive and mixed dangerous wastes stored in underground tanks at the US Department of Energy's (DOE) Hanford Site. The Hanford Tank Waste Treatment and Immobilization Plant (WTP) is being constructed to treat mixed waste from the underground storage tanks. After the tank waste is received at the WTP from the Hanford Site double-shell tank system, it will be pretreated and then immobilized using a process called vitrification. Vitrification is a thermal process that converts the waste materials into a durable glass. The vitrified wastes and secondary wastes resulting from the WTP processes will be transferred to permitted treatment, storage, or disposal units for disposition. Offgas generated by the pretreatment and vitrification processes will be treated in independent systems. Details of the WTP system design are provided in Chapter 4, of the *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Part III, Operating Unit 10 (Ecology 2009).

This report documents the process for identifying the constituents of potential concern that will be used for input to the WTP environmental air permits and dangerous waste permit environmental risk assessment. The process identifies chemicals of potential concern (COPC) and radionuclides of potential concern (ROPC). The process results in 363 COPCs and 46 ROPCs, including 11 compounds that will be evaluated for radioactive and non-radioactive effects (Table 1-1). The table is organized by Chemical Abstracts Registry Service (CAS) number to aid the search for a particular COPC.

**Table 1-1      Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                                 |
|------------|---|
| 100-02-7   | p-Nitrophenol                               |
| 100-21-0   | Phthalic acid                               |
| 100-25-4   | 1,4-Dinitrobenzene                          |
| 10028-15-6 | Ozone                                       |
| 10028-17-8 | Tritium                                     |
| 100-40-3   | 4-Ethenylcyclohexene                        |
| 100-41-4   | Ethyl benzene                               |
| 100-42-5   | Styrene                                     |
| 100-44-7   | Benzyl chloride                             |
| 10045-97-3 | Cesium-137                                  |
| 100-47-0   | Benzonitrile                                |
| 100-51-6   | Benzyl alcohol                              |
| 100-52-7   | Benzaldehyde                                |
| 10061-01-5 | cis-1,3-Dichloropropene                     |
| 10061-02-6 | trans-1,3-Dichloropropene                   |
| 10098-91-6 | Yttrium-90                                  |
| 10098-97-2 | Strontium-90                                |
| 10102-44-0 | Nitrogen dioxide                            |
| 101-55-3   | 4-Bromophenylphenyl ether                   |
| 101-77-9   | 4,4-Methylenedianiline                      |
| 10198-40-0 | Cobalt-60                                   |
| 103-33-3   | Azobenzene                                  |
| 103-65-1   | n-Propyl benzene (Isocumene)                |
| 104-51-8   | n-Butylbenzene                              |
| 104-76-7   | 2-Ethyl-1-hexanol                           |
| 105-67-9   | 2,4-Dimethylphenol                          |
| 10595-95-6 | n-Nitrosomethylethylamine                   |
| 106-43-4   | 4-Chlorotoluene (p-Tolyl chloride)          |
| 106-44-5   | p-Cresol (4-methyl phenol)                  |
| 106-46-7   | 1,4-Dichlorobenzene                         |
| 106-47-8   | p-Chloroaniline                             |
| 106-49-0   | p-Toluidine                                 |
| 106-51-4   | Quinone                                     |
| 106-88-7   | 1,2-Epoxybutane                             |
| 106-89-8   | Epichlorohydrin (1-chloro-2,3 epoxypropane) |
| 106-93-4   | Ethylene dibromide                          |
| 106-99-0   | 1,3-Butadiene                               |
| 107-02-8   | Acrolein                                    |
| 107-05-1   | 3-Chloropropene                             |
| 107-06-2   | 1,2-Dichloroethane                          |
| 107-12-0   | Propionitrile                               |
| 107-13-1   | Acrylonitrile                               |
| 107-19-7   | Propargyl alcohol                           |

**Table 1-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #     | Constituent                             |
|-----------|---|
| 107-21-1  | Ethylene glycol (1,2-ethanediol)        |
| 107-98-2  | Propylene glycol monomethyl ether       |
| 108-05-4  | Acetic acid vinyl ester                 |
| 108-10-1  | 4-Methyl-2-pentanone                    |
| 108-39-4  | m-Cresol                                |
| 108-60-1  | bis (2-Chloroisopropyl)ether            |
| 108-67-8  | 1,3,5-Trimethylbenzene                  |
| 108-86-1  | Bromobenzene (Phenyl bromide)           |
| 108-87-2  | Methylcyclohexane                       |
| 108-88-3  | Toluene                                 |
| 108-90-7  | Chlorobenzene                           |
| 108-94-1  | Cyclohexanone                           |
| 108-95-2  | Phenol                                  |
| 109-74-0  | n-Butanenitrile                         |
| 109-75-1  | 3-Butenenitrile                         |
| 109-77-3  | Malononitrile                           |
| 109-86-4  | 2-Methoxyethanol                        |
| 109-99-9  | Tetrahydrofuran                         |
| 110-00-9  | Furan                                   |
| 110-54-3  | n-Hexane                                |
| 110-59-8  | Pentanenitrile                          |
| 110-80-5  | 2-Ethoxyethanol                         |
| 110-82-7  | Cyclohexane                             |
| 110-83-8  | Cyclohexene                             |
| 110-86-1  | Pyridine                                |
| 111-15-9  | Ethylene glycol monoethyl ether acetate |
| 111-44-4  | bis(2-Chloroethyl)ether                 |
| 111-65-9  | n-Octane                                |
| 111-76-2  | 2-Butoxyethanol                         |
| 111-84-2  | n-Nonane                                |
| 111-91-1  | bis(2-Chloroethoxy)methane              |
| 1120-21-4 | Undecane                                |
| 1120-71-4 | 1,3-Propane sultone                     |
| 112-30-1  | 1-Decanol                               |
| 112-31-2  | Decanal                                 |
| 112-40-3  | Dodecane                                |
| 117-81-7  | Bis(2-ethylhexyl) phthalate             |
| 117-84-0  | Di-n-octylphthalate                     |
| 118-74-1  | Hexachlorobenzene                       |
| 119-90-4  | 3,3'-Dimethoxybenzidine                 |
| 120-12-7  | Anthracene                              |
| 120-82-1  | 1,2,4-Trichlorobenzene                  |
| 120-83-2  | 2,4-Dichlorophenol                      |
| 121-14-2  | 2,4-Dinitrotoluene                      |

**Table 1-1      Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent  |
|------------|--|
| 122-39-4   | N,N-Diphenylamine  |
| 122-66-7   | 1,2-Diphenylhydrazine  |
| 123-33-1   | Maleic hydrazide   |
| 123-38-6   | Propionaldehyde  |
| 123-72-8   | Butanal  |
| 123-91-1   | 1,4-Dioxan   |
| 124-18-5   | Decane   |
| 124-38-9   | Carbon dioxide   |
| 124-48-1   | Chlorodibromomethane   |
| 126-73-8   | Tributyl phosphate   |
| 126-98-7   | 2-Methyl-2-propenenitrile  |
| 127-18-4   | 1,1,2,2-Tetrachloroethene  |
| 128-37-0   | 2,6-Bis(tert-butyl)-4-methylphenol                                 |
| 129-00-0   | Pyrene   |
| 131-11-3   | Dimethyl Phthalate   |
| 131-89-5   | 2-Cyclohexyl-4,6-dinitrophenol                                     |
| 132-64-9   | Dibenzofuran   |
| 1330-20-7  | Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations) |
| 133-06-2   | Captan   |
| 1336-36-3  | Polychlorinated biphenyls (209 congeners)                          |
| 134-32-7   | alpha-Naphthylamine  |
| 135-98-8   | sec-Butylbenzene   |
| 13966-29-5 | Uranium-234  |
| 13967-48-1 | Ruthenium-106  |
| 13967-70-9 | Cesium-134   |
| 13968-55-3 | Uranium-233  |
| 13981-15-2 | Curium-244   |
| 13981-16-3 | Plutonium-238  |
| 13981-37-8 | Nickel-63  |
| 13982-10-0 | Plutonium-242  |
| 13982-63-3 | Radium-226   |
| 13982-70-2 | Uranium-236  |
| 13994-20-2 | Neptunium-237  |
| 14119-32-5 | Plutonium-241  |
| 14119-33-6 | Plutonium-240  |
| 14133-76-7 | Technetium-99  |
| 14158-29-3 | Uranium-232  |
| 141-78-6   | Acetic acid ethyl ester  |
| 14234-35-6 | Antimony-125   |
| 14265-44-2 | Phosphate  |
| 14331-85-2 | Protactinium-231   |
| 14336-70-0 | Nickel-59  |
| 14391-16-3 | Europium-155   |
| 145-73-3   | Endothall  |

**Table 1-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                                |
|------------|--|
| 14596-10-2 | Americium-241                              |
| 14683-23-9 | Europium-152                               |
| 14762-75-5 | Carbon-14                                  |
| 14797-55-8 | Nitrate                                    |
| 14797-65-0 | Nitrite                                    |
| 14808-79-8 | Sulfate                                    |
| 14952-40-0 | Actinium-227                               |
| 14993-75-0 | Americium-243                              |
| 15046-84-1 | Iodine-129                                 |
| 15117-48-3 | Plutonium-239                              |
| 15117-96-1 | Uranium-235                                |
| 15262-20-1 | Radium-228                                 |
| 15510-73-3 | Curium-242                                 |
| 15585-10-1 | Europium-154                               |
| 15594-54-4 | Thorium-229                                |
| 156-59-2   | cis-1,2-Dichloroethene                     |
| 156-60-5   | 1,2-trans-Dichloroethene                   |
| 15715-94-3 | Samarium-151                               |
| 15751-77-6 | Zirconium-93                               |
| 15757-87-6 | Curium-243                                 |
| 15758-45-9 | Selenium-79                                |
| 15832-50-5 | Tin-126                                    |
| 1634-04-4  | Methyl tert-butyl ether                    |
| 16887-00-6 | Chloride                                   |
| 16984-48-8 | Fluoride                                   |
| 1746-01-6  | 2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD) |
| 189-55-9   | Dibenzo[a,i]pyrene                         |
| 189-64-0   | Dibenzo[a,h]pyrene                         |
| 191-24-2   | Benzo(g,h,i)perylene                       |
| 191-30-0   | Dibenzo(a,l)pyrene                         |
| 192-65-4   | Dibenzo[a,e]pyrene                         |
| 192-97-2   | Benzo(e)pyrene                             |
| 193-39-5   | Indeno(1,2,3-cd)pyrene                     |
| 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin     |
| 205-82-3   | Benzo[j]fluoranthene                       |
| 205-99-2   | Benzo(b)fluoranthene                       |
| 206-44-0   | Fluoranthene                               |
| 207-08-9   | Benzo(k)fluoranthene                       |
| 208-96-8   | Acenaphthylene                             |
| 218-01-9   | Chrysene                                   |
| 224-42-0   | Dibenz[a,j]acridine                        |
| 2245-38-7  | 2,3,5-Trimethylnaphthalene                 |
| 226-36-8   | Dibenz[a,h]acridine                        |
| 22967-92-6 | Methyl mercury                             |

**Table 1-1      Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #       | Constituent                                       |
|-------------|---|
| 23950-58-5  | Pronamide   |
| 24959-67-9  | Bromide   |
| 27154-33-2  | Trichlorofluoroethane                             |
| 31508-00-6  | 2,3',4,4',5-Pentachlorobiphenyl (PCB 118)         |
| 319-84-6    | alpha-BHC   |
| 319-85-7    | beta-BHC  |
| 32598-13-3  | 3,3',4,4'-Tetrachlorobiphenyl (PCB 77)            |
| 32598-14-4  | 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)         |
| 3268-87-9   | Octachlorodibenzo(p)dioxin                        |
| 32774-16-6  | 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)       |
| 35822-46-9  | 1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin         |
| 3697-24-3   | 5-Methylchrysene                                  |
| 378253-40-8 | Barium-137m                                       |
| 378253-44-2 | Cadmium-113m                                      |
| 378782-82-2 | Niobium-93m                                       |
| 38380-08-4  | 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)        |
| 39001-02-0  | Octachlorodibenzofuran                            |
| 39227-28-6  | 1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin            |
| 39635-31-9  | 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)    |
| 40321-76-4  | 1,2,3,7,8-Pentachlorodibenzo(p)dioxin             |
| 4170-30-3   | Crotonaldehyde (Propylene aldehyde)               |
| 41851-50-7  | Chlorocyclopentadiene                             |
| 460-19-5    | Cyanogen (oxalonitrile)                           |
| 4786-20-3   | 2-Butenenitrile                                   |
| 50-00-0     | Formaldehyde                                      |
| 50-32-8     | Benzo(a)pyrene                                    |
| 506-68-3    | Cyanogen bromide (bromocyanide)                   |
| 506-77-4    | Cyanogen chloride                                 |
| 510-15-6    | Chlorobenzilate                                   |
| 51207-31-9  | 2,3,7,8-Tetrachlorodibenzofuran                   |
| 51-28-5     | 2,4-Dinitrophenol                                 |
| 51-79-6     | Ethyl carbamate (urethane)                        |
| 52663-72-6  | 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)       |
| 528-29-0    | 1,2-Dinitrobenzene (o-Dinitrobenzene)             |
| 532-27-4    | 2-Chloroacetophenone                              |
| 534-52-1    | 4,6-Dinitro-o-cresol                              |
| 53-70-3     | Dibenz[a,h]anthracene                             |
| 5385-75-1   | Dibenzo(a,e)fluoranthene                          |
| 540-59-0    | 1,2-Dichloroethene (total) (1,2-Dichloroethylene) |
| 540-73-8    | 1,2-Dimethylhydrazine                             |
| 540-84-1    | 2,2,4-Trimethylpentane                            |
| 541-73-1    | 1,3-Dichlorobenzene                               |
| 542-75-6    | 1,3-Dichloropropene                               |
| 542-88-1    | bis(Chloromethyl)ether                            |

**Table 1-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                               |
|------------|---|
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran     |
| 56-23-5    | Carbon tetrachloride                      |
| 56-49-5    | 3-Methylcholanthrene                      |
| 56-55-3    | Benzo(a)anthracene                        |
| 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran         |
| 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran         |
| 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran        |
| 57-12-5    | Cyanide                                   |
| 57-24-9    | Strychnine                                |
| 57465-28-8 | 3,3',4,4',5-Pentachlorobiphenyl (PCB 126) |
| 57653-85-7 | 1,2,3,6,7,8,-Hexachlorodibenzo(p)dioxin   |
| 57-74-9    | Chlordane                                 |
| 581-42-0   | 2,6-Dimethylnaphthalene                   |
| 584-84-9   | 2,4-Toluene diisocyanate                  |
| 58-89-9    | gamma-BHC (Lindane)                       |
| 58-90-2    | 2,3,4,6-Tetrachlorophenol                 |
| 589-38-8   | 3-Hexanone                                |
| 591-50-4   | Benzene, iodo-                            |
| 591-78-6   | 2-Hexanone                                |
| 593-60-2   | Bromoethene (Vinyl bromide)               |
| 593-74-8   | Dimethyl Mercury                          |
| 59-50-7    | 4-Chloro-3-methylphenol                   |
| 59-89-2    | N-Nitrosomorpholine                       |
| 60-11-7    | Dimethyl aminoazobenzene                  |
| 602-87-9   | 5-Nitroacenaphthene                       |
| 60-29-7    | Ethyl ether                               |
| 60-35-5    | Acetamide                                 |
| 606-20-2   | 2,6-Dinitrotoluene                        |
| 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran        |
| 608-93-5   | Pentachlorobenzene                        |
| 61626-71-9 | Dichloropentadiene                        |
| 621-64-7   | N-Nitroso-di-n-propylamine                |
| 624-83-9   | Methyl isocyanate                         |
| 62-50-0    | Ethyl methanesulfonate                    |
| 62-53-3    | Aniline                                   |
| 62-75-9    | N-Nitroso-N,N-dimethylamine               |
| 628-73-9   | Hexanenitrile                             |
| 630-08-0   | Carbon monoxide <sup>c</sup>              |
| 630-20-6   | 1,1,1,2-Tetrachloroethane                 |
| 64-18-6    | Formic acid (methanoic acid)              |
| 65510-44-3 | 2',3,4,4',5-Pentachlorobiphenyl (PCB 123) |
| 65-85-0    | Benzoic acid                              |
| 67-56-1    | Methyl alcohol                            |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran     |

**Table 1-1      Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                                 |
|------------|---|
| 67-63-0    | 2-Propyl alcohol                            |
| 67-64-1    | 2-Propanone (Acetone)                       |
| 67-66-3    | Chloroform                                  |
| 67-72-1    | Hexachloroethane                            |
| 69782-90-7 | 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) |
| 70-30-4    | Hexachlorophene                             |
| 70362-50-4 | 3,4,4',5-Tetrachlorobiphenyl (PCB 81)       |
| 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran          |
| 71-36-3    | n-Butyl alcohol                             |
| 71-43-2    | Benzene                                     |
| 71-55-6    | 1,1,1-Trichloroethane                       |
| 72-43-5    | Methoxychlor                                |
| 72-55-9    | 4,4-DDE                                     |
| 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran          |
| 7429-90-5  | Aluminum                                    |
| 7439-89-6  | Iron  |
| 7439-92-1  | Lead  |
| 7439-93-2  | Lithium                                     |
| 7439-95-4  | Magnesium                                   |
| 7439-96-5  | Manganese                                   |
| 7439-97-6  | Mercury                                     |
| 7439-98-7  | Molybdenum                                  |
| 7440-02-0  | Nickel                                      |
| 7440-16-6  | Rhodium                                     |
| 7440-22-4  | Silver                                      |
| 7440-23-5  | Sodium                                      |
| 7440-24-6  | Strontium (total)                           |
| 7440-25-7  | Tantalum                                    |
| 7440-28-0  | Thallium                                    |
| 7440-29-1  | Thorium-232                                 |
| 7440-31-5  | Tin   |
| 7440-33-7  | Tungsten                                    |
| 7440-36-0  | Antimony                                    |
| 7440-38-2  | Arsenic                                     |
| 7440-39-3  | Barium                                      |
| 7440-41-7  | Beryllium                                   |
| 7440-43-9  | Cadmium                                     |
| 7440-47-3  | Chromium                                    |
| 7440-48-4  | Cobalt                                      |
| 7440-50-8  | Copper                                      |
| 7440-61-1  | Uranium                                     |
| 7440-61-1R | Uranium-238 <sup>d</sup>                    |
| 7440-62-2  | Vanadium                                    |
| 7440-65-5  | Yttrium                                     |

**Table 1-1      Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                              |
|------------|--|
| 7440-66-6  | Zinc                                     |
| 7440-67-7  | Zirconium                                |
| 7446-09-5  | Sulfur dioxide                           |
| 74472-37-0 | 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) |
| 74-83-9    | Bromomethane                             |
| 74-87-3    | Chloromethane                            |
| 74-88-4    | Iodomethane                              |
| 74-95-3    | Methylene bromide                        |
| 74-97-5    | Bromochloromethane                       |
| 75-00-3    | Chloroethane                             |
| 75-01-4    | 1-Chloroethene                           |
| 75-02-5    | Fluoroethene (vinyl fluoride)            |
| 75-05-8    | Acetonitrile                             |
| 75-07-0    | Acetaldehyde                             |
| 75-09-2    | Dichloromethane (Methylene Chloride)     |
| 75-15-0    | Carbon disulfide                         |
| 75-21-8    | Ethylene oxide (Oxirane)                 |
| 75-25-2    | Bromoform                                |
| 75-27-4    | Bromodichloromethane                     |
| 75-29-6    | 2-Chloropropane                          |
| 75-34-3    | 1,1-Dichloroethane                       |
| 75-35-4    | 1,1-Dichloroethene                       |
| 75-44-5    | Phosgene (hydrogen phosphide)            |
| 75-45-6    | Chlorodifluoromethane                    |
| 75-50-3    | Trimethylamine                           |
| 75-69-4    | Trichlorofluoromethane                   |
| 75-71-8    | Dichlorodifluoromethane                  |
| 76-01-7    | Pentachloroethane                        |
| 76-13-1    | 1,2,2-Trichlorotrifluoroethane           |
| 764-41-0   | 1,4-Dichloro-2-butene                    |
| 76-44-8    | Heptachlor                               |
| 7647-01-0  | Hydrogen chloride                        |
| 765-34-4   | Glycidylaldehyde                         |
| 7664-39-3  | Hydrogen Fluoride                        |
| 7664-41-7  | Ammonia/Ammonium                         |
| 7704-34-9  | Total Sulfur (thermodynamically stable)  |
| 7723-14-0  | Phosphorus                               |
| 77-47-4    | Hexachlorocyclopentadiene                |
| 77-78-1    | Dimethyl sulfate                         |
| 7782-41-4  | Fluorine gas F2                          |
| 7782-49-2  | Selenium                                 |
| 7782-50-5  | Chlorine                                 |
| 78-83-1    | 2-Methylpropyl alcohol                   |
| 78-87-5    | 1,2-Dichloropropane                      |

**Table 1-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #    | Constituent  |
|----------|--|
| 78-93-3  | 2-Butanone   |
| 79-00-5  | 1,1,2-Trichloroethane                                  |
| 79-01-6  | 1,1,2-Trichloroethylene                                |
| 79-10-7  | 2-Propenoic acid                                       |
| 79-34-5  | 1,1,2,2-Tetrachloroethane                              |
| 79-46-9  | 2-Nitropropane   |
| 80-62-6  | Methyl methacrylate                                    |
| 822-06-0 | Hexamethylene-1,5-diisocyanate                         |
| 823-40-5 | Toluene-2,6-diamine                                    |
| 82-68-8  | Pentachloronitrobenzene (PCNB)                         |
| 832-69-9 | 1-Methylphenanthrene                                   |
| 83-32-9  | Acenaphthene   |
| 84-66-2  | Diethyl phthalate                                      |
| 84-74-2  | Di-n-butylphthalate                                    |
| 85-01-8  | Phenanthrene   |
| 85-44-9  | Phthalic anhydride (1,2-benzenedicarboxylic anhydride) |
| 85-68-7  | Butylbenzylphthalate                                   |
| 86-73-7  | Fluorene   |
| 87-61-6  | 1,2,3-Trichlorobenzene                                 |
| 87-68-3  | Hexachlorobutadiene                                    |
| 87-86-5  | Pentachlorophenol                                      |
| 88-06-2  | 2,4,6-Trichlorophenol                                  |
| 88-74-4  | o-Nitroaniline (2-nitroaniline)                        |
| 88-75-5  | 2-Nitrophenol  |
| 90-04-0  | o-Anisidine  |
| 90-12-0  | 1-Methylnaphthalene                                    |
| 91-20-3  | Naphthalene  |
| 91-22-5  | Quinoline  |
| 91-57-6  | 2-Methylnaphthalene                                    |
| 91-58-7  | 2-Chloronaphthalene                                    |
| 91-94-1  | 3,3'-Dichlorobenzidine                                 |
| 924-16-3 | N-Nitroso-di-n-Buetylamine                             |
| 92-52-4  | 1,1'-Biphenyl  |
| 94-59-7  | Safrole (5-(2-Propenyl)-1,3-benzodioxole)              |
| 94-75-7  | 2,4-D  |
| 95-48-7  | o-Cresol   |
| 95-49-8  | o-Chlorotoluene  |
| 95-50-1  | 1,2-Dichlorobenzene                                    |
| 95-53-4  | o-Toluidine  |
| 95-57-8  | 2-Chlorophenol   |
| 95-63-6  | 1,2,4-Trimethyl benzene                                |
| 95-94-3  | 1,2,4,5-Tetrachlorobenzene                             |
| 95-95-4  | 2,4,5-Trichlorophenol                                  |
| 96-12-8  | 1,2-Dibromo-3-chloropropane                            |

**Table 1-1**      **Constituents of Potential Concern for WTP Air and Dangerous Waste  
Permitting Activities**

| <b>CAS #</b> | <b>Constituent</b>             |
|--------------|--------------------------------|
| 96-18-4      | 1,2,3-Trichloropropane         |
| 96-45-7      | Ethylene thiourea              |
| 97-63-2      | Ethyl methacrylate             |
| 98-01-1      | Furfural                       |
| 98-06-6      | tert-Butyl benzene             |
| 98-07-7      | Benzotrichloride               |
| 98-82-8      | Cumene                         |
| 98-83-9      | Methyl styrene (mixed isomers) |
| 98-86-2      | Acetophenone                   |
| 98-95-3      | Nitrobenzene                   |
| 99-35-4      | 1,3,5-Trinitrobenzene          |
| 99-65-0      | 1,3-Dinitrobenzene             |
| 99-87-6      | p-Cymene                       |
| N/A          | Particulate matter             |

## 2 WTP Constituents of Potential Concern

The selection process for COPCs and ROPCs for the WTP focused on compounds that are: (1) likely to be emitted due to the presence of the compound or its precursors in the waste feed; (2) potential products of incomplete combustion (PIC); and/or (3) those compounds potentially toxic to humans.

The process of identifying COPCs and ROPCs that are potentially emitted from the WTP due to the presence of the compound or its precursors in the waste feed, or are potentially formed as products of incomplete combustion, includes the following ten sequential steps:

1. Start with the list of chemicals potentially present in the waste. This list was taken from the *Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project* (Wiemers and others 1998), also referred to as the “regulatory data quality objectives (RDQO).” The starting list includes both organic and inorganic constituents (Section 2.1.1).
2. Add lower-toxicity organic chemicals that may be present in the tank waste but were excluded from the RDQO list (Section 2.1.2).
3. Update the organic RDQO input list with changes to the Underlying Hazardous Constituents (UHC)/ Universal Treatment Standards (UTS) and add tank waste compounds identified by the Tank Waste Information Network System (TWINS) or Best Basis Inventory (BBI) not selected as RDQO or low-toxicity additions to the WTP feed COPC list (Section 2.1.3).
4. Add chemicals from the *Industrial Hygiene Chemical Vapor Technical Basis* program (CHG 2004) that were not already included in the COPC list as a result of the steps outlined above (Section 2.1.4).
5. Add radionuclides from Hanford Site tank waste inventory estimates (*Standard Inventories of Chemicals and Radionuclides in Hanford Site Tank Wastes* (Kupfer and others 1997, Section 2.1.5).
6. Adjust the list of feed COPCs in accordance with the revision to WAC 173-460 list of toxic air pollutants (TAP) (Section 2.2).
7. Adjust the list of COPCs in accordance with the agreements documented in 24590-WTP-RPT-MGT-04-001, *Regulatory Data Quality Objectives Optimization Report* (BNI 2004) (Section 2.3).
8. Add stack emission compounds from revised WAC 173-460 TAPs list (Section 2.4.2).
9. Add criteria pollutants (Section 2.4.3).
10. Add stack emissions chemicals that EPA has identified as potential PICs in combustion devices (Section 2.4.4).
11. Add chemicals that WTP has identified as site-specific PICs in vitrification unit testing (Section 2.4.5).
12. Adjust list of constituents of potential concern in accordance with agreements reached with the EPA and Ecology (Section 2.5).

Table 2-1 presents the consolidated list of COPCs and ROPCs (organized by source) to be used in the air and dangerous waste permitting activities. The table is coded to provide the source of the compound, identify whether it is a PIC, and identify those compounds that will be evaluated for both radioactive and non-radioactive effects in the permitting activities. Table 2-2 tracks changes to the constituents of

potential concern and identifies the reason for changes as the evaluation described in this report proceeds through the COPC identification process.

## **2.1 COPCs Identified by Hanford Tank Characterization Programs**

The process for selecting constituents of potential concern includes the examination of constituents in the waste feed and constituents in the offgas that result from the treatment of the feed. The discussion below describes the process used to determine the appropriate COPCs in the feed using historical tank characterization data. Steps 1 through 4 above identified organic and inorganic waste feed COPCs, and ROPCs. Compounds evaluated for both radioactive and non-radioactive impacts (Section 2, Step 12) are discussed in Section 2.5.4.

### **2.1.1 COPCs Identified by the Regulatory Data Quality Objectives**

The DOE initiated a process to identify Hanford tank waste characterization needs for the proposed Hanford tank waste treatment processes. The RDOQ (Wiemers and others 1998) documents those data needs. The RDQO identified both organic and inorganic compounds to be characterized in tank waste prior to WTP processing. The compounds identified in the RDQO served as the starting list for the WTP COPC list. The following subsections discuss the organic and inorganic COPCs identified that could be potentially emitted from the WTP due to the presence of the compound or its precursors in the waste feed (Section 2, Step 1).

#### **2.1.1.1 Organic COPCs Identified by the Regulatory Data Quality Objectives**

The RDQO (Wiemers and others 1998) process for identifying the WTP organic COPCs is described in Appendix A. The process summarized in Appendix A results in a starting list of 125 organic compounds.

#### **2.1.1.2 Inorganic COPCs Identified by the Regulatory Data Quality Objectives**

The starting list of inorganics was also established using the RDQO process (Appendix A). The RDQO identified 52 inorganic COPCs. However, the RDQO excluded analyses for four COPCs (cesium, platinum, sulfides, and sulfite), which reduced the number of inorganic COPCs to 48. The excluded compounds are listed in Table 2-2, (adjustment code 1).

### **2.1.2 Lower Toxicity Organic Chemicals Screened by the Regulatory DQO Process - Added Back to the COPC List**

During the RDQO process (Wiemers and others 1998), 217 COPCs were identified as lower toxicity compounds. These compounds were categorized by whether Hanford tank sampling and analysis programs had detected them in the waste or vapor space. Of these lower toxicity constituents, 106 were retained as part of the 125 constituents resulting from the RDQO process. The remaining 111 lower toxicity constituents were removed from further consideration.

Ecology and EPA (CCN 011395) did not agree with the removal of organic chemicals from the COPC list based on toxicity. Therefore, organic chemicals removed by the RDQO due to low toxicity were added to the list of preliminary COPCs (Section 2, Step 2), increasing the number of organic feed COPCs from 125 to 236. These 111 additional low-toxicity chemicals are described in Appendix A.

### 2.1.3 Updates to the UHC/UTS and DST Part A Organic Inputs to the Regulatory DQO Process

Since the RDQO was completed in 1998, several additions and deletions have been made to the UHC/UTS lists of regulated constituents and Double Shell Tank Dangerous Waste Permit Application Part A Form (Ecology 2008, herein referred to as the DST Part A) constituents. The current list of UHC/UTS and DST Part A constituents is provided in Appendix A, Table A-4. The updated UHC/UTS and DST Part A constituents was compared to the list of compounds identified in TWINS or BBI (Table A-4). The comparison identified five compounds listed as UHC/UTS or DST Part A constituents detected in Hanford tank waste and listed in TWINS or BBI that were not previously identified as COPCs by Section 2, steps 1 and 2 above; these were added to the WTP feed COPC list (Table 2-1, source code 4). Two compounds were dropped from regulation by the updates. However, these two compounds are also listed as toxic air pollutants (TAP); consequently, they were retained for further evaluation as TAPs in Section 2, step 6. Appendix A provides more details of the UHC/UTS, and DST Part A update evaluation. The subsequent steps described below were implemented to evaluate and modify the list of WTP COPCs derived from the RDQO, the lower toxicity constituents added back by agreement with the regulatory agencies, and the updates to the UHC/UTS and DST Part A constituent lists.

### 2.1.4 COPCs Identified by CH2M Hill Hanford Group Industrial Hygiene Chemical Vapor Program

In October 2004, CH2M HILL Hanford Group (CHG) published a technical basis for the *Industrial Hygiene Chemical Vapor Program* (CHG 2004) to support the management of Hanford tank farms (Section 2, Step 4). The report summarizes the results of the tank farm headspace sampling program and the evaluation of the potential toxicity of headspace compounds. It identifies constituents that are of interest from an industrial hygiene and worker safety perspective. This process identified 52 compounds as constituents of potential concern from a risk assessment and air permitting perspective. A brief summary of the CHG data compilation is provided in Appendix B.

Seventeen compounds were identified that were not otherwise included as COPCs from the processes described above (Section 2, Steps 1-3). Twelve compounds are organic and five are inorganic<sup>1</sup> (see Appendix B, Table B-1). Table 2-1 documents the COPCs from the CHG evaluation (source codes 5, 6, and 9). However, in the evaluation of TAPs (step 6), three additional constituents (for a total of 20 COPCs) were added to the CHG vapor study list following removal (see Section 2.1.4.1) in the evaluation of changes to the TAPs list (Section 2.2.2)<sup>2</sup>.

#### 2.1.4.1 Organic COPCs Identified by CH2M Hill Hanford Group Industrial Hygiene Chemical Vapor Program

Twelve organic compounds were identified in the CHG vapor study. Unless there are compelling reasons to the contrary, organic COPCs identified from the vapor program are assumed to represent tank waste (as opposed to waste decomposition byproducts in the vapor space). These 12 compounds were added to the waste feed COPC list. The evaluation of CHG vapor study data returned two mixtures (aroclor mixtures

<sup>1</sup> Nitrous oxide (CAS No. 10024-97-2) is not shown in Table 2-1, refer to Section 2.1.4.2.

<sup>2</sup> Methyl isocyanate (CAS No. 624-83-9) was also detected in the CHG vapor study, but removed from regulation in the TAPs revision, it was later added as a stack emission COPC due to its presence as an EPA PIC (see Section 2.4.4).

of PCBs) to the WTP COPC feed list that were eliminated in the UHC/UTS, DST Part A review. The aroclors are later removed as discussed in sections 2.3.1.1 and 2.5.1.2.

Three constituents, methylhydrazine (CAS No. 60-34-4), trimethylamine (CAS 75-50-3), and 1,1'-biphenyl (CAS No. 92-52-4) appear on the CHG vapor study list (Appendix B, Table B-1). These constituents were previously identified as COPCs because of their inclusion in the RDQO or list of low-toxicity constituents (due solely to their inclusion as class B TAPs), but were candidates for removal in the TAPs evaluation because they were excluded as TAPs in the revision to the statute; see Appendix C, Table C-4, disposition 2 and 6. However, because CHG identified these constituents in the tank vapor space, they are assumed to represent tank waste. Consequently, they are retained as COPCs and the source code of 5 was assigned in Table 2-1 identifying the CHG vapor study as the source. Methyl isocyanate (CAS No. 624-83-9) was also detected in the CHG vapor study, but removed from regulation in the TAPs revision and deemed reactive (and not detectable in a waste matrix) in the RDQO optimization effort (see Section 2.3.1.1); it was later added as a stack emission COPC due to its presence as an EPA PIC (see Section 2.4.4).

Table 2-2 (adjustment codes 9 and 10) lists the changes and Table 2-1 (source code 5) identifies the WTP organic feed COPCs where the CHG vapor study is the rationale for COPC selection.

#### **2.1.4.2 Inorganic COPCs Identified by CH2M Hill Hanford Group Industrial Hygiene Chemical Vapor Program**

Five constituents, nitrous oxide (CAS No. 10024-97-2), nitrogen dioxide (CAS No. 10102-44-0), carbon dioxide (CAS No. 124-38-9), carbon monoxide (CAS No. 630-08-0), and dimethyl mercury (CAS No. 593-74-8) were identified by CHG as present in Hanford tank vapor headspace. Dimethyl mercury is an organo-metallic compound that exhibits characteristics of both organic and inorganic chemicals. It likely is formed from a reaction between elemental mercury and organic constituents in the tank waste. Dimethyl mercury was added as a WTP feed COPC (Table 2-1 source code 6).

CHG identified three gaseous compounds in the vapor headspace, nitrogen dioxide, carbon monoxide and carbon dioxide. They are more appropriately measured in stack emissions (Section 2.4.1).

Nitrous oxide (CAS No. 10024-97-2) was also identified in the CHG vapor program. Nitrous oxide is likely released from the high salt wastes stored in the Hanford tanks which contain higher concentrations of nitrate and nitrite ions. These nitrate and nitrite ions will be analyzed as part of the waste processing at the WTP. Emissions of oxides of nitrogen will be monitored by the WTP during testing and operations as part of the air permitting activities. Analysis for nitrous oxide will not offer additional useful data for managing the waste. Therefore, this COPC was removed from further consideration.

Table 2-1 (source codes 6 and 9) lists the inorganic additions to the COPC list and Table 2-2 (adjustment code 2) lists the deletion.

#### **2.1.5 Radionuclides of Potential Concern**

The ROPCs identified in Section 2, Step 4, are discussed in this section. In 1997, Kupfer and others published *Standard Inventories of Chemicals and Radionuclides in Hanford Site Tank Wastes*. The report provided a global best-basis inventory estimate of the chemical and radionuclide components of the 177 single- and double-shell underground waste storage tanks on the Hanford Site that will serve as feed to the WTP. Since the RDQO process identified the chemical components of the WTP waste feed, this

report was used to develop the ROPC list only. The 46 ROPCs identified represent over 99 percent of the activity of the Hanford tank waste. No screening to reduce the number of ROPCs identified was conducted. Table 2-1 (source code 7) presents the ROPCs identified by Kupfer and others (1997).

## 2.2 COPC Adjustments as a Result of Revisions to the Toxic Air Pollutants

In 2009, Ecology issued a revision to the list of toxic air pollutants (WAC 173-460). The revision both added and removed TAPs that were previously used as input to the RDQO (Wiemers and others 1998).

The revised toxic air pollutant list identifies 395 TAPs. These TAPs were compared with the three primary inputs used to determine appropriate WTP COPCs:

- Constituents previously evaluated as input to the RDQO (including those constituents eliminated or retained as COPCs) (Section 2.1.1)
- Low-toxicity constituents screened out and added back at the request of Ecology (Section 2.1.2)
- Constituents identified by CHG industrial hygiene chemical vapor program (Section 2.1.4). Note, if the constituents appear on the CHG vapor study list, they were not evaluated in the TAPs revision evaluation.

The results of that evaluation are discussed in Section 2.2.1. The evaluation included an assessment of those TAPs formerly considered Class A or B TAPs, but removed from regulation in the WAC revision, and those constituents not previously identified as Class A or B TAPs, but added as a result of the WAC revision.

Those COPCs removed by the WAC 173-460 update (old TAPs) were compared with the latest updates to TWINS (PNNL 2010) tank waste analytical data and the Best Basis Inventory (PNNL 2010). Those COPCs with more than ten instances of detection in tank waste (TWINS), or listed with a quantity value in the BBI, were retained as feed COPCs. However, if the COPC was identified as a feed COPC in the RDQO (Section 2.1.1), or identified as low-toxicity compounds added at the request of Ecology and EPA (Section 2.1.2), solely because they were formerly regulated as a Class A or B TAP and they did not meet the TWINS or BBI retention criteria, then the constituent was eliminated as a potential COPC. Section 2.2.2 discusses the evaluation of the old TAPs.

The evaluation resulted in the removal<sup>3</sup> of 79 feed constituents previously identified in the RDQO starting list of 173 organic and inorganic constituents, or previously identified as one of the 111 compounds added back as low-toxicity constituents (37 from the 125 organic RDQO COPCs [Table 2-2, adjustment codes 3, 4, and 7], 42 from the low-toxicity list [Table 2-2, adjustment codes 5, 6, and 8]). Three additional compounds were removed by the evaluation (2 from the RDQO starting list and 1 from the low-toxicity list); however, they were detected in the CHG vapor study and therefore retained as feed COPCs (Table 2-2<sup>4</sup>, adjustment codes 9 and 10). Section 2.1.4.1 discusses the CHG vapor study organic compounds and Section 2.3.1 discusses constituents for which there are no appropriate analytical methods for the tank waste matrix.

Appendix C provides details of the TAPs update and the subsequent changes.

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<sup>3</sup> Eleven (11) of the removed RDQO and low-toxicity COPCs appearing on the EPA or site-specific PIC lists were added back as stack emissions COPCs (Sections 2.4.4 and 2.4.5).

<sup>4</sup> Trimethylamine (CAS No. 75-50-3) one was eventually dropped from consideration because of a lack of a valid analytical method for constituent in the waste matrix (Table 2-2, adjustment code 12 with footnote d).

### 2.2.1 Evaluation of the New List of Toxic Air Pollutants

The 395 compounds identified as TAPs by the WAC 173-460 revision were evaluated to determine if changes were made to the WTP COPC list. The results of the evaluation of the TAPs list are:

- 1 organic constituent previously included as a feed COPC by the RDQO process, but removed by UHC/UTS, DST Part A review, was reinstated because it appears on the revised TAPs list
- 1 organic constituent previously included as a low-toxicity compound, but removed by UHC/UTS, DST Part A review, was reinstated because it appears on the revised TAPs list
- 6 inorganic compounds were identified to be measured in stack emissions [criteria pollutants (2 compounds), or added by agreement with Ecology (4 compounds)]. The 6 stack emissions compounds are discussed in Section 2.4.2.
- 71 compounds identified as potential stack emissions compounds; 70 are EPA PICs (note that 3 of the compounds are generic categories and are not individually measured in stack emissions) and 1 is a site-specific PIC; see Sections 2.4.4 and 2.4.5 for more discussion.

Appendix C, Table C-1 provides details of the new TAPs list evaluation.

### 2.2.2 Evaluation Old List of Toxic Air Pollutants

The update to the TAPs list made significant changes to the Class A and B TAPs constituents that were input to the RDQO. The Class A and B TAPs lists, before revision, were comprised of 669 compounds. The revised TAPs list retained only 209 of the former Class A and B TAPs (Section 2.2.1). The 460 constituents removed by the revision were evaluated to determine if they were included as COPCs solely because they were previously present in the toxic air pollutant regulations as Class A or B TAPs or if they appear as other RDQO inputs (Appendix C). The result of the analysis of the 460 former TAPs is as follows:

- 50 TAPs removed from the TAPs list by the TAPs regulation update were input to the RDQO (Table A-1) because they also were identified as a UHC, DST Part A DST, UTS, DST waste stream profile sheet (WSPS) or flammable gas constituent, either as part of the initial RDQO process. Eight of the 50 constituents were determined to be no longer regulated as either TAPs or UHCs. These were further evaluated as described in the discussion of 418 TAPs removed from regulation below. The remaining 42 TAPs were dispositioned as follows (see Section C.2):
  - 24 organics were previously identified either as RDQO starting list of 125 organics or low-toxicity list of compounds (Sections 2.1.1.1 and 2.1.2,) and were therefore retained as COPCs
  - 1 organic compound eliminated in the RDQO process was reevaluated as part of the UHC/UTS, DST Part A update evaluation (Section 2.1.3); it was found in TWINS or BBI in excess of the retention criteria; this compound did not previously appear on either the RDQO or low-toxicity lists, but because of its discovery in TWINS/BBI, it was added as a COPC (2.1.3)
  - 3 inorganics were identified as part of the RDQO process (Section 2.1.1.2) and were therefore retained as COPCs

- 14 compounds were removed from further consideration as feed COPCs because they were not in the final RDQO list, low-toxicity constituent list, a CHG vapor COPC, or in TWINS/BBI; note, 3 of the removed constituents are identified later as stack emissions compounds (Sections 2.4.4 and 2.4.5).
- 418 TAPs removed by the TAPs regulation update (including 8 RDQO constituents which were no longer considered UHCs since the update of 40 CFR 268) were evaluated because they were formerly identified as a Class A or Class B TAPs. The 418 compounds were dispositioned as follows:
  - 42 of the TAPs removed by update were on the RDQO list of 125 compounds and identified as WTP feed constituents. The following adjustments were made:
    - 3 were found in TWINS or BBI and retained
    - 2 were CHG vapor study compounds (Section 2.1.4); note, 1 was later removed (Section 2.3.1)
    - 37 were removed because they are no longer regulated and were not in TWINS/BBI<sup>5</sup>.
  - 43 of the TAPs removed by update were on the low-toxicity list of 111 compounds and identified as WTP feed constituents. The following adjustments were made:
    - 1 was a CHG vapor study compound (Section 2.1.4)
    - 42 were removed because they are no longer regulated and were not in TWINS/BBI<sup>6</sup>.
  - 95 are inorganic compounds. They were dispositioned as follows:
    - 5 were previously identified in the RDQO and not further evaluated
    - 90 inorganic compounds are addressed as individual ions in the waste feed and not further evaluated.
  - 238 remaining TAPs removed by the WAC revision were not identified as COPCs by the RDQO process. They were dispositioned as follows:
    - 1 was a CHG vapor study compound (Section 2.1.4) and was retained as a feed COPC
    - 237 were eliminated<sup>7</sup>.

### 2.3 Regulatory Data Quality Objectives Optimization Study COPC List Adjustments

The RDQO (Wiemers and others 1998) required that the COPC analyte selection and analytical methods be optimized. The optimization effort is documented in the *Regulatory Data Quality Objectives Optimization Report* (BNI 2004). The adjustments removed 15 compounds (5 organics and 10 inorganics) and added nine (5 organics and 4 inorganics). Details of these optimization process adjustments (Section 2, Step 6) are provided in Appendix D.

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<sup>5</sup> Eight (8) of the removed RDQO COPCs are later added as stack emissions compounds (Sections 2.4.4 and 2.4.5)

<sup>6</sup> Seven (7) of the removed low-toxicity COPCs are later added as stack emissions compounds (Sections 2.4.4 and 2.4.5)

<sup>7</sup> Thirteen (13) of the eliminated compounds are on EPA's list of PICs will be managed as such (Section 2.4.4)

### **2.3.1 Optimization Study Adjustments to the Regulatory Data Quality Objectives**

The RDQO Optimization Report (BNI 2004) evaluated the list of RDQO COPCs in the context of optimizing feed analysis. As a result, tank waste characterization needs were adjusted to better suit the needs of the RDQO. Adjustments were made to the organic and inorganic COPC lists. Additional details of these adjustments are provided in Appendix D.

#### **2.3.1.1 Adjustments to the Organic COPC List**

The optimization study adjustments to the RDQO organic COPC feed list include the removal of eight organics from the WTP feed COPC list (including removal of total PCBs, CAS 1336-36-3) and the addition of seven aroclor mixtures (refer to Appendix D). Note, three of the organics were previously removed in the TAPs evaluation (Section 2.2.2); Appendix C, Table C-4 provides additional detail. Also, two of the aroclors, aroclor-1254 (CAS No. 11097-69-1) and aroclor-1242 (CAS No. 53469-21-9), have already been identified as feed COPCs by the CHG vapor study (Section 2.1.4.1).

Total PCBs, CAS 1336-36-3, which also is listed as an EPA PIC will be retained in the WTP feed COPCs list and aroclors will be removed as a result of later evaluation and agreements with Ecology (Section 2.5.1.2). Methyl isocyanate, CAS No. 624-83-9, appears as an EPA PIC and will be added back as discussed in Section 2.4.4. Also, methylhydrazine, CAS No. 60-34-4 is listed as a vapor compound in the CHG vapor study (Section 2.1.4). However, the optimization study removed it because there are no suitable analytical techniques for identifying the compound in Hanford tank waste matrices. Therefore, it was not retained as a feed COPC. Table 2-2 documents these changes.

#### **2.3.1.2 Adjustments to the Inorganic COPC List**

Optimization study adjustments to the RDQO inorganic feed COPC list include (Section 2, Step 6) the removal of six inorganics from the RDQO starting list of 48 and substitution of four inorganic constituents for similar compounds (BNI 2004). The changes totaled 10 eliminations and four additions. One inorganic ion, hexavalent chromium, CAS No. 18540-29-9, removed in the RDQO optimization study, appears on the EPA PIC list (Section 2.4.4). It is later removed; see Section 2.5.2 for discussion. Another inorganic addition, pH was later removed (Section 2.5.2). Table 2-1 provides the list of retained COPCs (source code 8) and Table 2-2 (adjustment codes 13 and 14) documents these changes.

### **2.4 Constituents in WTP Stack Emissions**

In addition to WTP waste feed constituents, other COPCs are included because of their potential to form in the WTP processes and exit as stack emissions. These COPCs include compounds from the CHG vapor study, the revision to the WAC 173-460 list of toxic air pollutants, EPA-identified PICs, the EPA list of criteria pollutants, and site-specific WTP identified organic PICs. These stack emissions COPCs are discussed in the following subsections.

#### **2.4.1 Stack Emissions COPCs Identified in CHG Vapor Study**

Three compounds identified in the CHG vapor study are more appropriately measured in WTP stack emissions (as opposed to in the waste feed). The compounds are carbon monoxide, carbon dioxide and nitrogen dioxide. The compounds are identified in Table 2-1 as CHG added stack emissions compounds (source code 9).

The two carbon compounds identified in the vapor headspace are gases, carbon monoxide and carbon dioxide. Carbon monoxide would not be present in a vapor form in the tank wastes; it is classified by EPA as a criteria pollutant and will be measured in stack emissions only. Carbon dioxide will not be measured but will be dealt with qualitatively as agreed with Ecology (CCN 170036).

Nitrogen dioxide is a gas that would not be present in the vapor form in tank liquids, it is also classified by EPA as a criteria pollutant. It is more appropriately measured in stack emissions. Therefore, it was moved from a feed constituent to a constituent to be measured in stack emissions only.

#### 2.4.2 Stack Emissions COPCs from TAPs Revision

The evaluation of the changes to the WAC 173-460 list of toxic air pollutants identified additional constituents that did not meet the criteria for waste feed COPCs (Section 2.2). Those compounds removed as WTP feed COPCs were further evaluated to determine if they should be measured in stack emissions (Section 2, Step 7). From the updated list of TAPs, the evaluation resulted in the following:

- 4 constituents that are also criteria pollutants were designated as stack emissions COPCs. Section 2.4.3 describes how these COPCs are managed<sup>8</sup> (Table 2-1, footnote e and source code 10).
- 4 inorganic constituents were retained as COPCs based on a previous agreement to sample for them as stack emissions COPCs (CCN 097844)<sup>9</sup> (Table 2-1, source code 11).
- 29 dioxins, furans, and coplanar polychlorinated biphenyl (PCB) compounds were added as stack emission COPCs (Table 2-1, source code 13); EPA has identified the dioxins and furans as PICs and the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (HHRAP) (EPA 1998) identifies the coplanar PCBs as PICs (Appendix C, Table C-1, disposition 11).
- 38 constituents that did not meet the criteria for listing as feed COPCs appear on the EPA PIC list (Table 2-1, source code 13); these TAPs will be added as stack emissions COPCs (Appendix C, Table C-1, disposition 13) (Section 2.4.4).
- 1 constituent that did not meet the criteria for listing as feed COPCs appears on the site-specific PIC list (Table 2-1, source code 14); this TAP will be added as stack emissions COPCs (Appendix C, Table C-1, disposition 14).

Appendix C and Table C-1 provide additional details of the evaluation of new TAPs.

For the 418 former TAPs removed by the update, the stack emissions evaluation was similar to the new TAPs list as described above. The evaluation produced the following:

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<sup>8</sup> Nitrogen dioxide and carbon monoxide (Table 2-1, source code 9) were previously identified in the CHG vapor study (Section 2.4.1). The remaining two compounds, ozone and sulfur dioxide were added to the list as stack emissions COPCs.

<sup>9</sup> The agreement documented in CCN 097844 actually added three halogens, hydrogen chloride, hydrogen fluoride, and chlorine; the halogen fluorine that is included in the waste envelope description for WTP waste feed was retained as well for completeness.

- 26 compounds that did not meet the criteria for listing as feed COPCs appear on the EPA PIC list (Table 2-1, source code 13). These include the following stack emissions COPCs (Section 2.4.4 and Appendix E):
  - 10 compounds previously identified as feed COPCs and removed in the TAPs revision evaluation appear on the EPA PIC list (Section 2.4.4) and were added as stack emissions COPCs:
    - 5 in the RDQO starting list of 125 constituents (Section 2.1.1.1) (Table 2-2, adjustment code 3)
    - 5 in the low-toxicity list (Section 2.1.2) (Table 2-2, adjustment code 5)
  - 16 constituents that did not meet the criteria for listing as feed COPCs appear on the EPA PIC list and were added as stack emissions COPCs (Table 2-2, adjustment code 15).
- 5 compounds previously identified as feed COPCs and removed in the TAPs revision evaluation appear on the site-specific PIC list (Section 2.4.5) and were added as stack emissions COPCs (Table 2-1, source code 14):
  - 3 in the RDQO starting list of 125 constituents (Section 2.1.1.1) (Table 2-2, adjustment code 4)
  - 2 in the low-toxicity list (Section 2.1.2) (Table 2-2, adjustment code 6)
- 1 constituent that did not meet the criteria for feed COPCs appears on the site-specific PIC list (Table 2-1, source code 14) and will be added as stack emissions COPCs (Table 2-2, adjustment code 16).

### 2.4.3 Criteria Pollutants

National ambient air quality standards (40 CFR 60) have been established for six criteria pollutants: sulfur dioxide, particulate matter, carbon monoxide, ozone, nitrogen dioxide, and lead. Two of these criteria pollutants, carbon monoxide and nitrogen dioxide, were identified by the CHG vapor study (Sections 2.1.4 and 2.4.1). Two compounds, ozone and sulfur dioxide, were identified by the revision to the WAC 173-460 list of toxic air pollutants (Section 2.4.2). Particulate matter is an addition to the stack emissions COPCs (Section 2, Step 8). Lead was previously identified by the RDQO process as an inorganic WTP feed COPC.

Sulfur dioxide and particulate matter will be measured in stack emissions along with carbon monoxide and nitrogen dioxide (Section 2.4.1). Ozone will be evaluated qualitatively as agreed with Ecology and EPA (CCN 170036).

#### 2.4.4 Environmental Protection Agency Products of Incomplete Combustion

The PICs identified by the EPA were added to the WTP COPC list (Section 2, Step 9). As noted in Section 2.4.2, a number of constituents will be measured as stack emissions because EPA has identified them as PICs and there is no data to suggest their presence in the waste feed.

For combustion facilities, the EPA list of recommended and potential PICs is contained in Table A.1 of the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (HHRAP) (EPA 1998). These chemicals include PICs from a variety of combustion units, but not specifically from vitrification units. The EPA identified 254 PICs (234 organic and 20 inorganic COPCs), including the 12 coplanar PCBs identified in the latest revision of the HHRAP, Table 2-5 (EPA 2005), as PICs. See Appendix E for additional discussion.

The organic and inorganic chemicals retained by the COPC identification processes described in the sections above (Section 2, Steps 1 to 8) were compared to the EPA PIC list. EPA identified PICs were added to the WTP COPC list if they were not:

- Previously identified for analysis in WTP waste feed (Sections 2.1, 2.2, and 2.3)
- Previously identified for measurement in stack emissions by the CHG vapor study (Section 2.4.1)
- Previously identified as criteria pollutants (Section 2.4.3)

Note, a number of EPA PICs were identified previously in the TAPs evaluation (Section 2.4.2).

A total of 128 compounds were initially identified as EPA PICs, 2 inorganic and 126 organics. Note, the inorganic hexavalent chromium, CAS No. 18540-29-9, and the organics total PCBs, CAS 1336-36-3 and methyl isocyanate; CAS No. 624-83-9 were removed as feed constituents by the RDQO Optimization Study (Section 2.3). These compounds appear on the EPA PIC list and were retained as stack emissions compounds. Later in the process Section 2, Step 12, a further adjustment was made to move total PCBs to a feed COPC and to remove hexavalent chromium as a stack emission compound; hexavalent chromium was replaced by total chromium as a WTP feed COPC (Section 2.5.3).

These compounds are further adjusted to 138 organics and 1 inorganics as described in Section 2.5.3 below. Table 2-1 (source code 13) lists the EPA PICs; Appendix E provides details of the PIC selection, with subsequent adjustments to the PIC list described in Appendix G.

#### 2.4.5 Site-Specific Products of Incomplete Combustion

The list of site-specific PIC compounds were identified next (Section 2, Step 10). Between 1998 and 2005, a series of offgas emission tests were conducted on various configurations of laboratory and pilot-scale vitrification melters by Catholic University of America, Vitreous State Laboratory (VSL). Emissions data from these tests were used to identify additional COPCs to be assessed in dangerous waste and air permitting activities (Appendix F). The testing identified 144 compounds; 111 of those were identified previously by the WTP COPC identification process as WTP feed constituents or stack emission measurement compounds (criteria pollutants or EPA PICs), leaving 33 site-specific organic

PICs<sup>10</sup> that were added to the COPC list (Table 2-1, source code 14). Appendix F summarizes the tests conducted and identifies detected constituents.

## 2.5 Adjustments to the Constituents of Potential Concern

The consolidated list of COPCs resulting from Section 2, Steps 1 through 11, totals 434 individual COPCs/ROPCs: 333 organics, 55 inorganics (217 feed COPCs and 171 stack emission COPCs), and 46 feed ROPCs. The consolidated list was reviewed with the EPA and Ecology (Section 2, Step 11) as part of the risk assessment work plan discussions described in the following sections. The review used a systematic approach by evaluating constituents in accordance with the precedent set for selecting constituents of concern. This meant that the 388 individual COPCs and 46 ROPCs were evaluated in the context of the RDQO, revised list of toxic air pollutants, RDQO optimization study, low-toxicity constituents, PIC production, and constituent toxicity and radioactivity. Decision makers examined the outcome of Steps 1 through 10 for validity and made adjustments as summarized below. These adjustments are discussed in the subsections that follow. Table 2-2 tabulates the changes and identifies the reason for the adjustment.

### 2.5.1 Adjustments to the Waste Feed Organic COPCs List

The adjustments to the starting list of 125 RDQO feed organic COPCs are described in the following subsections.

#### 2.5.1.1 Adjustments to the List of Organic Polycyclic Aromatic Hydrocarbons and Pesticides

Adjustments to the WTP feed COPC list include removal of compounds not detected in tank waste, reversal of some adjustments made by the RDQO optimization study, and replacement of some organic compounds. These adjustments are discussed in this section.

In September 2004, the WTP COPC list was reconsidered (CCN 097844) with regard to 31 organic compounds that had not been detected in the Hanford tank waste. The 31 compounds consist of 22 particle-bound constituents and 9 vapor-phase constituents. The 31 compounds will be managed as follows:

- 1 particle-bound low toxicity compound originally proposed to be measured as PICs were identified in the CHG vapor study and will be retained as a feed COPC (Table 2-2, adjustment code 17)
- 9 particle-bound compounds (3 RDQO and 6 low-toxicity COPCs, Table 2-2 adjustment codes 18 and 19) that have not been detected in Hanford tank waste appear on the EPA PIC list, and will be managed as PICs
- 12 particle-bound constituents (5 RDQO and 7 low-toxicity COPCs, Table 2-2 adjustment codes 20 and 21) (one of which had already been eliminated by the TAPs revision evaluation) are herbicides or pesticides without detection or a history of use/addition to tank waste and will be eliminated as COPCs
- 1 vapor-phase RDQO COPC previously proposed to be managed as a PIC was found in TWINS or BBI and retained as a feed COPC (Table 2-2, adjustment code 22)

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<sup>10</sup> Note, seven (7) of the site-specific PICs were previously identified as stack emissions compounds in the TAPs revision evaluation (Section 2.4.2).

- 5 vapor-phase compounds (4 RDQO and 1 low-toxicity COPCs) appear on the EPA PIC list, and will be managed as PICs (Table 2-2, adjustment code 23)
- 3 vapor-phase compounds (1 RDQO and 2 low-toxicity COPCs) (one of which had already been eliminated by the TAPs revision evaluation) are herbicides or pesticides without detection or a history of use/addition to tank waste and will be eliminated as COPCs (Table 2-2, adjustment code 24)

Appendix G provides details of the adjustments. In all, 14 COPCs were reassigned from feed to PICs, 2 were retained as feed instead of being reassigned to PICs, and 15 COPCs were eliminated (2 were previously eliminated during the TAPs evaluation).

### **2.5.1.2 Additional Adjustments to the WTP Organic COPC Feed List**

Additional adjustments were made to the RDQO starting list that further reduced the number of feed COPCs:

- Seven aroclors that were added by the RDQO optimization study and the CHG vapor study in place of total PCBs were removed as COPCs and replaced by total PCBs (Table 2-2, source code 26). Total PCBs was moved from EPA PIC to a feed COPC (Table 2-2, adjustment code 25)
- Three individual isomers of xylene were removed; total xylenes will be used instead; note total xylenes has already been assigned to the feed COPC list from the evaluation of changes to the UHC/UTS, DST Part A lists (Section 2.1.3) (Table 2-2, adjustment codes 27 and 28).

### **2.5.2 Adjustments to the Inorganic Waste Feed COPC List**

The RDQO optimization study substituted the measurement of pH for hydroxide. The pH measurement was removed as a COPC (Table 2-2, adjustment code 29) to be evaluated in the air permits and risk assessment (Appendix G). The measurement of pH will continue in the waste feed.

### **2.5.3 Adjustments to the EPA List of Products of Incomplete Combustion**

The following additional adjustments were made to the constituents that appeared on the list of EPA PICs:

- 14 compounds removed from the WTP feed COPC list (Section 2.5.1.1) were added to the EPA PIC list (Table 2-2, adjustment codes 18, 19 and 23), and two constituents that were proposed to be moved to the EPA PIC list that were found in TWINS/BBI or the CHG vapor study and retained as feed COPCs
- Total PCBs was moved from EPA PIC to a feed COPC (Table 2-2, adjustment code 25)
- Total xylenes was removed from the PIC list since it is considered a feed COPC (Section 2.5.1.2, Table 2-2, adjustment code 28)
- Three individual isomers of xylene were removed from the PIC list in favor of total xylenes, characterized as a feed constituent (Appendix G, Table 2-2, adjustment code 27)
- One polycyclic aromatic hydrocarbon (dibenzo[a,h]fluoranthene, no CAS number), previously identified by EPA as a PIC, cannot structurally exist; it was removed from consideration as a COPC (Table 2-2, adjustment code 30)

- Hexavalent chromium appears on the EPA PIC list; total chromium will be evaluated in WTP feed and assessed as if it is hexavalent chromium, therefore the EPA PIC was removed (Appendix G, Table 2-2, adjustment code 31).

#### **2.5.4 COPCs that are Evaluated as both Radionuclides and Non-Radionuclides**

Eleven inorganic COPCs identified in the RDQO are also identified as ROPCs. These 11 COPCs will be evaluated as radioactive and non-radioactive constituents. Table 2-1 identifies these compounds. There is no non-radioactive form of uranium. Uranium-238 was identified by the RDQO for its non-radioactive effects and by the same CAS number (CAS 7440-61-1) in Kupfer and others (1997). An “R” was added to the CAS number of uranium-238 (CAS 7440-61-1R) to distinguish the radioactive effects from the non-radioactive effects for risk assessment. Table 2-1 notes identify the CAS number change.

One additional compound, strontium, was added to the COPC list in accordance with the agreement with Ecology and EPA (CCN: 017190C). Stable strontium is identified with a note in the tables and by its unique CAS number (Table 2-1, source code 16).

#### **2.5.5 COPCs that are Evaluated Qualitatively**

Carbon dioxide was identified in the CHG vapor study as a stack emission compound (Section 2.4.1). Ozone was identified by EPA as a criteria pollutant (Section 2.4.3). As agreed during discussions with Ecology, these two constituents will be evaluated qualitatively (Table 2-2, adjustment code 32). See Appendix G for additional discussion.

### **2.6 Categorization of Constituents of Potential Concern**

In conclusion, the WTP COPC list consists of 409 compounds; 363 COPCs and 46 ROPCs. The following categorization summarizes the number and type of COPCs and ROPCs, as described in Table 2-1 and depicted by Figure 2-1:

- 309 organic COPCs, including:
  - 138 feed compounds
  - 171 stack emissions compounds
- 54 inorganic COPCs, including:
  - 43 feed compounds (11 with radioactive forms)
  - 11 stack emissions compounds
- 46 ROPCs (all feed constituents)

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                        | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|------------------------------------|---------------------|------------------|---|
| 100-41-4   | Ethyl benzene                      | 1                   |                  |   |
| 100-42-5   | Styrene                            | 1                   |                  |   |
| 10061-01-5 | cis-1,3-Dichloropropene            | 1                   |                  |   |
| 10061-02-6 | trans-1,3-Dichloropropene          | 1                   |                  |   |
| 106-46-7   | 1,4-Dichlorobenzene                | 1                   |                  |   |
| 106-93-4   | Ethylene dibromide                 | 1                   |                  |   |
| 106-99-0   | 1,3-Butadiene                      | 1                   |                  |   |
| 107-02-8   | Acrolein                           | 1                   |                  |   |
| 107-05-1   | 3-Chloropropene                    | 1                   |                  |   |
| 107-06-2   | 1,2-Dichloroethane                 | 1                   |                  |   |
| 107-12-0   | Propionitrile                      | 1                   |                  |   |
| 107-13-1   | Acrylonitrile                      | 1                   |                  |   |
| 108-10-1   | 4-Methyl-2-pentanone               | 1                   |                  |   |
| 108-88-3   | Toluene                            | 1                   |                  |   |
| 108-90-7   | Chlorobenzene                      | 1                   |                  |   |
| 108-94-1   | Cyclohexanone                      | 1                   |                  |   |
| 108-95-2   | Phenol                             | 1                   |                  |   |
| 110-54-3   | n-Hexane                           | 1                   |                  |   |
| 110-82-7   | Cyclohexane                        | 1                   |                  |   |
| 110-86-1   | Pyridine                           | 1                   |                  |   |
| 120-82-1   | 1,2,4-Trichlorobenzene             | 1                   |                  |   |
| 122-39-4   | N,N-Diphenylamine                  | 1                   |                  |   |
| 123-91-1   | 1,4-Dioxan                         | 1                   |                  |   |
| 126-73-8   | Tributyl phosphate                 | 1                   |                  |   |
| 126-98-7   | 2-Methyl-2-propenenitrile          | 1                   |                  |   |
| 127-18-4   | 1,1,2,2-Tetrachloroethene          | 1                   |                  |   |
| 128-37-0   | 2,6-Bis(tert-butyl)-4-methylphenol | 1                   |                  |   |
| 141-78-6   | Acetic acid ethyl ester            | 1                   |                  |   |
| 50-32-8    | Benzo(a)pyrene                     | 1                   |                  |   |
| 53-70-3    | Dibenz[a,h]anthracene              | 1                   |                  |   |
| 541-73-1   | 1,3-Dichlorobenzene                | 1                   |                  |   |
| 56-23-5    | Carbon tetrachloride               | 1                   |                  |   |
| 591-78-6   | 2-Hexanone                         | 1                   |                  |   |
| 62-75-9    | N-Nitroso-N,N-dimethylamine        | 1                   |                  |   |
| 67-56-1    | Methyl alcohol                     | 1                   |                  |   |
| 67-63-0    | 2-Propyl alcohol                   | 1                   |                  |   |
| 67-64-1    | 2-Propanone (Acetone)              | 1                   |                  |   |
| 67-66-3    | Chloroform                         | 1                   |                  |   |
| 71-36-3    | n-Butyl alcohol                    | 1                   |                  |   |
| 71-43-2    | Benzene                            | 1                   |                  |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                          | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|--------------------------------------|---------------------|------------------|---|
| 71-55-6    | 1,1,1-Trichloroethane                | 1                   |                  |   |
| 74-83-9    | Bromomethane                         | 1                   |                  |   |
| 74-87-3    | Chloromethane                        | 1                   |                  |   |
| 75-00-3    | Chloroethane                         | 1                   |                  |   |
| 75-01-4    | 1-Chloroethene                       | 1                   |                  |   |
| 75-05-8    | Acetonitrile                         | 1                   |                  |   |
| 75-09-2    | Dichloromethane (Methylene Chloride) | 1                   |                  |   |
| 75-15-0    | Carbon disulfide                     | 1                   |                  |   |
| 75-21-8    | Ethylene oxide (Oxirane)             | 1                   |                  |   |
| 75-34-3    | 1,1-Dichloroethane                   | 1                   |                  |   |
| 75-35-4    | 1,1-Dichloroethene                   | 1                   |                  |   |
| 75-45-6    | Chlorodifluoromethane                | 1                   |                  |   |
| 75-69-4    | Trichlorofluoromethane               | 1                   |                  |   |
| 75-71-8    | Dichlorodifluoromethane              | 1                   |                  |   |
| 76-13-1    | 1,2,2-Trichlorotrifluoroethane       | 1                   |                  |   |
| 78-87-5    | 1,2-Dichloropropane                  | 1                   |                  |   |
| 78-93-3    | 2-Butanone                           | 1                   |                  |   |
| 79-00-5    | 1,1,2-Trichloroethane                | 1                   |                  |   |
| 79-01-6    | 1,1,2-Trichloroethylene              | 1                   |                  |   |
| 79-10-7    | 2-Propenoic acid                     | 1                   |                  |   |
| 79-34-5    | 1,1,2,2-Tetrachloroethane            | 1                   |                  |   |
| 87-68-3    | Hexachlorobutadiene                  | 1                   |                  |   |
| 87-86-5    | Pentachlorophenol                    | 1                   |                  |   |
| 95-50-1    | 1,2-Dichlorobenzene                  | 1                   |                  |   |
| 98-86-2    | Acetophenone                         | 1                   |                  |   |
| 98-95-3    | Nitrobenzene                         | 1                   |                  |   |
| 14265-44-2 | Phosphate                            | 2                   |                  |   |
| 14797-65-0 | Nitrite                              | 2                   |                  |   |
| 14808-79-8 | Sulfate                              | 2                   |                  |   |
| 16887-00-6 | Chloride                             | 2                   |                  |   |
| 16984-48-8 | Fluoride                             | 2                   |                  |   |
| 24959-67-9 | Bromide                              | 2                   |                  |   |
| 57-12-5    | Cyanide                              | 2                   |                  |   |
| 7429-90-5  | Aluminum                             | 2                   |                  |   |
| 7439-89-6  | Iron                                 | 2                   |                  |   |
| 7439-92-1  | Lead                                 | 2                   |                  |   |
| 7439-93-2  | Lithium                              | 2                   |                  |   |
| 7439-95-4  | Magnesium                            | 2                   |                  |   |
| 7439-96-5  | Manganese                            | 2                   |                  |   |
| 7439-97-6  | Mercury                              | 2                   |                  |   |
| 7439-98-7  | Molybdenum                           | 2                   |                  |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #     | Constituent                 | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|-----------|-----------------------------|---------------------|------------------|---|
| 7440-02-0 | Nickel                      | 2                   |                  | y   |
| 7440-16-6 | Rhodium                     | 2                   |                  |   |
| 7440-22-4 | Silver                      | 2                   |                  |   |
| 7440-23-5 | Sodium                      | 2                   |                  |   |
| 7440-25-7 | Tantalum                    | 2                   |                  |   |
| 7440-28-0 | Thallium                    | 2                   |                  |   |
| 7440-31-5 | Tin                         | 2                   |                  | y   |
| 7440-33-7 | Tungsten                    | 2                   |                  |   |
| 7440-36-0 | Antimony                    | 2                   |                  | y   |
| 7440-38-2 | Arsenic                     | 2                   |                  |   |
| 7440-39-3 | Barium                      | 2                   |                  | y   |
| 7440-41-7 | Beryllium                   | 2                   |                  |   |
| 7440-43-9 | Cadmium                     | 2                   |                  | y   |
| 7440-48-4 | Cobalt                      | 2                   |                  | y   |
| 7440-50-8 | Copper                      | 2                   |                  |   |
| 7440-61-1 | Uranium                     | 2                   |                  | y   |
| 7440-62-2 | Vanadium                    | 2                   |                  |   |
| 7440-65-5 | Yttrium                     | 2                   |                  | y   |
| 7440-66-6 | Zinc                        | 2                   |                  |   |
| 7440-67-7 | Zirconium                   | 2                   |                  | y   |
| 7664-41-7 | Ammonia/Ammonium            | 2                   |                  |   |
| 7723-14-0 | Phosphorus                  | 2                   |                  |   |
| 7782-49-2 | Selenium                    | 2                   |                  | y   |
| 100-21-0  | Phthalic acid               | 3                   |                  |   |
| 101-55-3  | 4-Bromophenylphenyl ether   | 3                   |                  |   |
| 106-88-7  | 1,2-Epoxybutane             | 3                   |                  |   |
| 108-05-4  | Acetic acid vinyl ester     | 3                   |                  |   |
| 108-39-4  | m-Cresol                    | 3                   |                  |   |
| 111-76-2  | 2-Butoxyethanol             | 3                   |                  |   |
| 117-81-7  | Bis(2-ethylhexyl) phthalate | 3                   |                  |   |
| 117-84-0  | Di-n-octylphthalate         | 3                   |                  |   |
| 120-12-7  | Anthracene                  | 3                   |                  |   |
| 120-83-2  | 2,4-Dichlorophenol          | 3                   |                  |   |
| 129-00-0  | Pyrene                      | 3                   |                  |   |
| 156-60-5  | 1,2-trans-Dichloroethene    | 3                   |                  |   |
| 1634-04-4 | Methyl tert-butyl ether     | 3                   |                  |   |
| 189-55-9  | Dibenzo[a,i]pyrene          | 3                   |                  |   |
| 189-64-0  | Dibenzo[a,h]pyrene          | 3                   |                  |   |
| 191-24-2  | Benzo(g,h,i)perylene        | 3                   |                  |   |
| 191-30-0  | Dibenzo(a,l)pyrene          | 3                   |                  |   |
| 192-65-4  | Dibenzo[a,e]pyrene          | 3                   |                  |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent  | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|--|---------------------|------------------|---|
| 193-39-5   | Indeno(1,2,3-cd)pyrene   | 3                   |                  |   |
| 206-44-0   | Fluoranthene   | 3                   |                  |   |
| 208-96-8   | Acenaphthylene   | 3                   |                  |   |
| 224-42-0   | Dibenz[a,j]acridine  | 3                   |                  |   |
| 226-36-8   | Dibenz[a,h]acridine  | 3                   |                  |   |
| 27154-33-2 | Trichlorofluoroethane  | 3                   |                  |   |
| 3697-24-3  | 5-Methylchrysene   | 3                   |                  |   |
| 50-00-0    | Formaldehyde   | 3                   |                  |   |
| 56-49-5    | 3-Methylcholanthrene   | 3                   |                  |   |
| 58-90-2    | 2,3,4,6-Tetrachlorophenol  | 3                   |                  |   |
| 59-50-7    | 4-Chloro-3-methylphenol  | 3                   |                  |   |
| 59-89-2    | N-Nitrosomorpholine  | 3                   |                  |   |
| 602-87-9   | 5-Nitroacenaphthene  | 3                   |                  |   |
| 60-29-7    | Ethyl ether  | 3                   |                  |   |
| 60-35-5    | Acetamide  | 3                   |                  |   |
| 621-64-7   | N-Nitroso-di-n-propylamine   | 3                   |                  |   |
| 630-20-6   | 1,1,1,2-Tetrachloroethane  | 3                   |                  |   |
| 67-72-1    | Hexachloroethane   | 3                   |                  |   |
| 75-07-0    | Acetaldehyde   | 3                   |                  |   |
| 75-27-4    | Bromodichloromethane   | 3                   |                  |   |
| 78-83-1    | 2-Methylpropyl alcohol   | 3                   |                  |   |
| 83-32-9    | Acenaphthene   | 3                   |                  |   |
| 84-66-2    | Diethyl phthalate  | 3                   |                  |   |
| 84-74-2    | Di-n-butylphthalate  | 3                   |                  |   |
| 85-01-8    | Phenanthrene   | 3                   |                  |   |
| 85-68-7    | Butylbenzylphthalate   | 3                   |                  |   |
| 86-73-7    | Fluorene   | 3                   |                  |   |
| 88-06-2    | 2,4,6-Trichlorophenol  | 3                   |                  |   |
| 88-75-5    | 2-Nitrophenol  | 3                   |                  |   |
| 91-20-3    | Naphthalene  | 3                   |                  |   |
| 91-58-7    | 2-Chloronaphthalene  | 3                   |                  |   |
| 95-48-7    | o-Cresol   | 3                   |                  |   |
| 95-57-8    | 2-Chlorophenol   | 3                   |                  |   |
| 95-95-4    | 2,4,5-Trichlorophenol  | 3                   |                  |   |
| 98-82-8    | Cumene   | 3                   |                  |   |
| 100-02-7   | p-Nitrophenol  | 4                   |                  |   |
| 110-80-5   | 2-Ethoxyethanol  | 4                   |                  |   |
| 121-14-2   | 2,4-Dinitrotoluene   | 4                   |                  |   |
| 1330-20-7  | Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations) | 4                   |                  |   |
| 79-46-9    | 2-Nitropropane   | 4                   |                  |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                   | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|-------------------------------|---------------------|------------------|---|
| 100-40-3   | 4-Ethenylcyclohexene          | 5                   |                  |   |
| 104-76-7   | 2-Ethyl-1-hexanol             | 5                   |                  |   |
| 10595-95-6 | n-Nitrosomethylethylamine     | 5                   |                  |   |
| 109-74-0   | n-Butanenitrile               | 5                   |                  |   |
| 110-59-8   | Pentanenitrile                | 5                   |                  |   |
| 123-72-8   | Butanal                       | 5                   |                  |   |
| 134-32-7   | alpha-Naphthylamine           | 5                   |                  |   |
| 589-38-8   | 3-Hexanone                    | 5                   |                  |   |
| 628-73-9   | Hexanenitrile                 | 5                   |                  |   |
| 72-55-9    | 4,4-DDE                       | 5                   |                  |   |
| 75-02-5    | Fluoroethene (vinyl fluoride) | 5                   |                  |   |
| 75-50-3    | Trimethylamine                | 5                   |                  |   |
| 92-52-4    | 1,1'-Biphenyl                 | 5                   |                  |   |
| 593-74-8   | Dimethyl Mercury              | 6                   |                  |   |
| 10028-17-8 | Tritium                       | 7                   |                  |   |
| 10045-97-3 | Cesium-137                    | 7                   |                  |   |
| 10098-91-6 | Yttrium-90                    | 7                   |                  |   |
| 10098-97-2 | Strontium-90                  | 7                   |                  |   |
| 10198-40-0 | Cobalt-60                     | 7                   |                  |   |
| 13966-29-5 | Uranium-234                   | 7                   |                  |   |
| 13967-48-1 | Ruthenium-106                 | 7                   |                  |   |
| 13967-70-9 | Cesium-134                    | 7                   |                  |   |
| 13968-55-3 | Uranium-233                   | 7                   |                  |   |
| 13981-15-2 | Curium-244                    | 7                   |                  |   |
| 13981-16-3 | Plutonium-238                 | 7                   |                  |   |
| 13981-37-8 | Nickel-63                     | 7                   |                  |   |
| 13982-10-0 | Plutonium-242                 | 7                   |                  |   |
| 13982-63-3 | Radium-226                    | 7                   |                  |   |
| 13982-70-2 | Uranium-236                   | 7                   |                  |   |
| 13994-20-2 | Neptunium-237                 | 7                   |                  |   |
| 14119-32-5 | Plutonium-241                 | 7                   |                  |   |
| 14119-33-6 | Plutonium-240                 | 7                   |                  |   |
| 14133-76-7 | Technetium-99                 | 7                   |                  |   |
| 14158-29-3 | Uranium-232                   | 7                   |                  |   |
| 14234-35-6 | Antimony-125                  | 7                   |                  |   |
| 14331-85-2 | Protactinium-231              | 7                   |                  |   |
| 14336-70-0 | Nickel-59                     | 7                   |                  |   |
| 14391-16-3 | Europium-155                  | 7                   |                  |   |
| 14596-10-2 | Americium-241                 | 7                   |                  |   |
| 14683-23-9 | Europium-152                  | 7                   |                  |   |
| 14762-75-5 | Carbon-14                     | 7                   |                  |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #       | Constituent                             | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|-------------|---|---------------------|------------------|---|
| 14952-40-0  | Actinium-227                            | 7                   |                  |   |
| 14993-75-0  | Americium-243                           | 7                   |                  |   |
| 15046-84-1  | Iodine-129                              | 7                   |                  |   |
| 15117-48-3  | Plutonium-239                           | 7                   |                  |   |
| 15117-96-1  | Uranium-235                             | 7                   |                  |   |
| 15262-20-1  | Radium-228                              | 7                   |                  |   |
| 15510-73-3  | Curium-242                              | 7                   |                  |   |
| 15585-10-1  | Europium-154                            | 7                   |                  |   |
| 15594-54-4  | Thorium-229                             | 7                   |                  |   |
| 15715-94-3  | Samarium-151                            | 7                   |                  |   |
| 15751-77-6  | Zirconium-93                            | 7                   |                  |   |
| 15757-87-6  | Curium-243                              | 7                   |                  |   |
| 15758-45-9  | Selenium-79                             | 7                   |                  |   |
| 15832-50-5  | Tin-126                                 | 7                   |                  |   |
| 378253-40-8 | Barium-137m                             | 7                   |                  |   |
| 378253-44-2 | Cadmium-113m                            | 7                   |                  |   |
| 378782-82-2 | Niobium-93m                             | 7                   |                  |   |
| 7440-29-1   | Thorium-232                             | 7                   |                  |   |
| 7440-61-1R  | Uranium-238 <sup>d</sup>                | 7                   |                  |   |
| 14797-55-8  | Nitrate                                 | 8                   |                  |   |
| 7440-47-3   | Chromium                                | 8                   |                  |   |
| 7704-34-9   | Total Sulfur (thermodynamically stable) | 8                   |                  |   |
| 10102-44-0  | Nitrogen dioxide <sup>e</sup>           | 9                   | x                |   |
| 124-38-9    | Carbon dioxide <sup>f</sup>             | 9                   | x                |   |
| 630-08-0    | Carbon monoxide <sup>e</sup>            | 9                   | x                |   |
| 10028-15-6  | Ozone <sup>f</sup>                      | 10                  | x                |   |
| 7446-09-5   | Sulfur dioxide                          | 10                  | x                |   |
| 7647-01-0   | Hydrogen chloride                       | 11                  | x                |   |
| 7664-39-3   | Hydrogen Fluoride                       | 11                  | x                |   |
| 7782-41-4   | Fluorine gas F2                         | 11                  | x                |   |
| 7782-50-5   | Chlorine                                | 11                  | x                |   |
| no CAS #2   | Particulate matter                      | 12                  | x                |   |
| 100-25-4    | 1,4-Dinitrobenzene                      | 13                  | x                |   |
| 100-44-7    | Benzyl chloride                         | 13                  | x                |   |
| 100-52-7    | Benzaldehyde                            | 13                  | x                |   |
| 101-77-9    | 4,4-Methylenedianiline                  | 13                  | x                |   |
| 103-33-3    | Azobenzene                              | 13                  | x                |   |
| 105-67-9    | 2,4-Dimethylphenol                      | 13                  | x                |   |
| 106-44-5    | p-Cresol (4-methyl phenol)              | 13                  | x                |   |
| 106-47-8    | p-Chloroaniline                         | 13                  | x                |   |
| 106-49-0    | p-Toluidine                             | 13                  | x                |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                                 | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|---|---------------------|------------------|---|
| 106-51-4   | Quinone                                     | 13                  | x                |   |
| 106-89-8   | Epichlorohydrin (1-chloro-2,3 epoxypropane) | 13                  | x                |   |
| 107-19-7   | Propargyl alcohol                           | 13                  | x                |   |
| 107-21-1   | Ethylene glycol (1,2-ethanediol)            | 13                  | x                |   |
| 107-98-2   | Propylene glycol monomethyl ether           | 13                  | x                |   |
| 108-60-1   | bis (2-Chloroisopropyl)ether                | 13                  | x                |   |
| 108-67-8   | 1,3,5-Trimethylbenzene                      | 13                  | x                |   |
| 108-87-2   | Methylcyclohexane                           | 13                  | x                |   |
| 109-77-3   | Malononitrile                               | 13                  | x                |   |
| 109-86-4   | 2-Methoxyethanol                            | 13                  | x                |   |
| 109-99-9   | Tetrahydrofuran                             | 13                  | x                |   |
| 111-15-9   | Ethylene glycol monoethyl ether acetate     | 13                  | x                |   |
| 111-44-4   | bis(2-Chloroethyl)ether                     | 13                  | x                |   |
| 111-91-1   | bis(2-Chloroethoxy)methane                  | 13                  | x                |   |
| 1120-71-4  | 1,3-Propane sultone                         | 13                  | x                |   |
| 118-74-1   | Hexachlorobenzene                           | 13                  | x                |   |
| 119-90-4   | 3,3'-Dimethoxybenzidine                     | 13                  | x                |   |
| 122-66-7   | 1,2-Diphenylhydrazine                       | 13                  | x                |   |
| 123-33-1   | Maleic hydrazide                            | 13                  | x                |   |
| 123-38-6   | Propionaldehyde                             | 13                  | x                |   |
| 124-48-1   | Chlorodibromomethane                        | 13                  | x                |   |
| 131-11-3   | Dimethyl Phthalate                          | 13                  | x                |   |
| 131-89-5   | 2-Cyclohexyl-4,6-dinitrophenol              | 13                  | x                |   |
| 132-64-9   | Dibenzofuran                                | 13                  | x                |   |
| 133-06-2   | Captan                                      | 13                  | x                |   |
| 145-73-3   | Endothall                                   | 13                  | x                |   |
| 1746-01-6  | 2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)  | 13                  | x                |   |
| 192-97-2   | Benzo(e)pyrene                              | 13                  | x                |   |
| 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin      | 13                  | x                |   |
| 205-82-3   | Benzo[j]fluoranthene                        | 13                  | x                |   |
| 205-99-2   | Benzo(b)fluoranthene                        | 13                  | x                |   |
| 207-08-9   | Benzo(k)fluoranthene                        | 13                  | x                |   |
| 218-01-9   | Chrysene                                    | 13                  | x                |   |
| 22967-92-6 | Methyl mercury                              | 13                  | x                |   |
| 23950-58-5 | Pronamide                                   | 13                  | x                |   |
| 31508-00-6 | 2,3',4,4',5-Pentachlorobiphenyl (PCB 118)   | 13                  | x                |   |
| 319-84-6   | alpha-BHC                                   | 13                  | x                |   |
| 319-85-7   | beta-BHC                                    | 13                  | x                |   |
| 32598-13-3 | 3,3',4,4'-Tetrachlorobiphenyl (PCB 77)      | 13                  | x                |   |
| 32598-14-4 | 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)   | 13                  | x                |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent                                    | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|--|---------------------|------------------|---|
| 3268-87-9  | Octachlorodibenzo(p)dioxin                     | 13                  | x                |   |
| 32774-16-6 | 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)    | 13                  | x                |   |
| 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin      | 13                  | x                |   |
| 38380-08-4 | 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 156)    | 13                  | x                |   |
| 39001-02-0 | Octachlorodibenzofuran                         | 13                  | x                |   |
| 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin         | 13                  | x                |   |
| 39635-31-9 | 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) | 13                  | x                |   |
| 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo(p)dioxin          | 13                  | x                |   |
| 4170-30-3  | Crotonaldehyde (Propylene aldehyde)            | 13                  | x                |   |
| 41851-50-7 | Chlorocyclopentadiene                          | 13                  | x                |   |
| 460-19-5   | Cyanogen (oxalonitrile)                        | 13                  | x                |   |
| 506-68-3   | Cyanogen bromide (bromocyanide)                | 13                  | x                |   |
| 506-77-4   | Cyanogen chloride                              | 13                  | x                |   |
| 510-15-6   | Chlorobenzilate                                | 13                  | x                |   |
| 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran                | 13                  | x                |   |
| 51-28-5    | 2,4-Dinitrophenol                              | 13                  | x                |   |
| 51-79-6    | Ethyl carbamate (urethane)                     | 13                  | x                |   |
| 52663-72-6 | 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)    | 13                  | x                |   |
| 528-29-0   | 1,2-Dinitrobenzene (o-Dinitrobenzene)          | 13                  | x                |   |
| 532-27-4   | 2-Chloroacetophenone                           | 13                  | x                |   |
| 534-52-1   | 4,6-Dinitro-o-cresol                           | 13                  | x                |   |
| 5385-75-1  | Dibenzo(a,e)fluoranthene                       | 13                  | x                |   |
| 540-73-8   | 1,2-Dimethylhydrazine                          | 13                  | x                |   |
| 540-84-1   | 2,2,4-Trimethylpentane                         | 13                  | x                |   |
| 542-75-6   | 1,3-Dichloropropene                            | 13                  | x                |   |
| 542-88-1   | bis(Chloromethyl)ether                         | 13                  | x                |   |
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran          | 13                  | x                |   |
| 56-55-3    | Benzo(a)anthracene                             | 13                  | x                |   |
| 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran              | 13                  | x                |   |
| 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran              | 13                  | x                |   |
| 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran             | 13                  | x                |   |
| 57-24-9    | Strychnine                                     | 13                  | x                |   |
| 57465-28-8 | 3,3',4,4',5-Pentachlorobiphenyl (PCB 126)      | 13                  | x                |   |
| 57653-85-7 | 1,2,3,6,7,8,-Hexachlorodibenzo(p)dioxin        | 13                  | x                |   |
| 57-74-9    | Chlordane                                      | 13                  | x                |   |
| 584-84-9   | 2,4-Toluene diisocyanate                       | 13                  | x                |   |
| 58-89-9    | gamma-BHC (Lindane)                            | 13                  | x                |   |
| 593-60-2   | Bromoethene (Vinyl bromide)                    | 13                  | x                |   |
| 60-11-7    | Dimethyl aminoazobenzene                       | 13                  | x                |   |
| 606-20-2   | 2,6-Dinitrotoluene                             | 13                  | x                |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #      | Constituent  | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|------------|--|---------------------|------------------|---|
| 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran                     | 13                  | x                |   |
| 608-93-5   | Pentachlorobenzene                                     | 13                  | x                |   |
| 61626-71-9 | Dichloropentadiene                                     | 13                  | x                |   |
| 624-83-9   | Methyl isocyanate                                      | 13                  | x                |   |
| 62-50-0    | Ethyl methanesulfonate                                 | 13                  | x                |   |
| 62-53-3    | Aniline  | 13                  | x                |   |
| 64-18-6    | Formic acid (methanoic acid)                           | 13                  | x                |   |
| 65510-44-3 | 2',3,4,4',5-Pentachlorobiphenyl (PCB 123)              | 13                  | x                |   |
| 65-85-0    | Benzoic acid   | 13                  | x                |   |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran                  | 13                  | x                |   |
| 69782-90-7 | 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)            | 13                  | x                |   |
| 70-30-4    | Hexachlorophene  | 13                  | x                |   |
| 70362-50-4 | 3,4,4',5-Tetrachlorobiphenyl (PCB 81)                  | 13                  | x                |   |
| 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran                     | 13                  | x                |   |
| 72-43-5    | Methoxychlor   | 13                  | x                |   |
| 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran                     | 13                  | x                |   |
| 74472-37-0 | 2,3,4,4',5-Pentachlorobiphenyl (PCB 114)               | 13                  | x                |   |
| 74-95-3    | Methylene bromide                                      | 13                  | x                |   |
| 74-97-5    | Bromochloromethane                                     | 13                  | x                |   |
| 75-25-2    | Bromoform  | 13                  | x                |   |
| 75-29-6    | 2-Chloropropane  | 13                  | x                |   |
| 75-44-5    | Phosgene (hydrogen phosphide)                          | 13                  | x                |   |
| 76-01-7    | Pentachloroethane                                      | 13                  | x                |   |
| 764-41-0   | 1,4-Dichloro-2-butene                                  | 13                  | x                |   |
| 76-44-8    | Heptachlor   | 13                  | x                |   |
| 765-34-4   | Glycidylaldehyde                                       | 13                  | x                |   |
| 77-47-4    | Hexachlorocyclopentadiene                              | 13                  | x                |   |
| 77-78-1    | Dimethyl sulfate                                       | 13                  | x                |   |
| 822-06-0   | Hexamethylene-1,5-diisocyanate                         | 13                  | x                |   |
| 823-40-5   | Toluene-2,6-diamine                                    | 13                  | x                |   |
| 82-68-8    | Pentachloronitrobenzene (PCNB)                         | 13                  | x                |   |
| 85-44-9    | Phthalic anhydride (1,2-benzenedicarboxylic anhydride) | 13                  | x                |   |
| 88-74-4    | o-Nitroaniline (2-nitroaniline)                        | 13                  | x                |   |
| 90-04-0    | o-Anisidine  | 13                  | x                |   |
| 91-22-5    | Quinoline  | 13                  | x                |   |
| 91-94-1    | 3,3'-Dichlorobenzidine                                 | 13                  | x                |   |
| 924-16-3   | N-Nitroso-di-n-Buethylamine                            | 13                  | x                |   |
| 94-59-7    | Safrole (5-(2-Propenyl)-1,3-benzodioxole)              | 13                  | x                |   |
| 94-75-7    | 2,4-D  | 13                  | x                |   |
| 95-53-4    | o-Toluidine  | 13                  | x                |   |
| 95-94-3    | 1,2,4,5-Tetrachlorobenzene                             | 13                  | x                |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #     | Constituent                                       | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|-----------|---|---------------------|------------------|---|
| 96-12-8   | 1,2-Dibromo-3-chloropropane                       | 13                  | x                |   |
| 96-18-4   | 1,2,3-Trichloropropane                            | 13                  | x                |   |
| 96-45-7   | Ethylene thiourea                                 | 13                  | x                |   |
| 97-63-2   | Ethyl methacrylate                                | 13                  | x                |   |
| 98-01-1   | Furfural  | 13                  | x                |   |
| 98-07-7   | Benzotrichloride                                  | 13                  | x                |   |
| 98-83-9   | Methyl styrene (mixed isomers)                    | 13                  | x                |   |
| 99-35-4   | 1,3,5-Trinitrobenzene                             | 13                  | x                |   |
| 99-65-0   | 1,3-Dinitrobenzene                                | 13                  | x                |   |
| 100-47-0  | Benzonitrile                                      | 14                  | x                |   |
| 100-51-6  | Benzyl alcohol                                    | 14                  | x                |   |
| 103-65-1  | n-Propyl benzene (Isocumene)                      | 14                  | x                |   |
| 104-51-8  | n-Butylbenzene                                    | 14                  | x                |   |
| 106-43-4  | 4-Chlorotoluene (p-Tolyl chloride)                | 14                  | x                |   |
| 108-86-1  | Bromobenzene (Phenyl bromide)                     | 14                  | x                |   |
| 109-75-1  | 3-Butenenitrile                                   | 14                  | x                |   |
| 110-00-9  | Furan   | 14                  | x                |   |
| 110-83-8  | Cyclohexene                                       | 14                  | x                |   |
| 111-65-9  | n-Octane  | 14                  | x                |   |
| 111-84-2  | n-Nonane  | 14                  | x                |   |
| 1120-21-4 | Undecane  | 14                  | x                |   |
| 112-30-1  | 1-Decanol   | 14                  | x                |   |
| 112-31-2  | Decanal   | 14                  | x                |   |
| 112-40-3  | Dodecane  | 14                  | x                |   |
| 124-18-5  | Decane  | 14                  | x                |   |
| 135-98-8  | sec-Butylbenzene                                  | 14                  | x                |   |
| 156-59-2  | cis-1,2-Dichloroethene                            | 14                  | x                |   |
| 2245-38-7 | 2,3,5-Trimethylnaphthalene                        | 14                  | x                |   |
| 4786-20-3 | 2-Butenenitrile                                   | 14                  | x                |   |
| 540-59-0  | 1,2-Dichloroethene (total) (1,2-Dichloroethylene) | 14                  | x                |   |
| 581-42-0  | 2,6-Dimethylnaphthalene                           | 14                  | x                |   |
| 591-50-4  | Benzene, iodo-                                    | 14                  | x                |   |
| 74-88-4   | Iodomethane                                       | 14                  | x                |   |
| 80-62-6   | Methyl methacrylate                               | 14                  | x                |   |
| 832-69-9  | 1-Methylphenanthrene                              | 14                  | x                |   |
| 87-61-6   | 1,2,3-Trichlorobenzene                            | 14                  | x                |   |
| 90-12-0   | 1-Methylnaphthalene                               | 14                  | x                |   |
| 91-57-6   | 2-Methylnaphthalene                               | 14                  | x                |   |
| 95-49-8   | o-Chlorotoluene                                   | 14                  | x                |   |
| 95-63-6   | 1,2,4-Trimethyl benzene                           | 14                  | x                |   |
| 98-06-6   | tert-Butyl benzene                                | 14                  | x                |   |

**Table 2-1 Constituents of Potential Concern for WTP Air and Dangerous Waste Permitting Activities**

| CAS #     | Constituent                               | Source <sup>a</sup> | PIC <sup>b</sup> | Both Rad and Non-Rad Forms Evaluated <sup>c</sup> |
|-----------|---|---------------------|------------------|---|
| 99-87-6   | p-Cymene                                  | 14                  | x                |   |
| 1336-36-3 | Polychlorinated biphenyls (209 congeners) | 15                  |                  |   |
| 7440-24-6 | Strontium (total)                         | 16                  |                  | y   |

Notes:

Source <sup>a</sup>

- 1 RDQO Starting List - organics (Section 2.1.1.1).
- 2 RDQO Starting List - inorganics (Section 2.1.1.2).
- 3 Low-toxicity list added at request of Ecology (Section 2.1.2).
- 4 Other inputs (e.g., UHCs) resulting from modifications to the RDQO input list; found in TWINS/BBI and added (Section 2.1.3).
- 5 CHG vapor study organic compounds (Section 2.1.4.1).
- 6 CHG vapor study inorganic compounds (Section 2.1.4.2).
- 7 ROPCs (Section 2.1.5).
- 8 Inorganic compounds added by RDQO Optimization study (Section 2.3).
- 9 CHG vapor study added compounds moved to stack emissions COPCs (Section 2.4.1).
- 10 New TAPs list constituents also identified by EPA as criteria pollutants; retained as stack emissions COPCs (Section 2.4.2).
- 11 New TAPs list constituents retained as stack emissions COPCs based on previous agreement with Ecology (Section 2.4.2).
- 12 Identified by EPA as a criteria pollutant (40 CFR 60) (Section 2.4.3).
- 13 EPA PIC (Section 2.4.4).
- 14 Site-specific PICs (Section 2.4.5).
- 15 Total PCBs; move from EPA PIC to feed by agreement with Ecology/EPA (CCN 170036) (Section 2.5.1.2).
- 16 Stable strontium added (Section 2.5.4)

<sup>b</sup> PIC - Product of incomplete combustion; the Source column lists the process that identified the PIC.

<sup>c</sup> The column identifies compounds that are potentially in the tank waste as both radioactive and non-radioactive components. Where data is available, both forms are evaluated in the permitting processes.

<sup>d</sup> An "R" was added to the CAS # to differentiate the radioactive form of uranium-238; both radioactive and non-radioactive effects will be evaluated.

<sup>e</sup> Criteria pollutant identified by CHG vapor study.

<sup>f</sup> Evaluated qualitatively.

**Table 2-2 Adjustments to WTP Chemicals of Potential Concern**

| CAS#       | Constituent                              | Reason for Adjustment <sup>a</sup> |
|------------|--|------------------------------------|
| 14265-45-3 | Sulfite                                  | 1                                  |
| 18496-25-8 | Sulfides                                 | 1                                  |
| 7440-06-4  | Platinum                                 | 1                                  |
| 7440-46-2  | Cesium                                   | 1                                  |
| 10024-97-2 | Nitrous oxide                            | 2                                  |
| 108-87-2   | Methylcyclohexane                        | 3                                  |
| 109-99-9   | Tetrahydrofuran                          | 3                                  |
| 123-38-6   | n-Propionaldehyde                        | 3                                  |
| 4170-30-3  | 2-Butenaldehyde                          | 3                                  |
| 64-18-6    | Formic acid                              | 3                                  |
| 110-83-8   | Cyclohexene                              | 4                                  |
| 111-65-9   | n-Octane                                 | 4                                  |
| 111-84-2   | n-Nonane                                 | 4                                  |
| 132-64-9   | Dibenzofuran                             | 5                                  |
| 540-84-1   | 2,2,4-Trimethylpentane                   | 5                                  |
| 74-97-5    | Bromochloromethane                       | 5                                  |
| 91-22-5    | Quinoline                                | 5                                  |
| 98-83-9    | Methylstyrene                            | 5                                  |
| 540-59-0   | 1,2-Dichloroethylene                     | 6                                  |
| 95-49-8    | o-Chlorotoluene                          | 6                                  |
| 100-00-5   | p-Nitrochlorobenzene                     | 7                                  |
| 106-35-4   | 3-Heptanone                              | 7                                  |
| 106-97-8   | Butane                                   | 7                                  |
| 107-87-9   | 2-Pentanone                              | 7                                  |
| 109-66-0   | n-Pentane                                | 7                                  |
| 110-12-3   | 5-Methyl-2-hexanone                      | 7                                  |
| 110-43-0   | 2-Heptanone                              | 7                                  |
| 123-19-3   | 4-Heptanone                              | 7                                  |
| 123-86-4   | Acetic acid n-butyl ester                | 7                                  |
| 1321-64-8  | Pentachloronaphthalene                   | 7                                  |
| 1335-87-1  | Hexachloronaphthalene                    | 7                                  |
| 1335-88-2  | Tetrachloronaphthalene                   | 7                                  |
| 142-82-5   | n-Heptane                                | 7                                  |
| 144-62-7   | Oxalic acid                              | 7                                  |
| 2234-13-1  | Octachloronaphthalene                    | 7                                  |
| 287-92-3   | Cyclopentane                             | 7                                  |
| 3825-26-1  | Ammonium perfluorooctanoate <sup>c</sup> | 7                                  |
| 563-80-4   | 3-Methyl-2-butanone                      | 7                                  |
| 627-13-4   | Nitric acid, propyl ester                | 7                                  |
| 64-17-5    | Ethyl alcohol                            | 7                                  |
| 64-19-7    | Acetic acid                              | 7                                  |
| 684-16-2   | Hexafluoroacetone <sup>c</sup>           | 7                                  |

**Table 2-2 Adjustments to WTP Chemicals of Potential Concern**

| CAS#       | Constituent   | Reason for Adjustment <sup>a</sup> |
|------------|---|------------------------------------|
| 71-23-8    | n-Propyl alcohol                                    | 7                                  |
| 75-43-4    | Dichlorofluoromethane                               | 7                                  |
| 75-65-0    | 2-Methyl-2-propanol                                 | 7                                  |
| 76-14-2    | 1,2-Dichloro-1,1,2,2-tetrafluoroethane              | 7                                  |
| 78-92-2    | 1-Methylpropyl alcohol                              | 7                                  |
| 88-89-1    | Picric acid <sup>c</sup>                            | 7                                  |
| 96-22-0    | 3-Pentanone   | 7                                  |
| 101-84-8   | Diphenyl ether                                      | 8                                  |
| 107-18-6   | 2-Propen-1-ol                                       | 8                                  |
| 107-31-3   | Formic acid, methyl ester                           | 8                                  |
| 107-66-4   | Dibutylphosphate                                    | 8                                  |
| 108-03-2   | 1-Nitropropane                                      | 8                                  |
| 108-20-3   | Bis(isopropyl) ether                                | 8                                  |
| 108-93-0   | Cyclohexanol  | 8                                  |
| 110-62-3   | n-Valeraldehyde                                     | 8                                  |
| 121-69-7   | Dimethylaniline                                     | 8                                  |
| 123-51-3   | 3-Methyl-1-butanol                                  | 8                                  |
| 127-19-5   | N,N-Dimethylacetamide                               | 8                                  |
| 1321-65-9  | Trichloronaphthalene                                | 8                                  |
| 141-79-7   | 4-Methyl-3-penten-2-one                             | 8                                  |
| 1582-09-8  | Trifluralin   | 8                                  |
| 25551-13-7 | Trimethyl benzene                                   | 8                                  |
| 26140-60-3 | Terphenyls  | 8                                  |
| 603-34-9   | Triphenyl amine                                     | 8                                  |
| 74-99-7    | Methylacetylene                                     | 8                                  |
| 75-12-7    | Formamide   | 8                                  |
| 75-52-5    | Nitromethane  | 8                                  |
| 75-55-8    | 2-Methylaziridine                                   | 8                                  |
| 75-61-6    | Difluorodibromomethane                              | 8                                  |
| 75-63-8    | Trifluorobromomethane                               | 8                                  |
| 75-99-0    | 2,2-Dichloropropionic acid <sup>b</sup>             | 8                                  |
| 76-03-9    | Trichloroacetic acid                                | 8                                  |
| 76-11-9    | 1,1,1,2-Tetrachloro-2,2-difluoroethane              | 8                                  |
| 76-12-0    | 1,1,2,2-Tetrachloro-1,2-difluoroethane              | 8                                  |
| 76-15-3    | Chloropentafluoroethane                             | 8                                  |
| 79-09-4    | Propanoic acid                                      | 8                                  |
| 79-20-9    | Methyl acetate                                      | 8                                  |
| 88-72-2    | Nitrotoluene  | 8                                  |
| 92-93-3    | 4-Nitrobiphenyl                                     | 8                                  |
| 95-13-6    | Indene  | 8                                  |
| 96-69-5    | Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide | 8                                  |
| 98-51-1    | p-tert-Butyltoluene                                 | 8                                  |
| 92-52-4    | 1,1'-Biphenyl                                       | 9                                  |

**Table 2-2 Adjustments to WTP Chemicals of Potential Concern**

| CAS#       | Constituent                  | Reason for Adjustment <sup>a</sup> |
|------------|------------------------------|------------------------------------|
| 75-50-3    | Trimethylamine               | 10                                 |
| 624-83-9   | Methyl isocyanate            | 11                                 |
| 121-44-8   | Triethylamine                | 12                                 |
| 57-14-7    | 1,1-Dimethylhydrazine        | 12                                 |
| 60-34-4    | Methylhydrazine <sup>d</sup> | 12                                 |
| 7440-09-7  | Potassium                    | 13                                 |
| 7440-21-3  | Silicon                      | 13                                 |
| 7440-42-8  | Boron                        | 13                                 |
| 7440-69-9  | Bismuth                      | 13                                 |
| 7440-70-2  | Calcium                      | 13                                 |
| 7553-56-2  | Iodine                       | 13                                 |
| 14280-30-9 | Hydroxide                    | 14                                 |
| 63705-05-5 | Total Sulfur                 | 14                                 |
| 7697-37-2  | Nitrate                      | 14                                 |
| 106-49-0   | p-Toluidine                  | 15                                 |
| 106-51-4   | p-Benzoquinone               | 15                                 |
| 107-19-7   | Propargyl alcohol            | 15                                 |
| 119-90-4   | 3,3'-Dimethoxybenzidine      | 15                                 |
| 131-11-3   | Dimethyl phthalate           | 15                                 |
| 460-19-5   | Cyanogen                     | 15                                 |
| 506-77-4   | Cyanogen chloride            | 15                                 |
| 51-28-5    | 2,4-Dinitrophenol            | 15                                 |
| 528-29-0   | Dinitrobenzene, all isomers  | 15                                 |
| 534-52-1   | 4,6-Dinitro-o-cresol         | 15                                 |
| 57-24-9    | Strychnine                   | 15                                 |
| 764-41-0   | 1,4-Dichloro-2-butene        | 15                                 |
| 765-34-4   | Glycidylaldehyde             | 15                                 |
| 77-78-1    | Dimethyl sulfate             | 15                                 |
| 98-01-1    | Furfural                     | 15                                 |
| 98-07-7    | Benzotrichloride             | 15                                 |
| 74-88-4    | Iodomethane                  | 16                                 |
| 72-55-9    | 4,4-DDE                      | 17                                 |
| 100-25-4   | 1,4-Dinitrobenzene           | 18                                 |
| 319-85-7   | beta-BHC                     | 18                                 |
| 58-89-9    | gamma-BHC (Lindane)          | 18                                 |
| 205-82-3   | Benzo[j]fluoranthene         | 19                                 |
| 205-99-2   | Benzo(b)fluoranthene         | 19                                 |
| 207-08-9   | Benzo(k)fluoranthene         | 19                                 |
| 218-01-9   | Chrysene                     | 19                                 |
| 56-55-3    | Benzo(a)anthracene           | 19                                 |
| 72-43-5    | Methoxychlor                 | 19                                 |
| 309-00-2   | Aldrin                       | 20                                 |
| 60-57-1    | Dieldrin                     | 20                                 |

**Table 2-2 Adjustments to WTP Chemicals of Potential Concern**

| CAS#       | Constituent  | Reason for Adjustment <sup>a</sup> |
|------------|--|------------------------------------|
| 72-20-8    | Endrin   | 20                                 |
| 8001-35-2  | Toxaphene  | 20                                 |
| 88-85-7    | 2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb                         | 20                                 |
| 1836-75-5  | Nitrofen   | 21                                 |
| 319-86-8   | delta-BHC  | 21                                 |
| 50-29-3    | 4,4-DDT  | 21                                 |
| 72-54-8    | 4,4-DDD  | 21                                 |
| 93-72-1    | Silvex (2,4,5-TP)  | 21                                 |
| 93-76-5    | 2,4,5-T  | 21                                 |
| 87-86-5    | Pentachlorophenol  | 22                                 |
| 118-74-1   | Hexachlorobenzene  | 23                                 |
| 319-84-6   | alpha-BHC  | 23                                 |
| 76-44-8    | Heptachlor   | 23                                 |
| 82-68-8    | Pentachloronitrobenzene (PCNB)                                     | 23                                 |
| 94-75-7    | 2,4-D  | 23                                 |
| 2385-85-5  | Mirex  | 24                                 |
| 465-73-6   | Isodrin  | 24                                 |
| 1336-36-3  | Polychlorinated biphenyls (PCBs)                                   | 25                                 |
| 11096-82-5 | Aroclor-1260   | 26                                 |
| 11097-69-1 | Aroclor-1254 <sup>d</sup>  | 26                                 |
| 11104-28-2 | Aroclor-1221   | 26                                 |
| 11141-16-5 | Aroclor-1232   | 26                                 |
| 12672-29-6 | Aroclor-1248   | 26                                 |
| 12674-11-2 | Aroclor-1016   | 26                                 |
| 53469-21-9 | Aroclor-1242 <sup>d</sup>  | 26                                 |
| 106-42-3   | p-Xylene   | 27                                 |
| 108-38-3   | m-Xylene   | 27                                 |
| 95-47-6    | o-Xylene   | 27                                 |
| 1330-20-7  | Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations) | 28                                 |
| no CAS #   | pH   | 29                                 |
| no CAS #   | Dibenzo(a,h)fluoranthene   | 30                                 |
| 18540-29-9 | Chromium(VI)   | 31                                 |
| 10028-15-6 | Ozone  | 32                                 |
| 124-38-9   | Carbon dioxide   | 32                                 |

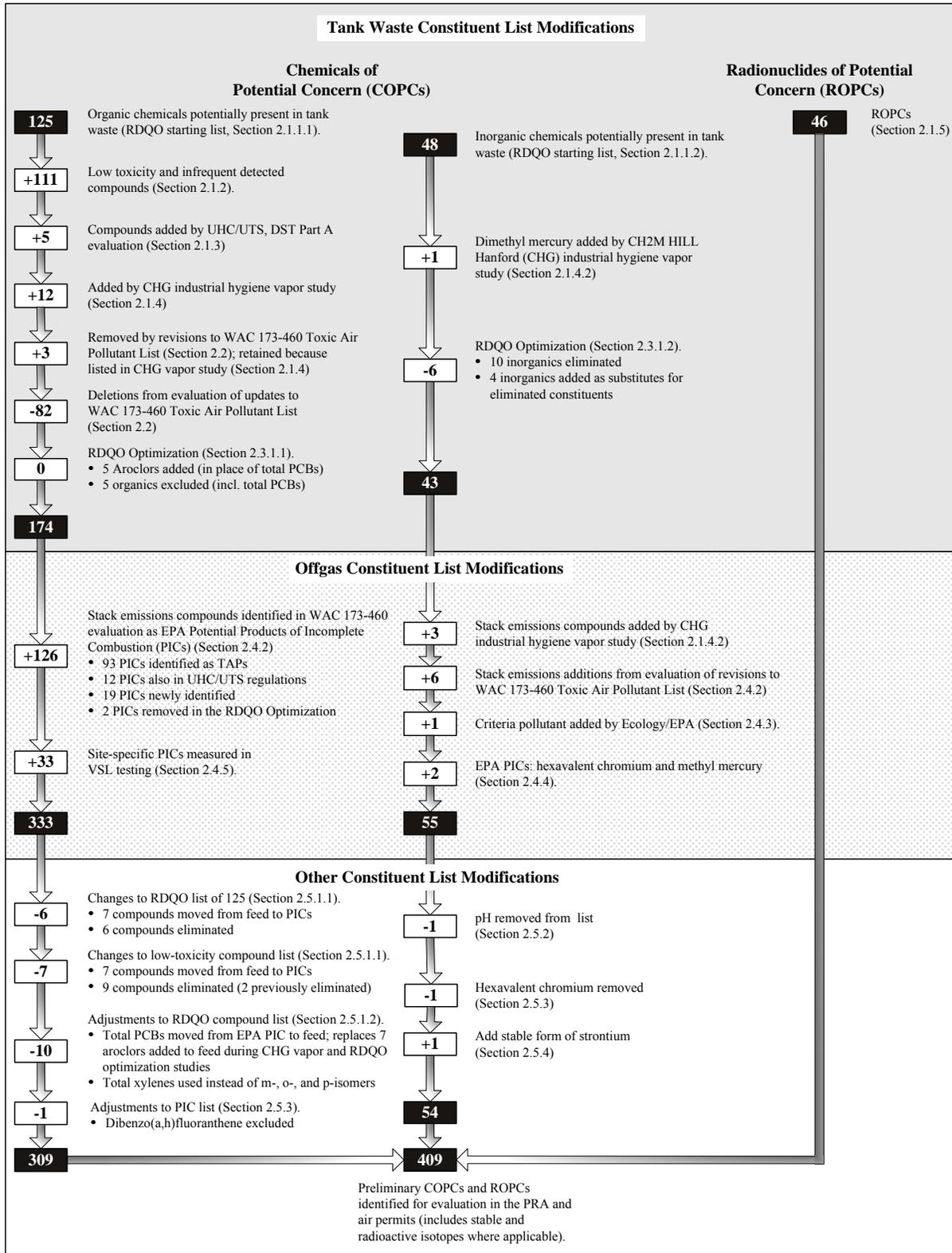
<sup>a</sup> Reason for Adjustment

- 1 Inorganics for which analysis was not requested by RDQO (Section 2.1.1.2).
- 2 Compounds identified in CHG tank vapor study eliminated; to be managed as described in Section 2.1.4.2.
- 3 Constituents on RDOQ starting list of 125 organics removed as feed COPCs by the TAPS revision; retained as stack emission compounds because they appear as EPA PIC (Section 2.4.2).
- 4 Constituents on RDOQ starting list of 125 organics removed as feed COPCs by the TAPS revision; retained as stack emission compounds because they appear as site-specific PIC (Section 2.4.2).
- 5 Low-toxicity constituents removed as feed COPCs by TAPS revision; retained as stack emission compounds because they appear as EPA PICs (Section 2.4.2).

**Table 2-2 Adjustments to WTP Chemicals of Potential Concern**

| CAS#         | Constituent   | Reason for Adjustment <sup>a</sup> |
|--------------|---|------------------------------------|
| 6            | Low-toxicity constituent removed as feed COPC by TAPs revision; retained as stack emission compounds because it appears as site-specific PIC (Section 2.4.2).   |                                    |
| 7            | Constituents on RDOQ starting list of 125 organics removed as feed COPCs by the TAPs revision; eliminated (Section 2.2.2).  |                                    |
| 8            | Low-toxicity constituents removed as feed COPCs by TAPs revision; eliminated (Section 2.2.2).   |                                    |
| 9            | Constituent on RDOQ starting list of 125 organics; removed as feed COPCs by TAPs revision; retained as WTP feed COPC because it appears as CHG vapor study compound (Section 2.2.2).                    |                                    |
| 10           | Low-toxicity constituent removed as feed COPC by TAPs revision; retained as WTP feed COPC because it appears as CHG vapor study compound (Section 2.2.2).   |                                    |
| 11           | RDQO constituent removed by the RDQO Optimization Study because it's highly reactive in Hanford tank waste matrices; appears on EPA PIC list and retained as stack emission compound (Section 2.3.1.1). |                                    |
| 12           | RDQO organic constituents removed by RDQO Optimization Study (BNI 2004) because there's no suitable analytical methods for Hanford tank waste matrices (Section 2.3.1.1).                               |                                    |
| 13           | Inorganics removed by RDQO Optimization Study (BNI 2004) (Section 2.3.1.2).   |                                    |
| 14           | Inorganic compounds removed by RDQO Optimization Study replaced by alternate inorganics (Section 2.3.1.2).  |                                    |
| 15           | Constituents identified in the TAPs revision as EPA PICs and added to the stack emissions COPCs.  |                                    |
| 16           | Constituents identified in the TAPs revision as site-specific PICs and added to the stack emissions COPCs.  |                                    |
| 17           | Particle-bound low-toxicity feed COPC; proposed to manage as EPA PICs (CCN 097844); found in CHG vapor study and retained as feed COPC (CCN 097844) (Section 2.5.1.1).                                  |                                    |
| 18           | Particle-bound RDQO constituents moved to EPA PIC by agreement with Ecology (CCN 097844) (Section 2.5.1.1).   |                                    |
| 19           | Particle-bound low-toxicity constituents moved to EPA PIC by agreement with Ecology (CCN 097844) (Section 2.5.1.1).   |                                    |
| 20           | Particle-bound RDQO constituents eliminated by agreement with Ecology (CCN 097844) (Section 2.5.1.1).   |                                    |
| 21           | Particle-bound low-toxicity constituents eliminated by agreement with Ecology (CCN 097844) (Section 2.5.1.1).   |                                    |
| 22           | Vapor-phase RDQO COPC; proposed to move to move to EPA PIC (CCN 097844); found in TWINS or BBI and retained as feed COPC (CCN 097844) (Section 2.5.1.1).  |                                    |
| 23           | Vapor-phase compounds; moved to EPA PIC (CCN 097844) (CCN 097844) (Section 2.5.1.1).  |                                    |
| 24           | Vapor-phase compounds removed (CCN 097844) (CCN 097844) (Section 2.5.1.1)   |                                    |
| 25           | Total PCBs removed by Regulatory DQO Optimization Study (BNI 2004); retained as EPA PIC; moved to feed constituent by agreement with Ecology (CCN 170036) (Sections 2.3.1.1, 2.5.1.2, and 2.5.3).       |                                    |
| 26           | Aroclors added by CHG vapor study and Regulatory DQO Optimization Study; eliminated by agreement with Ecology (CCN 170036) (Section 2.5.1.2).   |                                    |
| 27           | Individual isomers of xylene removed; replaced with total xylenes by agreement with Ecology (CCN 170036) (Section 2.5.1.2).   |                                    |
| 28           | Total xylenes moved from EPA PIC to feed by agreement with Ecology (CCN 170036) (Section 2.5.1.2).  |                                    |
| 29           | pH added by Regulatory DQO Optimization Study; deleted by agreement with Ecology (CCN 170036) (Section 2.5.2).  |                                    |
| 30           | Compound cannot structurally exist; removed by agreement with Ecology (CCN 139144) (Section 2.5.3).   |                                    |
| 31           | Hexavalent chromium removed by RDQO Optimization Study; moved to EPA PIC; total chromium treated as if it's hexavalent for risk assessment and air permitting; eliminated (Section 2.3.1.2 and 2.5.3).  |                                    |
| 32           | Stack emission compounds; address qualitatively (CCN 170036).   |                                    |
| <sup>b</sup> | This compound evaluated as part of the WAC 173-460 TAPs revision analysis and removed.  |                                    |
| <sup>c</sup> | This compound also identified for removal by RDQO Optimization Study.   |                                    |
| <sup>d</sup> | Compound also identified in CHG vapor study as present in tank vapors.  |                                    |

Figure 2-1 Identification of Constituents of Potential Concern



## 3 References

### 3.1 Project Documents

BNI 2003. *Environmental Risk Assessment Work Plan for the Hanford Tank Waste Treatment and Immobilization Plant*, 24590-WTP-RPT-ENS-03-006, Rev 0, July 30, 2003, Bechtel National, Inc., Richland, Washington.

BNI 2004. *Regulatory Data Quality Objectives Optimization Report*, 24590-WTP-RPT-MGT-04-001, Rev 0, February 5, 2004, Bechtel National, Inc., Richland, Washington.

CCN 011395. *Resolution of RAWP Comments from May 7, 1999 Version of the Work Plan*, Meeting Minutes, September 15, 1999, BNFL Inc., Richland, Washington.

CCN 017190C. *Completion of September 6, 2000 Scope of Work from U. S. Department of Energy to CH2MHill Hanford Group, Inc., Section 7.2, Develop Draft Responses to Regulator Comments on the Vitrification Plant Combustion Risk Assessment Work Plan by October 30, 2000*. Interoffice Memo, December 20, 2000, CH2MHill Hanford Group, Inc., Richland, WA.

CCN 019721. *Elimination of Tank Waste Analysis for Picric Acid, Ammonium Perfluorooctanoate, and Methyl Isocyanate*, Letter from Suzanne Dahl, Washington State Department of Ecology, to Dr. Neal Brown, US Department of Energy, Office of River Protection, April 19, 2001.

CCN 097844. *Discuss and Resolve the Outstanding Risk Assessment Issues in the Risk Assessment Work Plan (RAWP)*, Meeting Minutes from 9 September 2004 between WTP, US Environmental Protection Agency, Region 10, and Washington State Department of Ecology, in Seattle, Washington.

CCN 139144. *Removal of Dibenzo(a,h)fluoranthene from RAWP COPC List*, E-mail communication from Jerry Yokel, Washington State Department of Ecology, to John Cook, WTP, March 30, 2005.

CCN 170036. *Environmental Risk Assessment Discussions*, Meeting Minutes, March 18, 2008.

CCN 229352. *TWINS Data Evaluation (10/20/2010)*, Memorandum from Dave Blumenkranz to Lee Bostic, BNI, Inc., January 19, 2011.

### 3.2 Codes and Standards

40 CFR 60. *Standards of Performance for New Stationary Sources*, Current as of August 1, 2007, US Environmental Protection Agency, Washington, DC.

40 CFR 268. *Land Disposal Restrictions*, US Environmental Protection Agency, Washington, DC.

WAC 173-460. *Controls for New Sources of Toxic Air Pollutants*, Washington Administrative Code, Olympia, Washington.

### 3.3 Other Documents

CHG 2004. *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, Rev 0. CH2M HILL Hanford Group, Inc., Richland, Washington.

DOE-RL 1991. *Double-Shell Tank (DST) System Dangerous Waste Permit Application*, DOE/RL-90-39, Rev 0, June 1991. US Department of Energy, Richland Operations Office, Richland, Washington.

EPA 1998. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*, Peer Review Draft, EPA/530/D-98/001A, July 1998, US Environmental Protection Agency, Washington, DC.

EPA 2005. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*, Final, EPA/530/R-05/006, September 2005, US Environmental Protection Agency, Washington, DC. Available at <http://www.epa.gov/epaoswer/hazwaste/combust/risk.htm>

Ecology 2007. WA7890008967, *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Part III, Operating Unit 10, Rev. 07/10, October 29, 2007, "Waste Treatment and Immobilization Plant," Attachment 51, Chapter 4, Washington State Department of Ecology, Olympia, Washington.

Ecology 2008. WA7890008967, *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Operating Unit 12, Rev. 03, October 2008, "DST System/204-AR Waste Unloading Station," Dangerous Waste Permit Application Part A Form, Washington State Department of Ecology, Olympia, Washington.

PNNL 2010. *Tank Waste Information Network System*, accessed October 20, 2010, available at <http://twinsweb.pnl.gov/twins.htm>, Pacific Northwest National Laboratory, Richland, Washington.

Kupfer MJ, AL Boldt, KM Hodgson, LW Shelton, BC Simpson. 1997. *Standard Inventories of Chemicals and Radionuclides in Hanford Site Tank Wastes*, HNF-SD-WM-TI-740, Rev 9, August 1997. Fluor Daniel Hanford, Inc., Richland, Washington.

Wiemers KD, Lerchen ME, Miller M, and Meier K. 1998. *Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project*, PNNL-12040, Rev 0, December 1998. Pacific Northwest National Laboratory, Richland, Washington.

## **Appendix A**

### **WTP Waste Feed COPCs Identified in the RDQO**

## Appendix A

# WTP Waste Feed COPCs Identified in the RDQO

The preliminary list of WTP waste feed chemicals of potential concern (COPC) to be used for air permitting and risk assessment purposes was compiled using input from the regulatory data quality objectives process (RDQO) (Wiemers and others 1998). The input to the RDQO was subsequently updated based on new queries of the Tank Waste Information Network System (TWINS) database, the Underlying Hazardous Constituents (UHC) and Universal Treatment Standards (UTS) regulations (40 CFR 268.48) published by EPA, and the updated list of constituents identified in the DST Part A (Ecology 2008). The RDQO COPC compilation and update processes are described below.

Additional modifications to the list were made based on data collected by the tank vapor study (CHG 2004), (Appendix B), the revision to the list of toxic air pollutants (Appendix C), the optimization of the RDQO (Appendix D) (see the optimization report (BNI 2004) for details), and agreements reached during discussions with Ecology and the EPA (Appendix G).

### A.1 WTP Waste Feed Organic COPCs Identified in the RDQO

The RDQO analytes that could plausibly be in the waste feed and of concern relative to the air and dangerous waste permitting activities were developed from a large group of regulated constituents based on (1) analytical data from samples of Hanford tank solid and liquid waste, and vapors from the headspace of the tanks, and (2) evaluation of the types of wastes that were historically stored in the tanks and the chemical constituents that may have made up these wastes.

A consolidated list of 850 chemical compounds (Table A-1) was used as the input for the original RDQO process (Wiemers and others 1998, Table B.2). This list of compounds included:

- Toxic air pollutant lists Class A (WAC 173-460-150, toxic air pollutants; known, probable, and potential human carcinogens; and acceptable source impact levels) and Class B (WAC 173-460-160, toxic air pollutants, and acceptable source impact levels)
- UHC list (40 CFR 268.48)
- UTS list (40 CFR 268.48)
- *Double-Shell Tank (DST) System Dangerous Waste Permit Application* (DOE-RL 1991) constituents, except for waste code F039. To date, no landfill leachate has been added to the tanks; therefore, these F039 compounds were not included in the RDQO database used to select the COPCs.

A brief discussion of the methods and criteria used in the RDQO to narrow the initial input list is provided below. Table A-1 identifies the source of the 850 compounds that served as the starting list input to the RDQO (Table B.2; Wiemers and others 1998). Additional details regarding this process and the compounds evaluated are provided in the RDQO (Wiemers and others 1998).

Organic analytes were retained for evaluation as potential COPCs based on the following:

- Detectability in the single-shell/double-shell tank waste
- Stability in the double-shell tank environment

- Toxicity and carcinogenicity
- Availability of SW-846 (EPA 1986) analytical methods
- Association with the operations at the Hanford Site

The result of the RDQO (Wiemers and others 1998, Table 4-4) identified 125 organic constituents. These 125 constituents in the RDQO are reproduced as Table A-2. Nineteen constituents were identified in the DQO process as regulated detected organic compounds with higher toxicity (Wiemers and others 1998, Table B.6). Table A-2 was verified to contain these 19 constituents; they are identified with an “X” in table Column 3.

Of the 850 constituents, 217 were identified as lower toxicity compounds in the RDQO process. The 217 compounds were categorized by whether Hanford tank sampling and analysis programs had detected them in the waste or vapor space. RDQO Appendix B, Table B.7, lists the detected lower toxicity compounds and Table B.22 lists the non-detected compounds (Wiemers and others 1998). Of these lower toxicity constituents, 106 were retained as part of the 125 constituents resulting from the DQO process. The remaining 111 lower toxicity constituents were removed from further consideration.

The removed 111 constituents, identified in columns 4 and 6 of Table A-3, were added back to the WTP COPC list in accordance with the agreement with Ecology and EPA (CCN 011395). Table A-3 identifies the source of the compound and indicates whether it was removed during the RDQO process.

## **A.2 Updates of RDQO Inputs for WTP Waste Feed COPCs**

Since the RDQO was issued in 1998, there have been a number of additions and deletions to the RDQO inputs, including revisions to the UHC/UTS input list (40 CFR 268.48) and the DST Part A (Ecology 2008). In addition, the constituents detected in the tanks listed in TWINS or estimated in the BBI have been updated by 12 years of tank characterization and closure-related sampling data. The changes to the list of UHC/UTS, DST Part A and TWINS/BBI identified constituents is provided in Table A-4.

Table A-4 was used to identify new constituents potentially present in the tank waste or to eliminate constituents that no longer have a regulatory driver and thus do not qualify as a WTP feed COPC. The UHC/UTS inputs were dispositioned as follows:

- 74 constituents identified as feed COPCs in the 1998 RDQO (see discussion in Section A.1) that appear on the updated UHC/UTS/DST Part A inputs list were retained without further evaluation (Table A-4, disposition 1)
- 49 constituents identified as low-toxicity constituents (see discussion in Section A.1) that appear on the updated UHC/UTS/DST Part A inputs list were retained (Table A-4, disposition 2)
- 5 constituents eliminated in the RDQO process and that are not low-toxicity constituents were added because they are found in the updated TWINS/BBI data (Table A-4, disposition 3)
- 1 compound (cresylic acid, CAS No. 576-26-1) was evaluated because it is identified in the DST Part A (Ecology 2002); it was eliminated because the acid is not stable in Hanford tank waste (Table A-4, disposition 4)

- 1 compound (cresol-mixed isomers, CAS No. 1319-77-3) was eliminated because there are no available methods for analysis in Hanford tank waste (Table A-4, disposition 5); the m-, o-, and p-isomers of cresol will be analyzed by existing methods
- 109 compounds listed in the UHC/UTS updates have not previously been identified as RDQO or low-toxicity COPCs; they are not found in TWINS/BBI lists and were eliminated (Table A-4, disposition 6)
- 3 compounds previously identified as RDQO constituents were removed by the UHC/UTS updates; they are listed in TWINS/BBI and retained (Table A-4, disposition 7)
- 3 compounds previously identified as low-toxicity constituents were removed by the UHC/UTS updates; they are listed in TWINS/BBI and retained (Table A-4, disposition 8)
- 4 compounds previously identified as RDQO constituents were removed by the UHC/UTS updates; they no longer have a regulatory driver and are not listed in TWINS/BBI; therefore they were eliminated (Table A-4, disposition 9)
- 3 compounds previously identified as low-toxicity constituents were removed by the UHC/UTS updates; they no longer have a regulatory driver and are not listed in TWINS/BBI; therefore they were eliminated (Table A-4, disposition 10)
- 7 compounds were found in TWINS/BBI; they do not appear on the UHC/UTS, and DST Part A lists and therefore, were eliminated (Table A-4, disposition 11)
- 24 UHC/UTS, and DST Part A inputs to the RDQO were removed by the updates; they were eliminated

Updates to the UHC/UTS, DST Part A lists recorded in Table A-4 identified some inorganic constituents. The compounds identified in Section A.2 (Table A-4, disposition 13) did not affect the Table A-5 list of inorganics and were not further evaluated. Additional discussion of inorganic COPCs is provided below.

### **A.3 WTP Waste Feed Inorganic COPCs Identified in the RDQO**

There were 222 inorganic constituents identified in the RDQO process (Wiemers and others 1998). The final list was determined by:

- Listing all regulated inorganic compounds and metals
- Identifying the metals or ions associated with compounds
- Consolidating the list of metals/ions
- Comparing the consolidated list to the Hanford Site inventories
- Considering the analytical methods (EPA 1986, SW-846) and their applicability to the Hanford tank waste matrices
- Assessing alternative sources of information

This process resulted in retaining 52 inorganic constituents (Table 4-7, Wiemers and others 1998) as COPCs. These inorganic COPCs are provided in Table A-5. Four of the 52 constituents were removed because unique analysis is required and alternate methods of estimating concentration exist, leaving 48 inorganic COPCs.

#### A.4 References

BNI 2004. *Regulatory Data Quality Objectives Optimization Report*, 24590-WTP-RPT-MGT-04-001, Rev 0, February 5, 2004, Bechtel National, Inc., Richland, Washington.

40 CFR 268.48 “Universal Treatment Standards”, US Environmental Protection Agency, *Code of Federal Regulations*, as amended.

CCN 011395. *Resolution of RAWP Comments from May 7, 1999 Version of the Work Plan*, Meeting Minutes, September 15, 1999, BNFL Inc., Richland, Washington.

CHG. 2004. *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, Rev. 0, October 2004. CH2M Hill Hanford Group, Inc., Richland, Washington.

DOE-RL. 1991. *Double-Shell Tank (DST) System Dangerous Waste Permit Application*, DOE/RL-90-39, Rev 0, June 1991. US Department of Energy, Richland Operations Office, Richland, Washington.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical and Chemical Methods*, SW-846, Third Edition (as amended by Updates I, II, IIA, IIB, and III). US Environmental Protection Agency, Washington, DC.

Ecology 2008. WA7890008967, *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Operating Unit 12, Rev. 03, October 2008, “DST System/204-AR Waste Unloading Station,” Dangerous Waste Permit Application Part A Form, Washington State Department of Ecology, Olympia, Washington.

WAC 173-460-150. *Class A Toxic Air Pollutants: Known, Probable and Potential Human Carcinogens and Acceptable Source Impact Levels*, Washington Administrative Code, effective February 14, 1994.

WAC 173-460-160. *Class B Toxic Air Pollutants and Acceptable Source Impact Levels*, Washington Administrative Code, effective February 14, 1994.

Wiemers KD, Lerchen ME, Miller M, and Meier K. 1998. *Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project*, PNNL-12040, Rev 0, December 1998. Pacific Northwest National Laboratory, Richland, Washington.

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                        | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|------------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                                    | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 100-01-6   | 4-Nitroaniline                     |                                | x            | x   |                | x   |          |                 |
| 100-02-7   | 4-Nitrophenol                      |                                | x            | x   |                | x   |          |                 |
| 100-21-0   | Phthalic acid                      |                                |              | x   |                |     |          |                 |
| 100-25-4   | 1,4-Dinitrobenzene                 |                                |              | x   |                | x   |          |                 |
| 100-41-4   | Ethyl benzene                      |                                |              | x   | x              | x   |          |                 |
| 10061-01-5 | cis-1,3-Dichloropropene            |                                |              | x   |                | x   |          |                 |
| 10061-02-6 | trans-1,3-Dichloropropene          |                                |              | x   |                | x   |          |                 |
| 100-75-4   | N-Nitrosopiperidine                |                                |              | x   |                | x   |          |                 |
| 101-14-4   | 4,4'-Methylenebis(2-chloroaniline) | x                              |              | x   |                | x   |          |                 |
| 101-27-9   | Barban                             |                                |              |     |                | x   |          |                 |
| 101-55-3   | 4-Bromophenylphenyl ether          |                                |              | x   |                | x   |          |                 |
| 1024-57-3  | Heptachlor Epoxide                 |                                |              | x   |                | x   |          |                 |
| 1031-07-8  | Endosulfan Sulfate                 |                                |              | x   |                | x   |          |                 |
| 105-67-9   | 2,4-Dimethylphenol                 |                                |              | x   |                | x   |          |                 |
| 10595-95-6 | N-Nitrosomethylethylamine          | x                              |              | x   |                | x   |          |                 |
| 10605-21-7 | Carbendazim                        |                                |              |     |                | x   |          |                 |
| 106-44-5   | 4-Methylphenol (p-Cresol)          |                                |              | x   | x              | x   |          |                 |
| 106-46-7   | 1,4-Dichlorobenzene                | x                              |              | x   |                | x   |          |                 |
| 106-47-8   | 4-Chloroaniline                    |                                |              | x   |                | x   |          |                 |
| 106-93-4   | Ethylene dibromide                 | x                              |              | x   |                | x   |          |                 |
| 107-02-8   | Acrolein                           |                                | x            | x   |                | x   |          |                 |
| 107-05-1   | 3-Chloropropene                    |                                | x            | x   |                | x   |          |                 |
| 107-06-2   | 1,2-Dichloroethane                 | x                              |              | x   | x              | x   |          |                 |
| 107-12-0   | Propionitrile                      |                                |              | x   |                | x   |          |                 |
| 107-13-1   | Acrylonitrile                      | x                              |              | x   |                | x   |          |                 |
| 108-10-1   | 4-Methyl-2-pentanone               |                                | x            | x   | x              | x   |          |                 |
| 108-39-4   | m-Cresol                           |                                | x            | x   |                | x   |          |                 |
| 108-88-3   | Toluene                            |                                | x            | x   | x              | x   |          |                 |
| 108-90-7   | Chlorobenzene                      |                                | x            | x   | x              | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|-----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |                                   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 108-94-1  | Cyclohexanone                     |                                | x            | x   | x              | x   |          |                 |
| 108-95-2  | Phenol                            |                                | x            | x   |                | x   |          |                 |
| 110-75-8  | 2-Chloroethyl vinyl ether         |                                |              | x   |                | x   |          |                 |
| 110-86-1  | Pyridine                          |                                | x            | x   | x              | x   |          |                 |
| 111-44-4  | Bis(2-chloroethyl) ether          | x                              |              | x   |                | x   |          |                 |
| 1114-71-2 | Pebulate                          |                                |              | x   |                | x   |          |                 |
| 111-91-1  | Bis(2-Chloroethoxy)methane        |                                |              | x   |                | x   |          |                 |
| 1129-41-5 | Metolcarb (3-methylcholanthrene)  |                                |              |     |                | x   |          |                 |
| 114-26-1  | Propoxur                          |                                | x            | x   |                | x   |          |                 |
| 117-84-0  | Di-n-octylphthalate               |                                |              | x   |                | x   |          |                 |
| 118-74-1  | Hexachlorobenzene                 | x                              |              | x   |                | x   |          |                 |
| 120-12-7  | Anthracene                        |                                |              | x   |                | x   |          |                 |
| 120-58-1  | Isosafrole                        |                                |              | x   |                | x   |          |                 |
| 120-82-1  | 1,2,4-Trichlorobenzene            |                                | x            | x   |                | x   |          |                 |
| 120-83-2  | 2,4-Dichlorophenol                |                                |              | x   |                | x   |          |                 |
| 121-14-2  | 2,4-Dinitrotoluene                |                                | x            | x   | x              | x   |          |                 |
| 121-44-8  | Triethylamine                     |                                | x            | x   |                | x   |          |                 |
| 122-39-4  | N,N-Diphenylamine                 |                                | x            | x   |                | x   |          |                 |
| 122-42-9  | Propham                           |                                |              |     |                | x   |          |                 |
| 122-66-7  | 1,2-Diphenylhydrazine             | x                              |              | x   |                | x   |          |                 |
| 123-91-1  | 1,4-Dioxan                        | x                              |              | x   |                | x   |          |                 |
| 124-48-1  | Dibromochloromethane              |                                |              | x   |                | x   |          |                 |
| 126-72-7  | Tris(2,3-dibromopropyl) phosphate |                                |              | x   |                | x   |          |                 |
| 126-98-7  | 2-Methyl-2-propenenitrile         |                                | x            | x   |                | x   |          |                 |
| 126-99-8  | Chloroprene                       | x                              |              | x   |                | x   |          |                 |
| 127-18-4  | 1,1,2,2-Tetrachloroethene         | x                              |              | x   | x              | x   |          |                 |
| 129-00-0  | Pyrene                            |                                |              | x   |                | x   |          |                 |
| 131-11-3  | Dimethyl phthalate                |                                | x            | x   |                | x   |          |                 |
| 1330-20-7 | Xylene                            |                                |              | x   | x              | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                      | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                                  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 1336-36-3  | Polychlorinated biphenyls (PCBs) | x                              |              | x   |                | x   | x        |                 |
| 140-57-8   | Aramite                          |                                |              | x   |                | x   |          |                 |
| 141-78-6   | Acetic acid ethyl ester          |                                | x            | x   | x              | x   |          |                 |
| 143-50-0   | Kepone                           |                                |              | x   |                | x   |          |                 |
| 1563-38-8  | Carbofuran phenol                |                                |              |     |                | x   |          |                 |
| 1563-66-2  | Carbofuran                       |                                | x            | x   |                | x   |          |                 |
| 156-60-5   | 1,2-trans-Dichloroethene         |                                |              | x   | x              | x   |          |                 |
| 1646-88-4  | Aldicarb sulfone                 |                                |              | x   |                | x   |          |                 |
| 16752-77-5 | Methomyl                         |                                | x            | x   |                | x   |          |                 |
| 16984-48-8 | Fluoride                         |                                | x            | x   |                | x   |          | x               |
| 17804-35-2 | Benomyl                          |                                | x            | x   |                | x   |          |                 |
| 18496-25-8 | Sulfide                          |                                |              | x   |                | x   |          |                 |
| 191-24-2   | Benzo(g,h,i)perylene             |                                |              | x   |                | x   |          |                 |
| 192-65-4   | Dibenzo[a,e]pyrene               | x                              |              | x   |                | x   |          |                 |
| 1929-77-7  | Vernolate                        |                                |              | x   |                | x   |          |                 |
| 193-39-5   | Indeno(1,2,3-cd)pyrene           | x                              |              | x   |                | x   |          |                 |
| 2008-41-5  | Butylate                         |                                |              | x   |                | x   |          |                 |
| 2032-65-7  | Methiocarb                       |                                |              | x   |                | x   |          |                 |
| 205-99-2   | Benzo(b)fluoranthene             | x                              |              | x   |                | x   |          |                 |
| 206-44-0   | Fluoranthene                     |                                |              | x   |                | x   |          |                 |
| 207-08-9   | Benzo(k)fluoranthene             | x                              |              | x   |                | x   |          |                 |
| 208-96-8   | Acenaphthylene                   |                                |              | x   |                | x   |          |                 |
| 218-01-9   | Chrysene                         |                                |              | x   |                | x   |          |                 |
| 2212-67-1  | Molinate                         |                                |              | x   |                | x   |          |                 |
| 22781-23-3 | Bendiocarb                       |                                |              | x   |                | x   |          |                 |
| 2303-17-5  | Triallate                        |                                |              |     |                | x   |          |                 |
| 23135-22-0 | Oxamy                            |                                |              | x   |                | x   |          |                 |
| 23422-53-9 | Formetanate hydrochloride        |                                |              |     |                | x   |          |                 |
| 23564-05-8 | Thiophanate-methyl               |                                |              |     |                | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent           | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|-----------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                       | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 23950-58-5 | Pronamide             |                                |              | x   |                | x   |          |                 |
| 2631-37-0  | Promecarb             |                                |              |     |                | x   |          |                 |
| 298-00-0   | Methyl parathion      |                                | x            | x   |                | x   |          |                 |
| 298-02-2   | Phorate               |                                | x            | x   |                | x   |          |                 |
| 298-04-4   | Disulfoton            |                                | x            | x   |                | x   |          |                 |
| 309-00-2   | Aldrin                | x                              |              | x   |                | x   |          |                 |
| 315-18-4   | Mexacarbate           |                                |              | x   |                | x   |          |                 |
| 319-84-6   | alpha-BHC             | x                              |              | x   |                | x   |          |                 |
| 319-85-7   | beta-BHC              | x                              |              | x   |                | x   |          |                 |
| 319-86-8   | delta-BHC             |                                |              | x   |                | x   |          |                 |
| 33213-65-9 | Endosulfan II         |                                |              | x   |                | x   |          |                 |
| 3424-82-6  | o,p'-DDE (2,4'-DDE)   |                                |              | x   |                | x   |          |                 |
| 465-73-6   | Isodrin               |                                |              | x   |                | x   |          |                 |
| 50-29-3    | 4,4-DDT               | x                              |              | x   |                | x   |          |                 |
| 50-32-8    | Benzo(a)pyrene        | x                              |              | x   |                | x   |          |                 |
| 510-15-6   | Chlorobenzilate       | x                              |              | x   |                | x   |          |                 |
| 51-28-5    | 2,4-Dinitrophenol     |                                | x            | x   |                | x   |          |                 |
| 52-85-7    | Famphur               |                                |              | x   |                | x   |          |                 |
| 52888-80-9 | Prosulfocarb          |                                |              |     |                | x   |          |                 |
| 53-19-0    | o,p'-DDD (2,4'-DDD)   |                                |              | x   |                | x   |          |                 |
| 534-52-1   | 4,6-Dinitro-o-cresol  |                                | x            | x   |                | x   |          |                 |
| 53-70-3    | Dibenz[a,h]anthracene | x                              |              | x   |                | x   |          |                 |
| 53-96-3    | 2-Acetylaminofluorene | x                              |              | x   |                | x   |          |                 |
| 541-73-1   | 1,3-Dichlorobenzene   |                                |              | x   |                | x   |          |                 |
| 55-18-5    | N-Nitrosodiethylamine | x                              |              | x   |                | x   |          |                 |
| 55285-14-8 | Carbosulfan           |                                |              |     |                | x   |          |                 |
| 56-23-5    | Carbon tetrachloride  | x                              |              | x   | x              | x   |          |                 |
| 56-38-2    | Parathion             |                                | x            | x   |                | x   |          |                 |
| 56-49-5    | 3-Methylcholanthrene  |                                |              | x   |                | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                 | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|-----------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                             | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 56-55-3    | Benzo(a)anthracene          | x                              |              | x   |                | x   |          |                 |
| 57-12-5    | Cyanide                     |                                | x            | x   |                | x   |          |                 |
| 57-12-5a   | Cyanide (amenable)          |                                |              | x   |                | x   |          |                 |
| 57-47-6    | Physostigmine               |                                |              |     |                | x   |          |                 |
| 57-64-7    | Physostigmine salicylate    |                                |              |     |                | x   |          |                 |
| 57-74-9    | Chlordane                   | x                              |              | x   |                | x   |          |                 |
| 58-89-9    | gamma-BHC (Lindane)         | x                              |              | x   |                | x   |          |                 |
| 58-90-2    | 2,3,4,6-Tetrachlorophenol   |                                |              | x   |                | x   |          |                 |
| 59-50-7    | 4-Chloro-3-methylphenol     |                                |              | x   |                | x   |          |                 |
| 59669-26-0 | Thiodicarb                  |                                |              |     |                | x   |          |                 |
| 59-89-2    | N-Nitrosomorpholine         | x                              |              | x   |                | x   |          |                 |
| 60-11-7    | p-Dimethylaminoazobenzene   |                                | x            | x   |                | x   |          |                 |
| 60-29-7    | Ethyl ether                 |                                | x            | x   | x              | x   |          |                 |
| 60-57-1    | Dieldrin                    | x                              |              | x   |                | x   |          |                 |
| 606-20-2   | 2,6-Dinitrotoluene          |                                |              | x   |                | x   |          |                 |
| 608-93-5   | Pentachlorobenzene          |                                |              | x   |                | x   |          |                 |
| 621-64-7   | N-Nitroso-di-n-propylamine  | x                              |              | x   |                | x   |          |                 |
| 62-44-2    | Phenacetin                  |                                |              | x   |                | x   |          |                 |
| 62-53-3    | Aniline                     | x                              | x            | x   |                | x   |          |                 |
| 62-75-9    | N-Nitroso-N,N-dimethylamine | x                              |              | x   |                | x   |          |                 |
| 630-20-6   | 1,1,1,2-Tetrachloroethane   |                                |              | x   | x              | x   |          |                 |
| 63-25-2    | Carbaryl                    |                                | x            | x   |                | x   |          |                 |
| 64-00-6    | m-Cumenyl methylcarbamate   |                                |              |     |                | x   |          |                 |
| 66-27-3    | Methyl methanesulfonate     |                                |              | x   |                | x   |          |                 |
| 67-56-1    | Methyl alcohol              |                                | x            | x   | x              | x   |          |                 |
| 67-64-1    | 2-Propanone (Acetone)       |                                | x            | x   | x              | x   |          |                 |
| 67-66-3    | Chloroform                  | x                              |              | x   | x              | x   |          |                 |
| 67-72-1    | Hexachloroethane            |                                | x            | x   | x              | x   |          |                 |
| 71-36-3    | n-Butyl alcohol             |                                | x            | x   | x              | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                          | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|--------------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |                                      | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 71-43-2   | Benzene                              | x                              |              | x   | x              | x   |          |                 |
| 71-55-6   | 1,1,1-Trichloroethane                |                                | x            | x   | x              | x   |          |                 |
| 72-20-8   | Endrin                               |                                | x            | x   |                | x   |          |                 |
| 72-43-5   | Methoxychlor                         |                                | x            | x   |                | x   |          |                 |
| 72-54-8   | 4,4-DDD                              |                                |              | x   |                | x   |          |                 |
| 72-55-9   | 4,4-DDE                              |                                |              | x   |                | x   |          |                 |
| 7421-93-4 | Endrin aldehyde                      |                                |              | x   |                | x   |          |                 |
| 7439-92-1 | Lead                                 |                                |              | x   |                | x   |          |                 |
| 7439-97-6 | Mercury                              |                                |              | x   | x              | x   |          |                 |
| 7440-02-0 | Nickel                               |                                |              | x   |                | x   | x        | x               |
| 7440-22-4 | Silver                               |                                | x            | x   | x              | x   |          |                 |
| 7440-28-0 | Thallium                             |                                |              | x   |                | x   |          |                 |
| 7440-36-0 | Antimony                             |                                |              | x   |                | x   |          |                 |
| 7440-38-2 | Arsenic                              |                                |              | x   | x              | x   |          |                 |
| 7440-39-3 | Barium                               |                                |              | x   | x              | x   |          | x               |
| 7440-41-7 | Beryllium                            |                                |              | x   |                | x   |          |                 |
| 7440-43-9 | Cadmium                              | x                              |              | x   | x              | x   |          |                 |
| 7440-47-3 | Chromium                             |                                | x            | x   |                | x   | x        | x               |
| 7440-62-2 | Vanadium                             |                                |              | x   |                | x   |          |                 |
| 7440-66-6 | Zinc                                 |                                |              | x   |                | x   |          | x               |
| 74-83-9   | Bromomethane                         |                                | x            | x   |                | x   |          |                 |
| 74-87-3   | Chloromethane                        |                                | x            | x   |                | x   |          |                 |
| 74-88-4   | Iodomethane                          |                                | x            | x   |                | x   |          |                 |
| 74-95-3   | Dibromomethane                       |                                |              | x   |                | x   |          |                 |
| 75-00-3   | Chloroethane                         |                                | x            | x   |                | x   |          |                 |
| 75-01-4   | 1-Chloroethene                       | x                              |              | x   |                | x   |          |                 |
| 75-05-8   | Acetonitrile                         |                                | x            | x   |                | x   |          |                 |
| 75-09-2   | Dichloromethane (Methylene Chloride) | x                              |              | x   | x              | x   |          |                 |
| 75-15-0   | Carbon disulfide                     |                                | x            | x   | x              | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                    | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|--------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |                                | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 75-21-8   | Oxirane                        | x                              |              | x   |                | x   |          |                 |
| 75-25-2   | Tribromomethane                | x                              |              | x   |                | x   |          |                 |
| 75-27-4   | Bromodichloromethane           |                                |              | x   |                | x   |          |                 |
| 75-34-3   | 1,1-Dichloroethane             |                                | x            | x   |                | x   |          |                 |
| 75-35-4   | 1,1-Dichloroethene             |                                | x            | x   |                | x   |          |                 |
| 75-69-4   | Trichlorofluoromethane         |                                | x            | x   |                | x   |          |                 |
| 75-71-8   | Dichlorodifluoromethane        |                                | x            | x   |                | x   |          |                 |
| 759-94-4  | EPTC                           |                                |              | x   |                | x   |          |                 |
| 76-01-7   | Pentachloroethane              |                                |              | x   |                | x   |          |                 |
| 76-13-1   | 1,2,2-Trichlorotrifluoroethane |                                | x            | x   | x              | x   |          |                 |
| 76-44-8   | Heptachlor                     | x                              |              | x   |                | x   |          |                 |
| 77-47-4   | Hexachlorocyclopentadiene      |                                | x            | x   |                | x   |          |                 |
| 7782-49-2 | Selenium                       |                                |              | x   | x              | x   |          |                 |
| 78-83-1   | 2-Methylpropyl alcohol         |                                | x            | x   | x              | x   |          |                 |
| 78-87-5   | 1,2-Dichloropropane            | x                              |              | x   |                | x   |          |                 |
| 789-02-6  | o,p'-DDT (2,4'-DDT)            |                                |              | x   |                | x   |          |                 |
| 78-93-3   | 2-Butanone                     |                                | x            | x   | x              | x   |          |                 |
| 79-00-5   | 1,1,2-Trichloroethane          |                                | x            | x   | x              | x   |          |                 |
| 79-01-6   | 1,1,2-Trichloroethylene        | x                              |              | x   | x              | x   |          |                 |
| 79-06-1   | Acrylamide                     | x                              |              | x   |                | x   |          |                 |
| 79-34-5   | 1,1,2,2-Tetrachloroethane      |                                | x            | x   |                | x   |          |                 |
| 8001-35-2 | Toxaphene                      | x                              |              | x   |                | x   |          |                 |
| 80-62-6   | Methyl methacrylate            |                                | x            | x   |                | x   |          |                 |
| 82-68-8   | Pentachloronitrobenzene (PCNB) |                                | x            | x   |                | x   |          |                 |
| 83-32-9   | Acenaphthene                   |                                |              | x   |                | x   |          |                 |
| 84-66-2   | Diethyl phthalate              |                                | x            | x   |                | x   |          |                 |
| 84-74-2   | Di-n-butylphthalate            |                                | x            | x   |                | x   |          |                 |
| 85-01-8   | Phenanthrene                   |                                |              | x   |                | x   |          |                 |
| 85-44-9   | Phthalic anhydride             |                                | x            | x   |                | x   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#     | Constituent                                | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|----------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|          |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 85-68-7  | Butylbenzylphthalate                       |                                |              | X   |                | X   |          |                 |
| 86-30-6  | N-Nitrosodiphenylamine                     | X                              |              | X   |                | X   |          |                 |
| 86-73-7  | Fluorene                                   |                                |              | X   |                | X   |          |                 |
| 87-65-0  | 2,6-Dichlorophenol                         |                                |              | X   |                | X   |          |                 |
| 87-68-3  | Hexachlorobutadiene                        |                                | X            | X   | X              | X   |          |                 |
| 87-86-5  | Pentachlorophenol                          | X                              |              | X   |                | X   |          |                 |
| 88-06-2  | 2,4,6-Trichlorophenol                      | X                              |              | X   |                | X   |          |                 |
| 88-74-4  | 2-Nitroaniline                             |                                |              | X   |                | X   |          |                 |
| 88-75-5  | 2-Nitrophenol                              |                                |              | X   |                | X   |          |                 |
| 88-85-7  | 2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb |                                |              | X   |                | X   |          |                 |
| 91-20-3  | Naphthalene                                |                                | X            | X   |                | X   |          |                 |
| 91-58-7  | 2-Chloronaphthalene                        |                                |              | X   |                | X   |          |                 |
| 91-59-8  | 2-Naphthylamine                            |                                |              | X   |                | X   |          |                 |
| 91-80-5  | Methapyrilene                              |                                |              | X   |                | X   |          |                 |
| 924-16-3 | N-Nitrosodi-n-butylamine                   | X                              |              | X   |                | X   |          |                 |
| 92-67-1  | 4-Aminobiphenyl                            | X                              |              | X   |                | X   |          |                 |
| 930-55-2 | N-Nitrosopyrrolidine                       |                                |              | X   |                | X   |          |                 |
| 93-72-1  | Silvex (2,4,5-TP)                          |                                |              | X   |                | X   |          |                 |
| 93-76-5  | 2,4,5-T                                    |                                | X            | X   |                | X   |          |                 |
| 94-59-7  | Safrole                                    |                                |              | X   |                | X   |          |                 |
| 94-75-7  | 2,4-D                                      | X                              |              | X   |                | X   |          |                 |
| 95-48-7  | o-Cresol                                   |                                | X            | X   | X              | X   |          |                 |
| 95-50-1  | 1,2-Dichlorobenzene                        |                                | X            | X   | X              | X   |          |                 |
| 95-57-8  | 2-Chlorophenol                             |                                |              | X   |                | X   |          |                 |
| 95-94-3  | 1,2,4,5-Tetrachlorobenzene                 |                                |              | X   |                | X   |          |                 |
| 95-95-4  | 2,4,5-Trichlorophenol                      |                                | X            | X   | X              | X   |          |                 |
| 959-98-8 | Endosulfan I                               |                                |              | X   |                | X   |          |                 |
| 96-12-8  | 1,2-Dibromo-3-chloropropane                |                                | X            | X   |                | X   |          |                 |
| 96-18-4  | 1,2,3-Trichloropropane                     |                                | X            | X   |                | X   |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|-----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                                   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 97-63-2    | Ethyl methacrylate                |                                |              | X   |                | X   |          |                 |
| 98-86-2    | Acetophenone <sup>3</sup>         |                                | X            | X   |                | X   |          |                 |
| 98-87-3    | Benzal chloride                   |                                |              | X   |                | X   |          |                 |
| 98-95-3    | Nitrobenzene                      |                                | X            | X   | X              | X   |          |                 |
| 99-55-8    | 5-Nitro-o-toluidine               |                                |              | X   |                | X   |          |                 |
| 106-42-3   | p-Xylene                          |                                |              | X   | X              | X   |          |                 |
| 108-38-3   | m-Xylene                          |                                |              | X   | X              | X   |          |                 |
| 110-80-5   | 2-Ethoxyethanol                   |                                | X            |     | X              |     |          |                 |
| 1319-77-3  | Cresol (mixed isomers)            |                                |              |     | X              |     |          |                 |
| 27154-33-2 | Trichlorofluoroethane             |                                |              |     | X              |     |          |                 |
| 95-47-6    | o-Xylene                          |                                |              | X   | X              | X   |          |                 |
| NA1        | Chlorinated fluorocarbons, N.O.S. |                                |              |     | X              |     |          |                 |
| 101-90-6   | Diglycidyl resorcinol ether       | X                              |              | X   |                |     |          |                 |
| 117-81-7   | Bis(2-ethylhexyl) phthalate       | X                              |              | X   |                | X   |          |                 |
| 134-32-7   | alpha-Naphthylamine               | X                              |              | X   |                |     |          |                 |
| 139-65-1   | 4,4'-Thiodianiline                | X                              |              | X   |                |     |          |                 |
| 1746-01-6  | TCDD (Dioxin/Furan Indicator)     | X                              |              | X   |                |     |          |                 |
| 106-50-3   | p-Phenylenediamine                |                                | X            | X   |                |     |          |                 |
| 123-31-9   | Hydroquinone                      |                                | X            | X   |                |     |          |                 |
| 1314-62-1  | Vanadium pentoxide                |                                | X            |     | X              |     |          |                 |
| 504-29-0   | 2-Aminopyridine                   |                                | X            | X   |                |     |          |                 |
| 528-29-0   | Dinitrobenzene, all isomers       |                                | X            | X   |                |     |          |                 |
| 54-11-5    | Nicotine                          |                                | X            | X   |                |     |          |                 |
| 75-52-5    | Nitromethane                      |                                | X            | X   |                |     |          |                 |
| 1024-57-D  | Heptachlor epoxide isomers        |                                |              | X   |                |     |          |                 |
| 108-60-1   | Bis(2-Chloroisopropyl) ether      |                                |              | X   |                | X   |          |                 |
| 11141-16-5 | PCB-1232                          |                                |              | X   |                |     |          |                 |
| 1134-23-2  | Cycloate                          |                                |              | X   |                |     |          |                 |
| 12672-29-6 | PCB-1248                          |                                |              | X   |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent                                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 135-88-6    | N-Phenyl-2-naphthylamine                          |                                |              | x   |                |     |          |                 |
| 137-30-4    | Ziram   |                                |              | x   |                | x   |          |                 |
| 1888-71-7   | Hexachloropropylene                               |                                |              | x   |                | x   |          |                 |
| 30402-14-3D | Tetrachlorodibenzofurans                          |                                |              | x   |                |     |          |                 |
| 30402-15-4D | Pentachlorodibenzofurans                          |                                |              | x   |                |     |          |                 |
| 34465-46-8D | Hexachlorodibenzo-p-dioxins                       |                                |              | x   |                |     |          |                 |
| 36088-22-9D | Pentachlorodibenzo-p-dioxins                      |                                |              | x   |                |     |          |                 |
| 41903-57-5D | Tetrachlorodi-benzo-p-dioxins                     |                                |              | x   |                |     |          |                 |
| 55406-53-6  | 3-Iodo-2-propynyl n-butylcarbamate                |                                |              | x   |                |     |          |                 |
| 55684-94-1D | Hexachlorodibenzofurans                           |                                |              | x   |                |     |          |                 |
| 57-74-D     | Chlordane (alpha and gamma isomers)               |                                |              | x   |                |     |          |                 |
| 119-38-0    | Isolan  |                                |              |     |                | x   |          |                 |
| 17702-57-7  | Formparanate                                      |                                |              |     |                | x   |          |                 |
| 22961-82-6  | Bendiocarb phenol                                 |                                |              |     |                | x   |          |                 |
| 26419-73-8  | Tirpate   |                                |              |     |                | x   |          |                 |
| 30558-43-1  | Oxamyl-oxime (A2213)                              |                                |              |     |                | x   |          |                 |
| 5952-26-1   | Diethylene glycol, dicarbamate                    |                                |              |     |                | x   |          |                 |
| 644-64-4    | Dimetilan   |                                |              |     |                | x   |          |                 |
| 95-54-5     | 1,2-Phenylenediamine                              |                                |              |     |                | x   |          |                 |
| HxCDD       | HxCDDs (All Hexachlorodibenzo-p-dioxins)          |                                |              |     |                | x   |          |                 |
| HxCDF       | HxCDFs (All Hexachlorodibenzofurans)              |                                |              |     |                | x   |          |                 |
| PeCDD       | PeCDDs (All Pentachlorodibenzo-p-dioxins)         |                                |              |     |                | x   |          |                 |
| PeCDF       | PeCDFs (All Pentachlorodibenzofurans)             |                                |              |     |                | x   |          |                 |
| TCDD        | TCDDs (All Tetrachlorodibenzo-p-dioxins)          |                                |              |     |                | x   |          |                 |
| TCDF        | TCDFs (All Tetrachlorodibenzofurans)              |                                |              |     |                | x   |          |                 |
| NA31        | DW, WP02, persistent DW halogenated hydrocarbons  |                                |              |     | x              |     |          |                 |
| NA32        | EHW, WP01, persistent DW halogenated hydrocarbons |                                |              |     | x              |     |          |                 |
| NA33        | DW, WT02, toxic dangerous waste                   |                                |              |     | x              |     |          |                 |

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| CAS#       | Constituent                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|-----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                                   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| NA34       | EHW, WT01, toxic dangerous waste  |                                |              |     | x              |     |          |                 |
| 100-00-5   | p-Nitrochlorobenzene <sup>1</sup> |                                | x            |     |                |     |          |                 |
| 10025-67-9 | Sulfur monochloride               |                                | x            |     |                |     |          |                 |
| 10025-87-3 | Phosphorus oxychloride            |                                | x            |     |                |     |          |                 |
| 10026-13-8 | Phosphorus pentachloride          |                                | x            |     |                |     |          |                 |
| 10035-10-6 | Hydrogen bromide                  |                                | x            |     |                |     |          |                 |
| 100-37-8   | Diethylaminoethanol               |                                | x            |     |                |     |          |                 |
| 100-42-5   | Styrene                           |                                | x            |     |                |     |          |                 |
| 100-44-7   | Benzyl chloride                   |                                | x            |     |                |     |          |                 |
| 10049-04-4 | Chlorine dioxide                  |                                | x            |     |                |     |          |                 |
| 100-61-8   | N-Methylbenzenamine               |                                | x            |     |                |     |          |                 |
| 100-63-0   | Phenylhydrazine                   |                                | x            |     |                |     |          |                 |
| 100-74-3   | N-Ethylmorpholine                 |                                | x            |     |                |     |          |                 |
| 10102-43-9 | Nitric oxide                      |                                | x            |     |                |     |          |                 |
| 101-68-8   | Methylene bis(phenyl isocyanate)  |                                | x            |     |                |     |          |                 |
| 101-77-9   | 4,4-Methylene dianiline           | x                              |              |     |                |     |          |                 |
| 101-80-4   | 4,4'-Diaminodiphenyl ether        | x                              |              |     |                |     |          |                 |
| 101-84-8   | Diphenyl ether                    |                                | x            |     |                |     |          |                 |
| 10210-68-1 | Cobalt carbonyl as Co             |                                | x            |     |                |     |          |                 |
| 102-54-5   | Dicyclopentadienyl iron           |                                | x            |     |                |     |          |                 |
| 102-81-8   | 2-N-Dibutylaminoethanol           |                                | x            |     |                |     |          |                 |
| 10294-33-4 | Boron tribromide                  |                                | x            |     |                |     |          |                 |
| 105-46-4   | sec-Butyl acetate                 |                                | x            |     |                |     |          |                 |
| 105-60-2   | Caprolactam, vapor                |                                | x            |     |                |     |          |                 |
| 105-60-2a  | Caprolactam, dust                 |                                | x            |     |                |     |          |                 |
| 106-35-4   | 3-Heptanone                       |                                | x            |     |                |     |          |                 |
| 106-49-0   | p-Toluidine                       |                                | x            |     |                |     |          |                 |
| 106-51-4   | p-Benzoquinone                    |                                | x            |     |                |     |          |                 |
| 106-87-6   | Vinyl cyclohexene dioxide         |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#     | Constituent                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|----------|-----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|          |                                   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 106-88-7 | 1,2-Epoxybutane                   |                                | x            |     |                |     |          |                 |
| 106-89-8 | Epichlorohydrin                   | x                              |              |     |                |     |          |                 |
| 106-92-3 | Allyl glycidyl ether              |                                | x            |     |                |     |          |                 |
| 106-97-8 | Butane                            |                                | x            |     |                |     |          |                 |
| 106-99-0 | 1,3-Butadiene                     | x                              |              |     |                |     |          |                 |
| 107-07-3 | Ethylene chlorohydrin             |                                | x            |     |                |     |          |                 |
| 107-15-3 | Ethylene diamine                  |                                | x            |     |                |     |          |                 |
| 107-18-6 | 2-Propen-1-ol                     |                                | x            |     |                |     |          |                 |
| 107-19-7 | Propargyl alcohol                 |                                | x            |     |                |     |          |                 |
| 107-20-0 | Chloroacetaldehyde                |                                | x            |     |                |     |          |                 |
| 107-21-1 | Ethylene glycol                   |                                | x            |     |                |     |          |                 |
| 107-30-2 | Chloromethyl methyl ether         | x                              |              |     |                |     |          |                 |
| 107-31-3 | Formic acid, methyl ester         |                                | x            |     |                |     |          |                 |
| 107-41-5 | Hexylene glycol                   |                                | x            |     |                |     |          |                 |
| 107-49-3 | Tetraethyl pyrophosphate          |                                | x            |     |                |     |          |                 |
| 107-66-4 | Dibutylphosphate                  |                                | x            |     |                |     |          |                 |
| 107-87-9 | 2-Pentanone                       |                                | x            |     |                |     |          |                 |
| 107-98-2 | Propylene glycol monomethyl ether |                                | x            |     |                |     |          |                 |
| 108-03-2 | 1-Nitropropane                    |                                | x            |     |                |     |          |                 |
| 108-05-4 | Acetic acid vinyl ester           |                                | x            |     |                |     |          |                 |
| 108-11-2 | Methyl isobutyl carbinol          |                                | x            |     |                |     |          |                 |
| 108-18-9 | Diisopropylamine                  |                                | x            |     |                |     |          |                 |
| 108-20-3 | Bis(isopropyl) ether              |                                | x            |     |                |     |          |                 |
| 108-21-4 | Isopropyl acetate                 |                                | x            |     |                |     |          |                 |
| 108-24-7 | Acetic anhydride                  |                                | x            |     |                |     |          |                 |
| 108-31-6 | Maleic anhydride (2,5-Furandione) |                                | x            |     |                |     |          |                 |
| 108-43-0 | Chlorophenols                     | x                              |              |     |                |     |          |                 |
| 108-44-1 | m-Toluidine                       |                                | x            |     |                |     |          |                 |
| 108-46-3 | Resorcinol (1,3-Benzenediol)      |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent            | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |                        | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 108-83-8  | Diisobutyl ketone      |                                | x            |     |                |     |          |                 |
| 108-84-9  | sec-Hexyl acetate      |                                | x            |     |                |     |          |                 |
| 108-87-2  | Methylcyclohexane      |                                | x            |     |                |     |          |                 |
| 108-91-8  | Cyclohexylamine        |                                | x            |     |                |     |          |                 |
| 108-93-0  | Cyclohexanol           |                                | x            |     |                |     |          |                 |
| 108-98-5  | Thiophenol             |                                | x            |     |                |     |          |                 |
| 109-59-1  | Isopropoxyethanol      |                                | x            |     |                |     |          |                 |
| 109-60-4  | n-Propyl acetate       |                                | x            |     |                |     |          |                 |
| 109-66-0  | n-Pentane              |                                | x            |     |                |     |          |                 |
| 109-73-9  | n-Butylamine           |                                | x            |     |                |     |          |                 |
| 109-79-5  | n-Butyl mercaptan      |                                | x            |     |                |     |          |                 |
| 109-86-4  | 2-Methoxyethanol       |                                | x            |     |                |     |          |                 |
| 109-87-5  | Methylal               |                                | x            |     |                |     |          |                 |
| 109-89-7  | Diethylamine           |                                | x            |     |                |     |          |                 |
| 109-94-4  | Ethyl formate          |                                | x            |     |                |     |          |                 |
| 109-99-9  | Tetrahydrofuran        |                                | x            |     |                |     |          |                 |
| 110-12-3  | 5-Methyl-2-hexanone    |                                | x            |     |                |     |          |                 |
| 110-19-0  | Isobutyl acetate       |                                | x            |     |                |     |          |                 |
| 110-43-0  | 2-Heptanone            |                                | x            |     |                |     |          |                 |
| 110-49-6  | 2-Methoxyethyl acetate |                                | x            |     |                |     |          |                 |
| 110-54-3  | n-Hexane               |                                | x            |     |                |     |          |                 |
| 110-54-3D | Hexane, other isomers  |                                | x            |     |                |     |          |                 |
| 110-62-3  | n-Valeraldehyde        |                                | x            |     |                |     |          |                 |
| 110-82-7  | Cyclohexane            |                                | x            |     |                |     |          |                 |
| 110-83-8  | Cyclohexene            |                                | x            |     |                |     |          |                 |
| 110-91-8  | Morpholine             |                                | x            |     |                |     |          |                 |
| 111-15-9  | 2-Ethoxyethyl acetate  |                                | x            |     |                |     |          |                 |
| 111-30-8  | Glutaraldehyde         |                                | x            |     |                |     |          |                 |
| 111-40-0  | Diethylene triamine    |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                                 | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 111-42-2   | Diethanolamine                              |                                | x            |     |                |     |          |                 |
| 111-46-6D  | Glycol ethers                               |                                | x            |     |                |     |          |                 |
| 111-65-9   | n-Octane                                    |                                | x            |     |                |     |          |                 |
| 111-76-2   | 2-Butoxyethanol                             |                                | x            |     |                |     |          |                 |
| 111-84-2   | n-Nonane                                    |                                | x            |     |                |     |          |                 |
| 1120-71-4  | 1,3-Propane sultone                         | x                              |              |     |                |     |          |                 |
| 115-29-7   | Endosulfan                                  |                                | x            |     |                |     |          |                 |
| 115-86-6   | Triphenyl phosphate                         |                                | x            |     |                |     |          |                 |
| 115-90-2   | Fensulfothion                               |                                | x            |     |                |     |          |                 |
| 117-79-3   | 2-Aminoanthraquinone                        | x                              |              |     |                |     |          |                 |
| 118-52-5   | 1,3-Dichloro-5,5-Dimethyl hydantoin         |                                | x            |     |                |     |          |                 |
| 118-96-7   | 2,4,6-Trinitrotoluene                       |                                | x            |     |                |     |          |                 |
| 1189-85-1  | tert-Butyl chromate, as CrO3                |                                | x            |     |                |     |          |                 |
| 119-90-4   | 3,3'-Dimethoxybenzidine                     | x                              |              |     |                |     |          |                 |
| 119-93-7   | 3,3'-Dimethylbenzidine.                     | x                              |              |     |                |     |          |                 |
| 12079-65-1 | Manganese cyclopentadienyl tricarbonyl      |                                | x            |     |                |     |          |                 |
| 120-80-9   | Catechol                                    |                                | x            |     |                |     |          |                 |
| 12108-13-3 | Methylcyclopentadienylmanganese tricarbonyl |                                | x            |     |                |     |          |                 |
| 12125-02-9 | Ammonium chloride (fume)                    |                                | x            |     |                |     |          |                 |
| 121-45-9   | Trimethyl phosphite                         |                                | x            |     |                |     |          |                 |
| 121-69-7   | Dimethylaniline                             |                                | x            |     |                |     |          |                 |
| 121-75-5   | Malathion                                   |                                | x            |     |                |     |          |                 |
| 121-82-4   | Cyclonite                                   |                                | x            |     |                |     |          |                 |
| 122-60-1   | Phenyl glycidyl ether                       |                                | x            |     |                |     |          |                 |
| 123-19-3   | 4-Heptanone                                 |                                | x            |     |                |     |          |                 |
| 123-38-6   | n-Propionaldehyde                           |                                | x            |     |                |     |          |                 |
| 123-42-2   | Diacetone alcohol                           |                                | x            |     |                |     |          |                 |
| 123-51-3   | 3-Methyl-1-butanol                          |                                | x            |     |                |     |          |                 |
| 123-86-4   | Acetic acid n-butyl ester                   |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent   | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 123-92-2    | Isoamyl acetate                                       |                                | x            |     |                |     |          |                 |
| 124-40-3    | Dimethylamine   |                                | x            |     |                |     |          |                 |
| 12604-58-9  | Ferrovandium dust                                     |                                | x            |     |                |     |          |                 |
| 126-73-8    | Tributyl phosphate                                    |                                | x            |     |                |     |          |                 |
| 126-85-2    | Nitrogen mustard N-oxide                              | x                              |              |     |                |     |          |                 |
| 127-19-5    | N,N-Dimethylacetamide                                 |                                | x            |     |                |     |          |                 |
| 128-37-0    | 2,6-Bis(tert-butyl)-4-methylphenol                    |                                | x            |     |                |     |          |                 |
| 129-15-7    | 2-Methyl-1-nitroanthraquinone                         | x                              |              |     |                |     |          |                 |
| 1300-73-8   | Xylidine  |                                | x            |     |                |     |          |                 |
| 1303-86-2   | Boron oxide   |                                | x            |     |                |     |          |                 |
| 1303-96-4Ca | Borates, anhydrous                                    |                                | x            |     |                |     |          |                 |
| 1303-96-4Cb | Borates, pentahydrate                                 |                                | x            |     |                |     |          |                 |
| 1303-96-4Cc | Borates, decahydrate                                  |                                | x            |     |                |     |          |                 |
| 1304-82-1   | Bismuth telluride                                     |                                | x            |     |                |     |          |                 |
| 1305-62-0   | Calcium hydroxide                                     |                                | x            |     |                |     |          |                 |
| 1305-78-8   | Calcium oxide   |                                | x            |     |                |     |          |                 |
| 1309-37-1   | Iron oxide fume, Fe <sub>2</sub> O <sub>3</sub> as Fe |                                | x            |     |                |     |          |                 |
| 1309-48-4   | Magnesium oxide fume                                  |                                | x            |     |                |     |          |                 |
| 1309-64-4   | Antimony trioxide, as Sb                              |                                | x            |     |                |     |          |                 |
| 1310-58-3   | Potassium hydroxide                                   |                                | x            |     |                |     |          |                 |
| 1310-73-2   | Sodium hydroxide                                      |                                | x            |     |                |     | x        |                 |
| 13121-70-5  | Cyhexatin   |                                | x            |     |                |     |          |                 |
| 1314-13-2   | Zinc oxide, fume                                      |                                | x            |     |                |     |          |                 |
| 1314-20-1   | Thorium dioxide                                       | x                              |              |     |                |     |          |                 |
| 1314-80-3   | Phosphorus pentasulfide                               |                                | x            |     |                |     |          |                 |
| 1319-77-3a  | Cresols, syn Cresylic acid                            |                                | x            |     |                |     |          |                 |
| 1321-64-8   | Pentachloronaphthalene                                |                                | x            |     |                |     |          |                 |
| 1321-65-9   | Trichloronaphthalene                                  |                                | x            |     |                |     |          |                 |
| 1321-74-0   | Divinyl benzene                                       |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent  | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 132-64-9    | Dibenzofuran   | x                              |              |     |                |     |          |                 |
| 133-06-2    | Captan   |                                | x            |     |                |     |          |                 |
| 1332-21-4   | Asbestos (fibrous)   | x                              |              |     |                |     |          |                 |
| 1333-86-4   | Carbon black   |                                | x            |     |                |     |          |                 |
| 1335-87-1   | Hexachloronaphthalene                                      |                                | x            |     |                |     |          |                 |
| 1335-88-2   | Tetrachloronaphthalene                                     |                                | x            |     |                |     |          |                 |
| 1338-23-4   | Methyl ethyl ketone peroxide                               |                                | x            |     |                |     |          |                 |
| 133-90-4    | Chloramben   |                                | x            |     |                |     |          |                 |
| 13463-40-6  | Iron pentacarbonyl, as Fe                                  |                                | x            |     |                |     |          |                 |
| 13494-80-9C | Tellurium & compounds as Te                                |                                | x            |     |                |     |          |                 |
| 135-20-6    | Cupferron  | x                              |              |     |                |     |          |                 |
| 13530-65-9  | Zinc chromates   |                                | x            |     |                |     |          |                 |
| 13552-44-8  | 4,4-Methylenedianiline dihydrochloride                     | x                              |              |     |                |     |          |                 |
| 136-78-7    | Sesone   |                                | x            |     |                |     |          |                 |
| 137-05-3    | Methyl-2-cyanoacrylate                                     |                                | x            |     |                |     |          |                 |
| 137-26-8    | Thiram   |                                | x            |     |                |     |          |                 |
| 138-22-7    | n-Butyl lactate  |                                | x            |     |                |     |          |                 |
| 13838-16-9  | Enflurane  |                                | x            |     |                |     |          |                 |
| 1395-21-7   | Subtilisins  |                                | x            |     |                |     |          |                 |
| 139-91-3    | 5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone) | x                              |              |     |                |     |          |                 |
| 140-88-5    | Ethylacrylate  |                                | x            |     |                |     |          |                 |
| 141-32-2    | Butylacrylate  |                                | x            |     |                |     |          |                 |
| 141-43-5    | Ethanolamine   |                                | x            |     |                |     |          |                 |
| 141-66-2    | Dicrotophos  |                                | x            |     |                |     |          |                 |
| 141-79-7    | 4-Methyl-3-penten-2-one                                    |                                | x            |     |                |     |          |                 |
| 142-64-3    | Piperazine dihydrochloride                                 |                                | x            |     |                |     |          |                 |
| 14265-44-2  | Phosphate  |                                |              |     |                |     |          | x               |
| 14280-30-9  | Hydroxide  |                                |              |     |                |     | x        |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent   | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 142-82-5   | n-Heptane   |                                | x            |     |                |     |          |                 |
| 144-62-7   | Oxalic acid   |                                | x            |     |                |     |          |                 |
| 14484-64-1 | Ferbam  |                                | x            |     |                |     |          |                 |
| 1477-55-0  | m-Xylene-a,a'-diamine                                 |                                | x            |     |                |     |          |                 |
| 14797-65-0 | Nitrite   |                                |              |     |                |     | x        | x               |
| 148-01-6   | Dinitolamide  |                                | x            |     |                |     |          |                 |
| 14808-79-8 | Sulfate   |                                |              |     |                |     |          | x               |
| 14977-61-8 | Chromylchloride                                       |                                | x            |     |                |     |          |                 |
| 150-76-5   | 4-Methoxyphenol                                       |                                | x            |     |                |     |          |                 |
| 151-56-4   | Ethyleneimine   |                                | x            |     |                |     |          |                 |
| 151-67-7   | Halothane   |                                | x            |     |                |     |          |                 |
| 156-62-7   | Calcium cyanamide                                     |                                | x            |     |                |     |          |                 |
| 1582-09-8  | Trifluralin   |                                | x            |     |                |     |          |                 |
| 1615-80-1  | N,N'-Diethylhydrazine                                 | x                              |              |     |                |     |          |                 |
| 16219-75-3 | Ethylidene norbornene                                 |                                | x            |     |                |     |          |                 |
| 1634-04-4  | Methyl tert-butyl ether                               |                                | x            |     |                |     |          |                 |
| 16842-03-8 | Cobalt hydrocarbonyl                                  |                                | x            |     |                |     |          |                 |
| 16887-00-6 | Chloride  |                                |              |     |                |     | x        | x               |
| 1694-09-3  | Benzyl violet 4b                                      | x                              |              |     |                |     |          |                 |
| 17702-41-9 | Decaborane  |                                | x            |     |                |     |          |                 |
| 1836-75-5  | Nitrofen  | x                              |              |     |                |     |          |                 |
| 18540-29-9 | Chromium, hexavalent metal and compounds <sup>2</sup> | x                              |              |     |                |     |          |                 |
| 189-55-9   | Dibenzo[a,i]pyrene                                    | x                              |              |     |                |     |          |                 |
| 189-64-0   | Dibenzo[a,h]pyrene                                    | x                              |              |     |                |     |          |                 |
| 1912-24-9  | Atrazine  |                                | x            |     |                |     |          |                 |
| 191-30-0   | Dibenzo(a,l)pyrene                                    | x                              |              |     |                |     |          |                 |
| 1918-02-1  | Picloram  |                                | x            |     |                |     |          |                 |
| 19287-45-7 | Diborane  |                                | x            |     |                |     |          |                 |
| 1929-82-4  | Nitrapyrin  |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                              | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 19624-22-7 | Pentaborane                              |                                | x            |     |                |     |          |                 |
| 2039-87-4  | o-Chlorostyrene                          |                                | x            |     |                |     |          |                 |
| 205-82-3   | Benzo[j]fluoranthene                     | x                              |              |     |                |     |          |                 |
| 20816-12-0 | Osmium tetroxide                         |                                | x            |     |                |     |          |                 |
| 2104-64-5  | EPN                                      |                                | x            |     |                |     |          |                 |
| 21087-64-9 | Metribuzin                               |                                | x            |     |                |     |          |                 |
| 21351-79-1 | Cesium hydroxide                         |                                | x            |     |                |     |          |                 |
| 2179-59-1  | Allyl propyl disulfide                   |                                | x            |     |                |     |          |                 |
| 22224-92-6 | Fenamiphos                               |                                | x            |     |                |     |          |                 |
| 2234-13-1  | Octachloronaphthalene                    |                                | x            |     |                |     |          |                 |
| 2238-07-5  | Diglycidyl ether                         |                                | x            |     |                |     |          |                 |
| 224-42-0   | Dibenz[a,j]acridine                      | x                              |              |     |                |     |          |                 |
| 226-36-8   | Dibenz[a,h]acridine                      | x                              |              |     |                |     |          |                 |
| 2385-85-5  | Mirex                                    | x                              |              |     |                |     |          |                 |
| 2425-06-1  | Captafol                                 |                                | x            |     |                |     |          |                 |
| 2426-08-6  | n-Butyl glycidyl ether                   |                                | x            |     |                |     |          |                 |
| 2465-27-2  | Auramine (technical grade)               | x                              |              |     |                |     |          |                 |
| 25013-15-4 | Vinyl toluene                            |                                | x            |     |                |     |          |                 |
| 2551-62-4  | Sulfur hexafluoride                      |                                | x            |     |                |     |          |                 |
| 25551-13-7 | Trimethyl benzene <sup>3</sup>           |                                | x            |     |                |     |          |                 |
| 25639-42-3 | Methylcyclohexanol                       |                                | x            |     |                |     |          |                 |
| 26140-60-3 | Terphenyls                               |                                | x            |     |                |     |          |                 |
| 2646-17-5  | Oil orange SS                            | x                              |              |     |                |     |          |                 |
| 26628-22-8 | Sodium azide                             |                                | x            |     |                |     |          |                 |
| 26952-21-6 | Iso-ocytl alcohol                        |                                | x            |     |                |     |          |                 |
| 2698-41-1  | o-Chlorobenzylidene malonitrile          |                                | x            |     |                |     |          |                 |
| 2699-79-8  | Sulfuryl fluoride                        |                                | x            |     |                |     |          |                 |
| 28434-86-8 | 3,3'-Dichloro-4,4'-diaminodiphenyl ether | x                              |              |     |                |     |          |                 |
| 287-92-3   | Cyclopentane                             |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                                 | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 29191-52-4 | Anisidine (o-,p- isomers)                   |                                | x            |     |                |     |          |                 |
| 2921-88-2  | Chlorpyrifos                                |                                | x            |     |                |     |          |                 |
| 2971-90-6  | Clopidol                                    |                                | x            |     |                |     |          |                 |
| 299-84-3   | Ronnol                                      |                                | x            |     |                |     |          |                 |
| 299-86-5   | Crufomate                                   |                                | x            |     |                |     |          |                 |
| 300-76-5   | Naled                                       |                                | x            |     |                |     |          |                 |
| 301-04-2   | Lead acetate                                | x                              |              |     |                |     |          |                 |
| 302-01-2   | Hydrazine                                   | x                              |              |     |                |     |          |                 |
| 302-70-5   | Nitrogen mustard N-oxide hydrochloride      | x                              |              |     |                |     |          |                 |
| 3068-88-0  | B-Butyrolactone                             | x                              |              |     |                |     |          |                 |
| 314-40-9   | Bromacil                                    |                                | x            |     |                |     |          |                 |
| 330-54-1   | Diuron                                      |                                | x            |     |                |     |          |                 |
| 3333-52-6  | Tetramethyl succinonitrile                  |                                | x            |     |                |     |          |                 |
| 333-41-5   | Diazinon                                    |                                | x            |     |                |     |          |                 |
| 334-88-3   | Diazomethane                                |                                | x            |     |                |     |          |                 |
| 3383-96-8  | Temephos                                    |                                | x            |     |                |     |          |                 |
| 34590-94-8 | Dipropylene glycol methyl ether             |                                | x            |     |                |     |          |                 |
| 353-50-4   | Carbon oxyfluoride                          |                                | x            |     |                |     |          |                 |
| 35400-43-2 | Sulprofos                                   |                                | x            |     |                |     |          |                 |
| 3547-04-4  | DDE (p,p'-Dichlorodiphenyldichloroethylene) | x                              |              |     |                |     |          |                 |
| 3687-31-8  | Lead arsenate, as Pb3 (A2O4)2               |                                | x            |     |                |     |          |                 |
| 3689-24-5  | Tetraethylthiopyrophosphate (TEDP)          |                                | x            |     |                |     |          |                 |
| 3697-24-3  | 5-Methylchrysene                            | x                              |              |     |                |     |          |                 |
| 3761-53-3  | Ponceau MX                                  | x                              |              |     |                |     |          |                 |
| 3812-32-6  | Carbonate                                   |                                |              |     |                |     |          | x               |
| 3825-26-1  | Ammonium perfluorooctanoate                 |                                | x            |     |                |     |          |                 |
| 4016-14-2  | Isopropyl glycidyl ether (IGE)              |                                | x            |     |                |     |          |                 |
| 4098-71-9  | Isophorone diisocyanate                     |                                | x            |     |                |     |          |                 |
| 4170-30-3  | 2-Butenaldehyde                             |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent  | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 420-04-2   | Cyanamide  |                                | x            |     |                |     |          |                 |
| 460-19-5   | Cyanogen   |                                | x            |     |                |     |          |                 |
| 463-51-4   | Ketene   |                                | x            |     |                |     |          |                 |
| 463-58-1   | Carbon oxide sulfide (COS)   |                                | x            |     |                |     |          |                 |
| 4685-14-7  | Paraquat   |                                | x            |     |                |     |          |                 |
| 479-45-8   | Tetryl   |                                | x            |     |                |     |          |                 |
| 50-00-0    | Formaldehyde   | x                              |              |     |                |     |          |                 |
| 506-77-4   | Cyanogen chloride  |                                | x            |     |                |     |          |                 |
| 509-14-8   | Tetranitromethane  |                                | x            |     |                |     |          |                 |
| 5124-30-1  | Methylene-bis-(4-cyclo-hexylisocyanate)  |                                | x            |     |                |     |          |                 |
| 51-79-6    | Ethyl carbamate (urethane)   |                                | x            |     |                |     |          |                 |
| 531-82-8   | N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide                                       | x                              |              |     |                |     |          |                 |
| 532-27-4   | a-Chloroacetophenone   |                                | x            |     |                |     |          |                 |
| 540-59-0   | 1,2-Dichloroethylene   |                                | x            |     |                |     |          |                 |
| 540-73-8   | 1,2-Dimethylhydrazine  | x                              |              |     |                |     |          |                 |
| 540-84-1   | 2,2,4-Trimethylpentane   |                                | x            |     |                |     |          |                 |
| 540-88-5   | tert-Butyl acetate   |                                | x            |     |                |     |          |                 |
| 541-85-5   | Ethyl amyl ketone  |                                | x            |     |                |     |          |                 |
| 542-75-6   | 1,3-Dichloropropene  |                                | x            |     |                |     |          |                 |
| 542-88-1   | Dichloromethyl ether   | x                              |              |     |                |     |          |                 |
| 542-92-7   | Cyclopentadiene  |                                | x            |     |                |     |          |                 |
| 552-30-7   | Trimellitic anhydride  |                                | x            |     |                |     |          |                 |
| 55-38-9    | Fenthion   |                                | x            |     |                |     |          |                 |
| 555-84-9   | 1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone                                   | x                              |              |     |                |     |          |                 |
| 55-63-0    | Nitroglycerin  |                                | x            |     |                |     |          |                 |
| 556-52-5   | Glycidol   |                                | x            |     |                |     |          |                 |
| 55720-99-5 | Chlorinated diphenyl oxide   |                                | x            |     |                |     |          |                 |
| 55738-54-0 | trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl)-1,3,4-oxadiazole | x                              |              |     |                |     |          |                 |
| 558-13-4   | Carbon tetrabromide  |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                                | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 563-12-2   | Ethion                                     |                                | x            |     |                |     |          |                 |
| 563-80-4   | 3-Methyl-2-butanone                        |                                | x            |     |                |     |          |                 |
| 5714-22-7  | Sulfur pentafluoride                       |                                | x            |     |                |     |          |                 |
| 57-14-7    | 1,1-Dimethylhydrazine                      |                                | x            |     |                |     |          |                 |
| 57-24-9    | Strychnine                                 |                                | x            |     |                |     |          |                 |
| 57-57-8    | B-Propiolactone                            |                                | x            |     |                |     |          |                 |
| 583-60-8   | o-Methylcyclohexanone                      |                                | x            |     |                |     |          |                 |
| 584-84-9   | 2,4-Toluene diisocyanate                   | x                              |              |     |                |     |          |                 |
| 591-78-6   | 2-Hexanone                                 |                                | x            |     |                |     |          |                 |
| 592-62-1   | Methyl azoxymethyl acetate                 | x                              |              |     |                |     |          |                 |
| 59355-75-8 | Methyl acetylene-propadiene mixture (MAPP) |                                | x            |     |                |     |          |                 |
| 593-60-2   | Vinyl bromide                              |                                | x            |     |                |     |          |                 |
| 594-42-3   | Perchloromethyl mercaptan                  |                                | x            |     |                |     |          |                 |
| 594-72-9   | 1,1-Dichloro-1-nitroethane                 |                                | x            |     |                |     |          |                 |
| 59-87-0    | Nitrofurazone                              | x                              |              |     |                |     |          |                 |
| 600-25-9   | 1-Chloro-1-nitropropane                    |                                | x            |     |                |     |          |                 |
| 602-87-9   | 5-Nitroacenaphthene                        | x                              |              |     |                |     |          |                 |
| 603-34-9   | Triphenyl amine                            |                                | x            |     |                |     |          |                 |
| 60-34-4    | Methylhydrazine                            |                                | x            |     |                |     |          |                 |
| 60-35-5    | Acetamide                                  |                                | x            |     |                |     |          |                 |
| 613-35-4   | N,N-Diacetylbenzidine                      | x                              |              |     |                |     |          |                 |
| 615-53-2   | N-Nitroso-N-methylurethane                 | x                              |              |     |                |     |          |                 |
| 61-82-5    | Amitrole                                   | x                              |              |     |                |     |          |                 |
| 624-83-9   | Methyl isocyanate                          |                                | x            |     |                |     |          |                 |
| 626-17-5   | m-Phthalodinitrile                         |                                | x            |     |                |     |          |                 |
| 626-38-0   | sec-Amyl acetate                           |                                | x            |     |                |     |          |                 |
| 627-13-4   | Nitric acid, propyl ester                  |                                | x            |     |                |     |          |                 |
| 62-73-7    | Dichlorvas                                 |                                | x            |     |                |     |          |                 |
| 62-74-8    | Fluoroacetic acid, sodium salt (Fratol)    |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent                                    | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 628-63-7    | n-Amyl acetate                                 |                                | X            |     |                |     |          |                 |
| 628-96-6    | Ethylene glycol dinitrate                      |                                | X            |     |                |     |          |                 |
| 636-21-5    | o-Toluidine hydrochloride                      | X                              |              |     |                |     |          |                 |
| 638-21-1    | Phenylphosphine                                |                                | X            |     |                |     |          |                 |
| 63-92-3     | Phenoxybenzamine hydrochloride                 | X                              |              |     |                |     |          |                 |
| 64091-91-4  | 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone | X                              |              |     |                |     |          |                 |
| 64-17-5     | Ethyl alcohol                                  |                                | X            |     |                |     |          |                 |
| 64-18-6     | Formic acid                                    |                                | X            |     |                |     |          |                 |
| 64-19-7     | Acetic acid                                    |                                | X            |     |                |     |          |                 |
| 6423-43-4   | Propylene glycol dinitrate                     |                                | X            |     |                |     |          |                 |
| 64-67-5     | Diethyl sulfate                                |                                | X            |     |                |     |          |                 |
| 67-45-8     | Furazolidone                                   | X                              |              |     |                |     |          |                 |
| 67-63-0     | 2-Propyl alcohol                               |                                | X            |     |                |     |          |                 |
| 680-31-9    | Hexamethylphosphoramide                        | X                              |              |     |                |     |          |                 |
| 68-11-1     | Thioglycolic acid                              |                                | X            |     |                |     |          |                 |
| 68-12-2     | Dimethylformamide                              |                                | X            |     |                |     |          |                 |
| 681-84-5    | Methyl silicate                                |                                | X            |     |                |     |          |                 |
| 684-16-2    | Hexafluoroacetone                              |                                | X            |     |                |     |          |                 |
| 68476-85-7  | Liquified petroleum gas                        |                                | X            |     |                |     |          |                 |
| 684-93-5    | N-Nitroso-N-methylurea                         |                                | X            |     |                |     |          |                 |
| 6923-22-4   | Monocrotophos                                  |                                | X            |     |                |     |          |                 |
| 696-28-6    | Dichlorophenylarsine                           | X                              |              |     |                |     |          |                 |
| 71-23-8     | n-Propyl alcohol                               |                                | X            |     |                |     |          |                 |
| 7429-90-5   | Aluminum                                       |                                | X            |     |                |     | X        | X               |
| 7429-90-5Ca | Aluminum, Al alkyls                            |                                | X            |     |                |     |          |                 |
| 7429-90-5Cb | Aluminum, as AL pyro powders                   |                                | X            |     |                |     |          |                 |
| 7429-90-5Cc | Aluminum, as Al soluble salts                  |                                | X            |     |                |     |          |                 |
| 7429-90-5Ce | Aluminum, as Al welding fumes                  |                                | X            |     |                |     |          |                 |
| 7439-89-6   | Iron   |                                |              |     |                |     | X        | X               |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent                             | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 7439-89-6D  | Iron salts, soluble as Fe               |                                | x            |     |                |     |          |                 |
| 7439-92-1D  | Lead compounds                          | x                              |              |     |                |     |          |                 |
| 7439-96-5   | Manganese                               |                                |              |     |                |     | x        |                 |
| 7439-96-5Ca | Manganese dust & compounds              |                                | x            |     |                |     |          |                 |
| 7439-96-5Cb | Manganese fume                          |                                | x            |     |                |     |          |                 |
| 7439-97-6Ca | Mercury, Aryl & inorganic cmpd          |                                | x            |     |                |     |          |                 |
| 7439-97-6Cb | Mercury, as Hg Alkyl compounds          |                                | x            |     |                |     |          |                 |
| 7439-97-6Cc | Mercury, vapors except alkyl            |                                | x            |     |                |     |          |                 |
| 7439-98-7Ca | Molybdenum, insoluble cpds              |                                | x            |     |                |     |          |                 |
| 7439-98-7Cb | Molybdenum, as Mo soluble cpds          |                                | x            |     |                |     |          |                 |
| 7440-02-0C  | Nickel compounds                        | x                              |              |     |                |     |          |                 |
| 7440-06-4   | Platinum, metal                         |                                | x            |     |                |     |          |                 |
| 7440-06-4C  | Platinum, soluble salts as Pt           |                                | x            |     |                |     |          |                 |
| 7440-09-7   | Potassium                               |                                |              |     |                |     |          | x               |
| 7440-16-6   | Rhodium Metal                           |                                | x            |     |                |     |          |                 |
| 7440-16-6Ca | Rhodium, insoluble compounds            |                                | x            |     |                |     |          |                 |
| 7440-16-6Cb | Rhodium, soluble compounds              |                                | x            |     |                |     |          |                 |
| 7440-21-3   | Silicon                                 |                                |              |     |                |     |          | x               |
| 7440-22-4Da | Silver, soluble compounds as Ag         |                                | x            |     |                |     |          |                 |
| 7440-23-5   | Sodium                                  |                                |              |     |                |     | x        | x               |
| 7440-25-7C  | Tantalum, metal & oxide dusts           |                                | x            |     |                |     |          |                 |
| 7440-28-0C  | Thallium, soluble compounds, Tl         |                                | x            |     |                |     |          |                 |
| 7440-31-5   | Tin, oxide & inorganic except SnH4      |                                | x            |     |                |     |          |                 |
| 7440-31-5a  | Tin, metal                              |                                | x            |     |                |     |          |                 |
| 7440-31-5C  | Tin, organic compounds, as Sn           |                                | x            |     |                |     |          |                 |
| 7440-33-7Ca | Tungsten, insoluble compounds           |                                | x            |     |                |     |          |                 |
| 7440-33-7Cb | Tungsten, soluble compounds             |                                | x            |     |                |     |          |                 |
| 7440-36-0C  | Antimony & compounds as Sb              |                                | x            |     |                |     |          |                 |
| 7440-38-2C  | Arsenic and inorganic arsenic compounds | x                              |              |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#        | Constituent                       | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-------------|-----------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|             |                                   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 7440-39-3Da | Barium, soluble compounds Ba      |                                | x            |     |                |     |          |                 |
| 7440-41-7a  | Beryllium powder                  | x                              |              |     |                |     |          |                 |
| 7440-42-8   | Boron                             |                                |              |     |                |     |          | x               |
| 7440-47-3Db | Chromium (II) compounds, as Cr    |                                | x            |     |                |     |          |                 |
| 7440-47-3Dc | Chromium (III) compounds, Cr      |                                | x            |     |                |     |          |                 |
| 7440-48-4a  | Cobalt as Co metal dust and fume  |                                | x            |     |                |     |          |                 |
| 7440-50-8   | Copper                            |                                | x            |     |                |     |          |                 |
| 7440-50-8C  | Copper, Dusts and mists, as Cu    |                                | x            |     |                |     |          |                 |
| 7440-58-6   | Hafnium                           |                                | x            |     |                |     |          |                 |
| 7440-61-1C  | Uranium, insoluble & soluble      |                                | x            |     |                |     |          |                 |
| 7440-65-5C  | Yttrium, metal and compounds as Y |                                | x            |     |                |     |          |                 |
| 7440-67-7   | Zirconium                         |                                |              |     |                |     | x        | x               |
| 7440-67-7C  | Zirconium compounds, as Zr        |                                | x            |     |                |     |          |                 |
| 7440-69-9   | Bismuth                           |                                |              |     |                |     |          | x               |
| 7440-70-2   | Calcium                           |                                |              |     |                |     |          | x               |
| 7440-74-6C  | Indium, & compounds as In         |                                | x            |     |                |     |          |                 |
| 7446-27-7   | Lead phosphate                    | x                              |              |     |                |     |          |                 |
| 74-89-5     | Methylamine                       |                                | x            |     |                |     |          |                 |
| 74-90-8     | Hydrogen cyanide                  |                                | x            |     |                |     |          |                 |
| 74-93-1     | Thiomethanol                      |                                | x            |     |                |     |          |                 |
| 74-96-4     | Ethyl bromide                     |                                | x            |     |                |     |          |                 |
| 74-97-5     | Bromochloromethane                |                                | x            |     |                |     |          |                 |
| 74-99-7     | Methylacetylene                   |                                | x            |     |                |     |          |                 |
| 75-04-7     | Ethylamine                        |                                | x            |     |                |     |          |                 |
| 75-07-0     | Acetaldehyde                      | x                              |              |     |                |     |          |                 |
| 75-08-1     | Ethyl mercaptan                   |                                | x            |     |                |     |          |                 |
| 75-12-7     | Formamide                         |                                | x            |     |                |     |          |                 |
| 75-31-0     | Isopropylamine                    |                                | x            |     |                |     |          |                 |
| 75-43-4     | Dichlorofluoromethane             |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                            | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|--|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |  | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 75-44-5   | Phosgene                               |                                | x            |     |                |     |          |                 |
| 75-45-6   | Chlorodifluoromethane                  |                                | x            |     |                |     |          |                 |
| 75-47-8   | Iodoform                               |                                | x            |     |                |     |          |                 |
| 75-50-3   | Trimethylamine                         |                                | x            |     |                |     |          |                 |
| 7550-45-0 | Titanium tetrachloride                 |                                | x            |     |                |     |          |                 |
| 7553-56-2 | Iodine                                 |                                | x            |     |                |     |          |                 |
| 75-55-8   | 2-Methylaziridine                      |                                | x            |     |                |     |          |                 |
| 75-56-9   | Propylene oxide                        | x                              |              |     |                |     |          |                 |
| 75-61-6   | Difluorodibromomethane                 |                                | x            |     |                |     |          |                 |
| 75-63-8   | Trifluorobromomethane                  |                                | x            |     |                |     |          |                 |
| 75-65-0   | 2-Methyl-2-propanol                    |                                | x            |     |                |     |          |                 |
| 7572-29-4 | Dichloroacetylene                      |                                | x            |     |                |     |          |                 |
| 75-74-1   | Tetramethyl lead, as Pb                |                                | x            |     |                |     |          |                 |
| 7580-67-8 | Lithium hydride                        |                                | x            |     |                |     |          |                 |
| 759-73-9  | N-Nitroso-N-ethylurea                  | x                              |              |     |                |     |          |                 |
| 75-99-0   | 2,2-Dichloropropionic acid             |                                | x            |     |                |     |          |                 |
| 76-03-9   | Trichloroacetic acid                   |                                | x            |     |                |     |          |                 |
| 76-06-2   | Chloropicrin                           |                                | x            |     |                |     |          |                 |
| 76-11-9   | 1,1,1,2-Tetrachloro-2,2-difluoroethane |                                | x            |     |                |     |          |                 |
| 76-12-0   | 1,1,2,2-Tetrachloro-1,2-difluoroethane |                                | x            |     |                |     |          |                 |
| 76-14-2   | 1,2-Dichloro-1,1,2,2-tetrafluoroethane |                                | x            |     |                |     |          |                 |
| 76-15-3   | Chloropentafluoroethane                |                                | x            |     |                |     |          |                 |
| 7616-94-6 | Perchloryl fluoride                    |                                | x            |     |                |     |          |                 |
| 76-22-2   | Camphor, synthetic                     |                                | x            |     |                |     |          |                 |
| 7631-90-5 | Sodium bisulfite                       |                                | x            |     |                |     |          |                 |
| 764-41-0  | 1,4-Dichloro-2-butene                  | x                              |              |     |                |     |          |                 |
| 7646-85-7 | Zinc chloride fume                     |                                | x            |     |                |     |          |                 |
| 7647-01-0 | Hydrogen chloride                      |                                | x            |     |                |     |          |                 |
| 765-34-4  | Glycidylaldehyde                       | x                              |              |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#       | Constituent                   | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------------|-------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|            |                               | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 7664-38-2  | Phosphoric acid               |                                | x            |     |                |     |          |                 |
| 7664-39-3  | Hydrogen fluoride             |                                | x            |     |                |     |          |                 |
| 7664-41-7  | Ammonia                       |                                | x            |     |                |     | x        |                 |
| 7664-93-9  | Sulfuric acid                 |                                | x            |     |                |     |          |                 |
| 76737-07-2 | Boron trifluoride             |                                | x            |     |                |     |          |                 |
| 7681-57-4  | Sodium metabisulfite          |                                | x            |     |                |     |          |                 |
| 768-52-5   | N-Isopropylaniline            |                                | x            |     |                |     |          |                 |
| 7697-37-2  | Nitric acid/Nitrate           |                                | x            |     |                |     | x        | x               |
| 7719-09-7  | Thionyl chloride              |                                | x            |     |                |     |          |                 |
| 7719-12-2  | Phosphorus trichloride        |                                | x            |     |                |     |          |                 |
| 7722-84-1  | Hydrogen peroxide             |                                | x            |     |                |     |          |                 |
| 7722-88-5  | Tetrasodium pyrophosphate     |                                | x            |     |                |     |          |                 |
| 7723-14-0  | Phosphorus                    |                                | x            |     |                |     |          |                 |
| 7726-95-6  | Bromine                       |                                | x            |     |                |     |          |                 |
| 7758-97-6  | Lead chromate, as Cr          |                                | x            |     |                |     |          |                 |
| 7773-06-0  | Ammonium sulfamate            |                                | x            |     |                |     |          |                 |
| 77-73-6    | Dicyclopentadiene             |                                | x            |     |                |     |          |                 |
| 77-78-1    | Dimethyl sulfate              | x                              |              |     |                |     |          |                 |
| 7782-41-4  | Fluorine                      |                                | x            |     |                |     |          |                 |
| 7782-49-2C | Selenium compounds, as Se     |                                | x            |     |                |     |          |                 |
| 7782-50-5  | Chlorine                      |                                | x            |     |                |     |          |                 |
| 7782-65-2  | Germanium tetrahydride        |                                | x            |     |                |     |          |                 |
| 7783-06-4  | Hydrogen sulfide              |                                | x            |     |                |     |          |                 |
| 7783-07-5  | Hydrogen selenide, as Se      |                                | x            |     |                |     |          |                 |
| 7783-41-7  | Oxygen difluoride             |                                | x            |     |                |     |          |                 |
| 7783-54-2  | Nitrogen trifluoride          |                                | x            |     |                |     |          |                 |
| 7783-60-0  | Sulfur tetrafluoride          |                                | x            |     |                |     |          |                 |
| 7783-79-1  | Selenium hexafluoride, as Se  |                                | x            |     |                |     |          |                 |
| 7783-80-4  | Tellurium hexafluoride, as Te |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                             | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 7784-42-1 | Arsine                                  |                                | x            |     |                |     |          |                 |
| 7786-34-7 | Mevinphos                               |                                | x            |     |                |     |          |                 |
| 7789-30-2 | Bromine pentafluoride                   |                                | x            |     |                |     |          |                 |
| 7790-91-2 | Chlorine trifluoride                    |                                | x            |     |                |     |          |                 |
| 78-00-2   | Tetraethyl lead                         |                                | x            |     |                |     |          |                 |
| 7803-51-2 | Phosphine                               |                                | x            |     |                |     |          |                 |
| 7803-52-3 | Stibine                                 |                                | x            |     |                |     |          |                 |
| 7803-62-5 | Silicon tetrahydride                    |                                | x            |     |                |     |          |                 |
| 78-10-4   | Ethyl silicate                          |                                | x            |     |                |     |          |                 |
| 78-30-8   | Triorthocresyl phosphate                |                                | x            |     |                |     |          |                 |
| 78-34-2   | Dioxathion                              |                                | x            |     |                |     |          |                 |
| 78-59-1   | Isophorone                              |                                | x            |     |                |     |          |                 |
| 78-92-2   | 1-Methylpropyl alcohol                  |                                | x            |     |                |     |          |                 |
| 79-04-9   | Chloroacetyl chloride                   |                                | x            |     |                |     |          |                 |
| 79-09-4   | Propanoic acid                          |                                | x            |     |                |     |          |                 |
| 79-10-7   | 2-Propenoic acid                        |                                | x            |     |                |     |          |                 |
| 79-11-8   | Chloroacetic acid                       |                                | x            |     |                |     |          |                 |
| 79-20-9   | Methyl acetate                          |                                | x            |     |                |     |          |                 |
| 79-24-3   | Nitroethane                             |                                | x            |     |                |     |          |                 |
| 79-27-6   | Acetylene tetrabromide                  |                                | x            |     |                |     |          |                 |
| 79-41-4   | Methacrylic acid                        |                                | x            |     |                |     |          |                 |
| 79-44-7   | Dimethylcarbamoyl chloride              |                                | x            |     |                |     |          |                 |
| 79-46-9   | 2-Nitropropane                          | x                              |              |     |                |     |          |                 |
| 794-93-4  | Panfuran S (dihydroxymethylfuratrizine) | x                              |              |     |                |     |          |                 |
| 8001-58-9 | Creosote                                | x                              |              |     |                |     |          |                 |
| 8002-74-2 | Parafin wax fume                        |                                | x            |     |                |     |          |                 |
| 8003-34-7 | Pyrethrum                               |                                | x            |     |                |     |          |                 |
| 8006-64-2 | Turpentine                              |                                | x            |     |                |     |          |                 |
| 8012-95-1 | Oil mist, mineral                       |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#      | Constituent                        | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|-----------|------------------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|           |                                    | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 8022-00-2 | Methyl demeton                     |                                | x            |     |                |     |          |                 |
| 8030-30-6 | Rubber solvent (Naphtha)           |                                | x            |     |                |     |          |                 |
| 8032-32-4 | VM & P Naphtha                     |                                | x            |     |                |     |          |                 |
| 8052-42-4 | Asphalt (petroleum) fumes          |                                | x            |     |                |     |          |                 |
| 8065-48-3 | Demeton                            |                                | x            |     |                |     |          |                 |
| 81-81-2   | Warfarin (>0.3%)                   |                                | x            |     |                |     |          |                 |
| 81-81-2a  | Warfarin (<0.3%)                   |                                | x            |     |                |     |          |                 |
| 822-06-0  | Hexamethylene diisocyanate         |                                | x            |     |                |     |          |                 |
| 83-26-1   | Pindone                            |                                | x            |     |                |     |          |                 |
| 83-79-4   | Rotenone                           |                                | x            |     |                |     |          |                 |
| 838-88-0  | 4,4'-Methylenebis(2-methylaniline) | x                              |              |     |                |     |          |                 |
| 85-00-7   | Diquat                             |                                | x            |     |                |     |          |                 |
| 86-50-0   | Azinphos-methyl                    |                                | x            |     |                |     |          |                 |
| 86-88-4   | alpha-Naphthylthiourea             |                                | x            |     |                |     |          |                 |
| 88-72-2   | Nitrotoluene                       |                                | x            |     |                |     |          |                 |
| 88-89-1   | Picric acid                        |                                | x            |     |                |     |          |                 |
| 89-72-5   | o-sec-Butylphenol                  |                                | x            |     |                |     |          |                 |
| 90-04-0   | o-Anisidine                        | x                              |              |     |                |     |          |                 |
| 91-22-5   | Quinoline                          |                                | x            |     |                |     |          |                 |
| 91-94-1   | 3,3 -Dichlorobenzidine             | x                              |              |     |                |     |          |                 |
| 92-52-4   | 1,1'-Biphenyl                      |                                | x            |     |                |     |          |                 |
| 92-84-2   | Phenothiazine                      |                                | x            |     |                |     |          |                 |
| 92-87-5   | Benzidine                          | x                              |              |     |                |     |          |                 |
| 92-93-3   | 4-Nitrobiphenyl                    |                                | x            |     |                |     |          |                 |
| 94-36-0   | Benzoyl Peroxide                   |                                | x            |     |                |     |          |                 |
| 944-22-9  | Fonofos                            |                                | x            |     |                |     |          |                 |
| 95-13-6   | Indene                             |                                | x            |     |                |     |          |                 |
| 95-49-8   | o-Chlorotoluene                    |                                | x            |     |                |     |          |                 |
| 95-53-4   | o-Toluidine (2-methylaniline)      | x                              |              |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS#     | Constituent   | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|----------|---|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|          |   | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| 95-80-7  | Toluene-2,4-diamine                                 | x                              |              |     |                |     |          |                 |
| 96-09-3  | Styrene oxide                                       |                                | x            |     |                |     |          |                 |
| 96-22-0  | 3-Pentanone   |                                | x            |     |                |     |          |                 |
| 96-33-3  | Methyl acrylate                                     |                                | x            |     |                |     |          |                 |
| 96-45-7  | Ethylenethiourea                                    | x                              |              |     |                |     |          |                 |
| 96-69-5  | Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide |                                | x            |     |                |     |          |                 |
| 97-56-3  | o-Aminoazotoluene                                   | x                              |              |     |                |     |          |                 |
| 97-77-8  | Disulfiram  |                                | x            |     |                |     |          |                 |
| 98-00-1  | Furfuryl alcohol                                    |                                | x            |     |                |     |          |                 |
| 98-01-1  | Furfural  |                                | x            |     |                |     |          |                 |
| 98-07-7  | Benzotrichloride                                    |                                | x            |     |                |     |          |                 |
| 98-51-1  | p-tert-Butyltoluene                                 |                                | x            |     |                |     |          |                 |
| 98-82-8  | Cumene  |                                | x            |     |                |     |          |                 |
| 98-83-9  | Methylstyrene                                       |                                | x            |     |                |     |          |                 |
| 999-61-1 | 2-Hydroxypropyl acrylate                            |                                | x            |     |                |     |          |                 |
| I127     | Pu-239/240  |                                |              |     |                |     | x        |                 |
| I175     | U-235   |                                |              |     |                |     | x        |                 |
| I176     | U-gross   |                                |              |     |                |     | x        |                 |
| I4       | Aluminum smelter polyaromatic hydrocarbon emissions | x                              |              |     |                |     |          |                 |
| I51      | Cotton dust, raw                                    |                                | x            |     |                |     |          |                 |
| NA115    | Viscosity   |                                |              |     |                |     | x        |                 |
| NA117    | Ignitability (Flash Point)                          |                                |              |     |                |     | x        |                 |
| NA118    | Color   |                                |              |     |                |     | x        |                 |
| NA12     | Organics, separable                                 |                                |              |     |                |     | x        |                 |
| NA2      | Specific gravity (SPG)                              |                                |              |     |                |     | x        |                 |
| NA20     | Welding fumes                                       |                                | x            |     |                |     |          |                 |
| NA21     | Polyaromatic hydrocarbons (PAH)                     | x                              |              |     |                |     |          |                 |
| NA22     | Fine mineral fibers                                 |                                | x            |     |                |     |          |                 |
| NA23     | Fibrous glass dust                                  |                                | x            |     |                |     |          |                 |

**Table A-1 Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 constituents)**

| CAS# | Constituent                | Source of Regulatory DQO Input |              |     |                |     |          |                 |
|------|----------------------------|--------------------------------|--------------|-----|----------------|-----|----------|-----------------|
|      |                            | Class A TAPs                   | Class B TAPs | UHC | Part A-DST/SST | UTS | DST WSPS | Flammable Gases |
| NA24 | Dioxins and furans         | x                              |              |     |                |     |          |                 |
| NA25 | Coke oven emissions        | x                              |              |     |                |     |          |                 |
| NA28 | % solids                   |                                |              |     |                |     | x        |                 |
| NA29 | Total organic carbon (TOC) |                                |              |     |                |     | x        |                 |
| NA3  | % moisture                 |                                |              |     |                |     | x        |                 |
| NA30 | Total suspended solids     |                                |              |     |                |     | x        |                 |
| NA38 | Total Alpha (AT)           |                                |              |     |                |     | x        |                 |
| NA6  | pH                         |                                |              |     |                |     | x        | x               |
| NA7  | Energetics                 |                                |              |     |                |     | x        |                 |
| UN6  | Isopropyl oils             | x                              |              |     |                |     |          |                 |
| UN8  | Nitrofurans                | x                              |              |     |                |     |          |                 |

Notes:

- <sup>1</sup> Note this compound does not appear on the RDQO input table B.2 although other RDQO tables list it as a TAP and the RDQO input table only lists 849 input compounds.
- <sup>2</sup> CAS No. was corrected to hexavalent chromium from RDQO entry.
- <sup>3</sup> Corrected CAS No. from RDQO input table B.2.

**Table A-2 Priority Regulated Organic Compounds for Characterization in Support of the  
 Regulatory Data Quality Objectives (125 constituents)**

| CAS #      | Constituent               | Higher Toxicity<br>Compounds Identified<br>in RDQO Table B-6 |
|------------|---------------------------|--|
| 100-00-5   | p-Nitrochlorobenzene      | x  |
| 100-25-4   | 1,4-Dinitrobenzene        |  |
| 100-41-4   | Ethyl benzene             |  |
| 100-42-5   | Styrene                   |  |
| 10061-01-5 | cis-1,3-Dichloropropene   |  |
| 10061-02-6 | trans-1,3-Dichloropropene |  |
| 106-35-4   | 3-Heptanone               |  |
| 106-42-3   | p-Xylene                  |  |
| 106-46-7   | 1,4-Dichlorobenzene       |  |
| 106-93-4   | Ethylene dibromide        |  |
| 106-97-8   | Butane                    |  |
| 106-99-0   | 1,3-Butadiene             | x  |
| 107-02-8   | Acrolein                  | x  |
| 107-05-1   | 3-Chloropropene           | x  |
| 107-06-2   | 1,2-Dichloroethane        |  |
| 107-12-0   | Propionitrile             | x  |
| 107-13-1   | Acrylonitrile             | x  |
| 107-87-9   | 2-Pentanone               |  |
| 108-10-1   | 4-Methyl-2-pentanone      |  |
| 108-38-3   | m-Xylene                  |  |
| 108-87-2   | Methylcyclohexane         |  |
| 108-88-3   | Toluene                   |  |
| 108-90-7   | Chlorobenzene             |  |
| 108-94-1   | Cyclohexanone             |  |
| 108-95-2   | Phenol                    |  |
| 109-66-0   | n-Pentane                 |  |
| 109-99-9   | Tetrahydrofuran           |  |
| 110-12-3   | 5-Methyl-2-hexanone       |  |
| 110-43-0   | 2-Heptanone               |  |
| 110-54-3   | n-Hexane                  |  |
| 110-82-7   | Cyclohexane               |  |
| 110-83-8   | Cyclohexene               |  |
| 110-86-1   | Pyridine                  |  |
| 111-65-9   | n-Octane                  |  |
| 111-84-2   | n-Nonane                  |  |
| 118-74-1   | Hexachlorobenzene         |  |
| 120-82-1   | 1,2,4-Trichlorobenzene    |  |
| 121-44-8   | Triethylamine             |  |
| 122-39-4   | N,N-Diphenylamine         |  |
| 123-19-3   | 4-Heptanone               |  |
| 123-38-6   | n-Propionaldehyde         |  |

**Table A-2 Priority Regulated Organic Compounds for Characterization in Support of the  
 Regulatory Data Quality Objectives (125 constituents)**

| CAS #     | Constituent                        | Higher Toxicity<br>Compounds Identified<br>in RDQO Table B-6 |
|-----------|------------------------------------|--|
| 123-86-4  | Acetic acid n-butyl ester          |  |
| 123-91-1  | 1,4-Dioxan                         |  |
| 126-73-8  | Tributyl phosphate                 | x  |
| 126-98-7  | 2-Methyl-2-propenenitrile          | x  |
| 127-18-4  | 1,1,2,2-Tetrachloroethene          |  |
| 128-37-0  | 2,6-Bis(tert-butyl)-4-methylphenol |  |
| 1321-64-8 | Pentachloronaphthalene             |  |
| 1335-87-1 | Hexachloronaphthalene              |  |
| 1335-88-2 | Tetrachloronaphthalene             |  |
| 1336-36-3 | Polychlorinated biphenyls (PCBs)   |  |
| 141-78-6  | Acetic acid ethyl ester            |  |
| 142-82-5  | n-Heptane                          |  |
| 144-62-7  | Oxalic acid                        | x  |
| 2234-13-1 | Octachloronaphthalene              |  |
| 287-92-3  | Cyclopentane                       |  |
| 309-00-2  | Aldrin                             |  |
| 319-84-6  | alpha-BHC                          |  |
| 319-85-7  | beta-BHC                           |  |
| 3825-26-1 | Ammonium perfluorooctanoate        |  |
| 4170-30-3 | 2-Butenaldehyde                    |  |
| 465-73-6  | Isodrin                            |  |
| 50-32-8   | Benzo(a)pyrene                     |  |
| 53-70-3   | Dibenz[a,h]anthracene              |  |
| 541-73-1  | 1,3-Dichlorobenzene                |  |
| 56-23-5   | Carbon tetrachloride               |  |
| 563-80-4  | 3-Methyl-2-butanone                |  |
| 57-14-7   | 1,1-Dimethylhydrazine              | x  |
| 58-89-9   | gamma-BHC (Lindane)                |  |
| 591-78-6  | 2-Hexanone                         |  |
| 60-34-4   | Methylhydrazine                    | x  |
| 60-57-1   | Dieldrin                           |  |
| 624-83-9  | Methyl isocyanate                  | x  |
| 627-13-4  | Nitric acid, propyl ester          |  |
| 62-75-9   | N-Nitroso-N,N-dimethylamine        | x  |
| 64-17-5   | Ethyl alcohol                      |  |
| 64-18-6   | Formic acid                        |  |
| 64-19-7   | Acetic acid                        |  |
| 67-56-1   | Methyl alcohol                     |  |
| 67-63-0   | 2-Propyl alcohol                   |  |
| 67-64-1   | 2-Propanone (Acetone)              |  |
| 67-66-3   | Chloroform                         |  |
| 684-16-2  | Hexafluoroacetone                  |  |

**Table A-2 Priority Regulated Organic Compounds for Characterization in Support of the Regulatory Data Quality Objectives (125 constituents)**

| CAS #     | Constituent                                | Higher Toxicity Compounds Identified in RDQO Table B-6 |
|-----------|--|--|
| 71-23-8   | n-Propyl alcohol                           |  |
| 71-36-3   | n-Butyl alcohol                            |  |
| 71-43-2   | Benzene                                    |  |
| 71-55-6   | 1,1,1-Trichloroethane                      |  |
| 72-20-8   | Endrin                                     |  |
| 74-83-9   | Bromomethane                               | x  |
| 74-87-3   | Chloromethane                              |  |
| 75-00-3   | Chloroethane                               |  |
| 75-01-4   | 1-Chloroethene                             |  |
| 75-05-8   | Acetonitrile                               |  |
| 75-09-2   | Dichloromethane (Methylene Chloride)       |  |
| 75-15-0   | Carbon disulfide                           |  |
| 75-21-8   | Ethylene oxide (Oxirane)                   | x  |
| 75-34-3   | 1,1-Dichloroethane                         |  |
| 75-35-4   | 1,1-Dichloroethene                         |  |
| 75-43-4   | Dichlorofluoromethane                      |  |
| 75-45-6   | Chlorodifluoromethane                      |  |
| 75-65-0   | 2-Methyl-2-propanol                        |  |
| 75-69-4   | Trichlorofluoromethane                     |  |
| 75-71-8   | Dichlorodifluoromethane                    |  |
| 76-13-1   | 1,2,2-Trichlorotrifluoroethane             |  |
| 76-14-2   | 1,2-Dichloro-1,1,2,2-tetrafluoroethane     |  |
| 76-44-8   | Heptachlor                                 |  |
| 78-87-5   | 1,2-Dichloropropane                        |  |
| 78-92-2   | 1-Methylpropyl alcohol                     |  |
| 78-93-3   | 2-Butanone                                 |  |
| 79-00-5   | 1,1,2-Trichloroethane                      |  |
| 79-01-6   | 1,1,2-Trichloroethylene                    |  |
| 79-10-7   | 2-Propenoic acid                           | x  |
| 79-34-5   | 1,1,2,2-Tetrachloroethane                  |  |
| 8001-35-2 | Toxaphene                                  |  |
| 82-68-8   | Pentachloronitrobenzene (PCNB)             |  |
| 87-68-3   | Hexachlorobutadiene                        | x  |
| 87-86-5   | Pentachlorophenol                          |  |
| 88-85-7   | 2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb |  |
| 88-89-1   | Picric acid                                |  |
| 92-52-4   | 1,1'-Biphenyl                              | x  |
| 95-47-6   | o-Xylene                                   |  |
| 95-50-1   | 1,2-Dichlorobenzene                        |  |
| 96-22-0   | 3-Pentanone                                |  |
| 98-86-2   | Acetophenone                               |  |
| 98-95-3   | Nitrobenzene                               | x  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #      | Constituent               | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|------------|---------------------------|--|--|---|--|
| 100-21-0   | Phthalic acid             |  |  | x   | x  |
| 100-25-4   | 1,4-Dinitrobenzene        |  |  | x   |  |
| 100-41-4   | Ethyl benzene             | x  |  |   |  |
| 100-42-5   | Styrene                   | x  |  |   |  |
| 10061-01-5 | cis-1,3-Dichloropropene   | x  |  |   |  |
| 10061-02-6 | trans-1,3-Dichloropropene | x  |  |   |  |
| 101-55-3   | 4-Bromophenylphenyl ether |  |  | x   | x  |
| 101-84-8   | Diphenyl ether            | x  | x  |   |  |
| 106-35-4   | 3-Heptanone               | x  |  |   |  |
| 106-42-3   | p-Xylene                  | x  |  |   |  |
| 106-46-7   | 1,4-Dichlorobenzene       | x  |  |   |  |
| 106-88-7   | 1,2-Epoxybutane           | x  | x  |   |  |
| 106-93-4   | Ethylene dibromide        | x  |  |   |  |
| 106-97-8   | Butane                    | x  |  |   |  |
| 107-06-2   | 1,2-Dichloroethane        | x  |  |   |  |
| 107-18-6   | 2-Propen-1-ol             | x  | x  |   |  |
| 107-31-3   | Formic acid, methyl ester | x  | x  |   |  |
| 107-66-4   | Dibutylphosphate          |  |  | x   | x  |
| 107-87-9   | 2-Pentanone               | x  |  |   |  |
| 108-03-2   | 1-Nitropropane            | x  | x  |   |  |
| 108-05-4   | Acetic acid vinyl ester   | x  | x  |   |  |
| 108-10-1   | 4-Methyl-2-pentanone      | x  |  |   |  |
| 108-20-3   | Bis(isopropyl) ether      | x  | x  |   |  |
| 108-38-3   | m-Xylene                  | x  |  |   |  |
| 108-39-4   | m-Cresol                  | x  | x  |   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #    | Constituent                 | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|----------|-----------------------------|--|--|---|--|
| 108-87-2 | Methylcyclohexane           | x  |  |   |  |
| 108-88-3 | Toluene                     | x  |  |   |  |
| 108-90-7 | Chlorobenzene               | x  |  |   |  |
| 108-93-0 | Cyclohexanol                | x  | x  |   |  |
| 108-94-1 | Cyclohexanone               | x  |  |   |  |
| 108-95-2 | Phenol                      | x  |  |   |  |
| 109-66-0 | n-Pentane                   | x  |  |   |  |
| 109-99-9 | Tetrahydrofuran             | x  |  |   |  |
| 110-12-3 | 5-Methyl-2-hexanone         | x  |  |   |  |
| 110-43-0 | 2-Heptanone                 | x  |  |   |  |
| 110-54-3 | n-Hexane                    | x  |  |   |  |
| 110-62-3 | n-Valeraldehyde             | x  | x  |   |  |
| 110-82-7 | Cyclohexane                 | x  |  |   |  |
| 110-83-8 | Cyclohexene                 | x  |  |   |  |
| 110-86-1 | Pyridine                    | x  |  |   |  |
| 111-65-9 | n-Octane                    | x  |  |   |  |
| 111-76-2 | 2-Butoxyethanol             | x  | x  |   |  |
| 111-84-2 | n-Nonane                    | x  |  |   |  |
| 117-81-7 | Bis(2-ethylhexyl) phthalate | x  | x  |   |  |
| 117-84-0 | Di-n-octylphthalate         | x  | x  |   |  |
| 118-74-1 | Hexachlorobenzene           |  |  | x   |  |
| 120-12-7 | Anthracene                  |  |  | x   | x  |
| 120-82-1 | 1,2,4-Trichlorobenzene      | x  |  |   |  |
| 120-83-2 | 2,4-Dichlorophenol          |  |  | x   | x  |
| 121-44-8 | Triethylamine               |  |  | x   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #     | Constituent                        | Detected Lower Toxicity Compounds (RDQO Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDQO Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|-----------|------------------------------------|--|--|---|--|
| 121-69-7  | Dimethylaniline                    |  |  | x   | x  |
| 122-39-4  | N,N-Diphenylamine                  | x  |  |   |  |
| 123-19-3  | 4-Heptanone                        | x  |  |   |  |
| 123-38-6  | n-Propionaldehyde                  | x  |  |   |  |
| 123-51-3  | 3-Methyl-1-butanol                 | x  | x  |   |  |
| 123-86-4  | Acetic acid n-butyl ester          | x  |  |   |  |
| 123-91-1  | 1,4-Dioxan                         | x  |  |   |  |
| 127-18-4  | 1,1,2,2-Tetrachloroethene          | x  |  |   |  |
| 127-19-5  | N,N-Dimethylacetamide              | x  | x  |   |  |
| 128-37-0  | 2,6-Bis(tert-butyl)-4-methylphenol | x  |  |   |  |
| 129-00-0  | Pyrene                             | x  | x  |   |  |
| 1321-64-8 | Pentachloronaphthalene             |  |  | x   |  |
| 1321-65-9 | Trichloronaphthalene               |  |  | x   | x  |
| 132-64-9  | Dibenzofuran                       |  |  | x   | x  |
| 1335-87-1 | Hexachloronaphthalene              |  |  | x   |  |
| 1335-88-2 | Tetrachloronaphthalene             |  |  | x   |  |
| 1336-36-3 | Polychlorinated biphenyls (PCBs)   |  |  | x   |  |
| 141-78-6  | Acetic acid ethyl ester            | x  |  |   |  |
| 141-79-7  | 4-Methyl-3-penten-2-one            | x  | x  |   |  |
| 142-82-5  | n-Heptane                          | x  |  |   |  |
| 156-60-5  | 1,2-trans-Dichloroethene           |  |  | x   | x  |
| 1582-09-8 | Trifluralin                        |  |  | x   | x  |
| 1634-04-4 | Methyl tert-butyl ether            |  |  | x   | x  |
| 1836-75-5 | Nitrofen                           |  |  | x   | x  |
| 189-55-9  | Dibenzo[a,i]pyrene                 |  |  | x   | x  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #      | Constituent                 | Detected Lower Toxicity Compounds (RDQO Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDQO Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|------------|-----------------------------|--|--|---|--|
| 189-64-0   | Dibenzo[a,h]pyrene          |  |  | x   | x  |
| 191-24-2   | Benzo(g,h,i)perylene        |  |  | x   | x  |
| 191-30-0   | Dibenzo(a,l)pyrene          |  |  | x   | x  |
| 192-65-4   | Dibenzo[a,e]pyrene          |  |  | x   | x  |
| 193-39-5   | Indeno(1,2,3-cd)pyrene      |  |  | x   | x  |
| 205-82-3   | Benzo[j]fluoranthene        |  |  | x   | x  |
| 205-99-2   | Benzo(b)fluoranthene        |  |  | x   | x  |
| 206-44-0   | Fluoranthene                | x  | x  |   |  |
| 207-08-9   | Benzo(k)fluoranthene        |  |  | x   | x  |
| 208-96-8   | Acenaphthylene              |  |  | x   | x  |
| 218-01-9   | Chrysene                    |  |  | x   | x  |
| 2234-13-1  | Octachloronaphthalene       |  |  | x   |  |
| 224-42-0   | Dibenz[a,j]acridine         |  |  | x   | x  |
| 226-36-8   | Dibenz[a,h]acridine         |  |  | x   | x  |
| 2385-85-5  | Mirex                       |  |  | x   | x  |
| 25551-13-7 | Trimethyl benzene           |  |  | x   | x  |
| 26140-60-3 | Terphenyls                  |  |  | x   | x  |
| 27154-33-2 | Trichlorofluoroethane       |  |  | x   | x  |
| 287-92-3   | Cyclopentane                | x  |  |   |  |
| 309-00-2   | Aldrin                      |  |  | x   |  |
| 319-84-6   | alpha-BHC                   |  |  | x   |  |
| 319-85-7   | beta-BHC                    |  |  | x   |  |
| 319-86-8   | delta-BHC                   |  |  | x   | x  |
| 3697-24-3  | 5-Methylchrysene            |  |  | x   | x  |
| 3825-26-1  | Ammonium perfluorooctanoate |  |  | x   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #     | Constituent                | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|-----------|----------------------------|--|--|---|--|
| 4170-30-3 | 2-Butenaldehyde            | x  |  |   |  |
| 465-73-6  | Isodrin                    |  |  | x   |  |
| 50-00-0   | Formaldehyde               | x  | x  |   |  |
| 50-29-3   | 4,4-DDT                    |  |  | x   | x  |
| 50-32-8   | Benzo(a)pyrene             |  |  | x   |  |
| 53-70-3   | Dibenz[a,h]anthracene      |  |  | x   |  |
| 540-59-0  | 1,2-Dichloroethylene       |  |  | x   | x  |
| 540-84-1  | 2,2,4-Trimethylpentane     |  |  | x   | x  |
| 541-73-1  | 1,3-Dichlorobenzene        | x  |  |   |  |
| 56-23-5   | Carbon tetrachloride       | x  |  |   |  |
| 563-80-4  | 3-Methyl-2-butanone        | x  |  |   |  |
| 56-49-5   | 3-Methylcholanthrene       |  |  | x   | x  |
| 56-55-3   | Benzo(a)anthracene         |  |  | x   | x  |
| 58-89-9   | gamma-BHC (Lindane)        |  |  | x   |  |
| 58-90-2   | 2,3,4,6-Tetrachlorophenol  |  |  | x   | x  |
| 591-78-6  | 2-Hexanone                 | x  |  |   |  |
| 59-50-7   | 4-Chloro-3-methylphenol    | x  | x  |   |  |
| 59-89-2   | N-Nitrosomorpholine        | x  | x  |   |  |
| 602-87-9  | 5-Nitroacenaphthene        |  |  | x   | x  |
| 60-29-7   | Ethyl ether                |  |  | x   | x  |
| 603-34-9  | Triphenyl amine            |  |  | x   | x  |
| 60-35-5   | Acetamide                  | x  | x  |   |  |
| 60-57-1   | Dieldrin                   |  |  | x   |  |
| 621-64-7  | N-Nitroso-di-n-propylamine | x  | x  |   |  |
| 627-13-4  | Nitric acid, propyl ester  | x  |  |   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #    | Constituent               | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|----------|---------------------------|--|--|---|--|
| 630-20-6 | 1,1,1,2-Tetrachloroethane |  |  | X   | X  |
| 64-17-5  | Ethyl alcohol             | X  |  |   |  |
| 64-18-6  | Formic acid               | X  |  |   |  |
| 64-19-7  | Acetic acid               | X  |  |   |  |
| 67-56-1  | Methyl alcohol            | X  |  |   |  |
| 67-63-0  | 2-Propyl alcohol          | X  |  |   |  |
| 67-64-1  | 2-Propanone (Acetone)     | X  |  |   |  |
| 67-66-3  | Chloroform                | X  |  |   |  |
| 67-72-1  | Hexachloroethane          | X  | X  |   |  |
| 684-16-2 | Hexafluoroacetone         |  |  | X   |  |
| 71-23-8  | n-Propyl alcohol          | X  |  |   |  |
| 71-36-3  | n-Butyl alcohol           | X  |  |   |  |
| 71-43-2  | Benzene                   | X  |  |   |  |
| 71-55-6  | 1,1,1-Trichloroethane     | X  |  |   |  |
| 72-20-8  | Endrin                    |  |  | X   |  |
| 72-43-5  | Methoxychlor              |  |  | X   | X  |
| 72-54-8  | 4,4-DDD                   |  |  | X   | X  |
| 72-55-9  | 4,4-DDE                   |  |  | X   | X  |
| 74-87-3  | Chloromethane             | X  |  |   |  |
| 74-97-5  | Bromochloromethane        |  |  | X   | X  |
| 74-99-7  | Methylacetylene           | X  | X  |   |  |
| 75-00-3  | Chloroethane              | X  |  |   |  |
| 75-01-4  | 1-Chloroethene            | X  |  |   |  |
| 75-05-8  | Acetonitrile              | X  |  |   |  |
| 75-07-0  | Acetaldehyde              | X  | X  |   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #   | Constituent                            | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|---------|--|--|--|---|--|
| 75-09-2 | Dichloromethane (Methylene Chloride)   | x  |  |   |  |
| 75-12-7 | Formamide                              | x  | x  |   |  |
| 75-15-0 | Carbon disulfide                       | x  |  |   |  |
| 75-27-4 | Bromodichloromethane                   |  |  | x   | x  |
| 75-34-3 | 1,1-Dichloroethane                     | x  |  |   |  |
| 75-35-4 | 1,1-Dichloroethene                     | x  |  |   |  |
| 75-43-4 | Dichlorofluoromethane                  | x  |  |   |  |
| 75-45-6 | Chlorodifluoromethane                  | x  |  |   |  |
| 75-50-3 | Trimethylamine                         | x  | x  |   |  |
| 75-52-5 | Nitromethane                           | x  | x  |   |  |
| 75-55-8 | 2-Methylaziridine                      | x  | x  |   |  |
| 75-61-6 | Difluorodibromomethane                 |  |  | x   | x  |
| 75-63-8 | Trifluorobromomethane                  |  |  | x   | x  |
| 75-65-0 | 2-Methyl-2-propanol                    | x  |  |   |  |
| 75-69-4 | Trichlorofluoromethane                 | x  |  |   |  |
| 75-71-8 | Dichlorodifluoromethane                | x  |  |   |  |
| 75-99-0 | 2,2-Dichloropropionic acid             |  |  | x   | x  |
| 76-03-9 | Trichloroacetic acid                   |  |  | x   | x  |
| 76-11-9 | 1,1,1,2-Tetrachloro-2,2-difluoroethane |  |  | x   | x  |
| 76-12-0 | 1,1,2,2-Tetrachloro-1,2-difluoroethane |  |  | x   | x  |
| 76-13-1 | 1,2,2-Trichlorotrifluoroethane         | x  |  |   |  |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | x  |  |   |  |
| 76-15-3 | Chloropentafluoroethane                |  |  | x   | x  |
| 76-44-8 | Heptachlor                             |  |  | x   |  |
| 78-83-1 | 2-Methylpropyl alcohol                 | x  | x  |   |  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #     | Constituent                                | Detected Lower Toxicity Compounds (RDOQ Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDOQ Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|-----------|--|--|--|---|--|
| 78-87-5   | 1,2-Dichloropropane                        | x  |  |   |  |
| 78-92-2   | 1-Methylpropyl alcohol                     | x  |  |   |  |
| 78-93-3   | 2-Butanone                                 | x  |  |   |  |
| 79-00-5   | 1,1,2-Trichloroethane                      | x  |  |   |  |
| 79-01-6   | 1,1,2-Trichloroethylene                    | x  |  |   |  |
| 79-09-4   | Propanoic acid                             | x  | x  |   |  |
| 79-20-9   | Methyl acetate                             | x  | x  |   |  |
| 79-34-5   | 1,1,1,2-Tetrachloroethane                  | x  |  |   |  |
| 8001-35-2 | Toxaphene                                  |  |  | x   |  |
| 82-68-8   | Pentachloronitrobenzene (PCNB)             |  |  | x   |  |
| 83-32-9   | Acenaphthene                               | x  | x  |   |  |
| 84-66-2   | Diethyl phthalate                          | x  | x  |   |  |
| 84-74-2   | Di-n-butylphthalate                        | x  | x  |   |  |
| 85-01-8   | Phenanthrene                               |  |  | x   | x  |
| 85-68-7   | Butylbenzylphthalate                       | x  | x  |   |  |
| 86-73-7   | Fluorene                                   | x  | x  |   |  |
| 87-86-5   | Pentachlorophenol                          |  |  | x   |  |
| 88-06-2   | 2,4,6-Trichlorophenol                      | x  | x  |   |  |
| 88-72-2   | Nitrotoluene                               |  |  | x   | x  |
| 88-75-5   | 2-Nitrophenol                              | x  | x  |   |  |
| 88-85-7   | 2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb |  |  | x   |  |
| 88-89-1   | Picric acid                                |  |  | x   |  |
| 91-20-3   | Naphthalene                                | x  | x  |   |  |
| 91-22-5   | Quinoline                                  |  |  | x   | x  |
| 91-58-7   | 2-Chloronaphthalene                        |  |  | x   | x  |

**Table A-3 Detected and Non-detected Lower Toxicity Organic Compounds Evaluated in the Regulatory Data Quality Objective Process (217 constituents)**

| CAS #   | Constituent   | Detected Lower Toxicity Compounds (RDQO Table B-7) | Detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> | Non-detected Lower Toxicity Compounds (RDQO Table B-22) | Non-detected Lower Toxicity Compounds Removed in the RDOQ Process <sup>1</sup> |
|---------|---|--|--|---|--|
| 92-93-3 | 4-Nitrobiphenyl                                     |  |  | X   | X  |
| 93-72-1 | Silvex (2,4,5-TP)                                   |  |  | X   | X  |
| 93-76-5 | 2,4,5-T   |  |  | X   | X  |
| 94-75-7 | 2,4-D   |  |  | X   | X  |
| 95-13-6 | Indene  |  |  | X   | X  |
| 95-47-6 | o-Xylene  | X  |  |   |  |
| 95-48-7 | o-Cresol  | X  | X  |   |  |
| 95-49-8 | o-Chlorotoluene                                     |  |  | X   | X  |
| 95-50-1 | 1,2-Dichlorobenzene                                 | X  |  |   |  |
| 95-57-8 | 2-Chlorophenol                                      | X  | X  |   |  |
| 95-95-4 | 2,4,5-Trichlorophenol                               | X  | X  |   |  |
| 96-22-0 | 3-Pentanone   | X  |  |   |  |
| 96-69-5 | Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide | X  | X  |   |  |
| 98-51-1 | p-tert-Butyltoluene                                 |  |  | X   | X  |
| 98-82-8 | Cumene  |  |  | X   | X  |
| 98-83-9 | Methylstyrene                                       | X  | X  |   |  |
| 98-86-2 | Acetophenone  | X  |  |   |  |

Notes:

<sup>1</sup> These compounds were added back to the WTP COPC list at the request of Ecology and EPA.

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**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #      | Constituent                          | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|--------------------------------------|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 100-25-4   | 1,4-Dinitrobenzene                   | 1                             |                                   | x                                   |                    |                  |
| 100-41-4   | Ethyl benzene                        | 1                             | x                                 | x                                   |                    | x                |
| 10061-01-5 | cis-1,3-Dichloropropylene            | 1                             |                                   | x                                   |                    |                  |
| 10061-02-6 | trans-1,3-Dichloropropylene          | 1                             |                                   | x                                   | x                  | x                |
| 106-42-3   | p-Xylene                             | 1                             | x                                 |                                     |                    |                  |
| 106-46-7   | p-Dichlorobenzene                    | 1                             |                                   | x                                   |                    | x                |
| 106-93-4   | 1,2-Dibromoethane/Ethylene dibromide | 1                             |                                   | x                                   |                    |                  |
| 107-02-8   | Acrolein                             | 1                             |                                   | x                                   |                    |                  |
| 107-05-1   | 3-Chloropropylene                    | 1                             |                                   | x                                   |                    |                  |
| 107-06-2   | 1,2-Dichloroethane                   | 1                             | x                                 | x                                   |                    | x                |
| 107-12-0   | Ethyl cyanide/ Propanenitrile        | 1                             |                                   | x                                   |                    |                  |
| 107-13-1   | Acrylonitrile                        | 1                             |                                   | x                                   |                    |                  |
| 108-10-1   | Methyl isobutyl ketone               | 1                             | x                                 | x                                   | x                  | x                |
| 108-38-3   | m-Xylene                             | 1                             | x                                 |                                     |                    |                  |
| 108-88-3   | Toluene                              | 1                             | x                                 | x                                   | x                  | x                |
| 108-90-7   | Chlorobenzene                        | 1                             | x                                 | x                                   |                    | x                |
| 108-94-1   | Cyclohexanone                        | 1                             | x                                 | x                                   |                    | x                |
| 108-95-2   | Phenol                               | 1                             |                                   | x                                   |                    | x                |
| 110-86-1   | Pyridine                             | 1                             | x                                 | x                                   | x                  | x                |
| 118-74-1   | Hexachlorobenzene                    | 1                             |                                   | x                                   |                    |                  |
| 120-82-1   | 1,2,4-Trichlorobenzene               | 1                             |                                   | x                                   |                    | x                |
| 121-44-8   | Triethylamine                        | 1                             |                                   | x                                   |                    |                  |
| 122-39-4   | Diphenylamine                        | 1                             |                                   | x                                   |                    |                  |
| 123-91-1   | 1,4-Dioxane                          | 1                             |                                   | x                                   |                    |                  |
| 126-98-7   | Methacrylonitrile                    | 1                             |                                   | x                                   |                    |                  |
| 127-18-4   | Tetrachloroethylene                  | 1                             | x                                 | x                                   | x                  | x                |
| 1336-36-3  | Total PCBs (sum of Aroclors)         | 1                             |                                   | x                                   |                    | x                |
| 141-78-6   | Ethyl acetate                        | 1                             | x                                 | x                                   |                    | x                |
| 309-00-2   | Aldrin                               | 1                             |                                   | x                                   |                    |                  |
| 319-84-6   | alpha-BHC                            | 1                             |                                   | x                                   |                    |                  |
| 319-85-7   | beta-BHC                             | 1                             |                                   | x                                   |                    |                  |
| 465-73-6   | Isodrin                              | 1                             |                                   | x                                   |                    |                  |
| 50-32-8    | Benzo(a)pyrene                       | 1                             |                                   | x                                   |                    |                  |
| 53-70-3    | Dibenz(a,h)anthracene                | 1                             |                                   | x                                   |                    |                  |
| 541-73-1   | m-Dichlorobenzene                    | 1                             |                                   | x                                   |                    |                  |
| 56-23-5    | Carbon tetrachloride                 | 1                             | x                                 | x                                   | x                  | x                |
| 58-89-9    | gamma-BHC                            | 1                             |                                   | x                                   |                    |                  |
| 60-57-1    | Dieldrin                             | 1                             |                                   | x                                   |                    |                  |
| 62-75-9    | N-Nitrosodimethylamine               | 1                             |                                   | x                                   |                    |                  |
| 67-56-1    | Methanol                             | 1                             | x                                 | x                                   |                    |                  |
| 67-64-1    | Acetone                              | 1                             | x                                 | x                                   | x                  | x                |
| 67-66-3    | Chloroform                           | 1                             | x                                 | x                                   | x                  | x                |

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**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #     | Constituent                           | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|-----------|---------------------------------------|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 71-36-3   | n-Butyl alcohol                       | 1                             | x                                 | x                                   | x                  | x                |
| 71-43-2   | Benzene                               | 1                             | x                                 | x                                   | x                  | x                |
| 71-55-6   | 1,1,1-Trichloroethane                 | 1                             | x                                 | x                                   | x                  | x                |
| 72-20-8   | Endrin                                | 1                             |                                   | x                                   |                    |                  |
| 74-83-9   | Bromomethane/Methyl bromide           | 1                             |                                   | x                                   |                    |                  |
| 74-87-3   | Chloromethane/ Methyl chloride        | 1                             |                                   | x                                   | x                  |                  |
| 75-00-3   | Chloroethane                          | 1                             |                                   | x                                   |                    |                  |
| 75-01-4   | Vinyl chloride                        | 1                             | x                                 | x                                   |                    | x                |
| 75-05-8   | Acetonitrile                          | 1                             |                                   | x                                   |                    |                  |
| 75-09-2   | Methylene chloride                    | 1                             | x                                 | x                                   | x                  | x                |
| 75-15-0   | Carbon disulfide                      | 1                             | x                                 | x                                   |                    | x                |
| 75-21-8   | Ethylene oxide                        | 1                             |                                   | x                                   |                    |                  |
| 75-34-3   | 1,1-Dichloroethane                    | 1                             |                                   | x                                   |                    |                  |
| 75-35-4   | 1,1-Dichloroethylene                  | 1                             | x                                 | x                                   | x                  | x                |
| 75-69-4   | Trichlorofluorome thane               | 1                             | x                                 | x                                   |                    | x                |
| 75-71-8   | Dichlorodifluoromethane               | 1                             |                                   | x                                   |                    |                  |
| 76-13-1   | 1,1,2-Trichloro-1,2,2-trifluoroethane | 1                             | x                                 | x                                   |                    | x                |
| 76-44-8   | Heptachlor                            | 1                             |                                   | x                                   |                    |                  |
| 78-87-5   | 1,2-Dichloropropane                   | 1                             |                                   | x                                   |                    |                  |
| 78-93-3   | Methyl ethyl ketone                   | 1                             | x                                 | x                                   | x                  | x                |
| 79-00-5   | 1,1,2-Trichloroethane                 | 1                             | x                                 | x                                   | x                  | x                |
| 79-01-6   | Trichloroethylene                     | 1                             | x                                 | x                                   | x                  | x                |
| 79-34-5   | 1,1,2,2-Tetrachloroethane             | 1                             |                                   | x                                   |                    | x                |
| 8001-35-2 | Toxaphene                             | 1                             |                                   | x                                   |                    |                  |
| 82-68-8   | Pentachloronitrobenzene               | 1                             |                                   | x                                   |                    |                  |
| 87-68-3   | Hexachlorobutadiene                   | 1                             | x                                 | x                                   |                    | x                |
| 87-86-5   | Pentachlorophenol                     | 1                             |                                   | x                                   |                    | x                |
| 88-85-7   | 2-sec-Butyl-4,6-dinitrophenol/Dinoseb | 1                             |                                   | x                                   |                    |                  |
| 95-47-6   | o-Xylene                              | 1                             | x                                 |                                     |                    | x                |
| 95-50-1   | o-Dichlorobenzene                     | 1                             | x                                 | x                                   |                    | x                |
| 98-86-2   | Acetophenone                          | 1                             |                                   | x                                   |                    |                  |
| 98-95-3   | Nitrobenzene                          | 1                             | x                                 | x                                   |                    | x                |
| 100-21-0  | Phthalic acid                         | 2                             |                                   | x                                   |                    |                  |
| 101-55-3  | 4-Bromophenylphenyl ether             | 2                             |                                   | x                                   |                    |                  |
| 108-39-4  | m-Cresol                              | 2                             | x                                 | x                                   |                    | x                |
| 117-84-0  | Di-n-octyl phthalate                  | 2                             |                                   | x                                   |                    | x                |
| 120-12-7  | Anthracene                            | 2                             |                                   | x                                   |                    |                  |
| 120-83-2  | 2,4-Dichlorophenol                    | 2                             |                                   | x                                   |                    |                  |
| 129-00-0  | Pyrene                                | 2                             |                                   | x                                   |                    | x                |
| 156-60-5  | trans-1,2-Dichloroethylene            | 2                             |                                   | x                                   |                    |                  |
| 191-24-2  | Benzo(g,h,i)perylene                  | 2                             |                                   | x                                   |                    |                  |
| 192-65-4  | Dibenz(a,e)pyrene                     | 2                             |                                   | x                                   |                    |                  |
| 193-39-5  | Indeno(1,2,3-c,d)pyrene               | 2                             |                                   | x                                   |                    |                  |

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**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #      | Constituent  | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|--|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 205-99-2   | Benzo(b)fluoranthene   | 2                             |                                   | x                                   |                    |                  |
| 206-44-0   | Fluoranthene   | 2                             |                                   | x                                   |                    | x                |
| 207-08-9   | Benzo(k)fluoranthene   | 2                             |                                   | x                                   |                    |                  |
| 208-96-8   | Acenaphthylene   | 2                             |                                   | x                                   |                    |                  |
| 218-01-9   | Chrysene   | 2                             |                                   | x                                   |                    |                  |
| 27154-33-2 | Trichlorofluoroethane  | 2                             | x                                 |                                     |                    |                  |
| 319-86-8   | delta-BHC  | 2                             |                                   | x                                   |                    |                  |
| 50-29-3    | p,p'-DDT   | 2                             |                                   | x                                   |                    |                  |
| 56-49-5    | 3-Methylcholanthrene   | 2                             |                                   | x                                   |                    |                  |
| 56-55-3    | Benz(a)anthracene  | 2                             |                                   | x                                   |                    |                  |
| 58-90-2    | 2,3,4,6-Tetrachlorophenol  | 2                             |                                   | x                                   |                    |                  |
| 59-50-7    | p-Chloro-m-cresol  | 2                             |                                   | x                                   |                    | x                |
| 59-89-2    | N-Nitrosomorpholine  | 2                             |                                   | x                                   |                    | x                |
| 60-29-7    | Ethyl ether  | 2                             | x                                 | x                                   |                    | x                |
| 621-64-7   | Di-n-propylnitrosamine   | 2                             |                                   | x                                   |                    | x                |
| 630-20-6   | 1,1,1,2-Tetrachloroethane  | 2                             |                                   | x                                   |                    |                  |
| 67-72-1    | Hexachloroethane   | 2                             | x                                 | x                                   |                    | x                |
| 72-43-5    | Methoxychlor   | 2                             |                                   | x                                   |                    |                  |
| 72-54-8    | p,p'-DDD   | 2                             |                                   | x                                   |                    |                  |
| 72-55-9    | p,p'-DDE   | 2                             |                                   | x                                   |                    |                  |
| 75-27-4    | Bromodichloromethane   | 2                             |                                   | x                                   |                    |                  |
| 78-83-1    | Isobutyl alcohol   | 2                             | x                                 | x                                   |                    | x                |
| 83-32-9    | Acenaphthene   | 2                             |                                   | x                                   |                    | x                |
| 84-66-2    | Diethyl phthalate  | 2                             |                                   | x                                   |                    |                  |
| 84-74-2    | Di-n-butylphthalate  | 2                             |                                   | x                                   | x                  | x                |
| 85-01-8    | Phenanthrene   | 2                             |                                   | x                                   |                    |                  |
| 85-68-7    | Butyl benzyl phthalate   | 2                             |                                   | x                                   |                    | x                |
| 86-73-7    | Fluorene   | 2                             |                                   | x                                   |                    |                  |
| 88-06-2    | 2,4,6-Trichlorophenol  | 2                             |                                   | x                                   |                    | x                |
| 88-75-5    | o-Nitrophenol  | 2                             |                                   | x                                   |                    | x                |
| 91-20-3    | Naphthalene  | 2                             |                                   | x                                   |                    | x                |
| 91-58-7    | 2-Chloronaphthalene  | 2                             |                                   | x                                   |                    |                  |
| 93-72-1    | Silvex/2,4,5-TP  | 2                             |                                   | x                                   |                    |                  |
| 93-76-5    | 2,4,5-Trichlorophenoxy acetic acid/ 2,4,5-T                        | 2                             |                                   | x                                   |                    |                  |
| 94-75-7    | 2,4-Dichlorophenoxyacetic acid/2,4-D                               | 2                             |                                   | x                                   |                    |                  |
| 95-48-7    | o-Cresol   | 2                             | x                                 | x                                   |                    | x                |
| 95-57-8    | 2-Chlorophenol   | 2                             |                                   | x                                   |                    | x                |
| 95-95-4    | 2,4,5-Trichlorophenol  | 2                             | x                                 | x                                   |                    | x                |
| 100-02-7   | p-Nitrophenol  | 3                             |                                   | x                                   |                    | x                |
| 110-80-5   | 2-Ethoxyethanol  | 3                             | x                                 |                                     |                    | x                |
| 121-14-2   | 2,4-Dinitrotoluene   | 3                             | x                                 | x                                   |                    | x                |
| 1330-20-7  | Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations) | 3                             | x                                 | x                                   | x                  | x                |

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**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #      | Constituent                        | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|------------------------------------|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 79-46-9    | 2-Nitropropane                     | 3                             | x                                 |                                     |                    | x                |
| 576-26-1   | Cresylic acid                      | 4                             | x                                 |                                     |                    |                  |
| 1319-77-3  | Cresol (mixed isomers)             | 5                             | x                                 |                                     |                    | x                |
| 100-01-6   | p-Nitroaniline                     | 6                             |                                   | x                                   |                    |                  |
| 100-75-4   | N-Nitrosopiperidine                | 6                             |                                   | x                                   |                    |                  |
| 101-14-4   | 4,4-Methylene bis(2-chloroaniline) | 6                             |                                   | x                                   |                    |                  |
| 101-27-9   | Barban                             | 6                             |                                   | x                                   |                    |                  |
| 1024-57-3  | Heptachlor epoxide                 | 6                             |                                   | x                                   |                    |                  |
| 1031-07-8  | Endosulfan sulfate                 | 6                             |                                   | x                                   |                    |                  |
| 105-67-9   | 2,4-Dimethylphenol                 | 6                             |                                   | x                                   |                    |                  |
| 10595-95-6 | N-Nitrosomethylethylamine          | 6                             |                                   | x                                   |                    |                  |
| 10605-21-7 | Carbenzadim                        | 6                             |                                   | x                                   |                    |                  |
| 106-44-5   | p-Cresol                           | 6                             |                                   | x                                   |                    |                  |
| 106-47-8   | p-Chloroaniline                    | 6                             |                                   | x                                   |                    |                  |
| 108-45-2   | 1,3-Phenylenediamine               | 6                             |                                   | x                                   |                    |                  |
| 110-75-8   | 2-Chloroethyl vinyl ether          | 6                             |                                   | x                                   |                    |                  |
| 111-44-4   | bis(2-Chloroethyl)ether            | 6                             |                                   | x                                   |                    |                  |
| 1114-71-2  | Pebulate                           | 6                             |                                   | x                                   |                    |                  |
| 111-91-1   | bis(2-Chloroethoxy)methane         | 6                             |                                   | x                                   |                    |                  |
| 1129-41-5  | Metolcarb                          | 6                             |                                   | x                                   |                    |                  |
| 114-26-1   | Propoxur                           | 6                             |                                   | x                                   |                    |                  |
| 120-58-1   | Isosafrole                         | 6                             |                                   | x                                   |                    |                  |
| 120-71-8   | p-Cresidine                        | 6                             |                                   | x                                   |                    |                  |
| 122-42-9   | Propham                            | 6                             |                                   | x                                   |                    |                  |
| 122-66-7   | 1,2-Diphenylhydrazine              | 6                             |                                   | x                                   |                    |                  |
| 124-48-1   | Chlorodibromomethane               | 6                             |                                   | x                                   |                    |                  |
| 126-72-7   | tris-(2,3-Dibromopropyl)phosphate  | 6                             |                                   | x                                   |                    |                  |
| 126-99-8   | 2-Chloro-1,3-butadiene             | 6                             |                                   | x                                   |                    |                  |
| 131-11-3   | Dimethylphthalate                  | 6                             |                                   | x                                   |                    |                  |
| 140-57-8   | Aramite                            | 6                             |                                   | x                                   |                    |                  |
| 143-50-0   | Kepone                             | 6                             |                                   | x                                   |                    |                  |
| 1563-38-8  | Carbofuran phenol                  | 6                             |                                   | x                                   |                    |                  |
| 1563-66-2  | Carbofuran                         | 6                             |                                   | x                                   |                    |                  |
| 1646-88-4  | Aldicarb sulfone                   | 6                             |                                   | x                                   |                    |                  |
| 16752-77-5 | Methomyl                           | 6                             |                                   | x                                   |                    |                  |
| 17804-35-2 | Benomyl                            | 6                             |                                   | x                                   |                    |                  |
| 1929-77-7  | Vernolate                          | 6                             |                                   | x                                   |                    |                  |
| 2008-41-5  | Butylate                           | 6                             |                                   | x                                   |                    |                  |
| 2032-65-7  | Methiocarb                         | 6                             |                                   | x                                   |                    |                  |
| 2212-67-1  | Molinate                           | 6                             |                                   | x                                   |                    |                  |
| 22781-23-3 | Bendiocarb                         | 6                             |                                   | x                                   |                    |                  |
| 2303-17-5  | Triallate                          | 6                             |                                   | x                                   |                    |                  |

**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #      | Constituent                                       | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|---|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 23135-22-0 | Oxamyl  | 6                             |                                   | x                                   |                    |                  |
| 23422-53-9 | Formetanate hydrochloride                         | 6                             |                                   | x                                   |                    |                  |
| 23564-05-8 | Thiophanate-methyl                                | 6                             |                                   | x                                   |                    |                  |
| 23950-58-5 | Pronamide   | 6                             |                                   | x                                   |                    |                  |
| 2631-37-0  | Promecarb   | 6                             |                                   | x                                   |                    |                  |
| 298-00-0   | Methyl parathion                                  | 6                             |                                   | x                                   |                    |                  |
| 298-02-2   | Phorate   | 6                             |                                   | x                                   |                    |                  |
| 298-04-4   | Disulfoton  | 6                             |                                   | x                                   |                    |                  |
| 315-18-4   | Mexacarbate                                       | 6                             |                                   | x                                   |                    |                  |
| 3268-87-9  | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | 6                             |                                   | x                                   |                    |                  |
| 33213-65-9 | Endosulfan II                                     | 6                             |                                   | x                                   |                    |                  |
| 3424-82-6  | o,p'-DDE  | 6                             |                                   | x                                   |                    |                  |
| 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin         | 6                             |                                   | x                                   |                    |                  |
| 39001-02-0 | 1,2,3,4,6,7,8,9-Octachlorodibenzofluran (OCDF)    | 6                             |                                   | x                                   |                    |                  |
| 39638-32-9 | bis(2-Chloroisopropyl)ether                       | 6                             |                                   | x                                   |                    |                  |
| 510-15-6   | Chlorobenzilate                                   | 6                             |                                   | x                                   |                    |                  |
| 51-28-5    | 2,4-Dinitrophenol                                 | 6                             |                                   | x                                   |                    |                  |
| 52-85-7    | Famphur   | 6                             |                                   | x                                   |                    |                  |
| 52888-80-9 | Prosulfocarb                                      | 6                             |                                   | x                                   |                    |                  |
| 53-19-0    | o,p'-DDD  | 6                             |                                   | x                                   |                    |                  |
| 534-52-1   | 4,6-Dinitro-o-cresol                              | 6                             |                                   | x                                   |                    |                  |
| 53-96-3    | 2-Acetylaminofluorene                             | 6                             |                                   | x                                   |                    |                  |
| 55-18-5    | N-Nitrosodiethylamine                             | 6                             |                                   | x                                   |                    |                  |
| 55285-14-8 | Carbosulfan                                       | 6                             |                                   | x                                   |                    |                  |
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofluran            | 6                             |                                   | x                                   |                    |                  |
| 56-38-2    | Parathion   | 6                             |                                   | x                                   |                    |                  |
| 57-47-6    | Physostigmine                                     | 6                             |                                   | x                                   |                    |                  |
| 57-64-7    | Physostigmine salicylate                          | 6                             |                                   | x                                   |                    |                  |
| 57-74-9    | Chlordane (alpha and gamma isomers)               | 6                             |                                   | x                                   |                    |                  |
| 59669-26-0 | Thiodicarb  | 6                             |                                   | x                                   |                    |                  |
| 60-11-7    | p-Dimethylaminoazobenzene                         | 6                             |                                   | x                                   |                    |                  |
| 606-20-2   | 2,6-Dinitrotoluene                                | 6                             |                                   | x                                   |                    |                  |
| 608-93-5   | Pentachlorobenzene                                | 6                             |                                   | x                                   |                    |                  |
| 62-44-2    | Phenacetin  | 6                             |                                   | x                                   |                    |                  |
| 62-53-3    | Aniline   | 6                             |                                   | x                                   |                    |                  |
| 63-25-2    | Carbaryl  | 6                             |                                   | x                                   |                    |                  |
| 64-00-6    | m-Cumenylmethylcarbamate                          | 6                             |                                   | x                                   |                    |                  |
| 66-27-3    | Methyl methanesulfonate                           | 6                             |                                   | x                                   |                    |                  |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofluran            | 6                             |                                   | x                                   |                    |                  |
| 7421-93-4  | Endrin aldehyde                                   | 6                             |                                   | x                                   |                    |                  |
| 74-88-4    | Iodomethane                                       | 6                             |                                   | x                                   |                    |                  |
| 74-95-3    | Dibromomethane                                    | 6                             |                                   | x                                   |                    |                  |
| 75-25-2    | Tribromomethane/Bromoform                         | 6                             |                                   | x                                   |                    |                  |

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| CAS #      | Constituent                                       | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|---|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 759-94-4   | EPTC  | 6                             |                                   | x                                   |                    |                  |
| 76-01-7    | Pentachloroethane                                 | 6                             |                                   | x                                   |                    |                  |
| 77-47-4    | Hexachlorocyclopentadiene                         | 6                             |                                   | x                                   |                    |                  |
| 789-02-6   | o,p'-DDT  | 6                             |                                   | x                                   |                    |                  |
| 79-06-1    | Acrylamide  | 6                             |                                   | x                                   |                    |                  |
| 80-62-6    | Methyl methacrylate                               | 6                             |                                   | x                                   |                    |                  |
| 85-44-9    | Phthalic anhydride                                | 6                             |                                   | x                                   |                    |                  |
| 86-30-6    | N-Nitrosodiphenylamine                            | 6                             |                                   | x                                   |                    |                  |
| 87-65-0    | 2,6-Dichlorophenol                                | 6                             |                                   | x                                   |                    |                  |
| 88-74-4    | o-Nitroaniline                                    | 6                             |                                   | x                                   |                    |                  |
| 90-04-0    | o-Anisidine (2-methoxyaniline)                    | 6                             |                                   | x                                   |                    |                  |
| 91-59-8    | 2-Naphthylamine                                   | 6                             |                                   | x                                   |                    |                  |
| 91-80-5    | Methapyrilene                                     | 6                             |                                   | x                                   |                    |                  |
| 924-16-3   | N-Nitroso-di-n-butylamine                         | 6                             |                                   | x                                   |                    |                  |
| 92-67-1    | 4-Aminobiphenyl                                   | 6                             |                                   | x                                   |                    |                  |
| 930-55-2   | N-Nitrosopyrrolidine                              | 6                             |                                   | x                                   |                    |                  |
| 94-59-7    | Safrole   | 6                             |                                   | x                                   |                    |                  |
| 95-68-1    | 2,4-Dimethylaniline (2,4-xylidine)                | 6                             |                                   | x                                   |                    |                  |
| 95-94-3    | 1,2,4,5-Tetrachlorobenzene                        | 6                             |                                   | x                                   |                    |                  |
| 959-98-8   | Endosulfan I                                      | 6                             |                                   | x                                   |                    |                  |
| 96-12-8    | 1,2-Dibromo-3-chloropropane                       | 6                             |                                   | x                                   |                    |                  |
| 96-18-4    | 1,2,3-Trichloropropane                            | 6                             |                                   | x                                   |                    |                  |
| 97-63-2    | Ethyl methacrylate                                | 6                             |                                   | x                                   |                    |                  |
| 98-87-3    | Benzal chloride                                   | 6                             |                                   | x                                   |                    |                  |
| 99-55-8    | 5-Nitro-o-toluidine                               | 6                             |                                   | x                                   |                    |                  |
| NA         | Dithiocarbamates (total)                          | 6                             |                                   | x                                   |                    |                  |
| NA1        | Chlorinated fluorocarbons, N.O.S.                 | 6                             | x                                 |                                     |                    |                  |
| 126-73-8   | Tributyl phosphate                                | 7                             |                                   |                                     | x                  | x                |
| 128-37-0   | 2,6-Bis(tert-butyl)-4-methylphenol                | 7                             |                                   |                                     |                    | x                |
| 591-78-6   | 2-Hexanone  | 7                             |                                   |                                     | x                  |                  |
| 108-05-4   | Vinyl acetate                                     | 8                             |                                   |                                     | x                  |                  |
| 111-76-2   | Ethylene glycol monobutyl ether                   | 8                             |                                   |                                     | x                  |                  |
| 117-81-7   | Bis(2-ethylhexyl)phthalate                        | 8                             |                                   |                                     | x                  |                  |
| 100-42-5   | Styrene   | 9                             |                                   |                                     |                    |                  |
| 107-87-9   | 2-Pentanone                                       | 9                             |                                   |                                     |                    |                  |
| 109-99-9   | Tetrahydrofuran                                   | 9                             |                                   |                                     |                    |                  |
| 111-84-2   | n-Nonane  | 9                             |                                   |                                     |                    |                  |
| 132-64-9   | Dibenzofuran                                      | 10                            |                                   |                                     |                    |                  |
| 540-59-0   | 1,2-Dichloroethylene                              | 10                            |                                   |                                     |                    |                  |
| 98-82-8    | Cumene  | 10                            |                                   |                                     |                    |                  |
| 12311-97-6 | Formate   | 11                            |                                   |                                     | x                  | x                |
| 126-44-3   | Citrate   | 11                            |                                   |                                     | x                  |                  |
| 150-39-0   | HEDTA (Hydroxyethylethylenediaminetriacetic acid) | 11                            |                                   |                                     | x                  |                  |

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**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #      | Constituent                               | Dis-<br>position <sup>a</sup> | DST Part A<br>Update <sup>b</sup> | UHC /<br>UTS<br>Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|------------|---|-------------------------------|-----------------------------------|-------------------------------------|--------------------|------------------|
| 338-70-5   | Oxalate                                   | 11                            |                                   |                                     | x                  |                  |
| 60-00-4    | EDTA (Ethylenediaminetetraacetic acid)    | 11                            |                                   |                                     | x                  |                  |
| 666-14-8   | Glycolate                                 | 11                            |                                   |                                     | x                  | x                |
| 71-50-1    | Acetate                                   | 11                            |                                   |                                     | x                  | x                |
| 1024-57-D  | Heptachlor epoxide isomers                | 12                            |                                   |                                     |                    |                  |
| 108-60-1   | Bis(2-Chloroisopropyl) ether              | 12                            |                                   |                                     |                    |                  |
| 11141-16-5 | Aroclor 1232                              | 12                            |                                   |                                     |                    |                  |
| 1134-23-2  | Cycloate                                  | 12                            |                                   |                                     |                    |                  |
| 119-38-0   | Isolan                                    | 12                            |                                   |                                     |                    |                  |
| 12672-29-6 | Aroclor 1248                              | 12                            |                                   |                                     |                    |                  |
| 135-88-6   | N-Phenyl-2-naphthylamine                  | 12                            |                                   |                                     |                    |                  |
| 137-30-4   | Ziram                                     | 12                            |                                   |                                     |                    |                  |
| 17702-57-7 | Formparanate                              | 12                            |                                   |                                     |                    |                  |
| 1888-71-7  | Hexachloropropylene                       | 12                            |                                   |                                     |                    |                  |
| 22961-82-6 | Bendiocarb phenol                         | 12                            |                                   |                                     |                    |                  |
| 26419-73-8 | Tirpate                                   | 12                            |                                   |                                     |                    |                  |
| 30558-43-1 | Oxamyl-oxime (A2213)                      | 12                            |                                   |                                     |                    |                  |
| 55406-53-6 | 3-Iodo-2-propynyl n-butylcarbamate        | 12                            |                                   |                                     |                    |                  |
| 57-74-D    | Chlordane (alpha and gamma isomers)       | 12                            |                                   |                                     |                    |                  |
| 5952-26-1  | Diethylene glycol, dicarbamate            | 12                            |                                   |                                     |                    |                  |
| 644-64-4   | Dimetilan                                 | 12                            |                                   |                                     |                    |                  |
| 95-54-5    | 1,2-Phenylenediamine                      | 12                            |                                   |                                     |                    |                  |
| HxCDD      | HxCDDs (All Hexachlorodibenzo-p-dioxins)  | 12                            |                                   |                                     |                    |                  |
| HxCDF      | HxCDFs (All Hexachlorodibenzofurans)      | 12                            |                                   |                                     |                    |                  |
| PeCDD      | PeCDDs (All Pentachlorodibenzo-p-dioxins) | 12                            |                                   |                                     |                    |                  |
| PeCDF      | PeCDFs (All Pentachlorodibenzofurans)     | 12                            |                                   |                                     |                    |                  |
| TCDD       | TCDDs (All Tetrachlorodibenzo-p-dioxins)  | 12                            |                                   |                                     |                    |                  |
| TCDF       | TCDFs (All Tetrachlorodiben zofurans)     | 12                            |                                   |                                     |                    |                  |
| 16984-48-8 | Fluoride                                  | 13                            |                                   | x                                   |                    |                  |
| 18496-25-8 | Sulfide                                   | 13                            |                                   | x                                   |                    |                  |
| 57-12-5    | Cyanides (Total)                          | 13                            |                                   | x                                   |                    |                  |
| 57-12-5a   | Cyanides (Amenable)                       | 13                            |                                   | x                                   |                    |                  |
| 7439-92-1  | Lead                                      | 13                            | x                                 | x                                   |                    |                  |
| 7439-97-6  | Mercury--All Others                       | 13                            | x                                 | x                                   |                    |                  |
| 7439-97-6r | Mercury--Nonwaste water from Retort       | 13                            |                                   | x                                   |                    |                  |
| 7440-02-0  | Nickel                                    | 13                            |                                   | x                                   |                    |                  |
| 7440-22-4  | Silver                                    | 13                            | x                                 | x                                   |                    |                  |
| 7440-28-0  | Thallium                                  | 13                            |                                   | x                                   |                    |                  |
| 7440-36-0  | Antimony                                  | 13                            |                                   | x                                   |                    |                  |
| 7440-38-2  | Arsenic                                   | 13                            | x                                 | x                                   |                    |                  |
| 7440-39-3  | Barium                                    | 13                            | x                                 | x                                   |                    |                  |
| 7440-41-7  | Beryllium                                 | 13                            |                                   | x                                   |                    |                  |
| 7440-43-9  | Cadmium                                   | 13                            | x                                 | x                                   |                    |                  |

**Table A-4 Updates to the Organic RDQO Input List (302 constituents)**

| CAS #     | Constituent      | Disposition <sup>a</sup> | DST Part A Update <sup>b</sup> | UHC / UTS Update <sup>c</sup> | TWINS <sup>d</sup> | BBI <sup>e</sup> |
|-----------|------------------|--------------------------|--------------------------------|-------------------------------|--------------------|------------------|
| 7440-47-3 | Chromium (Total) | 13                       | x                              | x                             |                    |                  |
| 7440-62-2 | Vanadium         | 13                       |                                | x                             |                    |                  |
| 7440-66-6 | Zinc             | 13                       |                                | x                             |                    |                  |
| 7782-49-2 | Selenium         | 13                       | x                              | x                             |                    |                  |

Disposition<sup>a</sup>

- 1 RDQO starting list compounds retained in the evaluation of the UHC/UTS/DST Part A updates; no changes to the previous COPC list (74 constituents).
- 2 Low-toxicity compounds retained in the evaluation of the UHC/UTS/DST Part A updates; no changes to the previous COPC list (49 constituents).
- 3 Constituents eliminated in the RDQO process; the review of the UHC/UTS/DST Part A updates and comparison with TWINS/BBI added them to the feed COPC list (5 constituents).
- 4 Compound added as a result of DST Part A updates; not found in TWINS or BBI; removed because it's not stable in tank waste (1 constituent).
- 5 No methods available for tank waste matrices; removed in favor of m, o, and p isomers that will be analyzed per existing methods (1 constituent).
- 6 Compounds that are listed in the UHC/UTS updates; not found in TWINS or BBI and eliminated (109 constituents).
- 7 RDQO starting list compounds removed from UHC/UTS/DST Part A lists by updates; retained because they are found in TWINS/BBI (3 constituents).
- 8 Low-toxicity compounds removed from UHC/UTS/DST Part A lists by updates; retained because they are found in TWINS/BBI (3 constituents).
- 9 RDQO starting list compounds removed from UHC/UTS/DST Part A lists by updates; eliminated (4 constituents).
- 10 Low-toxicity compounds removed from UHC/UTS/DST Part A lists by updates; eliminated (3 constituents).
- 11 Compounds found in TWINS or BBI; do not appear on UHC/UTS, or DST Part A lists; eliminated (7 constituents).
- 12 Compounds originally input to the RDQO solely because they appear on UHC/UTS, or DST Part A lists; removed in the UTS/UHD/DST Part A updates; not in TWINS/BBI; eliminated (24 constituents).
- 13 Inorganic compounds that were not further evaluated (19 constituents).

<sup>b</sup> Compounds identified by the updates to the DST Part A; identified with an "x".

<sup>c</sup> Compounds identified by updates to the UTS/UHC lists in 40 CFR 268; identified with an "x".

<sup>d</sup> Compounds with 10 or more detects in TWINS; identified with an "x".

<sup>e</sup> Compounds listed in BBI; identified with an "x".

Note: those compounds appearing on the TAPs Update lists (Appendix C) will be further evaluated.

**Table A-5 Inorganic Constituents Identified in the RDQO Process (52 constituents)**

| CAS #                    | Cation                           | Constituent      |
|--------------------------|----------------------------------|------------------|
| 18540-29-9               | Cr                               | Chromium(VI)     |
| 63705-05-5               | S                                | Total Sulfur     |
| 7429-90-5                | Al                               | Aluminum         |
| 7439-89-6                | Fe                               | Iron             |
| 7439-92-1                | Pb                               | Lead             |
| 7439-93-2                | Li                               | Lithium          |
| 7439-95-4                | Mg                               | Magnesium        |
| 7439-96-5                | Mn                               | Manganese        |
| 7439-97-6                | Hg                               | Mercury          |
| 7439-98-7                | Mo                               | Molybdenum       |
| 7440-02-0                | Ni                               | Nickel           |
| 7440-06-4 <sup>a</sup>   | Pt                               | Platinum         |
| 7440-09-7                | K                                | Potassium        |
| 7440-16-6                | Rh                               | Rhodium          |
| 7440-21-3                | Si                               | Silicon          |
| 7440-22-4                | Ag                               | Silver           |
| 7440-23-5                | Na                               | Sodium           |
| 7440-25-7                | Ta                               | Tantalum         |
| 7440-28-0                | Tl                               | Thallium         |
| 7440-31-5                | Sn                               | Tin              |
| 7440-33-7                | W                                | Tungsten         |
| 7440-36-0                | Sb                               | Antimony         |
| 7440-38-2                | As                               | Arsenic          |
| 7440-39-3                | Ba                               | Barium           |
| 7440-41-7                | Be                               | Beryllium        |
| 7440-42-8                | B                                | Boron            |
| 7440-43-9                | Cd                               | Cadmium          |
| 7440-46-2 <sup>a</sup>   | Cs                               | Cesium           |
| 7440-48-4                | Co                               | Cobalt           |
| 7440-50-8                | Cu                               | Copper           |
| 7440-61-1                | U                                | Uranium          |
| 7440-62-2                | V                                | Vanadium         |
| 7440-65-5                | Y                                | Yttrium          |
| 7440-66-6                | Zn                               | Zinc             |
| 7440-67-7                | Zr                               | Zirconium        |
| 7440-69-9                | Bi                               | Bismuth          |
| 7440-70-2                | Ca                               | Calcium          |
| 7664-41-7                | NH <sub>4</sub> /NH <sub>3</sub> | Ammonia/Ammonium |
| 7723-14-0                | P                                | Phosphorus       |
| 7782-49-2                | Se                               | Selenium         |
| <b>Total Cations: 40</b> |                                  |                  |

**Table A-5 Inorganic Constituents Identified in the RDQO Process (52 constituents)**

| CAS#                    | Anion           | Constituent |
|-------------------------|-----------------|-------------|
| 24959-67-9              | Br              | Bromide     |
| 16887-00-6              | Cl              | Chloride    |
| 57-12-5                 | CN              | Cyanide     |
| 16984-48-8              | F               | Fluoride    |
| 7553-56-2               | I               | Iodine      |
| 14797-65-0              | NO <sub>2</sub> | Nitrite     |
| 7697-37-2               | NO <sub>3</sub> | Nitrate     |
| 14280-30-9              | OH              | Hydroxide   |
| 14265-44-2              | PO <sub>4</sub> | Phosphate   |
| 18496-25-8 <sup>a</sup> | S               | Sulfides    |
| 14265-45-3 <sup>a</sup> | SO <sub>3</sub> | Sulfite     |
| 14808-79-8              | SO <sub>4</sub> | Sulfate     |
| <b>Total Anions: 12</b> |                 |             |

<sup>a</sup> Analysis not requested by RDQO (Wiemers and others 1998).

## **Appendix B**

# **Hanford Tank System Industrial Hygiene Chemical Vapor Technical Basis**

## Appendix B

# Hanford Tank System Industrial Hygiene Chemical Vapor Technical Basis

The purpose of the *Industrial Hygiene Chemical Vapor Technical Basis* produced by CH2M HILL Hanford Group (CHG 2004) report was to update and consolidate technical information related to the industrial hygiene program at the tank waste storage system. The approach was based on an assessment of the current knowledge regarding the gases and vapors released by the liquid waste or generated by the ongoing decomposition of tank wastes.

The assessment process started with a list of 1,826 chemicals; then, toxicological data were collected. The chemicals of potential concern (COPC) were developed by applying the following criteria:

- Chemical is a carcinogen.
- Chemical was identified by tank headspace sampling and analysis.
- Chemical could plausibly exist in the tank waste or headspace.

This process identified 52 compounds as constituents of potential concern (CH2M HILL 2004, Chapter 5, Tables 5-5 and 5-6). Table B-1 of this appendix lists the COPCs that resulted from the process. Seventeen compounds were not previously identified as potential WTP waste feed constituents from the RDQO process. Thirteen of these compounds were added to the WTP waste feed COPC list, three were added to the WTP stack emissions list, and one, nitrous oxide (CAS No. 10024-97-2) was removed and managed as described in Appendix D.

Two vapor study COPCs, aroclors 1242 and 1254 were identified during the RDQO Optimization, and later removed in favor of total PCB analysis (Appendix G). Further modifications and evaluations added three compounds to the list of CHG-identified COPCs; see Appendix C and Appendix G.

### Reference:

CHG 2004. JO Honeyman, JE Meacham, RJ Cash, AM Sastry. CH2M HILL Hanford Group, Inc. JL Huckaby, Pacific Northwest National Laboratory, *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, October 2004, Richland, Washington.

**Table B-1 Compounds Identified in the Hanford Tank System Chemical Vapor Industrial Technical Basis (52 constituents)**

| CAS #      | Constituent                          | Additions to the WTP COPC List <sup>1</sup> |
|------------|--------------------------------------|---|
| 106-93-4   | Ethylene dibromide                   |   |
| 106-99-0   | 1,3-Butadiene                        |   |
| 107-06-2   | 1,2-Dichloroethane                   |   |
| 107-12-0   | Propionitrile                        |   |
| 123-91-1   | 1,4-Dioxan                           |   |
| 126-73-8   | Tributyl phosphate                   |   |
| 127-18-4   | 1,1,2,2-Tetrachloroethene            |   |
| 128-37-0   | 2,6-Bis(tert-butyl)-4-methylphenol   |   |
| 56-23-5    | Carbon tetrachloride                 |   |
| 57-14-7    | 1,1-Dimethylhydrazine                |   |
| 591-78-6   | 2-Hexanone                           |   |
| 60-34-4    | Methylhydrazine                      |   |
| 624-83-9   | Methyl isocyanate                    |   |
| 62-75-9    | N-Nitroso-N,N-dimethylamine          |   |
| 67-56-1    | Methyl alcohol                       |   |
| 67-66-3    | Chloroform                           |   |
| 71-36-3    | n-Butyl alcohol                      |   |
| 71-43-2    | Benzene                              |   |
| 75-01-4    | 1-Chloroethene (vinyl chloride)      |   |
| 75-05-8    | Acetonitrile                         |   |
| 75-09-2    | Dichloromethane (Methylene chloride) |   |
| 75-15-0    | Carbon disulfide                     |   |
| 75-21-8    | Ethylene oxide (Oxirane)             |   |
| 79-01-6    | 1,1,2-Trichloroethylene              |   |
| 79-10-7    | 2-Propenoic acid                     |   |
| 92-52-4    | 1,1'-Biphenyl                        |   |
| 117-81-7   | bis (2-Ethylhexyl) phthalate         |   |
| 50-00-0    | Formaldehyde                         |   |
| 72-55-9    | 4,4-DDE                              |   |
| 75-07-0    | Acetaldehyde                         |   |
| 75-50-3    | Trimethylamine                       |   |
| 84-66-2    | Diethyl phthalate                    |   |
| 79-46-9    | 2-Nitropropane                       |   |
| 10595-95-6 | n-Nitrosomethylethylamine            | x   |
| 100-40-3   | 4-Ethenylcyclohexene                 | x   |
| 104-76-7   | 2-Ethyl-1-hexanol                    | x   |
| 109-74-0   | n-Butanenitrile                      | x   |
| 110-59-8   | Pentanenitrile                       | x   |
| 123-72-8   | Butanal                              | x   |

**Table B-1 Compounds Identified in the Hanford Tank System Chemical Vapor  
 Industrial Technical Basis (52 constituents)**

| CAS #      | Constituent                   | Additions to the<br>WTP COPC List <sup>1</sup> |
|------------|-------------------------------|--|
| 134-32-7   | alpha-Naphthylamine           | x  |
| 589-38-8   | 3-Hexanone                    | x  |
| 628-73-9   | Hexanenitrile                 | x  |
| 75-02-5    | Fluoroethene (vinyl fluoride) | x  |
| 593-74-8   | Dimethyl Mercury              | x  |
| 10102-44-0 | Nitrogen dioxide <sup>2</sup> | x  |
| 124-38-9   | Carbon dioxide <sup>2</sup>   | x  |
| 630-08-0   | Carbon monoxide <sup>2</sup>  | x  |
| 10024-97-2 | Nitrous oxide <sup>3</sup>    | x  |
| 11097-69-1 | Aroclor-1254 <sup>4</sup>     | x  |
| 53469-21-9 | Aroclor-1242 <sup>4</sup>     | x  |
| 7439-97-6  | Mercury                       |  |
| 7664-41-7  | Ammonia                       |  |

<sup>1</sup> Compounds listed in the CHG vapor study report that are retained as WTP COPCs; identified by an "x".

<sup>2</sup> Stack emission compound.

<sup>3</sup> Removed; see Appendix D.

<sup>4</sup> Removed by agreement with Ecology and EPA, see Appendix G.

## **Appendix C**

### **Update to Toxic Air Pollutant List WAC 173-460**

## Appendix C

# Update to Toxic Air Pollutant List WAC 173-460

In June 2009, Ecology updated the list of toxic air pollutants (TAP) by issuing a revision to WAC 173-460. The updated TAPs list consists of 395 compounds and compound classes (Table C-1). In order to determine whether changes were needed to the WTP COPC list, the updated list of TAPs was compared to the following inputs to the WTP COPC list:

- RDQO (Wiemers and others, 1998) inputs including (Appendix A, Section A.1):
  - List of Class A and Class B toxic air pollutants as promulgated in WAC 173-460 prior to the June 2009 update
  - Underlying Hazardous Constituent (UHC) list [40 CFR 268.2(i)]
  - Universal Treatment Standards (UTS) list (40 CFR 268.48)
  - Double Shell Tank RCRA Part A permit application constituents, except waste code F039 (DOE-RL 1996)
  - Double Shell Tank Waste Stream Profile Sheet (WSPS) constituents
- Low-toxicity constituents added as COPCs by agreement with Ecology and EPA (Appendix A)
- Updates to the RDQO input list of UHC, UTS, and DST Part A constituents (Appendix A, Section A.2)
- Constituents added by the CHG Hanford tank industrial hygiene vapor study (CHG 2004) (Appendix B)

When comparing the TAPs updates to the list of COPCs identified in Appendix A and Appendix B, the following rules were applied:

- If the constituent was identified as an RDQO organic feed COPC (Appendix A, Table A-2) and retained in the updated TAPs list, it was retained as a WTP feed COPC without further evaluation.
- If the constituent was identified as a low-toxicity feed COPC (Appendix A, Table A-3) and retained in the updated TAPs list, it was retained as a WTP feed COPC without further evaluation.
- If the constituent was identified as an RDQO or low-toxicity feed COPC (Appendix A, Table A-2 and Table A-3) and retained in the updated UHC/UTS, DST Part A list (Appendix A, Table A-4), it was retained as a WTP feed COPC without further evaluation.
- If the constituent was identified as an RDQO inorganic feed COPC (Appendix A, Table A-5) (ions) and a compound containing the ion appears in the updated TAPs list, it was retained as a WTP feed COPC without further evaluation.
- If the constituent was identified in the CHG vapor study (Appendix B, Table B-1) as a compound of interest, it was retained without further evaluation.

For those constituents identified in the original RDQO input lists (Appendix A, Table A-1) as a TAP, but removed by the update, the constituent was eliminated as a feed COPC if it was not identified in the UHC/UTS/DST Part A (Appendix A, Table A-4) or CHG vapor study lists (Appendix B, Table B-1), and

it is not listed in Tank Waste Information Network System (TWINS) database with more than 10 detects (PNNL 2010) or the Best Basis Inventory (BBI) (PNNL 2010) (Appendix A, Table A-4).

Appendix A provides additional details of the RDQO process and Appendix B provides additional information regarding the industrial hygiene study. Sections C.1 and C.2 summarize the disposition of TAPs and identify those COPCs retained as a result of the TWINS and BBI analysis.

### **C.1 Review of the Updated Toxic Air Pollutant List**

The review of the updated TAPs list (Table C-1) (395 compounds) categorized the compounds as follows:

- 209 constituents on the TAPs list were previously evaluated as old TAPs (Class A or B TAPs) input to the RDQO (Table C-1, footnote b)
- 26 were previously evaluated as other inputs to the RDQO [i.e., identified as underlying hazardous constituents (UHCs, 40 CFR 268.2(i)); appear on the universal treatment standards (UTS, 40 CFR 268.48) list, are listed in the Double Shell Tank RCRA Part A permit application (DOE-RL 1991), listed on the Double Shell Tank Waste Stream Profile Sheets (WSPSs)] (Table C-1, footnote c)
- 6 were evaluated with the update to the UHCs/UTS or DST Part A constituent inputs to the RDQO (Table C-1, footnote d, less those constituents marked with footnotes b and c)
- 3 were identified in the CHG vapor study; 1 inorganic compound, dimethyl mercury (CAS #593-74-8), was previously retained as a CHG vapor study COPC and was retained as a feed COPC without further evaluation and 2 (criteria pollutants) will be addressed as stack emissions compounds (Table C-1, footnote e, less those constituents marked with footnotes b, c and d).
- 151 constituents were not previously evaluated as waste feed COPCs.

The evaluation of the 395 constituents listed in the WAC 173-460 revision produced the following (refer to Table C-1 for disposition codes):

- 97 Organics were retained as WTP feed COPCs (59 from the starting list of 125 (disposition 1) (RDQO list of 125 constituents is discussed in Appendix A and shown in Table A-2) and 38 added back as low toxicity compounds (disposition 3).
- 39 Inorganics were addressed as individual ions in the WTP feed as described in the RDQO (disposition 2).
- 3 Organics were added as a result of the UHC/UHC and DST Part A update review (discussed in Appendix A and shown in Table A-4) (disposition 4).
- 1 Organic compound (TAP) was previously identified in the CHG industrial hygiene study (Appendix B) and retained as a WTP feed COPC (disposition 5).
- 3 Inorganic compounds were identified by CHG in the tank vapor space; one (dimethyl mercury) will be measured in feed as total mercury (disposition 6); 2 compounds (nitrogen dioxide and carbon monoxide) are also identified by EPA as criteria pollutants and will be measured in stack emissions (disposition 6).
- 1 Organic compound on the RDQO starting list; the regulatory basis was removed in the UHC/UTS, DST Part A evaluation (Appendix A, Table A-4), but the TAPs update provides the new regulatory basis (disposition 7)

- 1 Organic compound added as low-toxicity compounds; the regulatory basis was removed in the UHC/UTS, DST Part A evaluation (Appendix A, Table A-4), but the TAPs update provides the new regulatory basis (disposition 8).
- 4 Compounds were identified as criteria pollutants to be measured in stack emissions. Note, the CHG vapor study has already identified two of the compounds (nitrogen dioxide and carbon monoxide) as vapor constituents to be measured in stack emissions (see bullet 5). The remaining 2 compounds (sulfur dioxide and ozone) were added to the COPC list (disposition 9).
- 4 inorganic compounds were assigned to the stack emissions COPC list; the compounds were previously assigned to stack emissions measurements by agreement with Ecology (CCN 097844) (disposition 10).
- 29 dioxin, furan, and related compounds that are listed by EPA as potential PICs were identified to be measured in stack emissions (discussed in Appendix E) (disposition 11).
- 3 generic dioxin furan compounds were included on the TAPs update list; these were eliminated because the specific dioxin/furan compounds are COPCs and thus, the generic forms do not need to be carried as COPCs (disposition 12).
- 212 constituents were eliminated as feed constituents, no TWINS or BBI hits exceeding the selection criteria (i.e.,  $\geq 10$  instances of analytical detection in TWINS or listed in the BBI); therefore, none of these COPCs were added to the WTP feed list (disposition 13, 14, and 15). No previous additions to the COPC list were removed.
- 39 of the 212 eliminated constituents will be retained as stack emission compounds because they appear on the EPA (Appendix E) and/or site-specific (Appendix F) PIC lists (disposition 13, and 14).

## **C.2 Review of WTP COPCs Removed as RDQO Inputs by the TAPs Revision**

The WAC 173-460, before the June 2009 revision, listed 669 Class A and B TAPs (Table C-2). The WAC 173-460 revision (June 2009) retained 209 compounds from the TAPs Class A and Class B lists and removed 460 TAPs. The 209 TAPs retained in the WAC 173-460 revision were evaluated along with the 186 TAPs additions in the WAC revision and dispositioned as described in Section C.1.

Of the 460 compounds removed by the WAC revision, 50 were originally (Wiemers and others, 1998) input to the RDQO as Class A or B TAPs inputs; however, they also appeared on other lists used as input to the RDQO (i.e., they were dual regulated under another statute or had been identified as waste components). The updates to the UHC/UTS/DST Part A list (Appendix A, Table A-4) removed 8 constituents from dual regulation leaving them solely regulated as former TAPs; the 42 remaining dual regulated compounds were evaluated to determine if COPCs should be added to the WTP feed or stack emission lists.

### **C.2.1 Compounds Listed as UHC/UTS, DST Part A Inputs to RDQO**

The 42 compounds (as adjusted by the UHC/UTS/DST Part A updates Appendix A, Table A-4) previously evaluated by the RDQO (Appendix A) were also listed as UHC [40 CFR 268.2(i)], UTS (40 CFR 268.48), or Double Shell Tank RCRA Part A permit application constituents (Table C-3). See the RDQO (Wiemers and others 1998) for details of the inputs and evaluations. Of these 42 constituents, the RDQO process, the update to the UHC/UTS, DST Part A input lists, and the CHG vapor study identified 28 organic and inorganic compounds as feed COPCs and eliminated 14 as feed COPCs.

The 42 compounds were compared to TWINS and BBI databases to determine if information available after the completion of the RDQO indicated that these compounds are potentially present in tank waste. Three of the 17 eliminated compounds appear as EPA and site-specific PICs lists to be measured in stack emissions (Appendix E and Appendix F). The 42 compounds are dispositioned as follows (see Table C-3 for disposition codes):

- 16 Organics were retained as WTP feed COPCs from the RDQO starting list of 125 (Table C-3, disposition 1)
- 8 Organics were added back as low toxicity compounds (discussed in Appendix A and shown in Table A-4) (Table C-3, disposition 2).
- 1 Organic compound added as a result of evaluation of updates to RDQO inputs (UHC/UTS, DST Part A) (disposition 3)
- 3 Inorganics were addressed as individual ions in the WTP feed as described in the RDQO (disposition 4).
- 14 Organic compounds were eliminated (dispositions 5, 6, 7) because their presence as a UHC was not sufficient justification for retention (these were not DST Part A, WSPS, or flammable gas constituents, and were not found in TWINS or BBI in excess of the retention criteria); note 4 of the eliminated compounds will be measured in stack emissions as EPA (Appendix E) or site-specific PICS (Appendix F)

### C.2.2 Compounds Input to RDQO As Old TAPs

Of the 460 TAPs removed from regulation, 418 were identified as no longer being subject to regulatory drivers that would automatically warrant their inclusion as COPCs, 8 of which were no longer UHCs since the latest update to 40 CFR 268.2. The original evaluation of the other 418 Class A and B TAPs by the RDQO<sup>11</sup> resulted in the identification of 85 organic compounds as either feed COPCs (Appendix A, Table A-2) or low toxicity compounds (that were subsequently added back to the COPC list by agreement with Ecology, see Appendix A, Table A-3). All 418 compounds were reviewed for changes to the previous determinations.

Of the 418 constituents, 323 are organics. They were compared to TWINS and BBI databases to determine if data existed to warrant changing their retention or removal status (i.e.,  $\geq 10$  instances of analytical detection in TWINS or listed in the BBI). The 323 constituents were dispositioned as follows (the disposition numbers refer to the number codes in the disposition column in Table C-4):

- 42 feed COPCs from the 418 Class A or Class B TAPs were retained in the RDQO starting list of 125 COPCs (Appendix A, Table A-2); they were dispositioned as follows (see Table C-4 for disposition codes):
  - 3 were retained as feed COPCs because they appear in TWINS or BBI (disposition 1)
  - 2 were retained as feed COPCs because they are identified in the CHG vapor study (disposition 2)
  - 8 were removed as feed COPCs; they were added back as stack emissions compounds because they appear on the EPA (Appendix E) or site-specific Appendix F) PIC list (disposition 3 and 4)
  - 29 were removed because they no longer have a regulatory driver and do not appear in TWINS or BBI (disposition 5)

<sup>11</sup> Metal containing TAP constituents were represented in the RDQO by their associated representative metal in elemental form.

- 43 feed COPCs were added back as low-toxicity compounds (Appendix A, Table A-3); they were dispositioned as follows:
  - 1 was retained because it was identified in the CHG vapor study (disposition 6)
  - 7 were removed as feed COPCs; they were added back as stack emissions compounds because they appear on the EPA (Appendix E) or site-specific Appendix F) PIC list (disposition 7 and 8)
  - 35 were removed because they no longer have a regulatory driver and do not appear in TWINS or BBI (disposition code 9)
- 95 Compounds are inorganic; they were dispositioned as follows:
  - 5 were retained in the RDQO process and not further evaluated (disposition 10)
  - 90 were addressed as individual inorganic ions in the RDQO process and not further evaluated (disposition 11)
- 238 were previously eliminated in the RDQO process and are not low-toxicity constituents; these were dispositioned as follows:
  - 1 was retained as a feed COPC because it appears on the CHG vapor study list (Appendix B, Table B-1) (disposition 12)
  - 13 were added back as EPA PICs (3.3Appendix E) (disposition 13)
  - 224 were eliminated (disposition 14)

### C.3 References

40 CFR 60. *Standards of Performance for New Stationary Sources*, Current as of August 1, 2007, US Environmental Protection Agency, Washington, DC.

40 CFR 268. *Land Disposal Restrictions*, US Environmental Protection Agency, Washington, DC.

CHG 2004. *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, Rev 0. CH2M HILL Hanford Group, Inc., Richland, Washington.

DOE-RL. 1991. *Double-Shell Tank (DST) System Dangerous Waste Permit Application*, DOE/RL-90-39, Rev 0, June 1991. US Department of Energy, Richland Operations Office, Richland, Washington.

PNNL 2010. *Tank Waste Information Network System*, accessed October 20, 2010, available at <http://twinsweb.pnl.gov/twins.htm>, Pacific Northwest National Laboratory, Richland, Washington.

WAC 173-460. *Controls for New Sources of Toxic Air Pollutants*, Washington Administrative Code, Olympia, Washington.

Wiemers KD, Lerchen ME, Miller M, and Meier K. 1998. *Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project*, PNNL-12040, Rev 0, December 1998. Pacific Northwest National Laboratory, Richland, Washington.

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #     | Constituent                    | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-----------|--------------------------------|--------------------------|--|---|---|--|--|--|--|
| 100-41-4  | Ethylbenzene                   | 1                        |  | x   | x   |  | x  | x  |  |
| 106-42-3  | p-Xylene                       | 1                        |  | x   | x   |  |  | x  |  |
| 106-46-7  | 1,4-Dichlorobenzene            | 1                        | x  |   | x   |  | x  | x  |  |
| 106-93-4  | 1,2-Dibromoethane              | 1                        | x  |   | x   |  |  | x  |  |
| 106-99-0  | 1,3-Butadiene                  | 1                        | x  |   |   |  |  | x  |  |
| 107-02-8  | Acrolein                       | 1                        | x  |   | x   |  |  | x  |  |
| 107-05-1  | Allyl Chloride                 | 1                        | x  |   | x   |  |  |  | x  |
| 107-06-2  | 1,2-Dichloroethane             | 1                        | x  |   | x   |  | x  | x  |  |
| 107-13-1  | Acrylonitrile                  | 1                        | x  |   | x   |  |  | x  |  |
| 108-10-1  | Methyl Isobutyl Ketone         | 1                        | x  |   | x   |  | x  | x  |  |
| 108-38-3  | m-Xylene                       | 1                        |  | x   | x   |  |  | x  |  |
| 108-88-3  | Toluene                        | 1                        | x  |   | x   |  | x  | x  |  |
| 108-90-7  | Chlorobenzene                  | 1                        | x  |   | x   |  | x  | x  |  |
| 108-95-2  | Phenol                         | 1                        | x  |   | x   |  | x  | x  |  |
| 110-54-3  | n-Hexane                       | 1                        | x  |   |   |  |  | x  |  |
| 110-82-7  | Cyclohexane                    | 1                        | x  |   |   |  |  |  |  |
| 118-74-1  | Hexachlorobenzene              | 1                        | x  |   | x   |  |  | x  |  |
| 121-44-8  | Triethylamine                  | 1                        | x  |   | x   |  |  |  |  |
| 123-91-1  | 1,4-Dioxane                    | 1                        | x  |   | x   |  |  | x  |  |
| 127-18-4  | Perchloroethylene              | 1                        | x  |   | x   |  | x  | x  |  |
| 1336-36-3 | Polychlorinated Biphenyls, NOS | 1                        | x  |   | x   |  | x  |  |  |
| 309-00-2  | Aldrin                         | 1                        | x  |   | x   |  |  |  |  |
| 319-84-6  | alpha-Hexachlorocyclohexane    | 1                        | x  |   | x   |  |  | x  |  |
| 319-85-7  | Beta-hexachlorocyclohexane     | 1                        | x  |   | x   |  |  | x  |  |
| 50-32-8   | Benzo[a]pyrene                 | 1                        | x  |   | x   |  |  |  | x  |
| 53-70-3   | Dibenz[a,h]anthracene          | 1                        | x  |   | x   |  |  |  | x  |
| 56-23-5   | Carbon Tetrachloride           | 1                        | x  |   | x   |  | x  |  | x  |
| 57-14-7   | 1,1-Dimethylhydrazine          | 1                        | x  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #     | Constituent                 | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-----------|-----------------------------|--------------------------|--|---|---|--|--|--|--|
| 58-89-9   | gamma-Hexachlorocyclohexane | 1                        | x  |   | x   |  |  |  |  |
| 60-57-1   | Dieldrin                    | 1                        | x  |   | x   |  |  |  |  |
| 624-83-9  | Methyl Isocyanate           | 1                        | x  |   |   |  |  |  |  |
| 62-75-9   | n-Nitrosodimethylamine      | 1                        | x  |   | x   |  |  |  |  |
| 67-56-1   | Methyl Alcohol              | 1                        | x  |   | x   |  |  |  |  |
| 67-63-0   | Isopropyl Alcohol           | 1                        | x  |   |   |  |  |  |  |
| 67-66-3   | Chloroform                  | 1                        | x  |   | x   |  | x  |  | x  |
| 71-43-2   | Benzene                     | 1                        | x  |   | x   |  | x  |  | x  |
| 71-55-6   | 1,1,1-Trichloroethane       | 1                        | x  |   | x   |  | x  |  |  |
| 74-83-9   | Methyl Bromide              | 1                        | x  |   | x   |  |  |  | x  |
| 74-87-3   | Methyl Chloride             | 1                        | x  |   | x   |  | x  |  | x  |
| 75-00-3   | Ethyl Chloride              | 1                        | x  |   | x   |  |  |  | x  |
| 75-01-4   | Vinyl Chloride              | 1                        | x  |   | x   |  | x  |  | x  |
| 75-05-8   | Acetonitrile                | 1                        | x  |   | x   |  |  |  | x  |
| 75-09-2   | Dichloromethane             | 1                        | x  |   | x   |  | x  |  | x  |
| 75-15-0   | Carbon disulfide            | 1                        | x  |   | x   |  | x  |  | x  |
| 75-21-8   | Ethylene oxide              | 1                        | x  |   | x   |  |  |  |  |
| 75-34-3   | 1,1-Dichloroethane          | 1                        | x  |   | x   |  |  |  | x  |
| 75-35-4   | 1,1-Dichloroethylene        | 1                        | x  |   | x   |  | x  |  | x  |
| 75-45-6   | Chlorodifluoromethane       | 1                        | x  |   |   |  |  |  |  |
| 76-44-8   | Heptachlor                  | 1                        | x  |   | x   |  |  |  |  |
| 78-87-5   | 1,2-Dichloropropane         | 1                        | x  |   | x   |  |  |  |  |
| 78-93-3   | Methyl Ethyl Ketone         | 1                        | x  |   | x   |  | x  |  | x  |
| 79-00-5   | 1,1,2-Trichloroethane       | 1                        | x  |   | x   |  | x  |  |  |
| 79-01-6   | Trichloroethylene           | 1                        | x  |   | x   |  | x  |  | x  |
| 79-10-7   | Acrylic Acid                | 1                        | x  |   |   |  |  |  |  |
| 79-34-5   | 1,1,2,2-Tetrachloroethane   | 1                        | x  |   | x   |  | x  |  |  |
| 8001-35-2 | Toxaphene                   | 1                        | x  |   | x   |  |  |  |  |
| 87-68-3   | Hexachlorobutadiene         | 1                        | x  |   | x   |  | x  |  | x  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #       | Constituent   | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-------------|---|--------------------------|--|---|---|--|--|--|--|
| 87-86-5     | Pentachlorophenol                                     | 1                        | x  |   | x   |  | x  |  |  |
| 95-47-6     | o-Xylene  | 1                        |  | x   | x   |  | x  |  |  |
| 10028-22-5  | Ferric Sulfate  | 2                        |  |   |   |  |  |  |  |
| 10049-04-4  | Chlorine dioxide                                      | 2                        | x  |   |   |  |  |  |  |
| 10294-40-3  | Barium Chromate                                       | 2                        |  |   |   |  |  |  |  |
| 11115-74-5  | Chromic Acid  | 2                        |  |   |   |  |  |  |  |
| 12035-72-2  | Nickel Subsulfide                                     | 2                        |  |   |   |  |  |  |  |
| 1304-56-9   | Beryllium Oxide                                       | 2                        |  |   |   |  |  |  |  |
| 1309-64-4   | Antimony Trioxide                                     | 2                        | x  |   |   |  |  |  |  |
| 1310-73-2   | Sodium Hydroxide                                      | 2                        | x  |   |   |  |  |  |  |
| 1314-62-1   | Vanadium Pentoxide                                    | 2                        | x  |   |   |  |  |  |  |
| 1333-82-0   | Chromic Trioxide                                      | 2                        |  |   |   |  |  |  |  |
| 13510-49-1  | Beryllium Sulfate                                     | 2                        |  |   |   |  |  |  |  |
| 16984-48-8  | Fluoride containing chemicals, NOS                    | 2                        | x  |   | x   |  |  |  |  |
| 18454-12-1  | Lead Chromate Oxide                                   | 2                        |  |   |   |  |  |  |  |
| 18540-29-9  | Chromium(VI)  | 2                        | x  |   |   |  |  |  |  |
| 18540-29-9C | Chromium Hexavalent: Soluble, except Chromic Trioxide | 2                        |  |   |   |  |  |  |  |
| 7439-92-1D  | Lead and compounds (NOS)                              | 2                        | x  |   |   |  |  |  |  |
| 7439-96-5Ca | Manganese & Compounds                                 | 2                        | x  |   |   |  |  |  |  |
| 7439-97-6   | Mercury, Elemental                                    | 2                        |  | x   | x   |  |  |  |  |
| 7440-38-2C  | Arsenic & Inorganic Arsenic Compounds                 | 2                        | x  |   |   |  |  |  |  |
| 7440-41-7N  | Beryllium & Compounds (NOS)                           | 2                        |  |   |   |  |  |  |  |
| 7440-43-9   | Cadmium & Compounds                                   | 2                        | x  |   | x   |  |  |  |  |
| 7440-48-4a  | Cobalt  | 2                        | x  |   |   |  |  |  |  |
| 7440-50-8C  | Copper & Compounds                                    | 2                        | x  |   |   |  |  |  |  |
| 7440-62-2   | Vanadium  | 2                        |  | x   | x   |  |  |  |  |
| 7550-45-0   | Titanium Tetrachloride                                | 2                        | x  |   |   |  |  |  |  |
| 7664-38-2   | Phosphoric Acid                                       | 2                        | x  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent  | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|--|--------------------------|--|---|---|--|--|--|--|
| 7664-41-7  | Ammonia  | 2                        | x  |   |   |  |  |  |  |
| 7664-93-9  | Sulfuric Acid  | 2                        | x  |   |   |  |  |  |  |
| 7697-37-2  | Nitric Acid  | 2                        | x  |   |   |  |  |  |  |
| 7723-14-0  | Phosphorus   | 2                        | x  |   |   |  |  |  |  |
| 7738-94-5  | Chromic(VI) Acid   | 2                        |  |   |   |  |  |  |  |
| 7757-82-6  | Sodium Sulfate   | 2                        |  |   |   |  |  |  |  |
| 7758-01-2  | Potassium Bromate  | 2                        |  |   |   |  |  |  |  |
| 7758-97-6  | Lead Chromate  | 2                        | x  |   |   |  |  |  |  |
| 7782-49-2C | Selenium & Selenium Compounds (other than Hydrogen Selenide) | 2                        | x  |   |   |  |  |  |  |
| 7783-06-4  | Hydrogen Sulfide   | 2                        | x  |   |   |  |  |  |  |
| 7783-07-5  | Hydrogen Selenide  | 2                        | x  |   |   |  |  |  |  |
| 7783-20-2  | Ammonium sulfate   | 2                        |  |   |   |  |  |  |  |
| 7803-63-6  | Ammonium bisulfate   | 2                        |  |   |   |  |  |  |  |
| 106-88-7   | 1,2-Epoxybutane  | 3                        | x  |   |   |  |  |  |  |
| 108-05-4   | Acetic acid vinyl ester                                      | 3                        | x  |   |   |  | x  | x  |  |
| 108-39-4   | 3-Methylphenol   | 3                        | x  |   | x   |  | x  | x  |  |
| 111-76-2   | 2-Butoxyethanol  | 3                        | x  |   |   |  | x  | x  |  |
| 117-81-7   | Di(2-ethylhexyl)phthalate                                    | 3                        | x  |   |   |  | x  | x  |  |
| 156-60-5   | Trans-1,2-dichloroethene                                     | 3                        |  | x   | x   |  |  | x  |  |
| 1634-04-4  | Methyl Tertiary Butyl Ether                                  | 3                        | x  |   |   |  |  | x  |  |
| 1836-75-5  | Nitrofen   | 3                        | x  |   |   |  |  |  |  |
| 189-55-9   | Dibenzo[a,i]pyrene   | 3                        | x  |   |   |  |  |  |  |
| 189-64-0   | Dibenzo[a,h]pyrene   | 3                        | x  |   |   |  |  |  |  |
| 191-30-0   | Dibenzo[a,l]pyrene   | 3                        | x  |   |   |  |  |  |  |
| 192-65-4   | Dibenzo[a,e]pyrene   | 3                        | x  |   | x   |  |  |  |  |
| 193-39-5   | Indeno[1,2,3-cd]pyrene                                       | 3                        | x  |   | x   |  |  | x  |  |
| 205-82-3   | Benzo[j]fluoranthene   | 3                        | x  |   |   |  |  | x  |  |
| 205-99-2   | Benzo[b]fluoranthene   | 3                        | x  |   | x   |  |  | x  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                   | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|-------------------------------|--------------------------|--|---|---|--|--|--|--|
| 207-08-9   | Benzo[k]fluoranthene          | 3                        | x  |   | x   |  |  | x  |  |
| 218-01-9   | Chrysene                      | 3                        |  | x   | x   |  |  | x  |  |
| 224-42-0   | Dibenz[a,j]acridine           | 3                        | x  |   |   |  |  |  |  |
| 226-36-8   | Dibenz[a,h]acridine           | 3                        | x  |   |   |  |  |  |  |
| 2385-85-5  | Mirex                         | 3                        | x  |   |   |  |  |  |  |
| 3697-24-3  | 5-Methylchrysene              | 3                        | x  |   |   |  |  |  |  |
| 50-00-0    | Formaldehyde                  | 3                        | x  |   |   |  |  |  |  |
| 50-29-3    | DDT                           | 3                        | x  |   | x   |  |  |  |  |
| 56-49-5    | 3-Methylcholanthrene          | 3                        |  | x   | x   |  |  |  |  |
| 56-55-3    | Benz[a]anthracene             | 3                        | x  |   | x   |  |  |  | x  |
| 59-89-2    | n-Nitrosomorpholine           | 3                        | x  |   | x   |  | x  |  |  |
| 602-87-9   | 5-Nitroacenaphthene           | 3                        | x  |   |   |  |  |  |  |
| 60-35-5    | Acetamide                     | 3                        | x  |   |   |  |  |  |  |
| 621-64-7   | n-Nitrosodi-n-propylamine     | 3                        | x  |   | x   |  | x  |  | x  |
| 630-20-6   | 1,1,1,2-Tetrachloroethane     | 3                        |  | x   | x   |  |  |  | x  |
| 67-72-1    | Hexachloroethane              | 3                        | x  |   | x   |  | x  |  |  |
| 72-54-8    | DDD                           | 3                        |  | x   | x   |  |  |  |  |
| 72-55-9    | DDE                           | 3                        |  | x   | x   |  |  |  |  |
| 75-07-0    | Acetaldehyde                  | 3                        | x  |   |   |  |  |  |  |
| 75-27-4    | Bromodichloromethane          | 3                        |  | x   | x   |  |  |  | x  |
| 88-06-2    | 2,4,6-Trichlorophenol         | 3                        | x  |   | x   |  | x  |  |  |
| 91-20-3    | Naphthalene                   | 3                        | x  |   | x   |  | x  |  | x  |
| 95-48-7    | 2-Methylphenol                | 3                        | x  |   | x   |  | x  |  | x  |
| 110-80-5   | 2-Ethoxyethanol               | 4                        | x  |   | x   |  | x  | x  |  |
| 121-14-2   | 2,4-Dinitrotoluene            | 4                        | x  |   | x   |  | x  | x  |  |
| 79-46-9    | 2-Nitropropane                | 4                        | x  |   | x   |  | x  |  |  |
| 10595-95-6 | n-Nitroso-n-methylethylamine  | 5                        | x  |   | x   | x  |  |  |  |
| 10102-44-0 | Nitrogen dioxide <sup>c</sup> | 6                        |  |   |   | x  |  | x  |  |
| 593-74-8   | Dimethyl Mercury              | 6                        |  |   |   | x  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                                | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|--|--------------------------|--|---|---|--|--|--|--|
| 630-08-0   | Carbon monoxide <sup>c</sup>               | 6                        |  |   |   | x  |  |  |  |
| 100-42-5   | Styrene                                    | 7                        | x  |   |   |  |  | x  |  |
| 98-82-8    | Cumene                                     | 8                        | x  |   |   |  |  |  | x  |
| 10028-15-6 | Ozone                                      | 9                        |  |   |   |  |  |  |  |
| 7446-09-5  | Sulfur dioxide                             | 9                        |  |   |   |  |  |  |  |
| 7647-01-0  | Hydrogen chloride                          | 10                       | x  |   |   |  |  |  |  |
| 7664-39-3  | Hydrogen Fluoride                          | 10                       | x  |   |   |  |  |  |  |
| 7782-41-4  | Fluorine gas F2                            | 10                       | x  |   |   |  |  |  |  |
| 7782-50-5  | Chlorine                                   | 10                       | x  |   |   |  |  |  |  |
| 1746-01-6  | 2,3,7,8-Tetrachlorodibenzo-p-dioxin        | 11                       | x  |   |   |  |  | x  |  |
| 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin     | 11                       |  |   |   |  |  | x  |  |
| 31508-00-6 | 2,3',4,4',5-Pentachlorobiphenyl            | 11                       |  |   |   |  |  | x  |  |
| 32598-13-3 | 3,3',4,4'-Tetrachlorobiphenyl              | 11                       |  |   |   |  |  | x  |  |
| 32598-14-4 | 2,3,3',4,4'-Pentachlorobiphenyl            | 11                       |  |   |   |  |  | x  |  |
| 3268-87-9  | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-Dioxin | 11                       |  |   | x   |  |  | x  |  |
| 32774-16-6 | 3,3',4,4',5,5'-Hexachlorobiphenyl          | 11                       |  |   |   |  |  | x  |  |
| 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin  | 11                       |  |   | x   |  |  | x  |  |
| 38380-08-4 | 2,3,3',4,4',5-Hexachlorobiphenyl           | 11                       |  |   |   |  |  | x  |  |
| 39001-02-0 | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran     | 11                       |  |   | x   |  |  | x  |  |
| 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin     | 11                       |  |   |   |  |  | x  |  |
| 39635-31-9 | 2,3,3',4,4',5,5'-Heptachlorobiphenyl       | 11                       |  |   |   |  |  | x  |  |
| 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin      | 11                       |  |   |   |  |  | x  |  |
| 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran            | 11                       |  |   |   |  |  |  | x  |
| 52663-72-6 | 2,3',4,4',5,5'-Hexachlorobiphenyl          | 11                       |  |   |   |  |  |  | x  |
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran      | 11                       |  |   | x   |  |  |  | x  |
| 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran          | 11                       |  |   |   |  |  |  | x  |
| 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran          | 11                       |  |   |   |  |  |  | x  |
| 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran         | 11                       |  |   |   |  |  |  | x  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent  | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|--|--------------------------|--|---|---|--|--|--|--|
| 57465-28-8 | 3,3',4,4',5-Pentachlorobiphenyl                              | 11                       |  |   |   |  |  |  | X  |
| 57653-85-7 | 1,2,3,6,7,8 Hexachlorodibenzo-p-dioxin                       | 11                       |  |   |   |  |  |  | X  |
| 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran                           | 11                       |  |   |   |  |  |  | X  |
| 65510-44-3 | 2',3,4,4',5-Pentachlorobiphenyl                              | 11                       |  |   |   |  |  |  | X  |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran                        | 11                       |  |   | X   |  |  |  | X  |
| 69782-90-7 | 2,3,3',4,4',5'-Hexachlorobiphenyl                            | 11                       |  |   |   |  |  |  | X  |
| 70362-50-4 | 3,4,4',5-Tetrachlorobiphenyl                                 | 11                       |  |   |   |  |  |  | X  |
| 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran                           | 11                       |  |   |   |  |  |  | X  |
| 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran                           | 11                       |  |   |   |  |  |  | X  |
| 74472-37-0 | 2,3,4,4',5-Pentachlorobiphenyl                               | 11                       |  |   |   |  |  |  | X  |
| 34465-46-8 | Hexachlorodibenzo-p-Dioxins, NOS                             | 12                       |  |   |   |  |  |  |  |
| 37871-00-4 | Heptachlorodibenzo-p-dioxins, NOS                            | 12                       |  |   |   |  |  |  |  |
| TCDD       | 2,3,7,8-Tetrachlorodibenzo-p-dioxin & Related Compounds, NOS | 12                       |  | X   |   |  |  |  |  |
| 100-44-7   | Benzyl Chloride  | 13                       | X  |   |   |  |  | X  |  |
| 101-77-9   | 4,4'-Methylenedianiline                                      | 13                       | X  |   |   |  |  | X  |  |
| 103-33-3   | Azobenzene   | 13                       |  |   |   |  |  | X  |  |
| 106-44-5   | 4-Methylphenol   | 13                       |  | X   | X   |  |  | X  |  |
| 106-89-8   | Epichlorohydrin  | 13                       | X  |   |   |  |  | X  |  |
| 107-21-1   | Ethylene Glycol  | 13                       | X  |   |   |  |  | X  |  |
| 107-98-2   | Propylene glycol monomethyl ether                            | 13                       | X  |   |   |  |  | X  |  |
| 109-86-4   | 2-Methoxyethanol   | 13                       | X  |   |   |  |  | X  |  |
| 111-15-9   | Ethylene glycol monoethyl ether acetate                      | 13                       | X  |   |   |  |  | X  |  |
| 111-44-4   | Bis(chloroethyl)ether  | 13                       | X  |   | X   |  |  | X  |  |
| 1120-71-4  | 1,3-Propane Sultone  | 13                       | X  |   |   |  |  | X  |  |
| 122-66-7   | 1,2-Diphenylhydrazine  | 13                       | X  |   | X   |  |  | X  |  |
| 124-48-1   | Dibromochloromethane   | 13                       |  | X   | X   |  |  | X  |  |
| 133-06-2   | Captan   | 13                       | X  |   |   |  |  | X  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                        | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|------------------------------------|--------------------------|--|---|---|--|--|--|--|
| 510-15-6   | Chlorobenzilate                    | 13                       | x  |   | x   |  |  |  |  |
| 51-79-6    | Ethyl Carbamate                    | 13                       | x  |   |   |  |  |  |  |
| 532-27-4   | 2-Chloroacetophenone               | 13                       | x  |   |   |  |  |  |  |
| 540-73-8   | 1,2-Dimethylhydrazine              | 13                       | x  |   |   |  |  |  |  |
| 542-75-6   | 1,3-Dichloropropene                | 13                       | x  |   |   |  |  |  |  |
| 542-88-1   | Bis(chloromethyl)ether             | 13                       | x  |   |   |  |  |  |  |
| 57-74-9    | Chlordane                          | 13                       | x  |   | x   |  |  |  |  |
| 584-84-9   | Toluene-2,4-diisocyanate           | 13                       | x  |   |   |  |  |  |  |
| 593-60-2   | Vinyl Bromide                      | 13                       | x  |   |   |  |  |  |  |
| 60-11-7    | 4-Dimethylaminoazobenzene          | 13                       | x  |   | x   |  |  |  |  |
| 62-53-3    | Aniline                            | 13                       | x  |   | x   |  |  |  |  |
| 75-25-2    | Bromoform                          | 13                       | x  |   | x   |  |  |  | x  |
| 75-44-5    | Phosgene                           | 13                       | x  |   |   |  |  |  |  |
| 77-47-4    | Hexachlorocyclopentadiene          | 13                       | x  |   | x   |  |  |  |  |
| 822-06-0   | 1,6-Hexamethylene diisocyanate     | 13                       | x  |   |   |  |  |  |  |
| 85-44-9    | Phthalic Anhydride                 | 13                       | x  |   | x   |  |  |  |  |
| 90-04-0    | o-Anisidine                        | 13                       | x  |   | x   |  |  |  |  |
| 91-94-1    | 3,3'-Dichlorobenzidine             | 13                       | x  |   |   |  |  |  |  |
| 924-16-3   | n-Nitroso-di-n-butylamine          | 13                       | x  |   | x   |  |  |  |  |
| 94-59-7    | Safrole                            | 13                       |  | x   | x   |  |  |  |  |
| 95-53-4    | o-Toluidine                        | 13                       | x  |   |   |  |  |  |  |
| 96-12-8    | 1,2-Dibromo-3-chloropropane        | 13                       | x  |   | x   |  |  |  | x  |
| 96-18-4    | 1,2,3-Trichloropropane             | 13                       | x  |   | x   |  |  |  |  |
| 96-45-7    | Ethylene Thiourea                  | 13                       | x  |   |   |  |  |  |  |
| 80-62-6    | Methyl methacrylate                | 14                       | x  |   | x   |  |  |  | x  |
| 10034-93-2 | Hydrazine Sulfate                  | 15                       |  |   |   |  |  |  |  |
| 10048-13-2 | Sterigmatocystin                   | 15                       |  |   |   |  |  |  |  |
| 100-75-4   | n-Nitrosopiperidine                | 15                       |  | x   | x   |  |  |  |  |
| 101-14-4   | 4,4-Methylene bis(2-chloroaniline) | 15                       | x  |   | x   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #       | Constituent                              | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-------------|--|--------------------------|--|---|---|--|--|--|--|
| 101-61-1    | 4,4'-Methylene bis(n,n'-dimethyl)aniline | 15                       |  |   |   |  |  |  |  |
| 101-68-8    | Methylene diphenyl isocyanate            | 15                       | x  |   |   |  |  |  |  |
| 101-80-4    | 4,4'-Diaminodiphenyl Ether               | 15                       | x  |   |   |  |  |  |  |
| 101-90-6    | Diglycidyl Resorcinol Ether              | 15                       | x  |   |   |  |  |  |  |
| 1024-57-3   | Heptachlor epoxide                       | 15                       |  | x   | x   |  |  |  |  |
| 107-30-2    | Chloromethyl methyl ether                | 15                       | x  |   |   |  |  |  |  |
| 108171-26-2 | Chlorinated Paraffins                    | 15                       |  |   |   |  |  |  |  |
| 108-31-6    | Maleic Anhydride                         | 15                       | x  |   |   |  |  |  |  |
| 110-49-6    | Ethylene glycol monomethyl ether acetate | 15                       | x  |   |   |  |  |  |  |
| 111-30-8    | Glutaraldehyde                           | 15                       | x  |   |   |  |  |  |  |
| 111-42-2    | Diethanolamine                           | 15                       | x  |   |   |  |  |  |  |
| 1116-54-7   | n-Nitrosodiethanolamine                  | 15                       |  |   |   |  |  |  |  |
| 115-02-6    | Azaserine                                | 15                       |  |   |   |  |  |  |  |
| 115-07-1    | Propylene                                | 15                       |  |   |   |  |  |  |  |
| 115-28-6    | Chlorendic Acid                          | 15                       |  |   |   |  |  |  |  |
| 117-10-2    | Dantron                                  | 15                       |  |   |   |  |  |  |  |
| 117-79-3    | 2-Aminoanthraquinone                     | 15                       | x  |   |   |  |  |  |  |
| 120-71-8    | para-Cresidine                           | 15                       |  |   | x   |  |  |  |  |
| 126-72-7    | Tris(2,3-dibromopropyl)phosphate         | 15                       |  | x   | x   |  |  |  |  |
| 129-15-7    | 2-Methyl-1-nitroanthraquinone            | 15                       | x  |   |   |  |  |  |  |
| 132-27-4    | o-Phenylphenate, Sodium                  | 15                       |  |   |   |  |  |  |  |
| 1332-21-4   | Asbestos                                 | 15                       | x  |   |   |  |  |  |  |
| 1335-32-6   | Lead Subacetate                          | 15                       |  |   |   |  |  |  |  |
| 134-29-2    | o-Anisidine Hydrochloride                | 15                       |  |   |   |  |  |  |  |
| 135-20-6    | Cupferron                                | 15                       | x  |   |   |  |  |  |  |
| 13552-44-8  | 4,4-Methylenedianiline Dihydrochloride   | 15                       | x  |   |   |  |  |  |  |
| 136-40-3    | Phenazopyridine hydrochloride            | 15                       |  |   |   |  |  |  |  |
| 139-13-9    | Nitritotriacetic acid                    | 15                       |  |   |   |  |  |  |  |
| 139-65-1    | 4,4-Thiodianiline                        | 15                       | x  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                                       | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|---|--------------------------|--|---|---|--|--|--|--|
| 140-57-8   | Aramite   | 15                       |  | x   | x   |  |  |  |  |
| 143-50-0   | Chlordecone                                       | 15                       |  | x   | x   |  |  |  |  |
| 148-82-3   | Melphalan   | 15                       |  |   |   |  |  |  |  |
| 151-56-4   | Ethyleneimine                                     | 15                       | x  |   |   |  |  |  |  |
| 156-10-5   | p-Nitrosodiphenylamine                            | 15                       |  |   |   |  |  |  |  |
| 1596-84-5  | Alar  | 15                       |  |   |   |  |  |  |  |
| 16071-86-6 | Direct Brown 95                                   | 15                       |  |   |   |  |  |  |  |
| 16543-55-8 | n-Nitrosornicotine                                | 15                       |  |   |   |  |  |  |  |
| 16568-02-8 | Gyromitrin  | 15                       |  |   |   |  |  |  |  |
| 1694-09-3  | Benzyl Violet 4B                                  | 15                       | x  |   |   |  |  |  |  |
| 18662-53-8 | Nitritotriacetic acid, trisodium salt monohydrate | 15                       |  |   |   |  |  |  |  |
| 18883-66-4 | Streptozotocin                                    | 15                       |  |   |   |  |  |  |  |
| 1897-45-6  | Chlorothalonil                                    | 15                       |  |   |   |  |  |  |  |
| 1937-37-7  | Direct Black 38                                   | 15                       |  |   |   |  |  |  |  |
| 194-59-2   | 7h-Dibenzo[c,g]carbazole                          | 15                       |  |   |   |  |  |  |  |
| 2425-06-1  | Captafol  | 15                       | x  |   |   |  |  |  |  |
| 2475-45-8  | Disperse Blue 1                                   | 15                       |  |   |   |  |  |  |  |
| 25013-16-5 | Butylated hydroxyanisole                          | 15                       |  |   |   |  |  |  |  |
| 2602-46-2  | Direct Blue 6                                     | 15                       |  |   |   |  |  |  |  |
| 26148-68-5 | A-alpha-c(2-amino-9h-pyrido[2,3-b]indole)         | 15                       |  |   |   |  |  |  |  |
| 26471-62-5 | Toluene-diisocyanates                             | 15                       |  |   |   |  |  |  |  |
| 2784-94-3  | HC Blue 1   | 15                       |  |   |   |  |  |  |  |
| 298-04-4   | Disulfoton  | 15                       | x  |   | x   |  |  |  |  |
| 301-04-2   | Lead Acetate                                      | 15                       | x  |   |   |  |  |  |  |
| 302-01-2   | Hydrazine   | 15                       | x  |   |   |  |  |  |  |
| 303-34-4   | Lasiocarpine                                      | 15                       |  |   |   |  |  |  |  |
| 305-03-3   | Chlorambucil                                      | 15                       |  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                         | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|-------------------------------------|--------------------------|--|---|---|--|--|--|--|
| 3068-88-0  | beta-Butyrolactone                  | 15                       | x  |   |   |  |  |  |  |
| 315-22-0   | Monocrotaline                       | 15                       |  |   |   |  |  |  |  |
| 3223-07-2  | Melphalan HCl                       | 15                       |  |   |   |  |  |  |  |
| 32534-81-9 | Pentabromodiphenyl Ether            | 15                       |  |   |   |  |  |  |  |
| 333-41-5   | Diazinon                            | 15                       | x  |   |   |  |  |  |  |
| 3546-10-9  | Phenesterin                         | 15                       |  |   |   |  |  |  |  |
| 3564-09-8  | Ponceau 3R                          | 15                       |  |   |   |  |  |  |  |
| 3570-75-0  | Nifurthiazole                       | 15                       |  |   |   |  |  |  |  |
| 366-70-1   | Procarbazine Hydrochloride          | 15                       |  |   |   |  |  |  |  |
| 3688-53-7  | Furylfuramide                       | 15                       |  |   |   |  |  |  |  |
| 3761-53-3  | Ponceau MX                          | 15                       | x  |   |   |  |  |  |  |
| 39156-41-7 | 2,4-Diaminoanisoole Sulfate         | 15                       |  |   |   |  |  |  |  |
| 40088-47-9 | Tetrabromodiphenyl Ether            | 15                       |  |   |   |  |  |  |  |
| 42397-64-8 | 1,6-Dinitropyrene                   | 15                       |  |   |   |  |  |  |  |
| 42397-65-9 | 1,8-Dinitropyrene                   | 15                       |  |   |   |  |  |  |  |
| 4342--03-4 | Dacarbazine                         | 15                       |  |   |   |  |  |  |  |
| 446-86-6   | Azathioprine                        | 15                       |  |   |   |  |  |  |  |
| 492-80-8   | Auramine                            | 15                       |  |   |   |  |  |  |  |
| 50-06-6    | Phenobarbital                       | 15                       |  |   |   |  |  |  |  |
| 50-07-7    | Mitomycin C                         | 15                       |  |   |   |  |  |  |  |
| 50-18-0    | Cyclophosphamide (anhydrous)        | 15                       |  |   |   |  |  |  |  |
| 50-28-2    | Estradiol 17b                       | 15                       |  |   |   |  |  |  |  |
| 50-55-5    | Reserpine                           | 15                       |  |   |   |  |  |  |  |
| 505-60-2   | Sulfur Mustard                      | 15                       |  |   |   |  |  |  |  |
| 50-76-0    | Actinomycin D                       | 15                       |  |   |   |  |  |  |  |
| 513-37-1   | Dimethylvinylchloride               | 15                       |  |   |   |  |  |  |  |
| 51-52-5    | Propylthiouracil                    | 15                       |  |   |   |  |  |  |  |
| 5160-02-1  | D & C Red No. 9                     | 15                       |  |   |   |  |  |  |  |
| 52-24-4    | Tris-(1-Aziridiny)phosphine sulfide | 15                       |  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent   | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|---|--------------------------|--|---|---|--|--|--|--|
| 531-82-8   | n-[4-(5-nitro-2-furyl)-2-thiazolyl]-acetamide                                       | 15                       | x  |   |   |  |  |  |  |
| 53-96-3    | 2-Acetylaminofluorene   | 15                       | x  |   | x   |  |  |  |  |
| 54749-90-5 | Chlorozotocin   | 15                       |  |   |   |  |  |  |  |
| 55-18-5    | n-Nitrosodiethylamine   | 15                       | x  |   | x   |  |  |  |  |
| 5522-43-0  | 1-Nitropyrene   | 15                       |  |   |   |  |  |  |  |
| 555-84-0   | 1-[(5-Nitrofurfurylidene)-amino]-2-imidazolidinone                                  | 15                       |  |   |   |  |  |  |  |
| 55738-54-0 | Trans-2[(dimethylamino)-methylimino]-5-[2-(5-nitro-2-furyl)-vinyl]-1,3,4-oxadiazole | 15                       | x  |   |   |  |  |  |  |
| 56-04-2    | Methylthiouracil  | 15                       |  |   |   |  |  |  |  |
| 563-47-3   | 3-Chloro-2-methyl-propene   | 15                       |  |   |   |  |  |  |  |
| 56-53-1    | Diethylstilbestrol  | 15                       |  |   |   |  |  |  |  |
| 569-61-9   | C.I. Basic Red 9 Monohydrochloride  | 15                       |  |   |   |  |  |  |  |
| 57-55-6    | Propylene Glycol  | 15                       |  |   |   |  |  |  |  |
| 57-57-8    | beta-Propiolactone  | 15                       | x  |   |   |  |  |  |  |
| 57835-92-4 | 4-Nitropyrene   | 15                       |  |   |   |  |  |  |  |
| 57-97-6    | 7,12-Dimethylbenz[a]anthracene  | 15                       |  |   |   |  |  |  |  |
| 59-87-0    | Nitrofurazone   | 15                       | x  |   |   |  |  |  |  |
| 59-96-1    | Phenoxybenzamine  | 15                       |  |   |   |  |  |  |  |
| 6055-19-2  | Cyclophosphamide (Hydrated)   | 15                       |  |   |   |  |  |  |  |
| 60568-05-0 | Furmecyclo  | 15                       |  |   |   |  |  |  |  |
| 607-57-8   | 2-Nitrofluorene   | 15                       |  |   |   |  |  |  |  |
| 608-73-1   | Hexachlorocyclohexane   | 15                       |  |   |   |  |  |  |  |
| 6109-97-3  | 3-Amino-9-ethylcarbazole hydrochloride  | 15                       |  |   |   |  |  |  |  |
| 615-05-4   | 2,4-Diaminoanisole  | 15                       |  |   |   |  |  |  |  |
| 615-53-2   | n-Nitroso-n-Methylurethane  | 15                       | x  |   |   |  |  |  |  |
| 61-82-5    | Amitrole  | 15                       | x  |   |   |  |  |  |  |
| 62-44-2    | Phenacetin  | 15                       |  | x   | x   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #       | Constituent                                  | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-------------|--|--------------------------|--|---|---|--|--|--|--|
| 62450-06-0  | Tryptophan-P-1                               | 15                       |  |   |   |  |  |  |  |
| 62450-07-1  | Tryptophan-P-2                               | 15                       |  |   |   |  |  |  |  |
| 62-55-5     | Thioacetamide                                | 15                       |  |   |   |  |  |  |  |
| 62-56-6     | Thiourea                                     | 15                       |  |   |   |  |  |  |  |
| 62-73-7     | Dichlorvos                                   | 15                       | x  |   |   |  |  |  |  |
| 627-44-1    | Diethyl mercury                              | 15                       |  |   |   |  |  |  |  |
| 636-21-5    | o-Toluidine Hydrochloride                    | 15                       | x  |   |   |  |  |  |  |
| 63-92-3     | Phenoxybenzamine hydrochloride               | 15                       | x  |   |   |  |  |  |  |
| 6423-43-4   | Propylene Glycol Dinitrate                   | 15                       | x  |   |   |  |  |  |  |
| 66-27-3     | Methyl Methanesulfonate                      | 15                       |  | x   | x   |  |  |  |  |
| 671-16-9    | Procarbazine                                 | 15                       |  |   |   |  |  |  |  |
| 67730-10-3  | Glu-P-2                                      | 15                       |  |   |   |  |  |  |  |
| 67730-11-4  | Glu-P-1                                      | 15                       |  |   |   |  |  |  |  |
| 68006-83-7  | 2-Amino-3-methyl-9H pyrido[2,3-b]indole      | 15                       |  |   |   |  |  |  |  |
| 68-12-2     | n,n-Dimethylformamide                        | 15                       | x  |   |   |  |  |  |  |
| 684-93-5    | n-Nitroso-n-methylurea                       | 15                       | x  |   |   |  |  |  |  |
| 70-25-7     | n-Methyl-n-nitro-n-nitrosoguanidine          | 15                       |  |   |   |  |  |  |  |
| 712-68-5    | 2-Amino-5-(5-Nitro-2-Furyl)-1,3,4-Thiadiazol | 15                       |  |   |   |  |  |  |  |
| 7440-02-ORD | Nickel Refinery Dust                         | 15                       |  |   |   |  |  |  |  |
| 74-90-8     | Hydrogen Cyanide                             | 15                       | x  |   |   |  |  |  |  |
| 7496-02-8   | 6-Nitrochrysene                              | 15                       |  |   |   |  |  |  |  |
| 75-37-6     | 1,1-Difluoroethane                           | 15                       |  |   |   |  |  |  |  |
| 75-56-9     | Propylene oxide                              | 15                       | x  |   |   |  |  |  |  |
| 75-68-3     | 1-Chloro-1,1-difluoroethane                  | 15                       |  |   |   |  |  |  |  |
| 759-73-9    | n-Nitroso-n-ethylurea                        | 15                       | x  |   |   |  |  |  |  |
| 76-06-2     | Chloropicrin                                 | 15                       | x  |   |   |  |  |  |  |
| 76180-96-6  | 2-Amino-3-methylimidazo-[4,5-f]quinoline     | 15                       |  |   |   |  |  |  |  |
| 7631-86-9   | Silica (crystalline, Respirable)             | 15                       |  |   |   |  |  |  |  |
| 7784-42-1   | Arsine                                       | 15                       | x  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS #      | Constituent                                | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|------------|--|--------------------------|--|---|---|--|--|--|--|
| 7803-51-2  | Phosphine                                  | 15                       | x  |   |   |  |  |  |  |
| 78-59-1    | Isophorone                                 | 15                       | x  |   |   |  |  |  |  |
| 79-06-1    | Acrylamide                                 | 15                       | x  |   | x   |  |  |  |  |
| 79-44-7    | Dimethylcarbamoyl Chloride                 | 15                       | x  |   |   |  |  |  |  |
| 8007-45-2  | Coke Oven Emissions                        | 15                       |  |   |   |  |  |  |  |
| 811-97-2   | 1,1,1,2-Tetrafluoroethane                  | 15                       |  |   |   |  |  |  |  |
| 82-28-0    | 1-Amino-2-methylantraquinone               | 15                       |  |   |   |  |  |  |  |
| 838-88-0   | 4,4-Methylene bis(2-Methylaniline)         | 15                       | x  |   |   |  |  |  |  |
| 85535-84-8 | Short-chain (C10-13) chlorinated paraffins | 15                       |  |   |   |  |  |  |  |
| 86-30-6    | n-Nitrosodiphenylamine                     | 15                       | x  |   | x   |  |  |  |  |
| 87-29-6    | Cinnamyl Anthranilate                      | 15                       |  |   |   |  |  |  |  |
| 90-94-8    | Michler's ketone                           | 15                       |  |   |   |  |  |  |  |
| 91-08-7    | Toluene-2,6-diisocyanate                   | 15                       |  |   |   |  |  |  |  |
| 91-59-8    | 2-Naphthylamine                            | 15                       |  | x   | x   |  |  |  |  |
| 92-67-1    | 4-Aminobiphenyl                            | 15                       | x  |   | x   |  |  |  |  |
| 92-87-5    | Benzidine                                  | 15                       | x  |   |   |  |  |  |  |
| 930-55-2   | n-Nitrosopyrrolidine                       | 15                       |  | x   | x   |  |  |  |  |
| 94-58-6    | Dihydrosafrole                             | 15                       |  |   |   |  |  |  |  |
| 94-78-0    | Phenazopyridine                            | 15                       |  |   |   |  |  |  |  |
| 95-06-7    | Sulfallate                                 | 15                       |  |   |   |  |  |  |  |
| 95-69-2    | p-Chloro-o-toluidine                       | 15                       |  |   |   |  |  |  |  |
| 95-80-7    | 2,4-Diaminotoluene                         | 15                       | x  |   |   |  |  |  |  |
| 95-83-0    | 4-Chloro-o-phenylenediamine                | 15                       |  |   |   |  |  |  |  |
| 96-09-3    | Styrene Oxide                              | 15                       | x  |   |   |  |  |  |  |
| 97-56-3    | ortho-Aminoazotoluene                      | 15                       | x  |   |   |  |  |  |  |
| 99-59-2    | 5-Nitro-o-Anisidine                        | 15                       |  |   |   |  |  |  |  |
| DEEP       | Diesel Engine Exhaust, Particulate         | 15                       |  |   |   |  |  |  |  |
| NA22       | Refractory Ceramic Fibers                  | 15                       | x  |   |   |  |  |  |  |
| PBBs       | Polybrominated Biphenyls                   | 15                       |  |   |   |  |  |  |  |

**Table C-1 Updated List of Toxic Air Pollutants (395 constituents)**

| CAS # | Constituent | Disposition <sup>a</sup> | Old TAP Input to RDQO Table A-1 <sup>b</sup> | Other Inputs to RDQO Table A-1 <sup>c</sup> | Updates to RDQO Input List Table A-4 <sup>d</sup> | Compare w/ CHG Vapor Study List Table B-1 <sup>e</sup> | Compare w/ TWINS/BBI List Table A-4 <sup>f</sup> | Compare w/ EPA PICs Table E-1 <sup>g</sup> | Compare w/ Site-Specific PICs Table F-1 <sup>h</sup> |
|-------|-------------|--------------------------|--|---|---|--|--|--|--|
|-------|-------------|--------------------------|--|---|---|--|--|--|--|

Notes:

<sup>a</sup> Disposition Codes:

- 1 RDQO COPCs; the new TAPS review resulted in no changes to the previous COPC feed list (Appendix A, Table A-2).
- 2 Inorganic compounds addressed as individual cations or anions in the tank liquid; no additions to the previous COPC inorganic feed list (Appendix A, Table A-5).
- 3 Low toxicity compounds; the new TAPS review resulted in no changes to the previous COPC list (Appendix A, Table A-3).
- 4 Updates to the RDQO Input List (e.g. UHCs); no changes to the Appendix A, Table A-4 additions.
- 5 Organic identified by CHG as present in tank vapor space; no changes to the Appendix B, Table B-1 additions.
- 6 Inorganics identified by CHG as present in tank vapor space; no changes to the Appendix B, Table B-1 additions.
- 7 Regulatory basis for this RDQO COPC was removed in the evaluation of the UHC/UTS, DST Part A updates (Appendix A, Table A-4); the TAPS update review provides the new regulatory basis.
- 8 Regulatory basis for this low-toxicity compound was removed in the evaluation of the UHC/UTS, DST Part A updates (Appendix A, Table A-4); the TAPS update review provides the new regulatory basis.
- 9 Toxic air pollutant to be measured in stack emissions; identified by EPA as a Criteria Pollutant (40 CFR 60)
- 10 Inorganics be measured in stack emissions at the request of Ecology.
- 11 Chlorinated dioxins, furans and related coplanar PCBs to be measured in stack emissions; compounds are identified by EPA as PICs (Appendix E)
- 12 Chlorinated dioxins and related compounds NOS will not be added to the stack emissions measurement.
- 13 Eliminated as feed constituents because they have < 10 detects in TWINS and no BBI values were found; appear on the EPA PIC list (Appendix E).
- 14 Eliminated as feed constituents because they have < 10 detects in TWINS and no BBI values were found; appear on the site-specific PIC list (Appendix F).
- 15 Eliminated because they have < 10 detects in TWINS and no BBI values were found.

<sup>b</sup> An "X" in the box indicates that the toxic air pollutant was identified in WAC 173-460 prior to the May 2009 revision and was evaluated as an input to the RDQO.

<sup>c</sup> An "X" in the box indicates that the toxic air pollutant was identified as another input to the RDQO (UTS/UHC, DST Part A, flammable gas); see Appendix A, Table A-1.

<sup>d</sup> An "X" in the box indicates that the toxic air pollutant was identified in the updates to UTS/UHC and DST Part A constituent lists; see Appendix A, Table A-4

<sup>e</sup> An "X" in the box indicates that the toxic air pollutant was identified in the CHG vapor study; see Appendix B, Table B-1

<sup>f</sup> Compounds with more than 10 detects in TWINS or listed in BBI; identified with an "X".

<sup>g</sup> Compounds identified by an "X" are listed by EPA as a PIC, see Appendix E, Table E-1.

<sup>h</sup> Compounds identified by an "X" are listed by WTP as a site-specific PIC, see Appendix F, Table F-1.

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                      | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|----------------------------------|---|--|-------------------------------------|--------------------------|
| 100-42-5  | Styrene                          | x   |  |                                     |                          |
| 106-46-7  | 1,4-Dichlorobenzene              | x   | x  | x                                   | x                        |
| 106-93-4  | Ethylene dibromide               | x   | x  | x                                   |                          |
| 106-99-0  | 1,3-Butadiene                    | x   |  |                                     |                          |
| 107-02-8  | Acrolein                         | x   | x  | x                                   |                          |
| 107-05-1  | 3-Chloropropene                  | x   | x  | x                                   |                          |
| 107-06-2  | 1,2-Dichloroethane               | x   | x  | x                                   | x                        |
| 107-13-1  | Acrylonitrile                    | x   | x  | x                                   |                          |
| 108-10-1  | 4-Methyl-2-pentanone             | x   | x  | x                                   | x                        |
| 108-88-3  | Toluene                          | x   | x  | x                                   | x                        |
| 108-90-7  | Chlorobenzene                    | x   | x  | x                                   | x                        |
| 108-95-2  | Phenol                           | x   | x  | x                                   | x                        |
| 110-54-3  | n-Hexane                         | x   |  |                                     |                          |
| 110-82-7  | Cyclohexane                      | x   |  |                                     |                          |
| 118-74-1  | Hexachlorobenzene                | x   | x  | x                                   |                          |
| 121-44-8  | Triethylamine                    | x   | x  | x                                   |                          |
| 123-91-1  | 1,4-Dioxan                       | x   | x  | x                                   |                          |
| 127-18-4  | 1,1,2,2-Tetrachloroethene        | x   | x  | x                                   | x                        |
| 1336-36-3 | Polychlorinated biphenyls (PCBs) | x   | x  | x                                   | x                        |
| 309-00-2  | Aldrin                           | x   | x  | x                                   |                          |
| 319-84-6  | alpha-BHC                        | x   | x  | x                                   |                          |
| 319-85-7  | beta-BHC                         | x   | x  | x                                   |                          |
| 50-32-8   | Benzo(a)pyrene                   | x   | x  | x                                   |                          |
| 53-70-3   | Dibenz[a,h]anthracene            | x   | x  | x                                   |                          |
| 56-23-5   | Carbon tetrachloride             | x   | x  | x                                   | x                        |
| 57-14-7   | 1,1-Dimethylhydrazine            | x   |  |                                     |                          |
| 58-89-9   | gamma-BHC (Lindane)              | x   | x  | x                                   |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                          | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|--------------------------------------|---|--|-------------------------------------|--------------------------|
| 60-57-1   | Dieldrin                             | X   | X  | X                                   |                          |
| 624-83-9  | Methyl isocyanate                    | X   |  |                                     |                          |
| 62-75-9   | N-Nitroso-N,N-dimethylamine          | X   | X  | X                                   |                          |
| 67-56-1   | Methyl alcohol                       | X   | X  | X                                   |                          |
| 67-63-0   | 2-Propyl alcohol                     | X   |  |                                     |                          |
| 67-66-3   | Chloroform                           | X   | X  | X                                   | X                        |
| 71-43-2   | Benzene                              | X   | X  | X                                   | X                        |
| 71-55-6   | 1,1,1-Trichloroethane                | X   | X  | X                                   | X                        |
| 74-83-9   | Bromomethane                         | X   | X  | X                                   |                          |
| 74-87-3   | Chloromethane                        | X   | X  | X                                   | X                        |
| 75-00-3   | Chloroethane                         | X   | X  | X                                   |                          |
| 75-01-4   | 1-Chloroethene                       | X   | X  | X                                   | X                        |
| 75-05-8   | Acetonitrile                         | X   | X  | X                                   |                          |
| 75-09-2   | Dichloromethane (Methylene Chloride) | X   | X  | X                                   | X                        |
| 75-15-0   | Carbon disulfide                     | X   | X  | X                                   | X                        |
| 75-21-8   | Oxirane                              | X   | X  | X                                   |                          |
| 75-34-3   | 1,1-Dichloroethane                   | X   | X  | X                                   |                          |
| 75-35-4   | 1,1-Dichloroethene                   | X   | X  | X                                   | X                        |
| 75-45-6   | Chlorodifluoromethane                | X   |  |                                     |                          |
| 76-44-8   | Heptachlor                           | X   | X  | X                                   |                          |
| 78-87-5   | 1,2-Dichloropropane                  | X   | X  | X                                   |                          |
| 78-93-3   | 2-Butanone                           | X   | X  | X                                   | X                        |
| 79-00-5   | 1,1,2-Trichloroethane                | X   | X  | X                                   | X                        |
| 79-01-6   | 1,1,2-Trichloroethylene              | X   | X  | X                                   | X                        |
| 79-10-7   | 2-Propenoic acid                     | X   |  |                                     |                          |
| 79-34-5   | 1,1,2,2-Tetrachloroethane            | X   | X  | X                                   | X                        |
| 8001-35-2 | Toxaphene                            | X   | X  | X                                   |                          |
| 87-68-3   | Hexachlorobutadiene                  | X   | X  | X                                   | X                        |
| 87-86-5   | Pentachlorophenol                    | X   | X  | X                                   | X                        |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|---|---|--|-------------------------------------|--------------------------|
| 16984-48-8 | Fluoride  | X   | X  | X                                   |                          |
| 18540-29-9 | Chromium, hexavalent metal and compounds <sup>f</sup> | X   |  |                                     |                          |
| 7440-43-9  | Cadmium   | X   | X  | X                                   |                          |
| 7664-41-7  | Ammonia   | X   | X  |                                     |                          |
| 7697-37-2  | Nitric acid/Nitrate                                   | X   | X  |                                     |                          |
| 7723-14-0  | Phosphorus  | X   |  |                                     |                          |
| 106-88-7   | 1,2-Epoxybutane                                       | X   |  |                                     |                          |
| 108-05-4   | Acetic acid vinyl ester                               | X   |  |                                     | X                        |
| 108-39-4   | m-Cresol  | X   | X  | X                                   | X                        |
| 111-76-2   | 2-Butoxyethanol                                       | X   |  |                                     | X                        |
| 117-81-7   | Bis(2-ethylhexyl) phthalate                           | X   | X  |                                     | X                        |
| 1634-04-4  | Methyl tert-butyl ether                               | X   |  |                                     |                          |
| 1836-75-5  | Nitrofen  | X   |  |                                     |                          |
| 189-55-9   | Dibenzo[a,i]pyrene                                    | X   |  |                                     |                          |
| 189-64-0   | Dibenzo[a,h]pyrene                                    | X   |  |                                     |                          |
| 191-30-0   | Dibenzo(a,l)pyrene                                    | X   |  |                                     |                          |
| 192-65-4   | Dibenzo[a,e]pyrene                                    | X   | X  | X                                   |                          |
| 193-39-5   | Indeno(1,2,3-cd)pyrene                                | X   | X  | X                                   |                          |
| 205-82-3   | Benzo[j]fluoranthene                                  | X   |  |                                     |                          |
| 205-99-2   | Benzo(b)fluoranthene                                  | X   | X  | X                                   |                          |
| 207-08-9   | Benzo(k)fluoranthene                                  | X   | X  | X                                   |                          |
| 224-42-0   | Dibenz[a,j]acridine                                   | X   |  |                                     |                          |
| 226-36-8   | Dibenz[a,h]acridine                                   | X   |  |                                     |                          |
| 2385-85-5  | Mirex   | X   |  |                                     |                          |
| 3697-24-3  | 5-Methylchrysene                                      | X   |  |                                     |                          |
| 50-00-0    | Formaldehyde  | X   |  |                                     |                          |
| 50-29-3    | 4,4-DDT   | X   | X  | X                                   |                          |
| 56-55-3    | Benzo(a)anthracene                                    | X   | X  | X                                   |                          |
| 59-89-2    | N-Nitrosomorpholine                                   | X   | X  | X                                   | X                        |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                        | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|------------------------------------|---|--|-------------------------------------|--------------------------|
| 602-87-9   | 5-Nitroacenaphthene                | x   |  |                                     |                          |
| 60-35-5    | Acetamide                          | x   |  |                                     |                          |
| 621-64-7   | N-Nitroso-di-n-propylamine         | x   | x  | x                                   | x                        |
| 67-72-1    | Hexachloroethane                   | x   | x  | x                                   | x                        |
| 75-07-0    | Acetaldehyde                       | x   |  |                                     |                          |
| 88-06-2    | 2,4,6-Trichlorophenol              | x   | x  | x                                   | x                        |
| 91-20-3    | Naphthalene                        | x   | x  | x                                   | x                        |
| 95-48-7    | o-Cresol                           | x   | x  | x                                   | x                        |
| 98-82-8    | Cumene <sup>f</sup>                | x   |  |                                     |                          |
| 10595-95-6 | N-Nitrosomethylethylamine          | x   | x  | x                                   |                          |
| 79-46-9    | 2-Nitropropane                     | x   |  | x                                   | x                        |
| 110-80-5   | 2-Ethoxyethanol                    | x   | x  | x                                   | x                        |
| 121-14-2   | 2,4-Dinitrotoluene                 | x   | x  | x                                   | x                        |
| 111-44-4   | Bis(2-chloroethyl) ether           | x   | x  | x                                   |                          |
| 75-25-2    | Tribromomethane                    | x   | x  | x                                   |                          |
| 77-47-4    | Hexachlorocyclopentadiene          | x   | x  | x                                   |                          |
| 78-59-1    | Isophorone                         | x   |  |                                     |                          |
| 86-30-6    | N-Nitrosodiphenylamine             | x   | x  | x                                   |                          |
| 91-94-1    | 3,3 -Dichlorobenzidine             | x   |  |                                     |                          |
| 100-44-7   | Benzyl chloride                    | x   |  |                                     |                          |
| 10049-04-4 | Chlorine dioxide                   | x   |  |                                     |                          |
| 101-14-4   | 4,4'-Methylenebis(2-chloroaniline) | x   | x  | x                                   |                          |
| 101-68-8   | Methylene bis(phenyl isocyanate)   | x   |  |                                     |                          |
| 101-77-9   | 4,4-Methylene dianiline            | x   |  |                                     |                          |
| 101-80-4   | 4,4'-Diaminodiphenyl ether         | x   |  |                                     |                          |
| 101-90-6   | Diglycidyl resorcinol ether        | x   | x  |                                     |                          |
| 106-89-8   | Epichlorohydrin                    | x   |  |                                     |                          |
| 107-21-1   | Ethylene glycol                    | x   |  |                                     |                          |
| 107-30-2   | Chloromethyl methyl ether          | x   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                            | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|--|---|--|-------------------------------------|--------------------------|
| 107-98-2   | Propylene glycol monomethyl ether      | x   |  |                                     |                          |
| 108-31-6   | Maleic anhydride (2,5-Furandione)      | x   |  |                                     |                          |
| 109-86-4   | 2-Methoxyethanol                       | x   |  |                                     |                          |
| 110-49-6   | 2-Methoxyethyl acetate                 | x   |  |                                     |                          |
| 111-15-9   | 2-Ethoxyethyl acetate                  | x   |  |                                     |                          |
| 111-30-8   | Glutaraldehyde                         | x   |  |                                     |                          |
| 111-42-2   | Diethanolamine                         | x   |  |                                     |                          |
| 1120-71-4  | 1,3-Propane sultone                    | x   |  |                                     |                          |
| 117-79-3   | 2-Aminoanthraquinone                   | x   |  |                                     |                          |
| 122-66-7   | 1,2-Diphenylhydrazine                  | x   | x  | x                                   |                          |
| 129-15-7   | 2-Methyl-1-nitroanthraquinone          | x   |  |                                     |                          |
| 1309-64-4  | Antimony trioxide, as Sb               | x   |  |                                     |                          |
| 1310-73-2  | Sodium hydroxide                       | x   | x  |                                     |                          |
| 1314-62-1  | Vanadium pentoxide                     | x   | x  |                                     |                          |
| 133-06-2   | Captan                                 | x   |  |                                     |                          |
| 1332-21-4  | Asbestos (fibrous)                     | x   |  |                                     |                          |
| 135-20-6   | Cupferron                              | x   |  |                                     |                          |
| 13552-44-8 | 4,4-Methylenedianiline dihydrochloride | x   |  |                                     |                          |
| 139-65-1   | 4,4'-Thiodianiline                     | x   | x  |                                     |                          |
| 151-56-4   | Ethyleneimine                          | x   |  |                                     |                          |
| 1694-09-3  | Benzyl violet 4b                       | x   |  |                                     |                          |
| 1746-01-6  | TCDD (Dioxin/Furan Indicator)          | x   | x  |                                     |                          |
| 2425-06-1  | Captafol                               | x   |  |                                     |                          |
| 298-04-4   | Disulfoton                             | x   | x  | x                                   |                          |
| 301-04-2   | Lead acetate                           | x   |  |                                     |                          |
| 302-01-2   | Hydrazine                              | x   |  |                                     |                          |
| 3068-88-0  | B-Butyrolactone                        | x   |  |                                     |                          |
| 333-41-5   | Diazinon                               | x   |  |                                     |                          |
| 3761-53-3  | Ponceau MX                             | x   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#        | Constituent   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-------------|---|---|--|-------------------------------------|--------------------------|
| 510-15-6    | Chlorobenzilate   | X   | X  | X                                   |                          |
| 51-79-6     | Ethyl carbamate (urethane)  | X   |  |                                     |                          |
| 531-82-8    | N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide                                      | X   |  |                                     |                          |
| 532-27-4    | a-Chloroacetophenone  | X   |  |                                     |                          |
| 53-96-3     | 2-Acetylaminofluorene   | X   | X  | X                                   |                          |
| 540-73-8    | 1,2-Dimethylhydrazine   | X   |  |                                     |                          |
| 542-75-6    | 1,3-Dichloropropene   | X   |  |                                     |                          |
| 542-88-1    | Dichloromethyl ether  | X   |  |                                     |                          |
| 55-18-5     | N-Nitrosodiethylamine   | X   | X  | X                                   |                          |
| 55738-54-0  | trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole | X   |  |                                     |                          |
| 57-57-8     | B-Propiolactone   | X   |  |                                     |                          |
| 57-74-9     | Chlordane   | X   | X  | X                                   |                          |
| 584-84-9    | 2,4-Toluene diisocyanate  | X   |  |                                     |                          |
| 593-60-2    | Vinyl bromide   | X   |  |                                     |                          |
| 59-87-0     | Nitrofurazone   | X   |  |                                     |                          |
| 60-11-7     | p-Dimethylaminoazobenzene   | X   | X  | X                                   |                          |
| 615-53-2    | N-Nitroso-N-methylurethane  | X   |  |                                     |                          |
| 61-82-5     | Amitrole  | X   |  |                                     |                          |
| 62-53-3     | Aniline   | X   | X  | X                                   |                          |
| 62-73-7     | Dichlorvas  | X   |  |                                     |                          |
| 636-21-5    | o-Toluidine hydrochloride   | X   |  |                                     |                          |
| 63-92-3     | Phenoxybenzamine hydrochloride  | X   |  |                                     |                          |
| 6423-43-4   | Propylene glycol dinitrate  | X   |  |                                     |                          |
| 68-12-2     | Dimethylformamide   | X   |  |                                     |                          |
| 684-93-5    | N-Nitroso-N-methylurea  | X   |  |                                     |                          |
| 7439-92-1D  | Lead compounds  | X   |  |                                     |                          |
| 7439-96-5Ca | Manganese dust & compounds  | X   |  |                                     |                          |
| 7440-38-2C  | Arsenic and inorganic arsenic compounds   | X   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                        | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|------------------------------------|---|--|-------------------------------------|--------------------------|
| 7440-48-4a | Cobalt as Co metal dust and fume   | x   |  |                                     |                          |
| 7440-50-8C | Copper, Dusts and mists, as Cu     | x   |  |                                     |                          |
| 74-90-8    | Hydrogen cyanide                   | x   |  |                                     |                          |
| 75-44-5    | Phosgene                           | x   |  |                                     |                          |
| 7550-45-0  | Titanium tetrachloride             | x   |  |                                     |                          |
| 75-56-9    | Propylene oxide                    | x   |  |                                     |                          |
| 759-73-9   | N-Nitroso-N-ethylurea              | x   |  |                                     |                          |
| 76-06-2    | Chloropicrin                       | x   |  |                                     |                          |
| 7647-01-0  | Hydrogen chloride                  | x   |  |                                     |                          |
| 7664-38-2  | Phosphoric acid                    | x   |  |                                     |                          |
| 7664-39-3  | Hydrogen fluoride                  | x   |  |                                     |                          |
| 7664-93-9  | Sulfuric acid                      | x   |  |                                     |                          |
| 7758-97-6  | Lead chromate, as Cr               | x   |  |                                     |                          |
| 7782-41-4  | Fluorine                           | x   |  |                                     |                          |
| 7782-49-2C | Selenium compounds, as Se          | x   |  |                                     |                          |
| 7782-50-5  | Chlorine                           | x   |  |                                     |                          |
| 7783-06-4  | Hydrogen sulfide                   | x   |  |                                     |                          |
| 7783-07-5  | Hydrogen selenide, as Se           | x   |  |                                     |                          |
| 7784-42-1  | Arsine                             | x   |  |                                     |                          |
| 7803-51-2  | Phosphine                          | x   |  |                                     |                          |
| 79-06-1    | Acrylamide                         | x   | x  | x                                   |                          |
| 79-44-7    | Dimethylcarbamoyl chloride         | x   |  |                                     |                          |
| 80-62-6    | Methyl methacrylate                | x   | x  | x                                   |                          |
| 822-06-0   | Hexamethylene diisocyanate         | x   |  |                                     |                          |
| 838-88-0   | 4,4'-Methylenebis(2-methylaniline) | x   |  |                                     |                          |
| 85-44-9    | Phthalic anhydride                 | x   | x  | x                                   |                          |
| 90-04-0    | o-Anisidine                        | x   |  | x                                   |                          |
| 924-16-3   | N-Nitrosodi-n-butylamine           | x   | x  | x                                   |                          |
| 92-67-1    | 4-Aminobiphenyl                    | x   | x  | x                                   |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|-------------------------------|---|--|-------------------------------------|--------------------------|
| 92-87-5    | Benzidine                     | x   |  |                                     |                          |
| 95-53-4    | o-Toluidine (2-methylaniline) | x   |  |                                     |                          |
| 95-80-7    | Toluene-2,4-diamine           | x   |  |                                     |                          |
| 96-09-3    | Styrene oxide                 | x   |  |                                     |                          |
| 96-12-8    | 1,2-Dibromo-3-chloropropane   | x   | x  | x                                   |                          |
| 96-18-4    | 1,2,3-Trichloropropane        | x   | x  | x                                   |                          |
| 96-45-7    | Ethylenethiourea              | x   |  |                                     |                          |
| 97-56-3    | o-Aminoazotoluene             | x   |  |                                     |                          |
| NA22       | Fine mineral fibers           | x   |  |                                     |                          |
| 100-01-6   | 4-Nitroaniline                |   | x  | x                                   |                          |
| 100-02-7   | 4-Nitrophenol                 |   | x  | x                                   | x                        |
| 108-94-1   | Cyclohexanone                 |   | x  | x                                   | x                        |
| 110-86-1   | Pyridine                      |   | x  | x                                   | x                        |
| 114-26-1   | Propoxur                      |   | x  | x                                   |                          |
| 120-82-1   | 1,2,4-Trichlorobenzene        |   | x  | x                                   | x                        |
| 122-39-4   | N,N-Diphenylamine             |   | x  | x                                   |                          |
| 126-98-7   | 2-Methyl-2-propenenitrile     |   | x  | x                                   |                          |
| 126-99-8   | Chloroprene                   |   | x  | x                                   |                          |
| 131-11-3   | Dimethyl phthalate            |   | x  | x                                   |                          |
| 141-78-6   | Acetic acid ethyl ester       |   | x  | x                                   | x                        |
| 1563-66-2  | Carbofuran                    |   | x  | x                                   |                          |
| 16752-77-5 | Methomyl                      |   | x  | x                                   |                          |
| 17804-35-2 | Benomyl                       |   | x  | x                                   |                          |
| 298-00-0   | Methyl parathion              |   | x  | x                                   |                          |
| 298-02-2   | Phorate                       |   | x  | x                                   |                          |
| 51-28-5    | 2,4-Dinitrophenol             |   | x  | x                                   |                          |
| 534-52-1   | 4,6-Dinitro-o-cresol          |   | x  | x                                   |                          |
| 56-38-2    | Parathion                     |   | x  | x                                   |                          |
| 57-12-5    | Cyanide                       |   | x  | x                                   |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                    | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|--------------------------------|---|--|-------------------------------------|--------------------------|
| 60-29-7   | Ethyl ether                    |   | X  | X                                   | X                        |
| 63-25-2   | Carbaryl                       |   | X  | X                                   |                          |
| 67-64-1   | 2-Propanone (Acetone)          |   | X  | X                                   | X                        |
| 71-36-3   | n-Butyl alcohol                |   | X  | X                                   | X                        |
| 72-20-8   | Endrin                         |   | X  | X                                   |                          |
| 72-43-5   | Methoxychlor                   |   | X  | X                                   |                          |
| 7440-22-4 | Silver                         |   | X  | X                                   |                          |
| 7440-47-3 | Chromium                       |   | X  | X                                   |                          |
| 74-88-4   | Iodomethane                    |   | X  | X                                   |                          |
| 75-69-4   | Trichlorofluoromethane         |   | X  | X                                   | X                        |
| 75-71-8   | Dichlorodifluoromethane        |   | X  | X                                   |                          |
| 76-13-1   | 1,2,2-Trichlorotrifluoroethane |   | X  | X                                   | X                        |
| 78-83-1   | 2-Methylpropyl alcohol         |   | X  | X                                   | X                        |
| 82-68-8   | Pentachloronitrobenzene (PCNB) |   | X  | X                                   |                          |
| 84-66-2   | Diethyl phthalate              |   | X  | X                                   |                          |
| 84-74-2   | Di-n-butylphthalate            |   | X  | X                                   | X                        |
| 93-76-5   | 2,4,5-T                        |   | X  | X                                   |                          |
| 94-75-7   | 2,4-D                          |   | X  | X                                   |                          |
| 95-50-1   | 1,2-Dichlorobenzene            |   | X  | X                                   | X                        |
| 95-95-4   | 2,4,5-Trichlorophenol          |   | X  | X                                   | X                        |
| 98-86-2   | Acetophenone                   |   | X  | X                                   |                          |
| 98-95-3   | Nitrobenzene                   |   | X  | X                                   | X                        |
| 106-50-3  | p-Phenylenediamine             |   | X  |                                     |                          |
| 123-31-9  | Hydroquinone                   |   | X  |                                     |                          |
| 134-32-7  | alpha-Naphthylamine            |   | X  |                                     |                          |
| 504-29-0  | 2-Aminopyridine                |   | X  |                                     |                          |
| 528-29-0  | Dinitrobenzene, all isomers    |   | X  |                                     |                          |
| 54-11-5   | Nicotine                       |   | X  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                        | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|------------------------------------|---|--|-------------------------------------|--------------------------|
| 7429-90-5 | Aluminum                           |   | x  |                                     |                          |
| 75-52-5   | Nitromethane                       |   | x  |                                     |                          |
| 126-73-8  | Tributyl phosphate                 |   |  |                                     | x                        |
| 128-37-0  | 2,6-Bis(tert-butyl)-4-methylphenol |   |  |                                     | x                        |
| 591-78-6  | 2-Hexanone                         |   |  |                                     | x                        |
| 60-34-4   | Methylhydrazine                    |   |  |                                     |                          |
| 92-52-4   | 1,1'-Biphenyl                      |   |  |                                     |                          |
| 75-50-3   | Trimethylamine                     |   |  |                                     |                          |
| 100-00-5  | p-Nitrochlorobenzene <sup>e</sup>  |   |  |                                     |                          |
| 106-35-4  | 3-Heptanone                        |   |  |                                     |                          |
| 106-97-8  | Butane                             |   |  |                                     |                          |
| 107-87-9  | 2-Pentanone                        |   |  |                                     |                          |
| 108-87-2  | Methylcyclohexane                  |   |  |                                     |                          |
| 109-66-0  | n-Pentane                          |   |  |                                     |                          |
| 109-99-9  | Tetrahydrofuran                    |   |  |                                     |                          |
| 110-12-3  | 5-Methyl-2-hexanone                |   |  |                                     |                          |
| 110-43-0  | 2-Heptanone                        |   |  |                                     |                          |
| 110-83-8  | Cyclohexene                        |   |  |                                     |                          |
| 111-65-9  | n-Octane                           |   |  |                                     |                          |
| 111-84-2  | n-Nonane                           |   |  |                                     |                          |
| 123-19-3  | 4-Heptanone                        |   |  |                                     |                          |
| 123-38-6  | n-Propionaldehyde                  |   |  |                                     |                          |
| 123-86-4  | Acetic acid n-butyl ester          |   |  |                                     |                          |
| 1321-64-8 | Pentachloronaphthalene             |   |  |                                     |                          |
| 1335-87-1 | Hexachloronaphthalene              |   |  |                                     |                          |
| 1335-88-2 | Tetrachloronaphthalene             |   |  |                                     |                          |
| 142-82-5  | n-Heptane                          |   |  |                                     |                          |
| 144-62-7  | Oxalic acid                        |   |  |                                     |                          |
| 2234-13-1 | Octachloronaphthalene              |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                                    | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|--|---|--|-------------------------------------|--------------------------|
| 287-92-3  | Cyclopentane                                   |   |  |                                     |                          |
| 3825-26-1 | Ammonium perfluorooctanoate                    |   |  |                                     |                          |
| 4170-30-3 | 2-Butenaldehyde                                |   |  |                                     |                          |
| 563-80-4  | 3-Methyl-2-butanone                            |   |  |                                     |                          |
| 627-13-4  | Nitric acid, propyl ester                      |   |  |                                     |                          |
| 64-17-5   | Ethyl alcohol                                  |   |  |                                     |                          |
| 64-18-6   | Formic acid                                    |   |  |                                     |                          |
| 64-19-7   | Acetic acid                                    |   |  |                                     |                          |
| 684-16-2  | Hexafluoroacetone                              |   |  |                                     |                          |
| 71-23-8   | n-Propyl alcohol                               |   |  |                                     |                          |
| 75-43-4   | Dichlorofluoromethane                          |   |  |                                     |                          |
| 75-65-0   | 2-Methyl-2-propanol                            |   |  |                                     |                          |
| 76-14-2   | 1,2-Dichloro-1,1,2,2-tetrafluoroethane         |   |  |                                     |                          |
| 78-92-2   | 1-Methylpropyl alcohol                         |   |  |                                     |                          |
| 88-89-1   | Picric acid                                    |   |  |                                     |                          |
| 96-22-0   | 3-Pentanone                                    |   |  |                                     |                          |
| 7440-16-6 | Rhodium Metal                                  |   |  |                                     |                          |
| 7440-31-5 | Tin, oxide & inorganic except SnH <sub>4</sub> |   |  |                                     |                          |
| 7440-50-8 | Copper   |   |  |                                     |                          |
| 7553-56-2 | Iodine   |   |  |                                     |                          |
| 101-84-8  | Diphenyl ether                                 |   |  |                                     |                          |
| 107-18-6  | 2-Propen-1-ol                                  |   |  |                                     |                          |
| 107-31-3  | Formic acid, methyl ester                      |   |  |                                     |                          |
| 107-66-4  | Dibutylphosphate                               |   |  |                                     |                          |
| 108-03-2  | 1-Nitropropane                                 |   |  |                                     |                          |
| 108-20-3  | Bis(isopropyl) ether                           |   |  |                                     |                          |
| 108-93-0  | Cyclohexanol                                   |   |  |                                     |                          |
| 110-62-3  | n-Valeraldehyde                                |   |  |                                     |                          |
| 121-69-7  | Dimethylaniline                                |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                            | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|--|---|--|-------------------------------------|--------------------------|
| 123-51-3   | 3-Methyl-1-butanol                     |   |  |                                     |                          |
| 127-19-5   | N,N-Dimethylacetamide                  |   |  |                                     |                          |
| 1321-65-9  | Trichloronaphthalene                   |   |  |                                     |                          |
| 132-64-9   | Dibenzofuran                           |   |  |                                     |                          |
| 141-79-7   | 4-Methyl-3-penten-2-one                |   |  |                                     |                          |
| 1582-09-8  | Trifluralin                            |   |  |                                     |                          |
| 25551-13-7 | Trimethyl benzene                      |   |  |                                     |                          |
| 26140-60-3 | Terphenyls                             |   |  |                                     |                          |
| 540-59-0   | 1,2-Dichloroethylene                   |   |  |                                     |                          |
| 540-84-1   | 2,2,4-Trimethylpentane                 |   |  |                                     |                          |
| 603-34-9   | Triphenyl amine                        |   |  |                                     |                          |
| 74-97-5    | Bromochloromethane                     |   |  |                                     |                          |
| 74-99-7    | Methylacetylene                        |   |  |                                     |                          |
| 75-12-7    | Formamide                              |   |  |                                     |                          |
| 75-55-8    | 2-Methylaziridine                      |   |  |                                     |                          |
| 75-61-6    | Difluorodibromomethane                 |   |  |                                     |                          |
| 75-63-8    | Trifluorobromomethane                  |   |  |                                     |                          |
| 75-99-0    | 2,2-Dichloropropionic acid             |   |  |                                     |                          |
| 76-03-9    | Trichloroacetic acid                   |   |  |                                     |                          |
| 76-11-9    | 1,1,1,2-Tetrachloro-2,2-difluoroethane |   |  |                                     |                          |
| 76-12-0    | 1,1,2,2-Tetrachloro-1,2-difluoroethane |   |  |                                     |                          |
| 76-15-3    | Chloropentafluoroethane                |   |  |                                     |                          |
| 79-09-4    | Propanoic acid                         |   |  |                                     |                          |
| 79-20-9    | Methyl acetate                         |   |  |                                     |                          |
| 88-72-2    | Nitrotoluene                           |   |  |                                     |                          |
| 91-22-5    | Quinoline                              |   |  |                                     |                          |
| 92-93-3    | 4-Nitrobiphenyl                        |   |  |                                     |                          |
| 95-13-6    | Indene                                 |   |  |                                     |                          |
| 95-49-8    | o-Chlorotoluene                        |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|---|---|--|-------------------------------------|--------------------------|
| 96-69-5    | Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide |   |  |                                     |                          |
| 98-51-1    | p-tert-Butyltoluene                                 |   |  |                                     |                          |
| 98-83-9    | Methylstyrene                                       |   |  |                                     |                          |
| 10025-67-9 | Sulfur monochloride                                 |   |  |                                     |                          |
| 10025-87-3 | Phosphorus oxychloride                              |   |  |                                     |                          |
| 10026-13-8 | Phosphorus pentachloride                            |   |  |                                     |                          |
| 10035-10-6 | Hydrogen bromide                                    |   |  |                                     |                          |
| 100-37-8   | Diethylaminoethanol                                 |   |  |                                     |                          |
| 100-61-8   | N-Methylbenzenamine                                 |   |  |                                     |                          |
| 100-63-0   | Phenylhydrazine                                     |   |  |                                     |                          |
| 100-74-3   | N-Ethylmorpholine                                   |   |  |                                     |                          |
| 10102-43-9 | Nitric oxide  |   |  |                                     |                          |
| 10210-68-1 | Cobalt carbonyl as Co                               |   |  |                                     |                          |
| 102-54-5   | Dicyclopentadienyl iron                             |   |  |                                     |                          |
| 102-81-8   | 2-N-Dibutylaminoethanol                             |   |  |                                     |                          |
| 10294-33-4 | Boron tribromide                                    |   |  |                                     |                          |
| 105-46-4   | sec-Butyl acetate                                   |   |  |                                     |                          |
| 105-60-2   | Caprolactam, vapor                                  |   |  |                                     |                          |
| 105-60-2a  | Caprolactam, dust                                   |   |  |                                     |                          |
| 106-49-0   | p-Toluidine   |   |  |                                     |                          |
| 106-51-4   | p-Benzoquinone                                      |   |  |                                     |                          |
| 106-87-6   | Vinyl cyclohexene dioxide                           |   |  |                                     |                          |
| 106-92-3   | Allyl glycidyl ether                                |   |  |                                     |                          |
| 107-07-3   | Ethylene chlorohydrin                               |   |  |                                     |                          |
| 107-15-3   | Ethylene diamine                                    |   |  |                                     |                          |
| 107-19-7   | Propargyl alcohol                                   |   |  |                                     |                          |
| 107-20-0   | Chloroacetaldehyde                                  |   |  |                                     |                          |
| 107-41-5   | Hexylene glycol                                     |   |  |                                     |                          |
| 107-49-3   | Tetraethyl pyrophosphate                            |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                         | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|-------------------------------------|---|--|-------------------------------------|--------------------------|
| 108-11-2  | Methyl isobutyl carbinol            |   |  |                                     |                          |
| 108-18-9  | Diisopropylamine                    |   |  |                                     |                          |
| 108-21-4  | Isopropyl acetate                   |   |  |                                     |                          |
| 108-24-7  | Acetic anhydride                    |   |  |                                     |                          |
| 108-43-0  | Chlorophenols                       |   |  |                                     |                          |
| 108-44-1  | m-Toluidine                         |   |  |                                     |                          |
| 108-46-3  | Resorcinol (1,3-Benzenediol)        |   |  |                                     |                          |
| 108-83-8  | Diisobutyl ketone                   |   |  |                                     |                          |
| 108-84-9  | sec-Hexyl acetate                   |   |  |                                     |                          |
| 108-91-8  | Cyclohexylamine                     |   |  |                                     |                          |
| 108-98-5  | Thiophenol                          |   |  |                                     |                          |
| 109-59-1  | Isopropoxyethanol                   |   |  |                                     |                          |
| 109-60-4  | n-Propyl acetate                    |   |  |                                     |                          |
| 109-73-9  | n-Butylamine                        |   |  |                                     |                          |
| 109-79-5  | n-Butyl mercaptan                   |   |  |                                     |                          |
| 109-87-5  | Methylal                            |   |  |                                     |                          |
| 109-89-7  | Diethylamine                        |   |  |                                     |                          |
| 109-94-4  | Ethyl formate                       |   |  |                                     |                          |
| 110-19-0  | Isobutyl acetate                    |   |  |                                     |                          |
| 110-54-3D | Hexane, other isomers               |   |  |                                     |                          |
| 110-91-8  | Morpholine                          |   |  |                                     |                          |
| 111-40-0  | Diethylene triamine                 |   |  |                                     |                          |
| 111-46-6D | Glycol ethers                       |   |  |                                     |                          |
| 115-29-7  | Endosulfan                          |   |  |                                     |                          |
| 115-86-6  | Triphenyl phosphate                 |   |  |                                     |                          |
| 115-90-2  | Fensulfothion                       |   |  |                                     |                          |
| 118-52-5  | 1,3-Dichloro-5,5-Dimethyl hydantoin |   |  |                                     |                          |
| 118-96-7  | 2,4,6-Trinitrotoluene               |   |  |                                     |                          |
| 1189-85-1 | tert-Butyl chromate, as CrO3        |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#        | Constituent   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-------------|---|---|--|-------------------------------------|--------------------------|
| 119-90-4    | 3,3'-Dimethoxybenzidine                               |   |  |                                     |                          |
| 119-93-7    | 3,3'-Dimethylbenzidine.                               |   |  |                                     |                          |
| 12079-65-1  | Manganese cyclopentadienyl tricarbonyl                |   |  |                                     |                          |
| 120-80-9    | Catechol  |   |  |                                     |                          |
| 12108-13-3  | Methylcyclopentadienylmanganese tricarbonyl           |   |  |                                     |                          |
| 12125-02-9  | Ammonium chloride (fume)                              |   |  |                                     |                          |
| 121-45-9    | Trimethyl phosphite                                   |   |  |                                     |                          |
| 121-75-5    | Malathion   |   |  |                                     |                          |
| 121-82-4    | Cyclonite   |   |  |                                     |                          |
| 122-60-1    | Phenyl glycidyl ether                                 |   |  |                                     |                          |
| 123-42-2    | Diacetone alcohol                                     |   |  |                                     |                          |
| 123-92-2    | Isoamyl acetate                                       |   |  |                                     |                          |
| 124-40-3    | Dimethylamine   |   |  |                                     |                          |
| 12604-58-9  | Ferrovandium dust                                     |   |  |                                     |                          |
| 126-85-2    | Nitrogen mustard N-oxide                              |   |  |                                     |                          |
| 1300-73-8   | Xylidine  |   |  |                                     |                          |
| 1303-86-2   | Boron oxide   |   |  |                                     |                          |
| 1303-96-4Ca | Borates, anhydrous                                    |   |  |                                     |                          |
| 1303-96-4Cb | Borates, pentahydrate                                 |   |  |                                     |                          |
| 1303-96-4Cc | Borates, decahydrate                                  |   |  |                                     |                          |
| 1304-82-1   | Bismuth telluride                                     |   |  |                                     |                          |
| 1305-62-0   | Calcium hydroxide                                     |   |  |                                     |                          |
| 1305-78-8   | Calcium oxide   |   |  |                                     |                          |
| 1309-37-1   | Iron oxide fume, Fe <sub>2</sub> O <sub>3</sub> as Fe |   |  |                                     |                          |
| 1309-48-4   | Magnesium oxide fume                                  |   |  |                                     |                          |
| 1310-58-3   | Potassium hydroxide                                   |   |  |                                     |                          |
| 13121-70-5  | Cyhexatin   |   |  |                                     |                          |
| 1314-13-2   | Zinc oxide, fume                                      |   |  |                                     |                          |
| 1314-20-1   | Thorium dioxide                                       |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#        | Constituent  | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-------------|--|---|--|-------------------------------------|--------------------------|
| 1314-80-3   | Phosphorus pentasulfide                                    |   |  |                                     |                          |
| 1319-77-3a  | Cresols, syn Cresylic acid                                 |   |  |                                     |                          |
| 1321-74-0   | Divinyl benzene  |   |  |                                     |                          |
| 1333-86-4   | Carbon black   |   |  |                                     |                          |
| 1338-23-4   | Methyl ethyl ketone peroxide                               |   |  |                                     |                          |
| 133-90-4    | Chloramben   |   |  |                                     |                          |
| 13463-40-6  | Iron pentacarbonyl, as Fe                                  |   |  |                                     |                          |
| 13494-80-9C | Tellurium & compounds as Te                                |   |  |                                     |                          |
| 13530-65-9  | Zinc chromates   |   |  |                                     |                          |
| 136-78-7    | Sesone   |   |  |                                     |                          |
| 137-05-3    | Methyl-2-cyanoacrylate                                     |   |  |                                     |                          |
| 137-26-8    | Thiram   |   |  |                                     |                          |
| 138-22-7    | n-Butyl lactate  |   |  |                                     |                          |
| 13838-16-9  | Enflurane  |   |  |                                     |                          |
| 1395-21-7   | Subtilisins  |   |  |                                     |                          |
| 139-91-3    | 5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone) |   |  |                                     |                          |
| 140-88-5    | Ethylacrylate  |   |  |                                     |                          |
| 141-32-2    | Butylacrylate  |   |  |                                     |                          |
| 141-43-5    | Ethanolamine   |   |  |                                     |                          |
| 141-66-2    | Dicrotophos  |   |  |                                     |                          |
| 142-64-3    | Piperazine dihydrochloride                                 |   |  |                                     |                          |
| 14484-64-1  | Ferbam   |   |  |                                     |                          |
| 1477-55-0   | m-Xylene-a,a'-diamine                                      |   |  |                                     |                          |
| 148-01-6    | Dinitolamide   |   |  |                                     |                          |
| 14977-61-8  | Chromylchloride  |   |  |                                     |                          |
| 150-76-5    | 4-Methoxyphenol  |   |  |                                     |                          |
| 151-67-7    | Halothane  |   |  |                                     |                          |
| 156-62-7    | Calcium cyanamide  |   |  |                                     |                          |
| 1615-80-1   | N,N'-Diethylhydrazine                                      |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                              | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|--|---|--|-------------------------------------|--------------------------|
| 16219-75-3 | Ethylidene norbornene                    |   |  |                                     |                          |
| 16842-03-8 | Cobalt hydrocarbonyl                     |   |  |                                     |                          |
| 17702-41-9 | Decaborane                               |   |  |                                     |                          |
| 1912-24-9  | Atrazine                                 |   |  |                                     |                          |
| 1918-02-1  | Picloram                                 |   |  |                                     |                          |
| 19287-45-7 | Diborane                                 |   |  |                                     |                          |
| 1929-82-4  | Nitrapyrin                               |   |  |                                     |                          |
| 19624-22-7 | Pentaborane                              |   |  |                                     |                          |
| 2039-87-4  | o-Chlorostyrene                          |   |  |                                     |                          |
| 20816-12-0 | Osmium tetroxide                         |   |  |                                     |                          |
| 2104-64-5  | EPN                                      |   |  |                                     |                          |
| 21087-64-9 | Metribuzin                               |   |  |                                     |                          |
| 21351-79-1 | Cesium hydroxide                         |   |  |                                     |                          |
| 2179-59-1  | Allyl propyl disulfide                   |   |  |                                     |                          |
| 22224-92-6 | Fenamiphos                               |   |  |                                     |                          |
| 2238-07-5  | Diglycidyl ether                         |   |  |                                     |                          |
| 2426-08-6  | n-Butyl glycidyl ether                   |   |  |                                     |                          |
| 2465-27-2  | Auramine (technical grade)               |   |  |                                     |                          |
| 25013-15-4 | Vinyl toluene                            |   |  |                                     |                          |
| 2551-62-4  | Sulfur hexafluoride                      |   |  |                                     |                          |
| 25639-42-3 | Methylcyclohexanol                       |   |  |                                     |                          |
| 2646-17-5  | Oil orange SS                            |   |  |                                     |                          |
| 26628-22-8 | Sodium azide                             |   |  |                                     |                          |
| 26952-21-6 | Iso-ocetyl alcohol                       |   |  |                                     |                          |
| 2698-41-1  | o-Chlorobenzylidene malonitrile          |   |  |                                     |                          |
| 2699-79-8  | Sulfuryl fluoride                        |   |  |                                     |                          |
| 28434-86-8 | 3,3'-Dichloro-4,4'-diaminodiphenyl ether |   |  |                                     |                          |
| 29191-52-4 | Anisidine (o-,p- isomers)                |   |  |                                     |                          |
| 2921-88-2  | Chlorpyrifos                             |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                                 | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|---|---|--|-------------------------------------|--------------------------|
| 2971-90-6  | Clopidol                                    |   |  |                                     |                          |
| 299-84-3   | Ronnel                                      |   |  |                                     |                          |
| 299-86-5   | Crufomate                                   |   |  |                                     |                          |
| 300-76-5   | Naled                                       |   |  |                                     |                          |
| 302-70-5   | Nitrogen mustard N-oxide hydrochloride      |   |  |                                     |                          |
| 314-40-9   | Bromacil                                    |   |  |                                     |                          |
| 330-54-1   | Diuron                                      |   |  |                                     |                          |
| 3333-52-6  | Tetramethyl succinonitrile                  |   |  |                                     |                          |
| 334-88-3   | Diazomethane                                |   |  |                                     |                          |
| 3383-96-8  | Temephos                                    |   |  |                                     |                          |
| 34590-94-8 | Dipropylene glycol methyl ether             |   |  |                                     |                          |
| 353-50-4   | Carbon oxyfluoride                          |   |  |                                     |                          |
| 35400-43-2 | Sulprofos                                   |   |  |                                     |                          |
| 3547-04-4  | DDE (p,p'-Dichlorodiphenyldichloroethylene) |   |  |                                     |                          |
| 3687-31-8  | Lead arsenate, as Pb3 (A2O4)2               |   |  |                                     |                          |
| 3689-24-5  | Tetraethyldithiopyrophosphate (TEDP)        |   |  |                                     |                          |
| 4016-14-2  | Isopropyl glycidyl ether (IGE)              |   |  |                                     |                          |
| 4098-71-9  | Isophorone diisocyanate                     |   |  |                                     |                          |
| 420-04-2   | Cyanamide                                   |   |  |                                     |                          |
| 460-19-5   | Cyanogen                                    |   |  |                                     |                          |
| 463-51-4   | Ketene                                      |   |  |                                     |                          |
| 463-58-1   | Carbon oxide sulfide (COS)                  |   |  |                                     |                          |
| 4685-14-7  | Paraquat                                    |   |  |                                     |                          |
| 479-45-8   | Tetryl                                      |   |  |                                     |                          |
| 506-77-4   | Cyanogen chloride                           |   |  |                                     |                          |
| 509-14-8   | Tetranitromethane                           |   |  |                                     |                          |
| 5124-30-1  | Methylene-bis-(4-cyclo-hexylisocyanate)     |   |  |                                     |                          |
| 540-88-5   | tert-Butyl acetate                          |   |  |                                     |                          |
| 541-85-5   | Ethyl amyl ketone                           |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#       | Constituent                                      | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------------|--|---|--|-------------------------------------|--------------------------|
| 542-92-7   | Cyclopentadiene                                  |   |  |                                     |                          |
| 552-30-7   | Trimellitic anhydride                            |   |  |                                     |                          |
| 55-38-9    | Fenthion   |   |  |                                     |                          |
| 555-84-9   | 1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone |   |  |                                     |                          |
| 55-63-0    | Nitroglycerin                                    |   |  |                                     |                          |
| 556-52-5   | Glycidol   |   |  |                                     |                          |
| 55720-99-5 | Chlorinated diphenyl oxide                       |   |  |                                     |                          |
| 558-13-4   | Carbon tetrabromide                              |   |  |                                     |                          |
| 563-12-2   | Ethion   |   |  |                                     |                          |
| 5714-22-7  | Sulfur pentafluoride                             |   |  |                                     |                          |
| 57-24-9    | Strychnine                                       |   |  |                                     |                          |
| 583-60-8   | o-Methylcyclohexanone                            |   |  |                                     |                          |
| 592-62-1   | Methyl azoxymethyl acetate                       |   |  |                                     |                          |
| 59355-75-8 | Methyl acetylene-propadiene mixture (MAPP)       |   |  |                                     |                          |
| 594-42-3   | Perchloromethyl mercaptan                        |   |  |                                     |                          |
| 594-72-9   | 1,1-Dichloro-1-nitroethane                       |   |  |                                     |                          |
| 600-25-9   | 1-Chloro-1-nitropropane                          |   |  |                                     |                          |
| 613-35-4   | N,N-Diacetylbenzidine                            |   |  |                                     |                          |
| 626-17-5   | m-Phthalodinitrile                               |   |  |                                     |                          |
| 626-38-0   | sec-Amyl acetate                                 |   |  |                                     |                          |
| 62-74-8    | Fluoroacetic acid, sodium salt (Fratol)          |   |  |                                     |                          |
| 628-63-7   | n-Amyl acetate                                   |   |  |                                     |                          |
| 628-96-6   | Ethylene glycol dinitrate                        |   |  |                                     |                          |
| 638-21-1   | Phenylphosphine                                  |   |  |                                     |                          |
| 64091-91-4 | 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone   |   |  |                                     |                          |
| 64-67-5    | Diethyl sulfate                                  |   |  |                                     |                          |
| 67-45-8    | Furazolidone                                     |   |  |                                     |                          |
| 680-31-9   | Hexamethylphosphoramide                          |   |  |                                     |                          |
| 68-11-1    | Thioglycolic acid                                |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#        | Constituent                     | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-------------|---------------------------------|---|--|-------------------------------------|--------------------------|
| 681-84-5    | Methyl silicate                 |   |  |                                     |                          |
| 68476-85-7  | Liquified petroleum gas         |   |  |                                     |                          |
| 6923-22-4   | Monocrotophos                   |   |  |                                     |                          |
| 696-28-6    | Dichlorophenylarsine            |   |  |                                     |                          |
| 7429-90-5Ca | Aluminum, Al alkyls             |   |  |                                     |                          |
| 7429-90-5Cb | Aluminum, as AL pyro powders    |   |  |                                     |                          |
| 7429-90-5Cc | Aluminum, as Al soluble salts   |   |  |                                     |                          |
| 7429-90-5Ce | Aluminum, as Al welding fumes   |   |  |                                     |                          |
| 7439-89-6D  | Iron salts, soluble as Fe       |   |  |                                     |                          |
| 7439-96-5Cb | Manganese fume                  |   |  |                                     |                          |
| 7439-97-6Ca | Mercury, Aryl & inorganic cmpd  |   |  |                                     |                          |
| 7439-97-6Cb | Mercury, as Hg Alkyl compounds  |   |  |                                     |                          |
| 7439-97-6Cc | Mercury, vapors except alkyl    |   |  |                                     |                          |
| 7439-98-7Ca | Molybdenum, insoluble cpds      |   |  |                                     |                          |
| 7439-98-7Cb | Molybdenum, as Mo soluble cpds  |   |  |                                     |                          |
| 7440-02-0C  | Nickel compounds                |   |  |                                     |                          |
| 7440-06-4   | Platinum, metal                 |   |  |                                     |                          |
| 7440-06-4C  | Platinum, soluble salts as Pt   |   |  |                                     |                          |
| 7440-16-6Ca | Rhodium, insoluble compounds    |   |  |                                     |                          |
| 7440-16-6Cb | Rhodium, soluble compounds      |   |  |                                     |                          |
| 7440-22-4Da | Silver, soluble compounds as Ag |   |  |                                     |                          |
| 7440-25-7C  | Tantalum, metal & oxide dusts   |   |  |                                     |                          |
| 7440-28-0C  | Thallium, soluble compounds, Tl |   |  |                                     |                          |
| 7440-31-5a  | Tin, metal                      |   |  |                                     |                          |
| 7440-31-5C  | Tin, organic compounds, as Sn   |   |  |                                     |                          |
| 7440-33-7Ca | Tungsten, insoluble compounds   |   |  |                                     |                          |
| 7440-33-7Cb | Tungsten, soluble compounds     |   |  |                                     |                          |
| 7440-36-0C  | Antimony & compounds as Sb      |   |  |                                     |                          |
| 7440-39-3Da | Barium, soluble compounds Ba    |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#        | Constituent                       | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-------------|-----------------------------------|---|--|-------------------------------------|--------------------------|
| 7440-41-7a  | Beryllium powder                  |   |  |                                     |                          |
| 7440-47-3Db | Chromium (II) compounds, as Cr    |   |  |                                     |                          |
| 7440-47-3Dc | Chromium (III) compounds, Cr      |   |  |                                     |                          |
| 7440-58-6   | Hafnium                           |   |  |                                     |                          |
| 7440-61-1C  | Uranium, insoluble & soluble      |   |  |                                     |                          |
| 7440-65-5C  | Yttrium, metal and compounds as Y |   |  |                                     |                          |
| 7440-67-7C  | Zirconium compounds, as Zr        |   |  |                                     |                          |
| 7440-74-6C  | Indium, & compounds as In         |   |  |                                     |                          |
| 7446-27-7   | Lead phosphate                    |   |  |                                     |                          |
| 74-89-5     | Methylamine                       |   |  |                                     |                          |
| 74-93-1     | Thiomethanol                      |   |  |                                     |                          |
| 74-96-4     | Ethyl bromide                     |   |  |                                     |                          |
| 75-04-7     | Ethylamine                        |   |  |                                     |                          |
| 75-08-1     | Ethyl mercaptan                   |   |  |                                     |                          |
| 75-31-0     | Isopropylamine                    |   |  |                                     |                          |
| 75-47-8     | Iodoform                          |   |  |                                     |                          |
| 7572-29-4   | Dichloroacetylene                 |   |  |                                     |                          |
| 75-74-1     | Tetramethyl lead, as Pb           |   |  |                                     |                          |
| 7580-67-8   | Lithium hydride                   |   |  |                                     |                          |
| 7616-94-6   | Perchloryl fluoride               |   |  |                                     |                          |
| 76-22-2     | Camphor, synthetic                |   |  |                                     |                          |
| 7631-90-5   | Sodium bisulfite                  |   |  |                                     |                          |
| 764-41-0    | 1,4-Dichloro-2-butene             |   |  |                                     |                          |
| 7646-85-7   | Zinc chloride fume                |   |  |                                     |                          |
| 765-34-4    | Glycidylaldehyde                  |   |  |                                     |                          |
| 76737-07-2  | Boron trifluoride                 |   |  |                                     |                          |
| 7681-57-4   | Sodium metabisulfite              |   |  |                                     |                          |
| 768-52-5    | N-Isopropylaniline                |   |  |                                     |                          |
| 7719-09-7   | Thionyl chloride                  |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent                             | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|---|---|--|-------------------------------------|--------------------------|
| 7719-12-2 | Phosphorus trichloride                  |   |  |                                     |                          |
| 7722-84-1 | Hydrogen peroxide                       |   |  |                                     |                          |
| 7722-88-5 | Tetrasodium pyrophosphate               |   |  |                                     |                          |
| 7726-95-6 | Bromine                                 |   |  |                                     |                          |
| 7773-06-0 | Ammonium sulfamate                      |   |  |                                     |                          |
| 77-73-6   | Dicyclopentadiene                       |   |  |                                     |                          |
| 77-78-1   | Dimethyl sulfate                        |   |  |                                     |                          |
| 7782-65-2 | Germanium tetrahydride                  |   |  |                                     |                          |
| 7783-41-7 | Oxygen difluoride                       |   |  |                                     |                          |
| 7783-54-2 | Nitrogen trifluoride                    |   |  |                                     |                          |
| 7783-60-0 | Sulfur tetrafluoride                    |   |  |                                     |                          |
| 7783-79-1 | Selenium hexafluoride, as Se            |   |  |                                     |                          |
| 7783-80-4 | Tellurium hexafluoride, as Te           |   |  |                                     |                          |
| 7786-34-7 | Mevinphos                               |   |  |                                     |                          |
| 7789-30-2 | Bromine pentafluoride                   |   |  |                                     |                          |
| 7790-91-2 | Chlorine trifluoride                    |   |  |                                     |                          |
| 78-00-2   | Tetraethyl lead                         |   |  |                                     |                          |
| 7803-52-3 | Stibine                                 |   |  |                                     |                          |
| 7803-62-5 | Silicon tetrahydride                    |   |  |                                     |                          |
| 78-10-4   | Ethyl silicate                          |   |  |                                     |                          |
| 78-30-8   | Triorthocresyl phosphate                |   |  |                                     |                          |
| 78-34-2   | Dioxathion                              |   |  |                                     |                          |
| 79-04-9   | Chloroacetyl chloride                   |   |  |                                     |                          |
| 79-11-8   | Chloroacetic acid                       |   |  |                                     |                          |
| 79-24-3   | Nitroethane                             |   |  |                                     |                          |
| 79-27-6   | Acetylene tetrabromide                  |   |  |                                     |                          |
| 79-41-4   | Methacrylic acid                        |   |  |                                     |                          |
| 794-93-4  | Panfuran S (dihydroxymethylfuratrizine) |   |  |                                     |                          |
| 8001-58-9 | Creosote                                |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS#      | Constituent   | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|-----------|---|---|--|-------------------------------------|--------------------------|
| 8002-74-2 | Parafin wax fume                                    |   |  |                                     |                          |
| 8003-34-7 | Pyrethrum   |   |  |                                     |                          |
| 8006-64-2 | Turpentine  |   |  |                                     |                          |
| 8012-95-1 | Oil mist, mineral                                   |   |  |                                     |                          |
| 8022-00-2 | Methyl demeton                                      |   |  |                                     |                          |
| 8030-30-6 | Rubber solvent (Naphtha)                            |   |  |                                     |                          |
| 8032-32-4 | VM & P Naphtha                                      |   |  |                                     |                          |
| 8052-42-4 | Asphalt (petroleum) fumes                           |   |  |                                     |                          |
| 8065-48-3 | Demeton   |   |  |                                     |                          |
| 81-81-2   | Warfarin (>0.3%)                                    |   |  |                                     |                          |
| 81-81-2a  | Warfarin (<0.3%)                                    |   |  |                                     |                          |
| 83-26-1   | Pindone   |   |  |                                     |                          |
| 83-79-4   | Rotenone  |   |  |                                     |                          |
| 85-00-7   | Diquat  |   |  |                                     |                          |
| 86-50-0   | Azinphos-methyl                                     |   |  |                                     |                          |
| 86-88-4   | alpha-Naphthylthiourea                              |   |  |                                     |                          |
| 89-72-5   | o-sec-Butylphenol                                   |   |  |                                     |                          |
| 92-84-2   | Phenothiazine                                       |   |  |                                     |                          |
| 94-36-0   | Benzoyl Peroxide                                    |   |  |                                     |                          |
| 944-22-9  | Fonofos   |   |  |                                     |                          |
| 96-33-3   | Methyl acrylate                                     |   |  |                                     |                          |
| 97-77-8   | Disulfiram  |   |  |                                     |                          |
| 98-00-1   | Furfuryl alcohol                                    |   |  |                                     |                          |
| 98-01-1   | Furfural  |   |  |                                     |                          |
| 98-07-7   | Benzotrichloride                                    |   |  |                                     |                          |
| 999-61-1  | 2-Hydroxypropyl acrylate                            |   |  |                                     |                          |
| I4        | Aluminum smelter polyaromatic hydrocarbon emissions |   |  |                                     |                          |
| I51       | Cotton dust, raw                                    |   |  |                                     |                          |

**Table C-2 Original List of Toxic Air Pollutants (669 constituents)**

| CAS# | Constituent                     | Former Class A or B TAP and Retained by WAC Update <sup>a</sup> | Class A or B TAPs that Appear on Other RDQO Input Lists <sup>b</sup> | RDQO Input Update List <sup>c</sup> | TWINS / BBI <sup>d</sup> |
|------|---------------------------------|---|--|-------------------------------------|--------------------------|
| NA20 | Welding fumes                   |   |  |                                     |                          |
| NA21 | Polyaromatic hydrocarbons (PAH) |   |  |                                     |                          |
| NA23 | Fibrous glass dust              |   |  |                                     |                          |
| NA24 | Dioxins and furans              |   |  |                                     |                          |
| NA25 | Coke oven emissions             |   |  |                                     |                          |
| UN6  | Isopropyl oils                  |   |  |                                     |                          |
| UN8  | Nitrofurans                     |   |  |                                     |                          |

Notes:

- <sup>a</sup> Class A and B TAPS retained by WAC Update (209 constituents); See Appendix C, Section C.1 for disposition
- <sup>b</sup> TAPs removed by WAC Update that also were input to RDQO from other lists (42 constituents); See Appendix C, Table C-3 for disposition.
- <sup>c</sup> An “x” in the box indicates that the toxic air pollutant was identified in the updates to UTS/UHC and DST Part A constituent lists; see Appendix A, Table A-4.
- <sup>d</sup> Compound identified in TWINS sampling with more than 10 detects or listed in BBI
- <sup>e</sup> Note this compound does not appear on the RDQO input table B.2 although other RDQO tables list it as a TAP (See Appendix A, Table A-1).
- <sup>f</sup> Corrected CAS number from RDQO input Table B.2.

**Table C-3 Original List of Removed Toxic Air Pollutants that Appear On Other RDQO Input Lists (42 constituents)**

| CAS#     | Constituent                        | Disp-<br>osition <sup>a</sup> | Old WAC<br>TAPs Prior<br>to Update <sup>b</sup> |                    | Other Inputs to the RDQO <sup>c</sup> |                        |     |             |                         |             | Updates to<br>RDQO<br>Inputs<br>UHC/UTS<br>DST Part A <sup>d</sup> |            | TWINS/<br>BBI | Retained<br>in RDQO<br>(see<br>Table A-2) | Low-<br>Toxicity<br>Compound<br>(see<br>Table A-3) | Stack<br>Emission<br>Compounds <sup>f</sup> |   |
|----------|------------------------------------|-------------------------------|---|--------------------|---------------------------------------|------------------------|-----|-------------|-------------------------|-------------|--|------------|---------------|---|--|---|---|
|          |                                    |                               | Class<br>A<br>TAPs                              | Class<br>B<br>TAPs | UHC                                   | Part A-<br>DST/<br>SST | UTS | DST<br>WSPS | Flam-<br>mable<br>Gases | UHC/<br>UTS | DST<br>Part A  | EPA<br>PIC |               |   |  | Site<br>Specific<br>PIC                     |   |
|          |                                    |                               |   |                    |                                       |                        |     |             |                         |             |  |            |               |   |  |   |   |
| 108-94-1 | Cyclohexanone                      | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             | x   |  |   |   |
| 110-86-1 | Pyridine                           | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  | x          | x             | x   |  | x   |   |
| 120-82-1 | 1,2,4-Trichlorobenzene             | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            | x             | x   |  | x   | x |
| 122-39-4 | N,N-Diphenylamine                  | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  | x   |   |
| 126-98-7 | 2-Methyl-2-propenenitrile          | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  | x   |   |
| 141-78-6 | Acetic acid ethyl ester            | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             | x   |  |   |   |
| 67-64-1  | 2-Propanone (Acetone)              | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  | x          | x             | x   |  | x   | x |
| 71-36-3  | n-Butyl alcohol                    | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  | x          | x             | x   |  |   |   |
| 72-20-8  | Endrin                             | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  |   |   |
| 75-69-4  | Trichlorofluoromethane             | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           | x  |            | x             | x   |  | x   | x |
| 75-71-8  | Dichlorodifluoromethane            | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  | x   |   |
| 76-13-1  | 1,2,2-<br>Trichlorotrifluoroethane | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             | x   |  | x   |   |
| 82-68-8  | Pentachloronitrobenzene<br>(PCNB)  | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  | x   |   |
| 95-50-1  | 1,2-Dichlorobenzene                | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             | x   |  | x   | x |
| 98-86-2  | Acetophenone                       | 1                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               | x   |  | x   | x |
| 98-95-3  | Nitrobenzene                       | 1                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             | x   |  | x   | x |
| 60-29-7  | Ethyl ether                        | 2                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             |   | x  |   |   |
| 72-43-5  | Methoxychlor                       | 2                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               |   | x  | x   |   |
| 78-83-1  | 2-Methylpropyl alcohol             | 2                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             |   | x  |   |   |
| 84-66-2  | Diethyl phthalate                  | 2                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               |   | x  | x   | x |
| 84-74-2  | Di-n-butylphthalate                | 2                             |   | x                  | x                                     |                        | x   |             |                         | x           |  | x          | x             |   | x  | x   | x |
| 93-76-5  | 2,4,5-T                            | 2                             |   | x                  | x                                     |                        | x   |             |                         | x           |  |            |               |   | x  |   |   |
| 94-75-7  | 2,4-D                              | 2                             | x   |                    | x                                     |                        | x   |             |                         | x           |  |            |               |   | x  | x   |   |
| 95-95-4  | 2,4,5-Trichlorophenol              | 2                             |   | x                  | x                                     | x                      | x   |             |                         | x           | x  |            | x             |   | x  | x   |   |

**Table C-3 Original List of Removed Toxic Air Pollutants that Appear On Other RDQO Input Lists (42 constituents)**

| CAS#       | Constituent               | Disposition <sup>a</sup> | Old WAC TAPs Prior to Update <sup>b</sup> |              | Other Inputs to the RDQO <sup>c</sup> |                |     |          |                  |         | Updates to RDQO Inputs UHC/UTS DST Part A <sup>d</sup> |         | TWINS | TWINS/BBI | Retained in RDQO (see Table A-2) | Low-Toxicity Compound (see Table A-3) | Stack Emission Compounds <sup>f</sup> |   |
|------------|---------------------------|--------------------------|---|--------------|---------------------------------------|----------------|-----|----------|------------------|---------|--|---------|-------|-----------|----------------------------------|---------------------------------------|---------------------------------------|---|
|            |                           |                          | Class A TAPs                              | Class B TAPs | UHC                                   | Part A-DST/SST | UTS | DST WSPS | Flam-mable Gases | UHC/UTS | DST Part A   | EPA PIC |       |           |                                  |                                       | Site Specific PIC                     |   |
|            |                           |                          |   |              |                                       |                |     |          |                  |         |  |         |       |           |                                  |                                       |                                       |   |
| 100-02-7   | 4-Nitrophenol             | 3                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       | x         |                                  |                                       | x                                     | x |
| 57-12-5    | Cyanide                   | 4                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       | x                                     |   |
| 7440-22-4  | Silver                    | 4                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       |       |           |                                  |                                       | x                                     |   |
| 7440-47-3  | Chromium                  | 4                        |   | x            | x                                     |                |     | x        | x                |         | x  | x       |       |           |                                  |                                       | x                                     |   |
| 131-11-3   | Dimethyl phthalate        | 5                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       | x                                     |   |
| 51-28-5    | 2,4-Dinitrophenol         | 5                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       | x                                     | x |
| 534-52-1   | 4,6-Dinitro-o-cresol      | 5                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       | x                                     | x |
| 74-88-4    | Iodomethane               | 6                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       | x |
| 100-01-6   | 4-Nitroaniline            | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 114-26-1   | Propoxur                  | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 126-99-8   | Chloroprene               | 7                        | x   |              | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 1563-66-2  | Carbofuran                | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 16752-77-5 | Methomyl                  | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 17804-35-2 | Benomyl                   | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 298-00-0   | Methyl parathion          | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 298-02-2   | Phorate                   | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 56-38-2    | Parathion                 | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 63-25-2    | Carbaryl                  | 7                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           |                                  |                                       |                                       |   |
| 108-94-1   | Cyclohexanone             | 1                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       |       | x         | x                                |                                       |                                       |   |
| 110-86-1   | Pyridine                  | 1                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       | x     | x         | x                                |                                       | x                                     |   |
| 120-82-1   | 1,2,4-Trichlorobenzene    | 1                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       | x         | x                                |                                       | x                                     | x |
| 122-39-4   | N,N-Diphenylamine         | 1                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           | x                                |                                       | x                                     |   |
| 126-98-7   | 2-Methyl-2-propenenitrile | 1                        |   | x            | x                                     |                |     | x        |                  |         | x  |         |       |           | x                                |                                       | x                                     |   |
| 141-78-6   | Acetic acid ethyl ester   | 1                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       |       | x         | x                                |                                       |                                       |   |
| 67-64-1    | 2-Propanone (Acetone)     | 1                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       | x     | x         | x                                |                                       | x                                     | x |
| 71-36-3    | n-Butyl alcohol           | 1                        |   | x            | x                                     |                | x   | x        |                  |         | x  | x       | x     | x         | x                                |                                       |                                       |   |

**Table C-3 Original List of Removed Toxic Air Pollutants that Appear On Other RDQO Input Lists (42 constituents)**

| CAS# | Constituent | Disposition <sup>a</sup> | Old WAC TAPs Prior to Update <sup>b</sup> |              | Other Inputs to the RDQO <sup>c</sup> |                 |     |          |                  | Updates to RDQO Inputs UHC/UTS DST Part A <sup>d</sup> |            | TWINS/ BBI | Retained in RDQO (see Table A-2) | Low-Toxicity Compound (see Table A-3) | Stack Emission Compounds <sup>f</sup> |                   |
|------|-------------|--------------------------|---|--------------|---------------------------------------|-----------------|-----|----------|------------------|--|------------|------------|----------------------------------|---------------------------------------|---------------------------------------|-------------------|
|      |             |                          | Class A TAPs                              | Class B TAPs | UHC                                   | Part A-DST/ SST | UTS | DST WSPS | Flam-mable Gases | UHC/ UTS   | DST Part A |            |                                  |                                       | EPA PIC                               | Site Specific PIC |

<sup>a</sup> Disposition Codes:

- 1 Toxic air pollutants removed by TAPs updates that were previously evaluated as other inputs to the RDQO and retained as WTP feed COPCs; no additions to the previous COPC list.
- 2 Low-toxicity organic compounds added by agreement with Ecology/EPA; retained as WTP feed COPCs; no additions to the previous COPC list.
- 3 Organic compounds added as a result of evaluation of updates to RDQO inputs (UHC/UTS, DST Part A)
- 4 Inorganic compounds that are addressed as individual cations or anions in the tank liquid; no additions to the previous COPC list. Note, total chromium was listed as an old TAP; the RDQO retained hexavalent chromium.
- 5 Compounds that appear as EPA PICs and will be measured in stack emissions (Appendix E).
- 6 Compounds that appear as site-specific PICs and will be measured in stack emissions (Appendix F).
- 7 Eliminated because they have < 10 detects in TWINS and no BBI values were found.

<sup>b</sup> Prior to the May 2009 update, WAC 173-460 identified two classes of TAPS, Class A and B; an “x” in the box identifies the class of the TAP.

<sup>c</sup> An “x” in the box indicates that the toxic air pollutant was identified as an input to the Regulatory DQO because it appears on the Underlying Hazardous Constituents (UHC) list (40 CFR 268.2(i), the Universal Treatment Standards (UTS) list (40 CFR 268), the Double Shell Tank RCRA Part A permit application (DOE-RL 1991), or the Double Shell Tank Waste Stream Profile Sheet constituents.

<sup>d</sup> An “x” in the box indicates that the toxic air pollutant was identified in the updates to UTS/UHC and DST Part A constituent lists; see Appendix A, Table A-4.

<sup>e</sup> An “x” in the box indicates that the compound either has more than 10 detects from previous tank sampling activities and is recorded in the TWINS data base or that the Best Basis Inventory (BBI) effort has identified the possibility that it was discarded to the Hanford tanks and has estimated a quantity.

<sup>f</sup> The stack emissions compounds were predicted to be present in combustor stack emissions (Appendix E) or has been measured by WTP in Melter research testing (Appendix F). An “x” in the box indicates the source.

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#      | Constituent                        | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-----------|------------------------------------|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|           |                                    |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 126-73-8  | Tributyl phosphate                 | 1                        | B                                     | x  | x   |                                       |                   | x                                |  | x                                  |
| 128-37-0  | 2,6-Bis(tert-butyl)-4-methylphenol | 1                        | B                                     |  | x   |                                       |                   | x                                |  | x                                  |
| 591-78-6  | 2-Hexanone                         | 1                        | B                                     | x  |     |                                       | x                 | x                                |  | x                                  |
| 60-34-4   | Methylhydrazine                    | 2                        | B                                     |  |     |                                       |                   | x                                |  | x                                  |
| 92-52-4   | 1,1'-Biphenyl                      | 2                        | B                                     |  |     | x                                     | x                 | x                                |  | x                                  |
| 108-87-2  | Methylcyclohexane                  | 3                        | B                                     |  |     | x                                     |                   | x                                |  |                                    |
| 109-99-9  | Tetrahydrofuran                    | 3                        | B                                     |  |     | x                                     |                   | x                                |  |                                    |
| 123-38-6  | n-Propionaldehyde                  | 3                        | B                                     |  |     | x                                     |                   | x                                |  |                                    |
| 4170-30-3 | 2-Butenaldehyde                    | 3                        | B                                     |  |     | x                                     |                   | x                                |  |                                    |
| 64-18-6   | Formic acid                        | 3                        | B                                     |  |     | x                                     |                   | x                                |  |                                    |
| 110-83-8  | Cyclohexene                        | 4                        | B                                     |  |     |                                       | x                 | x                                |  |                                    |
| 111-65-9  | n-Octane                           | 4                        | B                                     |  |     |                                       | x                 | x                                |  |                                    |
| 111-84-2  | n-Nonane                           | 4                        | B                                     |  |     |                                       | x                 | x                                |  |                                    |
| 100-00-5  | p-Nitrochlorobenzene h             | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 106-35-4  | 3-Heptanone                        | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 106-97-8  | Butane                             | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 107-87-9  | 2-Pentanone                        | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 109-66-0  | n-Pentane                          | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 110-12-3  | 5-Methyl-2-hexanone                | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 110-43-0  | 2-Heptanone                        | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 123-19-3  | 4-Heptanone                        | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 123-86-4  | Acetic acid n-butyl ester          | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 1321-64-8 | Pentachloronaphthalene             | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 1335-87-1 | Hexachloronaphthalene              | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 1335-88-2 | Tetrachloronaphthalene             | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 142-82-5  | n-Heptane                          | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#      | Constituent                            | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-----------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|           |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 144-62-7  | Oxalic acid                            | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 2234-13-1 | Octachloronaphthalene                  | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 287-92-3  | Cyclopentane                           | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 3825-26-1 | Ammonium perfluorooctanoate            | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 563-80-4  | 3-Methyl-2-butanone                    | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 627-13-4  | Nitric acid, propyl ester              | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 64-17-5   | Ethyl alcohol                          | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 64-19-7   | Acetic acid                            | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 684-16-2  | Hexafluoroacetone                      | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 71-23-8   | n-Propyl alcohol                       | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 75-43-4   | Dichlorofluoromethane                  | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 75-65-0   | 2-Methyl-2-propanol                    | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 76-14-2   | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 78-92-2   | 1-Methylpropyl alcohol                 | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 88-89-1   | Picric acid                            | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 96-22-0   | 3-Pentanone                            | 5                        | B                                     |  |     |                                       |                   | x                                |  |                                    |
| 75-50-3   | Trimethylamine                         | 6                        | B                                     |  |     |                                       |                   |                                  | x  | x                                  |
| 132-64-9  | Dibenzofuran                           | 7                        | A                                     |  |     | x                                     | x                 |                                  | x  |                                    |
| 540-84-1  | 2,2,4-Trimethylpentane                 | 7                        | B                                     |  |     | x                                     |                   |                                  | x  |                                    |
| 74-97-5   | Bromochloromethane                     | 7                        | B                                     |  |     | x                                     | x                 |                                  | x  |                                    |
| 91-22-5   | Quinoline                              | 7                        | B                                     |  |     | x                                     |                   |                                  | x  |                                    |
| 98-83-9   | Methylstyrene                          | 7                        | B                                     |  |     | x                                     |                   |                                  | x  |                                    |
| 540-59-0  | 1,2-Dichloroethylene                   | 8                        | B                                     |  |     |                                       | x                 |                                  | x  |                                    |
| 95-49-8   | o-Chlorotoluene                        | 8                        | B                                     |  |     |                                       | x                 |                                  | x  |                                    |
| 101-84-8  | Diphenyl ether                         | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 107-18-6  | 2-Propen-1-ol                          | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                            | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 107-31-3   | Formic acid, methyl ester              | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 107-66-4   | Dibutylphosphate                       | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 108-03-2   | 1-Nitropropane                         | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 108-20-3   | Bis(isopropyl) ether                   | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 108-93-0   | Cyclohexanol                           | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 110-62-3   | n-Valeraldehyde                        | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 121-69-7   | Dimethylaniline                        | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 123-51-3   | 3-Methyl-1-butanol                     | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 127-19-5   | N,N-Dimethylacetamide                  | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 1321-65-9  | Trichloronaphthalene                   | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 141-79-7   | 4-Methyl-3-penten-2-one                | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 1582-09-8  | Trifluralin                            | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 25551-13-7 | Trimethyl benzene                      | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 26140-60-3 | Terphenyls                             | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 603-34-9   | Triphenyl amine                        | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 74-99-7    | Methylacetylene                        | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-12-7    | Formamide                              | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-52-5    | Nitromethane                           | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-55-8    | 2-Methylaziridine                      | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-61-6    | Difluorodibromomethane                 | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-63-8    | Trifluorobromomethane                  | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 75-99-0    | 2,2-Dichloropropionic acid             | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 76-03-9    | Trichloroacetic acid                   | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 76-11-9    | 1,1,1,2-Tetrachloro-2,2-difluoroethane | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 76-12-0    | 1,1,2,2-Tetrachloro-1,2-difluoroethane | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |
| 76-15-3    | Chloropentafluoroethane                | 9                        | B                                     |  |     |                                       |                   |                                  | x  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#        | Constituent  | Dis-<br>position <sup>a</sup> | Old WAC<br>Class<br>A or B<br>TAP <sup>b</sup> | Hanford Tank<br>Organic<br>Compounds<br>Identification <sup>c</sup> |     | Stack<br>Emission<br>Compounds <sup>d</sup> |                              | Table A-2<br>RDQO<br>COPC <sup>e</sup> | Table A-3<br>Low-<br>Toxicity<br>Compound <sup>f</sup> | CHG<br>Vapor<br>Study<br>Input <sup>g</sup> |
|-------------|--|-------------------------------|--|---|-----|---|------------------------------|--|--|---|
|             |  |                               |  | TWINS   | BBI | EPA<br>PIC                                  | Site<br>Spe-<br>cific<br>PIC |  |  |   |
| 79-09-4     | Propanoic acid   | 9                             | B  |   |     |   |                              |  | x  |   |
| 79-20-9     | Methyl acetate   | 9                             | B  |   |     |   |                              |  | x  |   |
| 88-72-2     | Nitrotoluene   | 9                             | B  |   |     |   |                              |  | x  |   |
| 92-93-3     | 4-Nitrobiphenyl  | 9                             | B  |   |     |   |                              |  | x  |   |
| 95-13-6     | Indene   | 9                             | B  |   |     |   |                              |  | x  |   |
| 96-69-5     | Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)<br>sulfide | 9                             | B  |   |     |   |                              |  | x  |   |
| 98-51-1     | p-tert-Butyltoluene                                    | 9                             | B  |   |     |   |                              |  | x  |   |
| 7429-90-5   | Aluminum   | 10                            | B  |   |     |   |                              |  |  |   |
| 7440-16-6   | Rhodium Metal  | 10                            | B  |   |     |   |                              |  |  |   |
| 7440-31-5   | Tin, oxide & inorganic except SnH4                     | 10                            | B  |   |     |   |                              |  |  |   |
| 7440-50-8   | Copper   | 10                            | B  |   |     | x   |                              |  |  |   |
| 7553-56-2   | Iodine   | 10                            | B  |   |     |   |                              |  |  |   |
| 10025-67-9  | Sulfur monochloride                                    | 11                            | B  |   |     |   |                              |  |  |   |
| 10025-87-3  | Phosphorus oxychloride                                 | 11                            | B  |   |     |   |                              |  |  |   |
| 10026-13-8  | Phosphorus pentachloride                               | 11                            | B  |   |     |   |                              |  |  |   |
| 10035-10-6  | Hydrogen bromide                                       | 11                            | B  |   |     |   |                              |  |  |   |
| 10102-43-9  | Nitric oxide   | 11                            | B  |   |     |   |                              |  |  |   |
| 10210-68-1  | Cobalt carbonyl as Co                                  | 11                            | B  |   |     |   |                              |  |  |   |
| 10294-33-4  | Boron tribromide                                       | 11                            | B  |   |     |   |                              |  |  |   |
| 1303-86-2   | Boron oxide  | 11                            | B  |   |     |   |                              |  |  |   |
| 1303-96-4Ca | Borates, anhydrous                                     | 11                            | B  |   |     |   |                              |  |  |   |
| 1303-96-4Cb | Borates, pentahydrate                                  | 11                            | B  |   |     |   |                              |  |  |   |
| 1303-96-4Cc | Borates, decahydrate                                   | 11                            | B  |   |     |   |                              |  |  |   |
| 1304-82-1   | Bismuth telluride                                      | 11                            | B  |   |     |   |                              |  |  |   |
| 1305-62-0   | Calcium hydroxide                                      | 11                            | B  |   |     |   |                              |  |  |   |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#        | Constituent  | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-------------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|             |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 1305-78-8   | Calcium oxide  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1309-37-1   | Iron oxide fume, Fe <sub>2</sub> O <sub>3</sub> as Fe              | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1309-48-4   | Magnesium oxide fume   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1310-58-3   | Potassium hydroxide  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1314-13-2   | Zinc oxide, fume   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1314-20-1   | Thorium dioxide  | 11                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 1314-80-3   | Phosphorus pentasulfide  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1333-86-4   | Carbon black   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 13463-40-6  | Iron pentacarbonyl, as Fe  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 13494-80-9C | Tellurium & compounds as Te  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 13530-65-9  | Zinc chromates   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 20816-12-0  | Osmium tetroxide   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 21351-79-1  | Cesium hydroxide   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2551-62-4   | Sulfur hexafluoride  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 353-50-4    | Carbon oxyfluoride   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 3687-31-8   | Lead arsenate, as Pb <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 463-58-1    | Carbon oxide sulfide (COS)   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 558-13-4    | Carbon tetrabromide  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 5714-22-7   | Sulfur pentafluoride   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7429-90-5Ca | Aluminum, Al alkyls  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7429-90-5Cb | Aluminum, as AL pyro powders                                       | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7429-90-5Cc | Aluminum, as Al soluble salts                                      | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7429-90-5Ce | Aluminum, as Al welding fumes                                      | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7439-89-6D  | Iron salts, soluble as Fe  | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7439-96-5Cb | Manganese fume   | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7439-97-6Ca | Mercury, Aryl & inorganic cmpd                                     | 11                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#        | Constituent                       | Dis-<br>position <sup>a</sup> | Old WAC<br>Class<br>A or B<br>TAP <sup>b</sup> | Hanford Tank<br>Organic<br>Compounds<br>Identification <sup>c</sup> |     | Stack<br>Emission<br>Compounds <sup>d</sup> |                              | Table A-2<br>RDQO<br>COPC <sup>e</sup> | Table A-3<br>Low-<br>Toxicity<br>Compound <sup>f</sup> | CHG<br>Vapor<br>Study<br>Input <sup>g</sup> |
|-------------|-----------------------------------|-------------------------------|--|---|-----|---|------------------------------|--|--|---|
|             |                                   |                               |  | TWINS   | BBI | EPA<br>PIC                                  | Site<br>Spe-<br>cific<br>PIC |  |  |   |
| 7439-97-6Cb | Mercury, as Hg Alkyl compounds    | 11                            | B  |   |     |   |                              |  |  |   |
| 7439-97-6Cc | Mercury, vapors except alkyl      | 11                            | B  |   |     |   |                              |  |  |   |
| 7439-98-7Ca | Molybdenum, insoluble cpds        | 11                            | B  |   |     |   |                              |  |  |   |
| 7439-98-7Cb | Molybdenum, as Mo soluble cpds    | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-02-0C  | Nickel compounds                  | 11                            | A  |   |     |   |                              |  |  |   |
| 7440-06-4   | Platinum, metal                   | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-06-4C  | Platinum, soluble salts as Pt     | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-16-6Ca | Rhodium, insoluble compounds      | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-16-6Cb | Rhodium, soluble compounds        | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-22-4Da | Silver, soluble compounds as Ag   | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-25-7C  | Tantalum, metal & oxide dusts     | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-28-0C  | Thallium, soluble compounds, Tl   | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-31-5a  | Tin, metal                        | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-31-5C  | Tin, organic compounds, as Sn     | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-33-7Ca | Tungsten, insoluble compounds     | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-33-7Cb | Tungsten, soluble compounds       | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-36-0C  | Antimony & compounds as Sb        | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-39-3Da | Barium, soluble compounds Ba      | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-41-7a  | Beryllium powder                  | 11                            | A  |   |     |   |                              |  |  |   |
| 7440-47-3Db | Chromium (II) compounds, as Cr    | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-47-3Dc | Chromium (III) compounds, Cr      | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-58-6   | Hafnium                           | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-61-1C  | Uranium, insoluble & soluble      | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-65-5C  | Yttrium, metal and compounds as Y | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-67-7C  | Zirconium compounds, as Zr        | 11                            | B  |   |     |   |                              |  |  |   |
| 7440-74-6C  | Indium, & compounds as In         | 11                            | B  |   |     |   |                              |  |  |   |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                   | Dis-<br>position <sup>a</sup> | Old WAC<br>Class<br>A or B<br>TAP <sup>b</sup> | Hanford Tank<br>Organic<br>Compounds<br>Identification <sup>c</sup> |     | Stack<br>Emission<br>Compounds <sup>d</sup> |                              | Table A-2<br>RDQO<br>COPC <sup>e</sup> | Table A-3<br>Low-<br>Toxicity<br>Compound <sup>f</sup> | CHG<br>Vapor<br>Study<br>Input <sup>g</sup> |
|------------|-------------------------------|-------------------------------|--|---|-----|---|------------------------------|--|--|---|
|            |                               |                               |  | TWINS   | BBI | EPA<br>PIC                                  | Site<br>Spe-<br>cific<br>PIC |  |  |   |
| 7446-27-7  | Lead phosphate                | 11                            | A  |   |     |   |                              |  |  |   |
| 75-74-1    | Tetramethyl lead, as Pb       | 11                            | B  |   |     |   |                              |  |  |   |
| 7580-67-8  | Lithium hydride               | 11                            | B  |   |     |   |                              |  |  |   |
| 7631-90-5  | Sodium bisulfite              | 11                            | B  |   |     |   |                              |  |  |   |
| 7646-85-7  | Zinc chloride fume            | 11                            | B  |   |     |   |                              |  |  |   |
| 76737-07-2 | Boron trifluoride             | 11                            | B  |   |     |   |                              |  |  |   |
| 7681-57-4  | Sodium metabisulfite          | 11                            | B  |   |     |   |                              |  |  |   |
| 7719-09-7  | Thionyl chloride              | 11                            | B  |   |     |   |                              |  |  |   |
| 7719-12-2  | Phosphorus trichloride        | 11                            | B  |   |     |   |                              |  |  |   |
| 7722-84-1  | Hydrogen peroxide             | 11                            | B  |   |     |   |                              |  |  |   |
| 7722-88-5  | Tetrasodium pyrophosphate     | 11                            | B  |   |     |   |                              |  |  |   |
| 7726-95-6  | Bromine                       | 11                            | B  |   |     |   |                              |  |  |   |
| 7773-06-0  | Ammonium sulfamate            | 11                            | B  |   |     |   |                              |  |  |   |
| 7782-65-2  | Germanium tetrahydride        | 11                            | B  |   |     |   |                              |  |  |   |
| 7783-41-7  | Oxygen difluoride             | 11                            | B  |   |     |   |                              |  |  |   |
| 7783-54-2  | Nitrogen trifluoride          | 11                            | B  |   |     |   |                              |  |  |   |
| 7783-60-0  | Sulfur tetrafluoride          | 11                            | B  |   |     |   |                              |  |  |   |
| 7783-79-1  | Selenium hexafluoride, as Se  | 11                            | B  |   |     |   |                              |  |  |   |
| 7783-80-4  | Tellurium hexafluoride, as Te | 11                            | B  |   |     |   |                              |  |  |   |
| 7789-30-2  | Bromine pentafluoride         | 11                            | B  |   |     |   |                              |  |  |   |
| 7790-91-2  | Chlorine trifluoride          | 11                            | B  |   |     |   |                              |  |  |   |
| 78-00-2    | Tetraethyl lead               | 11                            | B  |   |     |   |                              |  |  |   |
| 7803-62-5  | Silicon tetrahydride          | 11                            | B  |   |     |   |                              |  |  |   |
| NA20       | Welding fumes                 | 11                            | B  |   |     |   |                              |  |  |   |
| NA23       | Fibrous glass dust            | 11                            | B  |   |     |   |                              |  |  |   |
| 134-32-7   | alpha-Naphthylamine           | 12                            | A  |   |     |   |                              |  |  | x   |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#      | Constituent                 | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-----------|-----------------------------|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|           |                             |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 106-49-0  | p-Toluidine                 | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 106-51-4  | p-Benzoquinone              | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 107-19-7  | Propargyl alcohol           | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 119-90-4  | 3,3'-Dimethoxybenzidine     | 13                       | A                                     |  |     | x                                     |                   |                                  |  |                                    |
| 460-19-5  | Cyanogen                    | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 506-77-4  | Cyanogen chloride           | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 528-29-0  | Dinitrobenzene, all isomers | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 57-24-9   | Strychnine                  | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 764-41-0  | 1,4-Dichloro-2-butene       | 13                       | A                                     |  |     | x                                     |                   |                                  |  |                                    |
| 765-34-4  | Glycidylaldehyde            | 13                       | A                                     |  |     | x                                     |                   |                                  |  |                                    |
| 77-78-1   | Dimethyl sulfate            | 13                       | A                                     |  |     | x                                     |                   |                                  |  |                                    |
| 98-01-1   | Furfural                    | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 98-07-7   | Benzotrichloride            | 13                       | B                                     |  |     | x                                     |                   |                                  |  |                                    |
| 100-37-8  | Diethylaminoethanol         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 100-61-8  | N-Methylbenzenamine         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 100-63-0  | Phenylhydrazine             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 100-74-3  | N-Ethylmorpholine           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 102-54-5  | Dicyclopentadienyl iron     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 102-81-8  | 2-N-Dibutylaminoethanol     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 105-46-4  | sec-Butyl acetate           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 105-60-2  | Caprolactam, vapor          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 105-60-2a | Caprolactam, dust           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 106-50-3  | p-Phenylenediamine          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 106-87-6  | Vinyl cyclohexene dioxide   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 106-92-3  | Allyl glycidyl ether        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 107-07-3  | Ethylene chlorohydrin       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#      | Constituent                  | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-----------|------------------------------|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|           |                              |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 107-15-3  | Ethylene diamine             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 107-20-0  | Chloroacetaldehyde           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 107-41-5  | Hexylene glycol              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 107-49-3  | Tetraethyl pyrophosphate     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-11-2  | Methyl isobutyl carbinol     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-18-9  | Diisopropylamine             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-21-4  | Isopropyl acetate            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-24-7  | Acetic anhydride             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-43-0  | Chlorophenols                | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-44-1  | m-Toluidine                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-46-3  | Resorcinol (1,3-Benzenediol) | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-83-8  | Diisobutyl ketone            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-84-9  | sec-Hexyl acetate            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-91-8  | Cyclohexylamine              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 108-98-5  | Thiophenol                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-59-1  | Isopropoxyethanol            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-60-4  | n-Propyl acetate             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-73-9  | n-Butylamine                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-79-5  | n-Butyl mercaptan            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-87-5  | Methylal                     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-89-7  | Diethylamine                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 109-94-4  | Ethyl formate                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 110-19-0  | Isobutyl acetate             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 110-54-3D | Hexane, other isomers        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 110-91-8  | Morpholine                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 111-40-0  | Diethylene triamine          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                                 | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|---|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |   |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 111-46-6D  | Glycol ethers                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 115-29-7   | Endosulfan                                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 115-86-6   | Triphenyl phosphate                         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 115-90-2   | Fensulfothion                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 118-52-5   | 1,3-Dichloro-5,5-Dimethyl hydantoin         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 118-96-7   | 2,4,6-Trinitrotoluene                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1189-85-1  | tert-Butyl chromate, as CrO3                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 119-93-7   | 3,3'-Dimethylbenzidine.                     | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 12079-65-1 | Manganese cyclopentadienyl tricarbonyl      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 120-80-9   | Catechol                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 12108-13-3 | Methylcyclopentadienylmanganese tricarbonyl | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 12125-02-9 | Ammonium chloride (fume)                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 121-45-9   | Trimethyl phosphite                         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 121-75-5   | Malathion                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 121-82-4   | Cyclonite                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 122-60-1   | Phenyl glycidyl ether                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 123-31-9   | Hydroquinone                                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 123-42-2   | Diacetone alcohol                           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 123-92-2   | Isoamyl acetate                             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 124-40-3   | Dimethylamine                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 12604-58-9 | Ferrovandium dust                           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 126-85-2   | Nitrogen mustard N-oxide                    | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 1300-73-8  | Xylidine                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 13121-70-5 | Cyhexatin                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1319-77-3a | Cresols, syn Cresylic acid                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent  | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 1321-74-0  | Divinyl benzene  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1338-23-4  | Methyl ethyl ketone peroxide                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 133-90-4   | Chloramben   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 136-78-7   | Sesone   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 137-05-3   | Methyl-2-cyanoacrylate                                     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 137-26-8   | Thiram   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 138-22-7   | n-Butyl lactate  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 13838-16-9 | Enflurane  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1395-21-7  | Subtilisins  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 139-91-3   | 5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone) | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 140-88-5   | Ethylacrylate  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 141-32-2   | Butylacrylate  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 141-43-5   | Ethanolamine   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 141-66-2   | Dicrotophos  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 142-64-3   | Piperazine dihydrochloride                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 14484-64-1 | Ferbam   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1477-55-0  | m-Xylene-a,a'-diamine                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 148-01-6   | Dinitolamide   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 14977-61-8 | Chromylchloride  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 150-76-5   | 4-Methoxyphenol  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 151-67-7   | Halothane  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 156-62-7   | Calcium cyanamide  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1615-80-1  | N,N'-Diethylhydrazine                                      | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 16219-75-3 | Ethylidene norbornene                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 16842-03-8 | Cobalt hydrocarbonyl                                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                              | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 17702-41-9 | Decaborane                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1912-24-9  | Atrazine                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1918-02-1  | Picloram                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 19287-45-7 | Diborane                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 1929-82-4  | Nitrapyrin                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 19624-22-7 | Pentaborane                              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2039-87-4  | o-Chlorostyrene                          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2104-64-5  | EPN                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 21087-64-9 | Metribuzin                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2179-59-1  | Allyl propyl disulfide                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 22224-92-6 | Fenamiphos                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2238-07-5  | Diglycidyl ether                         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2426-08-6  | n-Butyl glycidyl ether                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2465-27-2  | Auramine (technical grade)               | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 25013-15-4 | Vinyl toluene                            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 25639-42-3 | Methylcyclohexanol                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2646-17-5  | Oil orange SS                            | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 26628-22-8 | Sodium azide                             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 26952-21-6 | Iso-ocytl alcohol                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2698-41-1  | o-Chlorobenzylidene malonitrile          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2699-79-8  | Sulfuryl fluoride                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 28434-86-8 | 3,3'-Dichloro-4,4'-diaminodiphenyl ether | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 29191-52-4 | Anisidine (o-,p- isomers)                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2921-88-2  | Chlorpyrifos                             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 2971-90-6  | Clopidol                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 299-84-3   | Ronnel                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                                 | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|---|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |   |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 299-86-5   | Crufomate                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 300-76-5   | Naled                                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 302-70-5   | Nitrogen mustard N-oxide hydrochloride      | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 314-40-9   | Bromacil                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 330-54-1   | Diuron                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 3333-52-6  | Tetramethyl succinonitrile                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 334-88-3   | Diazomethane                                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 3383-96-8  | Temephos                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 34590-94-8 | Dipropylene glycol methyl ether             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 35400-43-2 | Sulprofos                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 3547-04-4  | DDE (p,p'-Dichlorodiphenyldichloroethylene) | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 3689-24-5  | Tetraethyldithiopyrophosphate (TEDP)        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 4016-14-2  | Isopropyl glycidyl ether (IGE)              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 4098-71-9  | Isophorone diisocyanate                     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 420-04-2   | Cyanamide                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 463-51-4   | Ketene                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 4685-14-7  | Paraquat                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 479-45-8   | Tetryl                                      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 504-29-0   | 2-Aminopyridine                             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 509-14-8   | Tetranitromethane                           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 5124-30-1  | Methylene-bis-(4-cyclo-hexylisocyanate)     | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 540-88-5   | tert-Butyl acetate                          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 54-11-5    | Nicotine                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 541-85-5   | Ethyl amyl ketone                           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 542-92-7   | Cyclopentadiene                             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 552-30-7   | Trimellitic anhydride                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent                                      | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|--|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |  |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 55-38-9    | Fenthion   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 555-84-9   | 1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 55-63-0    | Nitroglycerin                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 556-52-5   | Glycidol   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 55720-99-5 | Chlorinated diphenyl oxide                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 563-12-2   | Ethion   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 583-60-8   | o-Methylcyclohexanone                            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 592-62-1   | Methyl azoxymethyl acetate                       | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 59355-75-8 | Methyl acetylene-propadiene mixture (MAPP)       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 594-42-3   | Perchloromethyl mercaptan                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 594-72-9   | 1,1-Dichloro-1-nitroethane                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 600-25-9   | 1-Chloro-1-nitropropane                          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 613-35-4   | N,N-Diacetylbenzidine                            | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 626-17-5   | m-Phthalodinitrile                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 626-38-0   | sec-Amyl acetate                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 62-74-8    | Fluoroacetic acid, sodium salt (Fratol)          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 628-63-7   | n-Amyl acetate                                   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 628-96-6   | Ethylene glycol dinitrate                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 638-21-1   | Phenylphosphine                                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 64091-91-4 | 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone   | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 64-67-5    | Diethyl sulfate                                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 67-45-8    | Furazolidone                                     | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 680-31-9   | Hexamethylphosphoramide                          | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 68-11-1    | Thioglycolic acid                                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#       | Constituent              | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------------|--------------------------|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|            |                          |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 681-84-5   | Methyl silicate          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 68476-85-7 | Liquified petroleum gas  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 6923-22-4  | Monocrotophos            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 696-28-6   | Dichlorophenylarsine     | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 74-89-5    | Methylamine              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 74-93-1    | Thiomethanol             | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 74-96-4    | Ethyl bromide            | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 75-04-7    | Ethylamine               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 75-08-1    | Ethyl mercaptan          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 75-31-0    | Isopropylamine           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 75-47-8    | Iodoform                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7572-29-4  | Dichloroacetylene        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7616-94-6  | Perchloryl fluoride      | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 76-22-2    | Camphor, synthetic       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 768-52-5   | N-Isopropylaniline       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 77-73-6    | Dicyclopentadiene        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7786-34-7  | Mevinphos                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 7803-52-3  | Stibine                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 78-10-4    | Ethyl silicate           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 78-30-8    | Triorthocresyl phosphate | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 78-34-2    | Dioxathion               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 79-04-9    | Chloroacetyl chloride    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 79-11-8    | Chloroacetic acid        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 79-24-3    | Nitroethane              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 79-27-6    | Acetylene tetrabromide   | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 79-41-4    | Methacrylic acid         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS#      | Constituent                             | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|-----------|---|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|           |   |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| 794-93-4  | Panfuran S (dihydroxymethylfuratrizine) | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 8001-58-9 | Creosote                                | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| 8002-74-2 | Parafin wax fume                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8003-34-7 | Pyrethrum                               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8006-64-2 | Turpentine                              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8012-95-1 | Oil mist, mineral                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8022-00-2 | Methyl demeton                          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8030-30-6 | Rubber solvent (Naphtha)                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8032-32-4 | VM & P Naphtha                          | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8052-42-4 | Asphalt (petroleum) fumes               | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 8065-48-3 | Demeton                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 81-81-2   | Warfarin (>0.3%)                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 81-81-2a  | Warfarin (<0.3%)                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 83-26-1   | Pindone                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 83-79-4   | Rotenone                                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 85-00-7   | Diquat                                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 86-50-0   | Azinphos-methyl                         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 86-88-4   | alpha-Naphthylthiourea                  | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 89-72-5   | o-sec-Butylphenol                       | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 92-84-2   | Phenothiazine                           | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 94-36-0   | Benzoyl Peroxide                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 944-22-9  | Fonofos                                 | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 96-33-3   | Methyl acrylate                         | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 97-77-8   | Disulfiram                              | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 98-00-1   | Furfuryl alcohol                        | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| 999-61-1  | 2-Hydroxypropyl acrylate                | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS# | Constituent   | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------|---|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|      |   |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |
| I4   | Aluminum smelter polyaromatic hydrocarbon emissions | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| I51  | Cotton dust, raw                                    | 14                       | B                                     |  |     |                                       |                   |                                  |  |                                    |
| NA21 | Polyaromatic hydrocarbons (PAH)                     | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| NA24 | Dioxins and furans                                  | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| NA25 | Coke oven emissions                                 | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| UN6  | Isopropyl oils                                      | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |
| UN8  | Nitrofurans   | 14                       | A                                     |  |     |                                       |                   |                                  |  |                                    |

<sup>a</sup>Disposition

- 1 RDQO identified WTP feed COPCs; removed by the revision to the TAPs list; retained as WTP feed COPCs because they are found in TWINS/BBI.
- 2 RDQO identified WTP feed COPCs; removed by the revision to the TAPs list; retained as WTP feed COPCs because they were identified in the CHG vapor study (Table B-1); not found in TWINS/BBI.
- 3 Constituents removed from the RDQO starting list to be measured in stack emissions because they appear as EPA PICs (Appendix E).
- 4 Constituents removed from the RDQO starting list to be measured in stack emissions because they appear as site-specific PICs (Appendix F).
- 5 Constituents removed from the RDQO starting list because they no longer have a regulatory driver and are not found in TWINS/BBI.
- 6 Low-toxicity compound removed by the revision to the TAPs list; retained as WTP feed COPCs because it was identified in the CHG vapor study (Appendix B, Table B-1).
- 7 Constituents removed from the low-toxicity list to be measured in stack emissions because they appear as EPA PICs (Appendix E).
- 8 Constituent removed from the low-toxicity list to be measured in stack emissions because it appears as a site-specific PIC (Appendix F).
- 9 Constituents removed from the low-toxicity list because they no longer have a regulatory driver and are not found in TWINS/BBI.
- 10 Inorganics initially identified as feed COPCs in the RDQO; retained without further evaluation.
- 11 Inorganic compounds that are addressed as individual cations or anions in the tank liquid; no further evaluation was performed.
- 12 Eliminated because it has < 10 detects in TWINS and no BBI values were found; appears as CHG vapor study compound (Appendix B) therefore, retained as feed COPC.
- 13 Eliminated because they have < 10 detects in TWINS and no BBI values were found; appear as EPA PICs (Appendix E).
- 14 Eliminated because they have < 10 detects in TWINS and no BBI values were found.

<sup>b</sup> A notation in the box identifies the compound as a TAP listed prior to the May 2009 WAC 173-460 update; the "A" or "B" indicates the class of the TAP.

<sup>c</sup> An "x" in the box indicates that the compound either has more than 10 detects from previous tank sampling activities and is recorded in the TWINS data base or that the Best Basis Inventory (BBI) effort has identified the possibility that it was discarded to the Hanford tanks and has estimated a quantity.

<sup>d</sup> The stack emissions compounds were predicted to be present in combustor stack emissions (Appendix E).

**Table C-4 Original List of Toxic Air Pollutants Removed by Regulation Update (418 constituents)**

| CAS# | Constituent | Disposition <sup>a</sup> | Old WAC Class A or B TAP <sup>b</sup> | Hanford Tank Organic Compounds Identification <sup>c</sup> |     | Stack Emission Compounds <sup>d</sup> |                   | Table A-2 RDQO COPC <sup>e</sup> | Table A-3 Low-Toxicity Compound <sup>f</sup> | CHG Vapor Study Input <sup>g</sup> |
|------|-------------|--------------------------|---------------------------------------|--|-----|---------------------------------------|-------------------|----------------------------------|--|------------------------------------|
|      |             |                          |                                       | TWINS  | BBI | EPA PIC                               | Site Specific PIC |                                  |  |                                    |

<sup>e</sup> Compound was selected by RDQO process as a feed COPC (Appendix A, Table A-2).

<sup>f</sup> Compound was identified as a low toxicity COPC per agreement with Ecology (Appendix A, Table A-3).

<sup>g</sup> Compound was identified in the CHG vapor study, Appendix B, Table B-1.

<sup>h</sup> This compound does not appear on the RDQO input table B.2 although other RDQO tables list it as a TAP.

## **Appendix D**

### **RDQO Optimization Study Revisions to the WTP COPCs**

## Appendix D

# RDQO Optimization Study Revisions to the WTP COPCs

The RDQO (Wiemers and others 1998) required that the COPC analyte selection and analytical methods be optimized. The optimization effort is documented in the *Regulatory Data Quality Objectives Optimization Report* (BNI 2004). This optimization process adjusted the starting list of RDQO organic and inorganic COPCs.

### D.1 RDQO Optimization Study Adjustments to the WTP Waste Feed COPCs

In accordance with the RDQO (Wiemers and others 1998), the U. S. Department of Energy (DOE) and the Washington State Department of Ecology (Ecology), with input from Bechtel National, Inc. (BNI), initiated activities to optimize the RDQO. The results of these activities that relate to Hanford Tank waste COPC identification are documented in the *Regulatory Data Quality Objectives Optimization Report* (BNI 2004, Tables 4-1, 4-2, 4-3, and 4-4).

The RDQO optimization adjustments include (refer to Table D-1 for disposition codes):

- Substitution of seven aroclors for total PCBs (disposition 1). Note, two of the added aroclors were previously added by the CHG vapor study (Appendix B).
- Removed five inorganic COPCs that have no regulatory driver (disposition 2).
- Removed one inorganic COPC that has no suitable analytical method for the waste matrices (disposition 3).
- Removed three organic COPCs that are highly reactive (disposition 4). Note, two of the organic COPCs were removed during the evaluation of the WAC 173-460 revisions to the toxic air pollutants (Appendix C), leaving one removed by the Optimization Study.
- Removed four organics that lack analytical methods in the waste matrices (disposition 5). Note, one of the organic COPCs was removed during the evaluation of the WAC 173-460 revisions to the toxic air pollutants (Appendix C), leaving three removed by the Optimization Study.

In addition to the adjustments described above, the following substitutions were made to facilitate characterization of the tank waste:

- Hydroxide was replaced with pH measurement (disposition 6).
- The analysis for total chromium was substituted for hexavalent chromium (disposition 7).
- The analysis for thermodynamically stable sulfur was substituted for sulfur (disposition 8).
- The analysis for the nitrate ion was substituted for nitric acid (disposition 9).
- The nitrate ion analysis will also substitute for the nitrous oxide analysis (CAS Number 10024-97-2) identified in the CHG vapor study (Appendix B).

These adjustments, are displayed in Table D-1. Additional discussion of the optimization study adjustments is provided in BNI 2004.

## D.2 References

BNI 2004. *Regulatory Data Quality Objectives Optimization Report*, 24590-WTP-RPT-MGT-04-001, Rev 0, February 5, 2004, Bechtel National, Inc., Richland, Washington.

CHG 2004. JO Honeyman, JE Meacham, RJ Cash, AM Sastry. CH2M HILL Hanford Group, Inc. JL Huckaby, Pacific Northwest National Laboratory, *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, October 2004, Richland, Washington.

**Table D-1 Adjustments Made by the Regulatory Data Quality Objectives Optimization Process**

| CAS#              | Constituent                              | Adjustment Code <sup>a</sup> |       |
|-------------------|--|------------------------------|-------|
|                   |  | Removed                      | Added |
| <b>Organics</b>   |  |                              |       |
| 11096-82-5        | Aroclor-1260                             |                              | 1     |
| 11097-69-1        | Aroclor-1254                             |                              | 1     |
| 11104-28-2        | Aroclor-1221                             |                              | 1     |
| 11141-16-5        | Aroclor-1232                             |                              | 1     |
| 12672-29-6        | Aroclor-1248                             |                              | 1     |
| 12674-11-2        | Aroclor-1016                             |                              | 1     |
| 53469-21-9        | Aroclor-1242                             |                              | 1     |
| 1336-36-3         | Polychlorinated biphenyls (PCBs)         | 1                            |       |
| 121-44-8          | Triethylamine                            | 5                            |       |
| 3825-26-1         | Ammonium perfluorooctanoate <sup>b</sup> | 4                            |       |
| 57-14-7           | 1,1-Dimethylhydrazine                    | 5                            |       |
| 60-34-4           | Methylhydrazine                          | 5                            |       |
| 624-83-9          | Methyl isocyanate <sup>c</sup>           | 4                            |       |
| 684-16-2          | Hexafluoroacetone <sup>b</sup>           | 5                            |       |
| 88-89-1           | Picric acid <sup>b</sup>                 | 4                            |       |
| <b>Inorganics</b> |  |                              |       |
| 7440-09-7         | Potassium                                | 2                            |       |
| 7440-21-3         | Silicon                                  | 2                            |       |
| 7440-42-8         | Boron                                    | 2                            |       |
| 7440-69-9         | Bismuth                                  | 2                            |       |
| 7440-70-2         | Calcium                                  | 2                            |       |
| 7553-56-2         | Iodine                                   | 3                            |       |
| 14280-30-9        | Hydroxide                                | 6                            |       |
| no CAS #          | pH                                       |                              | 6     |
| 18540-29-9        | Hexavalent chromium                      | 7                            |       |
| 7440-47-3         | Chromium                                 |                              | 7     |
| 63705-05-5        | Sulfur                                   | 8                            |       |
| 7704-34-9         | Total Sulfur (thermodynamically stable)  |                              | 8     |
| 7697-37-2         | Nitrate (Nitric acid)                    | 9                            |       |
| 14797-55-8        | Nitrate                                  |                              | 9     |
| 7440-09-7         | Potassium                                | 2                            |       |
| 7440-21-3         | Silicon                                  | 2                            |       |

<sup>a</sup> Adjustment Code:

- 1 Aroclors substituted for total PCBs; see BNI (2004), Table 4-2.
- 2 Inorganics removed; no regulatory driver; see BNI (2004), Table 4-2.
- 3 Inorganic removed; no suitable methods in waste matrices; see BNI (2004), Table 4-2.
- 4 Organics removed because they are highly reactive; see BNI (2004), Table 4-2.
- 5 Organics removed because there are no suitable analytical methods for the waste matrices; see BNI (2004), Table 4-2.
- 6 pH measurement substituted for hydroxide; see BNI (2004), Table 4-2.
- 7 Analysis for total chromium substituted for hexavalent chromium; see BNI (2004), Table 4-4.
- 8 Thermodynamically stable sulfur substituted for total sulfur; see BNI (2004), Table 4-4.

**Table D-1 Adjustments Made by the Regulatory Data Quality Objectives  
Optimization Process**

| CAS# | Constituent | Adjustment Code <sup>a</sup> |       |
|------|-------------|------------------------------|-------|
|      |             | Removed                      | Added |

<sup>9</sup> Nitrate ion substituted for nitric acid; see BNI (2004), Table 4-4.

<sup>b</sup> Previously removed by TAPs revision evaluation.

<sup>c</sup> Moved to EPA PIC.

## **Appendix E**

### **Products of Incomplete Combustion COPCs Identified in the HHRAP**

## Appendix E

# Products of Incomplete Combustion COPCs Identified in the HHRAP

To help ensure the full range of compounds potentially emitted from a combustor are considered, the US Environmental Protection Agency (EPA), in the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (HHRAP) (EPA 1998) provided a list of compounds typically found in hazardous waste and stack gas emissions from hazardous waste combustion (Appendix A-1, EPA 1998). The products of incomplete combustion (PIC) selected as WTP PICs are those 242 compounds identified in the HHRAP, Table A-1, Columns 6, 7, and 8 (EPA 1998). Table E-1 reproduces this list.

A second category of PICs identified is coplanar polychlorinated biphenyls (PCBs), moderately chlorinated PCB congeners that can have dioxin-like effects. The latest revision of the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (HHRAP) (Table 2-5, EPA 2005) identifies 12 coplanar PCBs. Table E-1 lists the 12 coplanar PCBs.

Of the 242 PICs listed in Table E-1 (Columns 3 - 6), (EPA 1998) and 12 coplanar PCBs (Column 7) listed in Table 2-5, (EPA 2005), 126 are potentially in the WTP waste feed or already identified as a compound to be measured in stack emissions. Table E-1 identifies the WTP potential waste feed or other previously identified stack emission COPCs (Column 8). The remaining 128 EPA PIC compounds (column 9) are identified as WTP COPCs from the EPA PIC list and measured in WTP stack emissions only.

Note, the inorganic hexavalent chromium, CAS No. 18540-29-9, and the organics total PCBs, CAS 1336-36-3 and methyl isocyanate; CAS No. 624-83-9 were removed as feed constituents by the RDQO Optimization Study (Appendix D). These compounds appear on the EPA PIC list and were retained as stack emissions compounds. Later in the COPC evaluation process, a further adjustment was made to move total PCBs to a feed COPC and to remove hexavalent chromium as a stack emission compound; hexavalent chromium was replaced by total chromium as a WTP feed COPC. Note that the redesignation of total PCBs to a feed COPC and the elimination of hexavalent chromium as a stack emission compound in favor of total chromium (a feed constituent) is not shown in the table.

Of the 128 constituents identified as EPA PICs, 93 of them (29 dioxins, furans, and PCBs, 38 TAPs that did not meet the criteria for listing as feed COPCs, and 26 former TAPs) were previously identified as stack emissions compounds in the TAPs revision evaluation (Appendix C). Twelve PICs had previously been discounted as feed COPCs (Appendix A, Table A-4, disposition 6). The remaining 19 organic PICs were not previously evaluated in the examination of feed COPCs. With the inclusion of total PCBs and methyl isocyanate, there were 126 organics considered for evaluation as COPCs that are PICs. Subsequent agreements with Ecology and EPA (Appendix G) made additional modifications to the EPA PIC list resulting in 139 constituents identified as EPA PICs.

### References:

EPA 1998. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*, Peer Review Draft, EPA/530/D-98/001A, July 1998, US Environmental Protection Agency, Washington, DC.

EPA 2005. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*, Final, EPA/530/R-05/006, September 2005, US Environmental Protection Agency, Washington, DC. Available at <http://www.epa.gov/epaoswer/hazwaste/combust/risk.htm>.

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                           | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 100-01-6   | 4-Nitroaniline (p-nitroaniline)         |  |   |  |                          |   |                                |  |
| 100-02-7   | 4-Nitrophenol (p-nitrophenol)           |  | x   |  | x                        | x   |                                |  |
| 100-25-4   | 1,4-Dinitrobenzene (p-dinitrobenzene)   |  | x   |  | x                        | x   |                                |  |
| 100-41-4   | Ethylbenzene                            | x  | x   | x  | x                        | x   |                                |  |
| 100-42-5   | Styrene                                 | x  | x   |  | x                        | x   |                                |  |
| 100-44-7   | Benzyl chloride                         | x  | x   |  | x                        |   | x                              |  |
| 100-51-6   | Benzyl alcohol                          |  |   |  |                          |   |                                |  |
| 100-52-7   | Benzaldehyde                            | x  | x   | x  | x                        |   | x                              |  |
| 100-75-4   | N-Nitrosopiperidine                     |  |   |  |                          |   |                                |  |
| 10102-43-9 | Nitric oxide                            |  |   |  |                          |   |                                |  |
| 10102-44-0 | Nitrogen dioxide                        |  |   | x  | x                        | x   |                                |  |
| 10102-45-1 | Thallium(I)nitrate                      |  |   |  |                          |   |                                |  |
| 101-05-3   | Anilazine                               |  |   |  |                          |   |                                |  |
| 101-14-4   | 4,4'-Methylenebis (2-chloroaniline)     |  |   |  |                          |   |                                |  |
| 101-27-9   | Barban                                  |  |   |  |                          |   |                                |  |
| 101-55-3   | 4-Bromophenyl phenyl ether              |  |   |  |                          |   |                                |  |
| 101-61-1   | 4,4'-Methylenebis (N,N-dimethylaniline) |  |   |  |                          |   |                                |  |
| 101-68-8   | Methylene diphenyl diisocyanate (MDI)   |  |   |  |                          |   |                                |  |
| 101-77-9   | 4,4-Methylenedianiline                  |  | x   |  | x                        |   | x                              |  |
| 101-80-4   | 4,4'-Oxydianiline                       |  |   |  |                          |   |                                |  |
| 1024-57-3  | Heptachlor epoxide                      |  |   |  |                          |   |                                |  |
| 102-82-9   | Tributylamine                           |  |   |  |                          |   |                                |  |
| 1031-07-8  | Endosulfan sulfate                      |  |   |  |                          |   |                                |  |
| 103-33-3   | Azobenzene                              | x  | x   |  | x                        |   | x                              |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                               | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 103-85-5   | Phenylthiourea                              |  |   |  |                          |   |                                |  |
| 105-60-2   | Caprolactam                                 |  |   |  |                          |   |                                |  |
| 105-67-9   | 2,4-Dimethylphenol                          |  | X   | X  | X                        |   | X                              |  |
| 10595-95-6 | N-Nitrosomethylethylamine                   |  |   |  |                          |   |                                |  |
| 106-42-3   | p-Xylene (dimethyl benzene)                 | X  | X   | X  | X                        | X   |                                |  |
| 106-44-5   | p-Cresol (4-methyl phenol)                  |  | X   |  | X                        |   | X                              |  |
| 106-46-7   | 1,4-Dichlorobenzene                         | X  | X   | X  | X                        | X   |                                |  |
| 106-47-8   | p-Chloroaniline                             |  | X   |  | X                        |   | X                              |  |
| 106-49-0   | p-Toluidine                                 |  | X   |  | X                        |   | X                              |  |
| 106-50-3   | p-Phenylenediamine                          |  |   |  |                          |   |                                |  |
| 106-51-4   | Quinone                                     |  | X   |  | X                        |   | X                              |  |
| 106-88-7   | 1,2-Epoxybutane                             |  |   |  |                          |   |                                |  |
| 106-89-8   | Epichlorohydrin (1-chloro-2,3 epoxypropane) |  | X   |  | X                        |   | X                              |  |
| 106-93-4   | Ethylene dibromide                          |  | X   |  | X                        | X   |                                |  |
| 106-99-0   | 1,3-Butadiene                               | X  | X   |  | X                        | X   |                                |  |
| 107-02-8   | Acrolein                                    |  | X   |  | X                        | X   |                                |  |
| 107-05-1   | Allyl chloride                              |  |   |  |                          |   |                                |  |
| 107-06-2   | 1,2-Dichloroethane (ethylene dichloride)    | X  | X   | X  | X                        | X   |                                |  |
| 107-07-3   | 2-Chloroethanol                             |  |   |  |                          |   |                                |  |
| 107-10-8   | n-Propylamine                               |  |   |  |                          |   |                                |  |
| 107-12-0   | Propionitrile                               |  |   |  |                          |   |                                |  |
| 107-13-1   | Acrylonitrile                               | X  | X   |  | X                        | X   |                                |  |
| 107-18-6   | Allyl alcohol                               |  |   |  |                          |   |                                |  |
| 107-19-7   | Propargyl alcohol                           |  | X   |  | X                        |   | X                              |  |
| 107-20-0   | Chloroacetaldehyde                          |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #    | Compound Name                     | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|----------|-----------------------------------|--|---|--|--------------------------|---|--------------------------------|--|
|          |                                   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 107-21-1 | Ethylene glycol (1,2-ethanediol)  |  | x   |  | x                        |   |                                | x  |
| 107-30-2 | Chloromethyl methyl ether         |  |   |  |                          |   |                                |  |
| 107-49-3 | Tetraethyl pyrophosphate          |  |   |  |                          |   |                                |  |
| 107-98-2 | Propylene glycol monomethyl ether |  | x   |  | x                        |   |                                | x  |
| 108-05-4 | Vinyl acetate                     |  | x   |  | x                        |   | x                              |  |
| 108-10-1 | Methyl isobutyl ketone            |  | x   | x  | x                        |   | x                              |  |
| 108-18-9 | Diisopropylamine                  |  |   |  |                          |   |                                |  |
| 108-31-6 | Maleic anhydride                  |  |   |  |                          |   |                                |  |
| 108-38-3 | m-Xylene (dimethyl benzene)       | x  | x   | x  | x                        |   | x                              |  |
| 108-39-4 | m-Cresol                          |  | x   |  | x                        |   | x                              |  |
| 108-46-3 | Resorcinol                        |  |   |  |                          |   |                                |  |
| 108-60-1 | bis (2-Chloroisopropyl)ether      |  | x   |  | x                        |   |                                | x  |
| 108-67-8 | 1,3,5-Trimethylbenzene            |  |   | x  | x                        |   |                                | x  |
| 108-87-2 | Methylcyclohexane                 |  | x   |  | x                        |   |                                | x  |
| 108-88-3 | Toluene                           | x  | x   | x  | x                        |   | x                              |  |
| 108-90-7 | Chlorobenzene                     | x  | x   | x  | x                        |   | x                              |  |
| 108-95-2 | Phenol                            | x  | x   | x  | x                        |   | x                              |  |
| 108-98-5 | Thiophenol (benzenethiol)         |  |   |  |                          |   |                                |  |
| 109-06-8 | 2-Picoline                        |  |   |  |                          |   |                                |  |
| 109-77-3 | Malononitrile                     |  | x   |  | x                        |   |                                | x  |
| 109-86-4 | 2-Methoxyethanol                  |  | x   |  | x                        |   |                                | x  |
| 109-89-7 | Diethylamine                      |  |   |  |                          |   |                                |  |
| 109-99-9 | Tetrahydrofuran                   |  |   | x  | x                        |   |                                | x  |
| 110-54-3 | n-Hexane                          |  | x   |  | x                        |   | x                              |  |
| 110-75-8 | 2-Chloroethylvinyl ether          |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                           | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 110-80-5   | Ethylene glycol monoethyl ether         |  | x   |  | x                        |   | x                              |  |
| 110-86-1   | Pyridine                                |  | x   |  | x                        |   | x                              |  |
| 11096-82-5 | Aroclor-1260                            |  |   |  |                          |   |                                |  |
| 11097-69-1 | Aroclor-1254                            |  |   |  |                          |   |                                |  |
| 11104-28-2 | Aroclor-1221                            |  |   |  |                          |   |                                |  |
| 111-15-9   | Ethylene glycol monoethyl ether acetate |  | x   |  | x                        |   |                                | x  |
| 11141-16-5 | Aroclor-1232                            |  |   |  |                          |   |                                |  |
| 111-42-2   | Diethanolamine                          |  |   |  |                          |   |                                |  |
| 111-44-4   | bis(2-Chloroethyl)ether                 | x  | x   |  | x                        |   |                                | x  |
| 111-54-6   | Ethylene(bis)dithiocarbamic acid        |  |   |  |                          |   |                                |  |
| 1116-54-7  | N-Nitrosodiethanolamine                 |  |   |  |                          |   |                                |  |
| 111-76-2   | Ethylene glycol monobutyl ether         |  | x   |  | x                        |   | x                              |  |
| 111-91-1   | bis(2-Chloroethoxy)methane              | x  | x   |  | x                        |   |                                | x  |
| 1120-71-4  | 1,3-Propane sultone                     |  | x   |  | x                        |   |                                | x  |
| 114-26-1   | Propoxur (Bayton)                       |  |   |  |                          |   |                                |  |
| 115-02-6   | Azaserine                               |  |   |  |                          |   |                                |  |
| 115-29-7   | Endosulfan                              |  |   |  |                          |   |                                |  |
| 115-90-2   | Fensulfothion                           |  |   |  |                          |   |                                |  |
| 116-06-3   | Aldicarb                                |  |   |  |                          |   |                                |  |
| 117-79-3   | 2-Aminoanthraquinone                    |  |   |  |                          |   |                                |  |
| 117-80-6   | Dichlone                                |  |   |  |                          |   |                                |  |
| 117-81-7   | bis(2-ethylhexyl)phthalate              | x  | x   | x  | x                        |   | x                              |  |
| 117-84-0   | Di-n-octylphthalate                     |  | x   |  | x                        |   | x                              |  |
| 118-74-1   | Hexachlorobenzene (perchlorobenzene)    | x  | x   | x  | x                        |   | x                              |  |
| 118-96-7   | 2,4,6-Trinitrotoluene                   |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                   | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---------------------------------|--|---|--|--------------------------|---|--------------------------------|--|
|            |                                 | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 119-90-4   | 3,3'-Dimethoxybenzidine         |  | x   |  | x                        |   |                                | x  |
| 119-93-7   | 3,3'-Dimethylbenzidine          |  |   |  |                          |   |                                |  |
| 120-12-7   | Anthracene                      | x  | x   |  | x                        |   | x                              |  |
| 12039-52-0 | Thallium(I)selenite             |  |   |  |                          |   |                                |  |
| 120-58-1   | Isosafrole                      |  |   |  |                          |   |                                |  |
| 120-62-7   | Piperonyl sulfoxide             |  |   |  |                          |   |                                |  |
| 120-71-8   | p-Cresidine                     |  |   |  |                          |   |                                |  |
| 120-80-9   | Catechol                        |  |   |  |                          |   |                                |  |
| 120-82-1   | 1,2,4-Trichlorobenzene          | x  | x   | x  | x                        |   | x                              |  |
| 120-83-2   | 2,4-Dichlorophenol              | x  | x   |  | x                        |   | x                              |  |
| 121-14-2   | 2,4-Dinitrotoluene              |  | x   |  | x                        |   | x                              |  |
| 121-44-8   | Triethylamine                   |  |   |  |                          |   |                                |  |
| 121-69-7   | N,N-Diethyl aniline             |  |   |  |                          |   |                                |  |
| 121-75-5   | Malathion                       |  |   |  |                          |   |                                |  |
| 122-09-8   | a,a-Dimethylphenethylamine      |  |   |  |                          |   |                                |  |
| 122-39-4   | Diphenylamine                   |  | x   |  | x                        |   | x                              |  |
| 122-66-7   | 1,2-Diphenylhydrazine           |  | x   |  | x                        |   |                                | x  |
| 123-31-9   | Hydroquinone                    |  |   |  |                          |   |                                |  |
| 123-33-1   | Maleic hydrazide                |  | x   |  | x                        |   |                                | x  |
| 123-38-6   | Propionaldehyde                 |  | x   |  | x                        |   |                                | x  |
| 123-63-7   | Paraldehyde                     |  |   |  |                          |   |                                |  |
| 123-91-1   | Dioxane (1,4-dioxane)           | x  | x   |  | x                        |   | x                              |  |
| 124-48-1   | Chlorodibromomethane            |  |   | x  | x                        |   |                                | x  |
| 126-68-1   | 0,0,0-Triethyl phosphorothioate |  |   |  |                          |   |                                |  |
| 12672-29-6 | Aroclor-1248                    |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                                | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|---|--------------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 126-72-7   | tris(2,3-Dibromopropyl) phosphate            |  |   |  |                          |   |                                |  |
| 12674-11-2 | Aroclor-1016                                 |  |   |  |                          |   |                                |  |
| 126-75-0   | Demeton-S                                    |  |   |  |                          |   |                                |  |
| 126-98-7   | Methacrylonitrile                            |  | x   |  | x                        | x   |                                |  |
| 126-99-8   | Chloroprene                                  |  |   |  |                          |   |                                |  |
| 127-18-4   | Tetrachloroethene (Perchloroethylene)        | x  | x   | x  | x                        | x   |                                |  |
| 129-00-0   | Pyrene                                       | x  |   | x  | x                        | x   |                                |  |
| 130-15-4   | 1,4-Naphthoquinone                           |  |   |  |                          |   |                                |  |
| 1303-28-2  | Arsenic pentoxide                            |  |   |  |                          |   |                                |  |
| 13071-79-9 | Terbufos                                     |  |   |  |                          |   |                                |  |
| 131-11-3   | Dimethyl Phthalate                           | x  | x   |  | x                        |   | x                              |  |
| 1314-32-5  | Thallic oxide                                |  |   |  |                          |   |                                |  |
| 1314-62-1  | Vanadium pentoxide                           |  |   |  |                          |   |                                |  |
| 13171-21-6 | Phosphamidon                                 |  |   |  |                          |   |                                |  |
| 131-89-5   | 2-Cyclohexyl-4,6-dinitrophenol               |  | x   |  | x                        |   | x                              |  |
| 1319-77-3  | Cresols/cresylic acid (isomers and mixtures) |  |   |  |                          |   |                                |  |
| 132-32-1   | 3-Amino-9-ethylcarbazole                     |  |   |  |                          |   |                                |  |
| 132-64-9   | Dibenzofuran                                 | x  |   |  | x                        |   | x                              |  |
| 1327-53-3  | Arsenic trioxide                             |  |   |  |                          |   |                                |  |
| 1330-20-7  | Xylene (total)                               | x  |   | x  | x <sup>1</sup>           | x   |                                |  |
| 133-06-2   | Captan                                       | x  |   |  | x                        |   | x                              |  |
| 1332-21-4  | Asbestos                                     |  |   |  |                          |   |                                |  |
| 1335-32-6  | Lead subacetate                              |  |   |  |                          |   |                                |  |
| 1336-36-3  | Polychlorinated biphenyls (209 congeners)    | x  | x   | x  | x <sup>1</sup>           |   | x                              |  |
| 1338-23-4  | 2-Butanone peroxide                          |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                         | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---------------------------------------|--|---|--|--------------------------|---|--------------------------------|--|
|            |                                       | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 133-90-4   | Chloramben                            |  |   |  |                          |   |                                |  |
| 134-32-7   | 1-Naphthylamine (alpha-naphthylamine) |  |   |  |                          |   |                                |  |
| 13463-39-3 | Nickel carbonyl                       |  |   |  |                          |   |                                |  |
| 137-17-7   | 2,4,5-Trimethylaniline                |  |   |  |                          |   |                                |  |
| 137-26-8   | Thiram                                |  |   |  |                          |   |                                |  |
| 13765-19-0 | Calcium chromate                      |  |   |  |                          |   |                                |  |
| 140-57-8   | Aramite                               |  |   |  |                          |   |                                |  |
| 140-88-5   | Ethyl acrylate                        |  |   |  |                          |   |                                |  |
| 141-66-2   | Dicrotophos                           |  |   |  |                          |   |                                |  |
| 143-33-9   | Sodium cyanide                        |  |   |  |                          |   |                                |  |
| 143-50-0   | Kepone                                |  |   |  |                          |   |                                |  |
| 145-73-3   | Endothall                             |  | x   |  | x                        |   | x                              |  |
| 1464-53-5  | 1,2,3,4-Diepoxybutane                 |  |   |  |                          |   |                                |  |
| 148-82-3   | Melphalan                             |  |   |  |                          |   |                                |  |
| 151-50-8   | Potassium cyanide                     |  |   |  |                          |   |                                |  |
| 151-56-4   | Ethylene imine (Aziridine)            |  |   |  |                          |   |                                |  |
| 152-16-9   | Octamethyl pyrophosphoramidate        |  |   |  |                          |   |                                |  |
| 1563-66-2  | Carbofuran                            |  |   |  |                          |   |                                |  |
| 156-60-5   | (trans)1,2-Dichloroethene             |  | x   |  | x                        | x   |                                |  |
| 156-62-7   | Calcium cyanamide                     |  |   |  |                          |   |                                |  |
| 1582-09-8  | Trifluralin                           |  |   |  |                          |   |                                |  |
| 1615-80-1  | N,N'-Diethylhydrazine                 |  |   |  |                          |   |                                |  |
| 1634-04-4  | Methyl tert butyl ether               |  | x   |  | x                        | x   |                                |  |
| 16752-77-5 | Methomyl                              |  |   |  |                          |   |                                |  |
| 1718-51-0  | Terphenyl-d14                         |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                                | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|--|--------------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                                |  |
| 1746-01-6  | 2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)   | x  | x   | x  | x                        |  |                                | x  |
| 1836-75-5  | Nitrofen                                     |  |   |  |                          |  |                                |  |
| 18540-29-9 | Chromium (hexavalent)                        | x  |   | x  | x <sup>3</sup>           |  |                                | x  |
| 18883-66-4 | Streptozotocin                               |  |   |  |                          |  |                                |  |
| 1888-71-7  | Hexachloropropene                            |  |   |  |                          |  |                                |  |
| 189-55-9   | Dibenzo(a,i)pyrene                           |  |   |  |                          |  |                                |  |
| 191-24-2   | Benzo(g,h,i)perylene                         | x  | x   |  | x                        |  | x                              |  |
| 192-65-4   | Dibenzo(a,e)pyrene                           |  |   |  |                          |  |                                |  |
| 192-97-2   | Benzo(e)pyrene                               |  | x   |  | x                        |  |                                | x  |
| 193-39-5   | Indeno(1,2,3-cd)pyrene                       |  | x   |  | x                        |  | x                              |  |
| 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin       | x  | x   |  | x                        |  |                                | x  |
| 2037-26-5  | Toluene-d8                                   |  |   |  |                          |  |                                |  |
| 205-82-3   | Benzo(j)fluoranthene                         | x  | x   |  | x                        |  | x                              |  |
| 205-99-2   | Benzo(b)fluoranthene (3,4-Benzofluoranthene) | x  | x   |  | x                        |  | x                              |  |
| 206-44-0   | Fluoranthene                                 | x  | x   | x  | x                        |  | x                              |  |
| 207-08-9   | Benzo(k)fluoranthene                         | x  | x   |  | x                        |  | x                              |  |
| 20816-12-0 | Osmium tetroxide                             |  |   |  |                          |  |                                |  |
| 20830-81-3 | Daunomycin                                   |  |   |  |                          |  |                                |  |
| 20859-73-8 | Aluminum phosphide                           |  |   |  |                          |  |                                |  |
| 208-96-8   | Acenaphthalene                               |  |   |  |                          |  |                                |  |
| 2104-64-5  | EPN  |  |   |  |                          |  |                                |  |
| 21609-90-5 | Leptophos                                    |  |   |  |                          |  |                                |  |
| 218-01-9   | Chrysene                                     | x  | x   |  | x                        |  | x                              |  |
| 224-42-0   | Dibenz(a,j)acridine                          |  |   |  |                          |  |                                |  |
| 225-51-4   | Benz[c]acridine                              |  |   |  |                          |  |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name  | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|---|--------------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 22967-92-6 | Methyl mercury   | x  | x   |  | x                        |   | x                              |  |
| 2303-16-4  | Diallate (cis or trans)                                  |  |   |  |                          |   |                                |  |
| 2310-17-0  | Phosalone  |  |   |  |                          |   |                                |  |
| 2385-85-5  | Mirex  |  |   |  |                          |   |                                |  |
| 23950-58-5 | Pronamide  |  | x   |  | x                        |   | x                              |  |
| 2425-06-1  | Captafol   |  |   |  |                          |   |                                |  |
| 25013-15-4 | Methyl styrene   |  |   |  |                          |   |                                |  |
| 25265-76-3 | Phenylenediamine   |  |   |  |                          |   |                                |  |
| 25376-45-8 | Toluenediamine   |  |   |  |                          |   |                                |  |
| 26471-62-5 | Toluene diisocyanate                                     |  |   |  |                          |   |                                |  |
| 2763-96-4  | 5-(Aminomethyl)-3-isoxazolol                             |  |   |  |                          |   |                                |  |
| 2921-88-5  | Chlorpyrifos X   |  |   |  |                          |   |                                |  |
| 297-97-2   | O,O-Diethyl O-pyrazinyl phosphorothioate<br>(Thionazine) |  |   |  |                          |   |                                |  |
| 298-00-0   | Methyl parathion   |  |   |  |                          |   |                                |  |
| 298-02-2   | Phorate  |  |   |  |                          |   |                                |  |
| 298-03-3   | Demeton-O  |  |   |  |                          |   |                                |  |
| 298-04-4   | Disulfoton   |  |   |  |                          |   |                                |  |
| 29812-79-1 | O-Decyl hydroxylamine                                    |  |   |  |                          |   |                                |  |
| 299-84-3   | Ronnel   |  |   |  |                          |   |                                |  |
| 300-76-5   | Naled  |  |   |  |                          |   |                                |  |
| 302-01-2   | Hydrazine  |  |   |  |                          |   |                                |  |
| 302-17-0   | Chloral hydrate  |  |   |  |                          |   |                                |  |
| 303-34-1   | Lasiocarpine   |  |   |  |                          |   |                                |  |
| 305-03-3   | Chlorambucil   |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                               | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|--|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                                |  |
| 309-00-2   | Aldrin                                      |  |   |  |                          |  |                                |  |
| 311-45-5   | Diethyl-p-nitrophenyl phosphate             |  |   |  |                          |  |                                |  |
| 3114-55-4  | Chlorobenzene-d5                            |  |   |  |                          |  |                                |  |
| 31508-00-6 | 2,3',4,4',5-Pentachlorobiphenyl (PCB 118)   |  |   |  | X                        |  | X                              |  |
| 315-18-4   | Mexacarbate                                 |  |   |  |                          |  |                                |  |
| 319-84-6   | alpha-Hexachlorocyclohexane (alpha-BHC)     |  | X   |  | X                        |  | X                              |  |
| 319-85-7   | beta-Hexachlorocyclohexane (beta-BHC)       |  | X   |  | X                        |  | X                              |  |
| 319-86-8   | delta-BHC                                   |  |   |  |                          |  |                                |  |
| 321-60-8   | 2-Fluorobiphenyl                            |  |   |  |                          |  |                                |  |
| 32598-13-3 | 3,3',4,4'-Tetrachlorobiphenyl (PCB 77)      |  |   |  | X                        |  | X                              |  |
| 32598-14-4 | 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)   |  |   |  | X                        |  | X                              |  |
| 3268-87-9  | Octachlorodibenzo(p)dioxin                  | X  | X   |  | X                        |  | X                              |  |
| 32774-16-6 | 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) |  |   |  | X                        |  | X                              |  |
| 3288-58-2  | O,O-Diethyl S-methyl dithiophosphate        |  |   |  |                          |  |                                |  |
| 33213-65-9 | Endosulfan II                               |  |   |  |                          |  |                                |  |
| 33245-39-5 | Fluchloralin                                |  |   |  |                          |  |                                |  |
| 334-88-3   | Diazomethane                                |  |   |  |                          |  |                                |  |
| 353-50-4   | Carbon oxyfluoride                          |  |   |  |                          |  |                                |  |
| 357-57-3   | Brucine                                     |  |   |  |                          |  |                                |  |
| 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin   | X  | X   |  | X                        |  | X                              |  |
| 367-12-4   | 2-Fluorophenol                              |  |   |  |                          |  |                                |  |
| 3689-24-5  | Tetraethyl dithiopyrophosphate              |  |   |  |                          |  |                                |  |
| 38380-08-4 | 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)  |  |   |  | X                        |  | X                              |  |
| 39001-02-0 | Octachlorodibenzofuran                      | X  | X   |  | X                        |  | X                              |  |
| 39196-18-4 | Thiofanox                                   |  |   |  |                          |  |                                |  |

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| CAS #      | Compound Name                                  | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|--|-----------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                             |  |
| 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin         | x  | x   |  | x                        |  |                             | x  |
| 39300-45-3 | Dinocap  |  |   |  |                          |  |                             |  |
| 39635-31-9 | 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) |  |   |  |                          | x  |                             | x  |
| 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo(p)dioxin          | x  | x   | x  | x                        |  |                             | x  |
| 4170-30-3  | Crotonaldehyde (Propylene aldehyde)            |  | x   |  | x                        |  |                             | x  |
| 41851-50-7 | Chlorocyclopentadiene                          | x  | x   |  | x                        |  |                             | x  |
| 4549-40-0  | N-Nitrosomethylvinylamine                      |  |   |  |                          |  |                             |  |
| 460-00-4   | 4-Bromofluorobenzene                           |  |   |  |                          |  |                             |  |
| 460-19-5   | Cyanogen (oxalonitrile)                        |  | x   |  | x                        |  |                             | x  |
| 463-58-1   | Carbonyl sulfide                               |  |   |  |                          |  |                             |  |
| 465-73-6   | Isodrin  |  |   |  |                          |  |                             |  |
| 470-90-6   | Chlorfenvinphos                                |  |   |  |                          |  |                             |  |
| 479-45-8   | Tetryl   |  |   |  |                          |  |                             |  |
| 492-80-8   | Auramine                                       |  |   |  |                          |  |                             |  |
| 494-03-1   | Chlornaphazin                                  |  |   |  |                          |  |                             |  |
| 50-00-0    | Formaldehyde (methylene oxide)                 | x  | x   |  | x                        |  | x                           |  |
| 50-06-6    | Phenobarbital                                  |  |   |  |                          |  |                             |  |
| 50-07-7    | Mitomycin                                      |  |   |  |                          |  |                             |  |
| 50-18-0    | Cyclophosphamide                               |  |   |  |                          |  |                             |  |
| 50-29-3    | 4,4'-DDT X                                     |  |   |  |                          |  |                             |  |
| 50-32-8    | Benzo(a)Pyrene                                 | x  | x   | x  | x                        |  | x                           |  |
| 504-24-5   | 4-Aminopyridine                                |  |   |  |                          |  |                             |  |
| 50-55-5    | Reserpine                                      |  |   |  |                          |  |                             |  |
| 505-60-2   | Mustard gas                                    |  |   |  |                          |  |                             |  |
| 506-61-6   | Potassium silver cyanide                       |  |   |  |                          |  |                             |  |

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|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 506-64-9   | Silver cyanide                              |  |   |  |                          |   |                                |  |
| 506-68-3   | Cyanogen bromide (bromocyanide)             |  | x   |  | x                        |   | x                              |  |
| 506-77-4   | Cyanogen chloride                           |  | x   |  | x                        |   | x                              |  |
| 510-15-6   | Chlorobenzilate                             |  | x   |  | x                        |   | x                              |  |
| 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran             | x  | x   | x  | x                        |   | x                              |  |
| 512-56-1   | Trimethyl phosphate                         |  |   |  |                          |   |                                |  |
| 51-28-5    | 2,4-Dinitrophenol                           |  | x   |  | x                        |   | x                              |  |
| 5131-60-2  | 4-Chloro-1,3-phenylenediamine               |  |   |  |                          |   |                                |  |
| 51-43-4    | Epinephrine                                 |  |   |  |                          |   |                                |  |
| 51-52-5    | Propylthiouracil                            |  |   |  |                          |   |                                |  |
| 51-79-6    | Ethyl carbamate (urethane)                  |  | x   |  | x                        |   | x                              |  |
| 52663-72-6 | 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) |  |   |  |                          | x   | x                              |  |
| 528-29-0   | 1,2-Dinitrobenzene (o-Dinitrobenzene)       |  | x   |  | x                        |   | x                              |  |
| 52-85-7    | Famphur                                     |  |   |  |                          |   |                                |  |
| 532-27-4   | 2-Chloroacetophenone                        |  | x   |  | x                        |   | x                              |  |
| 5344-82-1  | 1-(o-Chlorophenyl)thiourea                  |  |   |  |                          |   |                                |  |
| 534-52-1   | 4,6-Dinitro-o-cresol                        |  | x   |  | x                        |   | x                              |  |
| 53469-21-9 | Aroclor-1242                                |  |   |  |                          |   |                                |  |
| 53494-70-5 | Endrin ketone                               |  |   |  |                          |   |                                |  |
| 53-70-3    | Dibenzo(a,h)anthracene                      |  | x   |  | x                        |   | x                              |  |
| 5385-75-1  | Dibenzo(a,e)fluoranthene                    | x  | x   |  | x                        |   | x                              |  |
| 53-96-3    | 2-Acetylaminofluorene                       |  |   |  |                          |   |                                |  |
| 540-36-3   | 1,4-Difluorobenzene                         |  |   |  |                          |   |                                |  |
| 540-73-8   | 1,2-Dimethylhydrazine                       |  | x   |  | x                        |   | x                              |  |
| 540-84-1   | 2,2,4-Trimethylpentane                      |  | x   |  | x                        |   | x                              |  |

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|------------|---------------------------------------|--|---|--|--------------------------|--|--------------------------------|--|
|            |                                       | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                                |  |
| 54-11-5    | Nicotine                              |  |   |  |                          |  |                                |  |
| 541-53-7   | Dithiobiuret                          |  |   |  |                          |  |                                |  |
| 541-73-1   | 1,3-Dichlorobenzene                   |  | x   | x  | x                        |  | x                              |  |
| 542-62-1   | Barium cyanide                        |  |   |  |                          |  |                                |  |
| 542-75-6   | 1,3-Dichloropropene                   |  | x   |  | x                        |  |                                | x  |
| 542-76-7   | 3-Chloropropionitrile                 |  |   |  |                          |  |                                |  |
| 542-88-1   | bis(Chloromethyl)ether                | x  | x   |  | x                        |  |                                | x  |
| 544-92-3   | Copper cyanide                        |  |   |  |                          |  |                                |  |
| 55-18-5    | Nitrosodiethylamine                   |  |   |  |                          |  |                                |  |
| 55-38-9    | Fenthion                              |  |   |  |                          |  |                                |  |
| 55-63-0    | Nitroglycerine                        |  |   |  |                          |  |                                |  |
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | x  | x   |  | x                        |  |                                | x  |
| 557-19-7   | Nickel cyanide                        |  |   |  |                          |  |                                |  |
| 557-21-1   | Zinc cyanide                          |  |   |  |                          |  |                                |  |
| 55-91-4    | Diisopropylfluorophosphate (DFP)      |  |   |  |                          |  |                                |  |
| 56-04-2    | Methylthiouracil                      |  |   |  |                          |  |                                |  |
| 56-23-5    | Carbon tetrachloride                  | x  | x   | x  | x                        |  | x                              |  |
| 563-12-2   | Ethion                                |  |   |  |                          |  |                                |  |
| 563-68-8   | Thallium(I)acetate                    |  |   |  |                          |  |                                |  |
| 56-38-2    | Parathion                             |  |   |  |                          |  |                                |  |
| 56-49-5    | 3-Methylcholanthrene                  |  |   |  |                          |  |                                |  |
| 56-53-1    | Diethylstilbestrol                    |  |   |  |                          |  |                                |  |
| 56-55-3    | Benzo(a)anthracene                    | x  | x   |  | x                        |  | x                              |  |
| 56-57-5    | Nitroquinoline-1-oxide                |  |   |  |                          |  |                                |  |
| 56-72-4    | Coumaphos                             |  |   |  |                          |  |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                               | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|--|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                                |  |
| 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran           | x  | x   | x  | x                        |  |                                | x  |
| 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran           | x  | x   | x  | x                        |  |                                | x  |
| 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran          | x  | x   |  | x                        |  |                                | x  |
| 57-12-5    | Cyanide                                     |  |   | x  | x                        |  | x                              |  |
| 57-14-7    | 1,1-Dimethyl hydrazine                      |  |   |  |                          |  |                                |  |
| 57-24-9    | Strychnine                                  |  | x   |  | x                        |  |                                | x  |
| 57-41-0    | 5,5-Diphenylhydantoin                       |  |   |  |                          |  |                                |  |
| 57465-28-8 | 3,3',4,4',5-Pentachlorobiphenyl (PCB 126)   |  |   |  |                          | x  |                                | x  |
| 57-57-8    | beta-Propiolactone                          |  |   |  |                          |  |                                |  |
| 57653-85-7 | 1,2,3,6,7,8,-Hexachlorodibenzo(p)dioxin     | x  | x   |  | x                        |  |                                | x  |
| 57-74-9    | Chlordane                                   |  | x   |  | x                        |  |                                | x  |
| 57-97-6    | 7,12-Dimethylbenz(a)anthracene              |  |   |  |                          |  |                                |  |
| 584-84-9   | 2,4-Toluene diisocyanate                    |  | x   |  | x                        |  |                                | x  |
| 58-89-9    | gamma-BHC (Lindane)                         |  | x   |  | x                        |  | x                              |  |
| 58-90-2    | 2,3,4,6-Tetrachlorophenol                   |  |   |  |                          |  |                                |  |
| 591-08-2   | 1-Acetyl-2-thiourea                         |  |   |  |                          |  |                                |  |
| 591-78-6   | 2-Hexanone (butyl methyl ketone)            |  |   |  |                          |  |                                |  |
| 592-01-8   | Calcium cyanide                             |  |   |  |                          |  |                                |  |
| 593-60-2   | Bromoethene (Vinyl bromide)                 |  | x   |  | x                        |  |                                | x  |
| 59-50-7    | 4-Chloro-3-methylphenol (p-chloro-m-cresol) |  |   |  |                          |  |                                |  |
| 598-31-2   | Bromoacetone                                |  |   |  |                          |  |                                |  |
| 59-89-2    | N-Nitrosomorpholine                         |  |   |  |                          |  |                                |  |
| 60-09-3    | Aminoazobenzene                             |  |   |  |                          |  |                                |  |
| 60-11-7    | Dimethyl aminoazobenzene                    |  | x   |  | x                        |  |                                | x  |
| 602-87-9   | 5-Nitroacenaphthene                         |  |   |  |                          |  |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                                | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|---|--------------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 60-34-4    | Methyl hydrazine                             |  |   |  |                          |   |                                |  |
| 60-35-5    | Acetamide                                    |  |   |  |                          |   |                                |  |
| 60-51-5    | Dimethoate                                   |  |   |  |                          |   |                                |  |
| 60-57-1    | Dieldrin                                     |  |   |  |                          |   |                                |  |
| 606-20-2   | 2,6-Dinitrotoluene                           |  | X   |  | X                        |   | X                              |  |
| 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran           | X  | X   |  | X                        |   | X                              |  |
| 608-93-5   | Pentachlorobenzene                           | X  | X   | X  | X                        |   | X                              |  |
| 615-53-2   | N-Nitroso-N-methylurethane                   |  |   |  |                          |   |                                |  |
| 61626-71-9 | Dichloropentadiene                           |  | X   |  | X                        |   | X                              |  |
| 61-82-5    | Amitrole                                     |  |   |  |                          |   |                                |  |
| 621-64-7   | Di-n-propylnitrosamine                       |  | X   |  | X                        | X   |                                |  |
| 62-38-4    | Phenylmercury acetate                        |  |   |  |                          |   |                                |  |
| 62-44-2    | Phenacetin                                   |  |   |  |                          |   |                                |  |
| 624-83-9   | Methyl isocyanate                            |  | X   |  | X                        |   | X                              |  |
| 62-50-0    | Ethyl methanesulfonate                       |  | X   |  | X                        |   | X                              |  |
| 62-53-3    | Aniline                                      |  | X   |  | X                        |   | X                              |  |
| 62-55-5    | Thioacetamide                                |  |   |  |                          |   |                                |  |
| 62-56-6    | Thiourea                                     |  |   |  |                          |   |                                |  |
| 62-73-7    | Dichlorovos                                  |  |   |  |                          |   |                                |  |
| 62-74-8    | Fluoroacetic acid, sodium salt               |  |   |  |                          |   |                                |  |
| 62-75-9    | N-Nitrosodimethylamine (dimethylnitrosamine) |  | X   |  | X                        | X   |                                |  |
| 628-86-4   | Mercury fulminate                            |  |   |  |                          |   |                                |  |
| 630-10-4   | Selenourea                                   |  |   |  |                          |   |                                |  |
| 630-20-6   | 1,1,1,2-Tetrachloroethane                    | X  | X   |  | X                        | X   |                                |  |
| 63-25-2    | Carbaryl                                     |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                               | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 636-21-5   | o-Toluidine hydrochloride                   |  |   |  |                          |   |                                |  |
| 640-19-7   | Fluoroacetamide                             |  |   |  |                          |   |                                |  |
| 64-17-5    | Ethanol                                     |  |   |  |                          |   |                                |  |
| 64-18-6    | Formic acid (methanoic acid)                |  | x   |  | x                        |   | x                              |  |
| 64-67-5    | Diethyl sulfate                             |  |   |  |                          |   |                                |  |
| 6533-73-9  | Thallium(I)carbonate                        |  |   |  |                          |   |                                |  |
| 65510-44-3 | 2',3,4,4',5-Pentachlorobiphenyl (PCB 123)   |  |   |  |                          | x   | x                              |  |
| 65-85-0    | Benzoic acid                                |  |   | x  | x                        |   | x                              |  |
| 66-27-3    | Methyl methanesulfonate                     |  |   |  |                          |   |                                |  |
| 66-75-1    | Uracil mustard                              |  |   |  |                          |   |                                |  |
| 67-56-1    | Methanol                                    |  |   |  |                          |   |                                |  |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran       | x  | x   |  | x                        |   | x                              |  |
| 67-64-1    | Acetone                                     |  |   | x  | x                        |   | x                              |  |
| 67-66-3    | Chloroform (trichloromethane)               | x  | x   | x  | x                        |   | x                              |  |
| 67-72-1    | Hexachloroethane (perchloroethane)          | x  | x   |  | x                        |   | x                              |  |
| 680-31-9   | Hexamethylphosphoramide                     |  |   |  |                          |   |                                |  |
| 68-12-2    | Dimethyl formamide                          |  |   |  |                          |   |                                |  |
| 684-93-5   | N-Nitroso-N-methylurea                      |  |   |  |                          |   |                                |  |
| 6923-22-4  | Monocrotophos                               |  |   |  |                          |   |                                |  |
| 692-42-2   | Diethylarsine                               |  |   |  |                          |   |                                |  |
| 6959-48-4  | 3-(Chloromethyl)pyridine hydrochloride      |  |   |  |                          |   |                                |  |
| 696-28-6   | Dichlorophenylarsine                        |  |   |  |                          |   |                                |  |
| 69782-90-7 | 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) |  |   |  |                          | x   | x                              |  |
| 7005-72-3  | 4-Chlorophenyl phenyl ether                 |  |   |  |                          |   |                                |  |
| 70-25-7    | N-Methyl-N'-nitro-N-nitrosoguanidine        |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                             | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|---|--|---|--|--------------------------|---|--------------------------------|--|
|            |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
|            | (MNNG)                                    |  |   |  |                          |   |                                |  |
| 70-30-4    | Hexachlorophene                           |  | x   |  | x                        |   |                                | x  |
| 70362-50-4 | 3,4,4',5-Tetrachlorobiphenyl (PCB 81)     |  |   |  |                          | x   |                                | x  |
| 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran        | x  | x   |  | x                        |   |                                | x  |
| 71-43-2    | Benzene                                   | x  | x   | x  | x                        |   | x                              |  |
| 71-55-6    | Methyl chloroform (1,1,1-trichloroethane) | x  | x   | x  | x                        |   | x                              |  |
| 72-20-8    | Endrin                                    |  |   |  |                          |   |                                |  |
| 72-33-3    | Mestranol                                 |  |   |  |                          |   |                                |  |
| 72-43-5    | Methoxychlor                              |  | x   |  | x                        |   | x                              |  |
| 72-54-8    | 4,4'-DDD                                  |  |   |  |                          |   |                                |  |
| 72-55-9    | DDE                                       |  | x   |  | x                        |   | x                              |  |
| 72-57-1    | Trypan blue                               |  |   |  |                          |   |                                |  |
| 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran        | x  | x   |  | x                        |   |                                | x  |
| 732-11-6   | Phosmet                                   |  |   |  |                          |   |                                |  |
| 7421-93-4  | Endrin aldehyde                           |  |   |  |                          |   |                                |  |
| 7439-92-1  | Lead                                      | x  | x   | x  | x                        |   | x                              |  |
| 7439-96-5  | Manganese                                 | x  |   | x  | x                        |   | x                              |  |
| 7439-97-6  | Mercury                                   | x  | x   | x  | x                        |   | x                              |  |
| 7440-02-0  | Nickel                                    | x  | x   | x  | x                        |   | x                              |  |
| 7440-22-4  | Silver                                    | x  | x   |  | x                        |   | x                              |  |
| 7440-28-0  | Thallium                                  | x  | x   |  | x                        |   | x                              |  |
| 7440-36-0  | Antimony                                  | x  | x   |  | x                        |   | x                              |  |
| 7440-38-2  | Arsenic                                   | x  | x   | x  | x                        |   | x                              |  |
| 7440-39-3  | Barium                                    | x  | x   |  | x                        |   | x                              |  |
| 7440-41-7  | Beryllium                                 |  | x   | x  | x                        |   | x                              |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #      | Compound Name                            | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|------------|--|--|---|--|--------------------------|---|--------------------------------|--|
|            |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 7440-43-9  | Cadmium                                  | x  | x   | x  | x                        |   | x                              |  |
| 7440-47-3  | Chromium (total)                         | x  | x   | x  | x                        |   | x                              |  |
| 7440-48-4  | Cobalt                                   |  |   |  |                          |   |                                |  |
| 7440-50-8  | Copper                                   | x  | x   |  | x                        |   | x                              |  |
| 7440-62-2  | Vanadium                                 |  |   |  |                          |   |                                |  |
| 7440-66-6  | Zinc                                     | x  |   | x  | x                        |   | x                              |  |
| 7446-18-6  | Thallium(I)sulfate                       |  |   |  |                          |   |                                |  |
| 74472-37-0 | 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) |  |   |  |                          | x   |                                | x  |
| 74-83-9    | Bromomethane (methylbromide)             | x  | x   | x  | x                        |   | x                              |  |
| 74-87-3    | Chloromethane (methyl chloride)          | x  | x   | x  | x                        |   | x                              |  |
| 7487-94-7  | Mercuric chloride                        |  |   |  |                          |   |                                |  |
| 74-88-4    | Methyl iodide (Iodomethane)              |  |   |  |                          |   |                                |  |
| 7488-56-4  | Selenium sulfide                         |  |   |  |                          |   |                                |  |
| 74-90-8    | Hydrogen cyanide                         |  |   |  |                          |   |                                |  |
| 74-93-1    | Thiomethanol                             |  |   |  |                          |   |                                |  |
| 74-95-3    | Methylene bromide                        | x  | x   |  | x                        |   |                                | x  |
| 74-97-5    | Bromochloromethane                       | x  | x   | x  | x                        |   |                                | x  |
| 75-00-3    | Chloroethane                             |  | x   |  | x                        |   | x                              |  |
| 75-01-4    | Vinyl chloride                           | x  | x   | x  | x                        |   | x                              |  |
| 75-05-8    | Acetonitrile                             | x  |   |  | x                        |   | x                              |  |
| 75-07-0    | Acetaldehyde                             |  | x   |  | x                        |   | x                              |  |
| 75-09-2    | Methylene chloride                       |  | x   | x  | x                        |   | x                              |  |
| 75-15-0    | Carbon disulfide                         | x  | x   | x  | x                        |   | x                              |  |
| 75-21-8    | Ethylene oxide                           |  | x   |  | x                        |   | x                              |  |
| 75-25-2    | Bromoform                                |  | x   | x  | x                        |   |                                | x  |

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| CAS #     | Compound Name                                    | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|-----------|--|--|---|--|--------------------------|---|--------------------------------|--|
|           |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 75-27-4   | Bromodichloromethane                             | x  | x   | x  | x                        |   | x                              |  |
| 75-29-6   | 2-Chloropropane                                  |  | x   |  | x                        |   |                                | x  |
| 75-34-3   | 1,1-Dichloroethane                               | x  | x   | x  | x                        |   | x                              |  |
| 75-35-4   | 1,1-Dichloroethene                               | x  | x   |  | x                        |   | x                              |  |
| 75-36-5   | Acetyl chloride                                  |  |   |  |                          |   |                                |  |
| 75-44-5   | Phosgene (hydrogen phosphide)                    |  | x   |  | x                        |   |                                | x  |
| 75-45-6   | Chlorodifluoromethane                            |  |   | x  | x                        |   | x                              |  |
| 755-04-5  | Titanium tetrachloride                           |  |   |  |                          |   |                                |  |
| 75-55-8   | 1,2-Propylenimine (2-methyl aziridine)           |  |   |  |                          |   |                                |  |
| 75-56-9   | Propylene oxide                                  |  |   |  |                          |   |                                |  |
| 75-60-5   | Cacodylic acid                                   |  |   |  |                          |   |                                |  |
| 75-69-4   | Trichlorofluoromethane (Freon 11)                |  |   | x  | x                        |   | x                              |  |
| 75-70-7   | Trichloromethanethiol                            |  |   |  |                          |   |                                |  |
| 75-71-8   | Dichlorodifluoromethane                          |  | x   |  | x                        |   | x                              |  |
| 757-58-4  | Hexaethyl tetraphosphate                         |  |   |  |                          |   |                                |  |
| 75-86-5   | 2-Methylactonitrile                              |  |   |  |                          |   |                                |  |
| 75-87-6   | Chloral  |  |   |  |                          |   |                                |  |
| 759-73-9  | N-Nitroso-N-ethylurea                            |  |   |  |                          |   |                                |  |
| 76-01-7   | Pentachloroethane                                |  |   | x  | x                        |   |                                | x  |
| 76-13-1   | 1,1,2-Trichloro-1,2,2-trifluoroethane(Freon 113) |  | x   | x  | x                        |   | x                              |  |
| 764-41-0  | 1,4-Dichloro-2-butene                            |  | x   |  | x                        |   |                                | x  |
| 76-44-8   | Heptachlor                                       |  | x   |  | x                        |   | x                              |  |
| 7647-01-0 | Hydrogen Chloride (hydrochloric acid)            |  |   | x  | x                        |   | x                              |  |
| 765-34-4  | Glycidylaldehyde                                 |  | x   |  | x                        |   |                                | x  |

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| CAS #     | Compound Name                    | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|-----------|----------------------------------|--|---|--|--------------------------|---|--------------------------------|--|
|           |                                  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 7664-38-2 | Phosphoric acid                  |  |   |  |                          |   |                                |  |
| 7664-39-3 | Hydrogen fluoride                |  |   | x  | x                        |   | x                              |  |
| 7664-41-7 | Ammonia                          |  | x   | x  | x                        |   | x                              |  |
| 7700-17-6 | Crotoxyphos                      |  |   |  |                          |   |                                |  |
| 7723-14-0 | Phosphorus                       |  |   |  |                          |   |                                |  |
| 77-47-4   | Hexachlorocyclopentadiene        |  | x   | x  | x                        |   |                                | x  |
| 77-78-1   | Dimethyl sulfate                 |  | x   |  | x                        |   |                                | x  |
| 7778-39-4 | Arsenic acid                     |  |   |  |                          |   |                                |  |
| 7782-41-4 | Fluorine                         |  |   |  |                          |   |                                |  |
| 7782-49-2 | Selenium                         | x  | x   |  | x                        |   | x                              |  |
| 7782-50-5 | Chlorine                         |  |   |  |                          |   |                                |  |
| 7783-00-8 | Selenium dioxide                 |  |   |  |                          |   |                                |  |
| 7783-06-4 | Hydrogen sulfide                 |  |   |  |                          |   |                                |  |
| 7786-34-7 | Mevinphos                        |  |   |  |                          |   |                                |  |
| 7791-12-0 | Thallium(I)chloride              |  |   |  |                          |   |                                |  |
| 78-00-2   | Tetraethyl lead                  |  |   |  |                          |   |                                |  |
| 7803-51-2 | Phosphine                        |  |   |  |                          |   |                                |  |
| 7803-55-6 | Ammonium vanadate                |  |   |  |                          |   |                                |  |
| 78-32-0   | Tri-p-tolyl phosphate            |  |   |  |                          |   |                                |  |
| 78-34-2   | Dioxathion                       |  |   |  |                          |   |                                |  |
| 78-59-1   | Isophorone                       |  |   |  |                          |   |                                |  |
| 786-19-6  | Carbophenothion                  |  |   |  |                          |   |                                |  |
| 78-83-1   | Isobutyl alcohol                 |  |   |  |                          |   |                                |  |
| 78-87-5   | 1,2-Dichloropropane              |  | x   | x  | x                        |   | x                              |  |
| 78-93-3   | 2-Butanone (methyl ethyl ketone) | x  | x   | x  | x                        |   | x                              |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #     | Compound Name                               | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|-----------|---|--|---|--|--------------------------|---|--------------------------------|--|
|           |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 78-97-7   | 2-Hydroxypropionitrile                      |  |   |  |                          |   |                                |  |
| 79-00-5   | 1,1,2-Trichloroethane                       | x  | x   | x  | x                        |   | x                              |  |
| 79-01-6   | Trichloroethene                             | x  | x   | x  | x                        |   | x                              |  |
| 79-06-1   | Acrylamide                                  |  |   |  |                          |   |                                |  |
| 79-10-7   | Acrylic acid                                |  |   |  |                          |   |                                |  |
| 79-11-8   | Chloroacetic acid                           |  |   |  |                          |   |                                |  |
| 79-19-6   | Thiosemicarbazide                           |  |   |  |                          |   |                                |  |
| 79-20-9   | Methyl acetate                              |  |   |  |                          |   |                                |  |
| 79-22-1   | Methyl chlorocarbonate                      |  |   |  |                          |   |                                |  |
| 79-34-5   | 1,1,2,2-Tetrachloroethane                   | x  | x   |  | x                        |   | x                              |  |
| 79-44-7   | Dimethyl carbamoyl chloride                 |  |   |  |                          |   |                                |  |
| 79-46-9   | 2-Nitropropane                              |  |   |  |                          |   |                                |  |
| 8001-35-2 | Toxaphene (chlorinated camphene)            |  |   |  |                          |   |                                |  |
| 80-62-6   | Methyl methacrylate                         |  |   |  |                          |   |                                |  |
| 8065-48-3 | Demeton                                     |  |   |  |                          |   |                                |  |
| 81-07-2   | Saccharin                                   |  |   |  |                          |   |                                |  |
| 81-81-2   | Warfarin                                    |  |   |  |                          |   |                                |  |
| 822-06-0  | Hexamethylene-1,5-diisocyanate              |  | x   |  | x                        |   |                                | x  |
| 823-40-5  | Toluene-2,6-diamine                         |  | x   |  | x                        |   |                                | x  |
| 82-68-8   | Pentachloronitrobenzene (PCNB)              |  | x   |  | x                        |   | x                              |  |
| 83-32-9   | Acenaphthene                                |  |   |  |                          |   |                                |  |
| 84-66-2   | Diethyl phthalate                           |  | x   | x  | x                        |   | x                              |  |
| 84-74-2   | Dibutyl phthalate                           | x  | x   | x  | x                        |   | x                              |  |
| 85-01-8   | Phenanthrene                                |  |   |  |                          |   |                                |  |
| 85-44-9   | Phthalic anhydride (1,2-benzenedicarboxylic |  | x   |  | x                        |   |                                | x  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #    | Compound Name                            | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|----------|--|--|---|--|--------------------------|---|--------------------------------|--|
|          |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
|          | anhydride)                               |  |   |  |                          |   |                                |  |
| 85-68-7  | Butylbenzyl phthalate                    | x  | x   | x  | x                        |   | x                              |  |
| 86-30-6  | N-Nitrosodiphenylamine                   |  |   |  |                          |   |                                |  |
| 86-50-0  | Azinphos-methyl                          |  |   |  |                          |   |                                |  |
| 86-73-7  | Fluorene                                 | x  |   |  | x                        |   | x                              |  |
| 86-88-4  | alpha-Naphthylthiourea                   |  |   |  |                          |   |                                |  |
| 87-65-0  | 2,6-Dichlorophenol                       |  |   |  |                          |   |                                |  |
| 87-68-3  | Hexachlorobutadiene (perchlorobutadiene) | x  | x   | x  | x                        |   | x                              |  |
| 87-86-5  | Pentachlorophenol                        | x  | x   | x  | x                        |   | x                              |  |
| 88-06-2  | 2,4,6-Trichlorophenol                    | x  | x   | x  | x                        |   | x                              |  |
| 88-74-4  | o-Nitroaniline (2-nitroaniline)          |  | x   |  | x                        |   | x                              |  |
| 88-75-5  | 2-Nitrophenol                            |  |   | x  | x                        |   | x                              |  |
| 88-85-7  | Dinoseb                                  |  |   |  |                          |   |                                |  |
| 90-04-0  | o-Anisidine                              |  | x   |  | x                        |   | x                              |  |
| 90-13-1  | 1-Chloronaphthalene                      |  |   |  |                          |   |                                |  |
| 91-20-3  | Naphthalene                              | x  | x   | x  | x                        |   | x                              |  |
| 91-22-5  | Quinoline                                |  | x   |  | x                        |   | x                              |  |
| 91-57-6  | 2-Methylnaphthalene                      |  |   |  |                          |   |                                |  |
| 91-58-7  | 2-Chloronaphthalene                      |  | x   |  | x                        |   | x                              |  |
| 91-59-8  | 2-Naphthylamine (beta-naphthylamine)     |  |   |  |                          |   |                                |  |
| 91-80-5  | Methapyrilene                            |  |   |  |                          |   |                                |  |
| 91-94-1  | 3,3'-Dichlorobenzidine                   |  | x   |  | x                        |   | x                              |  |
| 924-16-3 | N-Nitroso-di-n-Buetylamine               |  | x   |  | x                        |   | x                              |  |
| 92-52-4  | Biphenyl                                 | x  | x   |  | x                        |   | x                              |  |
| 92-67-1  | 4-Aminobiphenyl                          |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #    | Compound Name                             | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|----------|---|--|---|--|--------------------------|---|--------------------------------|--|
|          |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 92-87-5  | Benzidine                                 |  |   |  |                          |   |                                |  |
| 92-93-3  | 4-Nitrobiphenyl                           |  |   |  |                          |   |                                |  |
| 930-55-2 | N-Nitrosopyrrolidine                      |  |   |  |                          |   |                                |  |
| 93-72-1  | Silvex                                    |  |   |  |                          |   |                                |  |
| 94-58-6  | Dihydrosaffrole                           |  |   |  |                          |   |                                |  |
| 94-59-7  | Safrole (5-(2-Propenyl)-1,3-benzodioxole) |  | X   |  | X                        |   | X                              |  |
| 94-75-7  | 2,4-D                                     |  | X   |  | X                        | X   |                                |  |
| 95-06-7  | Sulfallate                                |  |   |  |                          |   |                                |  |
| 95-47-6  | o-Xylene (dimethyl benzene)               | X  | X   | X  | X                        | X   |                                |  |
| 95-48-7  | 2-Methylphenol (o-Cresol)                 |  | X   |  | X                        | X   |                                |  |
| 95-50-1  | 1,2-Dichlorobenzene <sup>4</sup>          | X  | X   | X  | X                        | X   |                                |  |
| 95-53-4  | o-Toluidine                               |  | X   |  | X                        |   | X                              |  |
| 95-57-8  | 2-Chlorophenol                            |  | X   | X  | X                        | X   |                                |  |
| 95-79-4  | 5-Chloro-2-methylaniline                  |  |   |  |                          |   |                                |  |
| 95-80-7  | 2,4-Toluene diamine                       |  |   |  |                          |   |                                |  |
| 95-83-0  | 4-Chloro-1,2-phenylenediamine             |  |   |  |                          |   |                                |  |
| 95-94-3  | 1,2,4,5-Tetrachlorobenzene                | X  | X   | X  | X                        |   | X                              |  |
| 95-95-4  | 2,4,5-Trichlorophenol                     | X  | X   |  | X                        | X   |                                |  |
| 959-98-8 | Endosulfan I                              |  |   |  |                          |   |                                |  |
| 96-09-3  | Styrene oxide                             |  |   |  |                          |   |                                |  |
| 961-11-5 | Tetrachlorvinphos                         |  |   |  |                          |   |                                |  |
| 96-12-8  | 1,2-Dibromo-3-chloropropane               | X  | X   |  | X                        |   | X                              |  |
| 96-18-4  | 1,2,3-Trichloropropane                    |  | X   |  | X                        |   | X                              |  |
| 96-23-1  | 1,3-Dichloro-2-propanol                   |  |   |  |                          |   |                                |  |
| 96-45-7  | Ethylene thiourea                         |  | X   |  | X                        |   | X                              |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS #   | Compound Name   | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar<br>PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|---------|---|--|---|--|--------------------------|---|--------------------------------|--|
|         |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |   |                                |  |
| 97-63-2 | Ethyl methacrylate  |  | X   |  | X                        |   | X                              |  |
| 98-01-1 | Furfural  |  | X   |  | X                        |   | X                              |  |
| 98-07-7 | Benzotrichloride  |  | X   |  | X                        |   | X                              |  |
| 98-82-8 | Cumene  | X  | X   | X  | X                        | X   |                                |  |
| 98-83-9 | Methyl styrene (mixed isomers)  |  | X   |  | X                        |   | X                              |  |
| 98-86-2 | Acetophenone  |  | X   | X  | X                        | X   |                                |  |
| 98-87-3 | Benzal chloride   |  |   |  |                          |   |                                |  |
| 98-95-3 | Nitrobenzene  |  | X   |  | X                        | X   |                                |  |
| 99-09-2 | 3-Nitroaniline  |  |   |  |                          |   |                                |  |
| 99-35-4 | 1,3,5-Trinitrobenzene   |  | X   |  | X                        |   | X                              |  |
| 99-55-8 | 5-Nitro-o-toluidine   |  |   |  |                          |   |                                |  |
| 99-59-2 | 5-Nitro-o-anisidine   |  |   |  |                          |   |                                |  |
| 99-65-0 | 1,3-Dinitrobenzene  |  | X   |  | X                        |   | X                              |  |
| N/A     | 2,3,7,8-substituted Polychlorinated<br>dibenzo(p)dioxin congeners (2,3,7,8-PCDDs) |  |   |  |                          |   |                                |  |
| N/A     | Beryllium compounds   |  |   |  |                          |   |                                |  |
| N/A     | Cadmium compounds   |  |   |  |                          |   |                                |  |
| N/A     | N-Chlorodiisopropyl amine   |  |   |  |                          |   |                                |  |
| N/A     | N-Chloroisopropyl amine   |  |   |  |                          |   |                                |  |
| N/A     | Chromium compounds  |  |   |  |                          |   |                                |  |
| N/A     | Creosote  |  |   |  |                          |   |                                |  |
| N/A     | Cyanide compounds   |  |   |  |                          |   |                                |  |
| N/A     | Dibutylchloramine   |  |   |  |                          |   |                                |  |
| N/A     | 3,3-Dichloroisopropyl ether   |  |   |  |                          |   |                                |  |
| N/A     | Lead compounds  |  |   |  |                          |   |                                |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS # | Compound Name                                       | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|-------|---|--|---|--|--------------------------|--|-----------------------------|--|
|       |   | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                             |  |
| N/A   | Nicotine salts                                      |  |   |  |                          |  |                             |  |
| N/A   | 2-Nitrodiphenylamine                                |  |   |  |                          |  |                             |  |
| N/A   | Saccharin salts                                     |  |   |  |                          |  |                             |  |
| N/A   | Sodium O-ethylmethylphosphonate<br>Diisopropylamine |  |   |  |                          |  |                             |  |
| N/A   | Strychnine salts                                    |  |   |  |                          |  |                             |  |
| N/A   | Thioamine   |  |   |  |                          |  |                             |  |
| N/A   | O-decyl-hydroxylamine                               |  |   |  |                          |  |                             |  |
| N/A   | Acenaphthene-d10                                    |  |   |  |                          |  |                             |  |
| N/A   | Antimony compounds                                  |  |   |  |                          |  |                             |  |
| N/A   | Arsenic compounds (inorganic, including<br>arsine)  |  |   |  |                          |  |                             |  |
| N/A   | 2-Chloro-1,3-butadiene                              |  |   |  |                          |  |                             |  |
| N/A   | Chrysene-d12  |  |   |  |                          |  |                             |  |
| N/A   | Cobalt compounds                                    |  |   |  |                          |  |                             |  |
| N/A   | Coke oven emissions                                 |  |   |  |                          |  |                             |  |
| N/A   | Dibenz(a)anthracene                                 |  |   |  |                          |  |                             |  |
| N/A   | 1,4-Dichlorobenzene-d4                              |  |   |  |                          |  |                             |  |
| N/A   | Dichloroethylene                                    |  |   |  |                          |  |                             |  |
| N/A   | Dichloropropane                                     |  |   |  |                          |  |                             |  |
| N/A   | Dichloropropanols                                   |  |   |  |                          |  |                             |  |
| N/A   | Dichloropropene                                     |  |   |  |                          |  |                             |  |
| N/A   | Manganese compounds                                 |  |   |  |                          |  |                             |  |
| N/A   | Mercury compounds                                   |  |   |  |                          |  |                             |  |
| N/A   | Naphthalene-d8                                      |  |   |  |                          |  |                             |  |

**Table E-1 US Environmental Protection Agency Products of Incomplete Combustion**

| CAS # | Compound Name  | Historical EPA PICs: Table A-1<br>[HHRAP (EPA 1998)]                 |   |  |                          | Coplanar PCBs<br>Table 2-5<br>HHRAP<br>(EPA 2005) <sup>a</sup> | Already<br>assigned<br>as COPC | Added to<br>WTP<br>COPCs as<br>EPA PICs <sup>b</sup> |
|-------|--|--|---|--|--------------------------|--|--------------------------------|--|
|       |  | EPA<br>Compounds<br>Identified in<br>Combustion<br>Unit<br>Emissions | EPA<br>Recommended<br>and Potential<br>PICs | PICs in<br>Stack<br>Emission<br>Actually<br>Detected | EPA<br>Identified<br>PIC |  |                                |  |
| N/A   | Nickel compounds   |  |   |  |                          |  |                                |  |
| N/A   | Nitrobenzene-d5  |  |   |  |                          |  |                                |  |
| N/A   | Perylene-d12   |  |   |  |                          |  |                                |  |
| N/A   | Phenanthrene-d10   |  |   |  |                          |  |                                |  |
| N/A   | Phenol-d6  |  |   |  |                          |  |                                |  |
| N/A   | Phenolic compounds   |  |   |  |                          |  |                                |  |
| N/A   | Phosphorodithioic and phosphorothioic acid esters                          |  |   |  |                          |  |                                |  |
| N/A   | 2,3,7,8-substituted Polychlorinated dibenzofuran congeners (2,3,7,8-PCDFs) |  |   |  |                          |  |                                |  |
| N/A   | Selenium compounds   |  |   |  |                          |  |                                |  |
| N/A   | Tetrachlorobenzene   |  |   |  |                          |  |                                |  |
| N/A   | 2,4,6-Tribromophenol   |  |   |  |                          |  |                                |  |
| N/A   | Trichloropropane   |  |   |  |                          |  |                                |  |
| N/A   | Dibenzo(a,h)fluoranthene   | x  | x   |  | x <sup>2</sup>           |  | x                              |  |

Notes:

<sup>1</sup> WTP and Ecology subsequently agreed to treat these EPA PICs as WTP feed constituents (Appendix G).

<sup>2</sup> WTP and Ecology subsequently agreed that this compound could not structurally exist (Appendix G).

<sup>3</sup> Although this constituent is identified as an EPA PIC, WTP has decided to treat all chromium as hexavalent, thus total chromium will substitute (Appendix G).

<sup>4</sup> Corrected EPA CAS No.; EPA has CAS No. 95-55-1 in HHRAP 1998.

<sup>a</sup> An "x" in the box indicates EPA identified the compound as a coplanar PCB in HHRAP 2005.

<sup>b</sup> An "x" in the box indicates the constituent was retained as a WTP stack emission COPC because it is an EPA identified PIC

N/A = no CAS number available.

## **Appendix F**

### **Site-Specific PICs Identified in Research and Technology Development Testing**

## Appendix F

# Site-Specific PICs Identified in Research and Technology Development Testing

Beginning in 1998, the WTP investigated the types and concentrations of emissions that potentially could result from vitrification melter operations. A total of eight tests were conducted by the Vitreous State Laboratory of the Catholic University of America (VSL), and Duratek, Inc., providing emissions data on PICs and destruction and removal efficiencies for waste feed constituents. These tests are documented in the following reports:

- 1) VSL 1999. *Determination of the Fate of Hazardous Organics During Vitrification of RPP-WTP LAW and HLW Simulants*, Final Report, Rev 0, VSL-99R3580-2, KS Matlack and IL Pegg, Vitreous State Laboratory, The Catholic University of America, Washington, DC, October 4, 1999.
- 2) VSL 2003. *Integrated Off-Gas System Tests on the DM1200 Melter with RPP-WTP LAW Sub-Envelope C1 Simulants*, Final Report, Rev 1, VSL-02R8800-1, KS Matlack, W Gong, T Bardakci, N D'Angelo, and IL Pegg, Vitreous State Laboratory, The Catholic University of America, Washington, DC, September 23, 2003.
- 3) VSL 2003. *Integrated Off-Gas System Tests on the DM1200 Melter with RPP-WTP LAW Sub-Envelope B1 Simulants*, Final Report, Rev 0, VSL-03R3851-1, KS Matlack, W Gong, T Bardakci, N D'Angelo, and IL Pegg, Vitreous State Laboratory, The Catholic University of America, Washington, DC, October 17, 2003.
- 4) VSL 2003. *Integrated Off-Gas System Tests on the DM1200 Melter with RPP-WTP LAW Sub-Envelope A1 Simulants*, Final Report, Rev 1, VSL-02R8800-2, KS Matlack, W Gong, T Bardakci, N D'Angelo, and IL Pegg, Vitreous State Laboratory, The Catholic University of America, Washington, DC, November 5, 2003.
- 5) VSL 2005. *Regulatory Off-Gas Emissions Testing on the DM1200 Melter System Using HLW and LAW Simulants*, Final Report, Rev 0, VSL-05R5830-1, KS Matlack, W Gong, T Bardakci, N D'Angelo, M Brandys, W Kot, and IL Pegg, Vitreous State Laboratory, The Catholic University of America, Washington, DC, October 31, 2005.
- 6) Duratek 2003. *RPP-WTP Pilot Melter Envelope A Emissions Test Results Report*, Rev 1, TRR-PLT-062, Duratek, Inc., Columbia, Maryland, September 10, 2003.
- 7) Duratek 2003. *RPP-WTP Pilot Melter Envelope B Emissions Test Results Report*, Rev 0, TRR-PLT-075, Duratek, Inc., Columbia, Maryland, September 10, 2003.
- 8) Duratek 2003. *RPP-WTP Pilot Melter Envelope C Emissions Test Results Report*, Rev 1, TRR-PLT-077, Duratek, Inc., Columbia, Maryland, August 28, 2003.

For the purpose of providing a complete list of COPCs for evaluation during subsequent permitting activities, all compounds that were detected were included as a COPC without regard to a requirement for meeting quality assurance standards for those analytes near detection limits. Therefore, those compounds that were detected at concentrations between the method detection limit and the estimated quantitation limit as well as tentatively identified compounds were retained as COPCs.

A total of 144 constituents were identified by this process. Table F-1 provides a summary of the detected constituents during the melter emissions testing. Each compound listed in Table F-1 was detected during VSL testing. Those compounds potentially in the waste feed or identified as a WTP stack emission measurement compound by previous steps were eliminated. Those not eliminated were added as site-specific PICs (Table F-1).

There were 6 site-specific PICs that were removed from the TAPs list in the revision to the regulation, but were retained because they were detected during pilot-scale melter testing. Three PICs were in the RDQO starting list of 125 constituents and 2 were in the low-toxicity list added at the request of EPA. An additional PIC that did not meet the criteria for listing as feed COPC was also detected will be added as stack emissions COPCs. One PIC detected during testing is on the EPA PIC list. An additional 26 PICs detected do not show up on particular input but are nonetheless retained as COPCs because of their presence in test samples taken by VSL. This process added 33 PIC COPCs that were not previously identified as WTP COPCs.

**Table F-1 Site-Specific PICs Identified in VSL Testing**

| <b>CAS #</b> | <b>Constituent Detected During VSL Testing</b> | <b>Site-Specific PIC COPCs Identified in VSL Testing</b> | <b>Identified as WTP Waste Feed or stack Emissions COPC (Table 2-1 source code shown)</b> |
|--------------|--|--|---|
| 100-41-4     | Ethyl benzene                                  |  | 1   |
| 100-42-5     | Styrene  |  | 1   |
| 106-46-7     | 1,4-Dichlorobenzene                            |  | 1   |
| 107-05-1     | 3-Chloropropene (Allyl chloride)               |  | 1   |
| 107-06-2     | 1,2-Dichloroethane                             |  | 1   |
| 107-13-1     | Acrylonitrile                                  |  | 1   |
| 108-88-3     | Toluene  |  | 1   |
| 108-90-7     | Chlorobenzene                                  |  | 1   |
| 108-95-2     | Phenol   |  | 1   |
| 120-82-1     | 1,2,4-Trichlorobenzene                         |  | 1   |
| 127-18-4     | 1,1,2,2-Tetrachloroethene                      |  | 1   |
| 50-32-8      | Benzo(a)pyrene                                 |  | 1   |
| 53-70-3      | Dibenz[a,h]anthracene                          |  | 1   |
| 541-73-1     | 1,3-Dichlorobenzene                            |  | 1   |
| 56-23-5      | Carbon tetrachloride                           |  | 1   |
| 591-78-6     | 2-Hexanone                                     |  | 1   |
| 67-64-1      | 2-Propanone (Acetone)                          |  | 1   |
| 67-66-3      | Chloroform                                     |  | 1   |
| 71-43-2      | Benzene  |  | 1   |
| 74-83-9      | Bromomethane                                   |  | 1   |
| 74-87-3      | Chloromethane                                  |  | 1   |
| 75-00-3      | Chloroethane                                   |  | 1   |
| 75-01-4      | 1-Chloroethene (Vinyl chloride)                |  | 1   |
| 75-05-8      | Acetonitrile                                   |  | 1   |
| 75-09-2      | Dichloromethane (Methylene Chloride)           |  | 1   |
| 75-15-0      | Carbon disulfide                               |  | 1   |
| 75-34-3      | 1,1-Dichloroethane                             |  | 1   |
| 75-35-4      | 1,1-Dichloroethene                             |  | 1   |
| 75-69-4      | Trichlorofluoromethane                         |  | 1   |
| 78-93-3      | 2-Butanone                                     |  | 1   |
| 79-01-6      | 1,1,2-Trichloroethylene                        |  | 1   |
| 87-68-3      | Hexachlorobutadiene                            |  | 1   |
| 95-50-1      | 1,2-Dichlorobenzene                            |  | 1   |
| 98-86-2      | Acetophenone                                   |  | 1   |
| 98-95-3      | Nitrobenzene                                   |  | 1   |
| 117-81-7     | Bis (2-ethylhexyl) phthalate                   |  | 3   |
| 117-84-0     | Di-n-octyl phthalate                           |  | 3   |
| 120-12-7     | Anthracene                                     |  | 3   |
| 120-83-2     | 2,4-Dichlorophenol                             |  | 3   |
| 129-00-0     | Pyrene   |  | 3   |
| 156-60-5     | 1,2-trans-Dichloroethene                       |  | 3   |

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**Table F-1 Site-Specific PICs Identified in VSL Testing**

| CAS #      | Constituent Detected During VSL Testing    | Site-Specific PIC COPCs Identified in VSL Testing | Identified as WTP Waste Feed or stack Emissions COPC (Table 2-1 source code shown) |
|------------|--|---|--|
| 191-24-2   | Benzo(g,h,i)perylene                       |   | 3  |
| 193-39-5   | Indeno(1,2,3-cd)pyrene                     |   | 3  |
| 205-99-2   | Benzo(b)fluoranthene                       |   | 13   |
| 206-44-0   | Fluoranthene                               |   | 3  |
| 207-08-9   | Benzo(k)fluoranthene                       |   | 13   |
| 208-96-8   | Acenaphthylene                             |   | 3  |
| 218-01-9   | Chrysene                                   |   | 13   |
| 56-55-3    | Benzo(a)anthracene                         |   | 13   |
| 59-50-7    | 4-Chloro-3-methylphenol                    |   | 3  |
| 621-64-7   | N-Nitroso-di-n-propylamine                 |   | 3  |
| 630-20-6   | 1,1,1,2-Tetrachloroethane                  |   | 3  |
| 75-27-4    | Bromodichloromethane                       |   | 3  |
| 83-32-9    | Acenaphthene                               |   | 3  |
| 84-66-2    | Diethyl phthalate                          |   | 3  |
| 84-74-2    | Di-n-butylphthalate                        |   | 3  |
| 85-01-8    | Phenanthrene                               |   | 3  |
| 85-68-7    | Butylbenzylphthalate                       |   | 3  |
| 86-73-7    | Fluorene                                   |   | 3  |
| 88-75-5    | 2-Nitrophenol                              |   | 3  |
| 91-20-3    | Naphthalene                                |   | 3  |
| 91-58-7    | 2-Chloronaphthalene                        |   | 3  |
| 95-48-7    | o-Cresol                                   |   | 3  |
| 95-57-8    | 2-Chlorophenol                             |   | 3  |
| 98-82-8    | Cumene                                     |   | 3  |
| 100-02-7   | 4-Nitrophenol                              |   | 4  |
| 121-14-2   | 2,4-Dinitrotoluene                         |   | 4  |
| 1330-20-7  | Xylenes (total)                            |   | 4  |
| 92-52-4    | 1,1'-Biphenyl                              |   | 5  |
| 100-44-7   | Benzyl chloride                            |   | 13   |
| 100-52-7   | Benzaldehyde                               |   | 13   |
| 105-67-9   | 2,4-Dimethylphenol                         |   | 13   |
| 106-44-5   | 4-Methylphenol                             |   | 13   |
| 108-67-8   | 1,3,5-Trimethylbenzene                     |   | 13   |
| 132-64-9   | Dibenzofuran                               |   | 13   |
| 1746-01-6  | TCDD (Dioxin/Furan Indicator)              |   | 13   |
| 192-97-2   | Benzo(e)pyrene                             |   | 13   |
| 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin     |   | 13   |
| 31508-00-6 | 2,3',4,4',5-Pentachlorobiphenyl (PBC 118)  |   | 13   |
| 32598-13-3 | 3,3',4,4'-Tetrachlorobiphenyl (TCB)        |   | 13   |
| 32598-14-4 | 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)  |   | 13   |
| 3268-87-9  | 1,2,3,4,6,7,8,9 Octachlorodibenzo(p)dioxin |   | 13   |

**Table F-1 Site-Specific PICs Identified in VSL Testing**

| CAS #      | Constituent Detected During VSL Testing           | Site-Specific PIC COPCs Identified in VSL Testing | Identified as WTP Waste Feed or stack Emissions COPC (Table 2-1 source code shown) |
|------------|---|---|--|
| 32774-16-6 | 3,3',4,4',5,5'-Hexachlorobiphenyl                 |   | 13   |
| 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin         |   | 13   |
| 38380-08-4 | 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 157)        |   | 13   |
| 39001-02-0 | 1,2,3,4,6,7,8,9 Octachlorodibenzofuran            |   | 13   |
| 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin            |   | 13   |
| 39635-31-9 | 2,3,3',4,4',5,5'-Heptachlorobiphenyl              |   | 13   |
| 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo(p)dioxin             |   | 13   |
| 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran                   |   | 13   |
| 51-28-5    | 2,4-Dinitrophenol                                 |   | 13   |
| 52663-72-6 | 2,3',4,4',5,5'-Hexachlorobiphenyl                 |   | 13   |
| 534-52-1   | 4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol) |   | 13   |
| 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran             |   | 13   |
| 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran                 |   | 13   |
| 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran                 |   | 13   |
| 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran                |   | 13   |
| 57465-28-8 | 3,3',4,4',5-Pentachlorobiphenyl                   |   | 13   |
| 57653-85-7 | 1,2,3,6,7,8,-Hexachlorodibenzo(p)dioxin           |   | 13   |
| 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran                |   | 13   |
| 65510-44-3 | 2',3,4,4',5-Pentachlorobiphenyl                   |   | 13   |
| 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran             |   | 13   |
| 69782-90-7 | 2,3,3',4,4',5'-Hexachlorobiphenyl                 |   | 13   |
| 70362-50-4 | 3,4,4',5-Tetrachlorobiphenyl                      |   | 13   |
| 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran                |   | 13   |
| 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran                |   | 13   |
| 74472-37-0 | 2,3,4,4',5-Pentachlorobiphenyl                    |   | 13   |
| 74-97-5    | Bromochloromethane                                |   | 13   |
| 75-25-2    | Tribromomethane (Bromoform)                       |   | 13   |
| 96-12-8    | 1,2-Dibromo-3-chloropropane                       |   | 13   |
| 97-63-2    | Ethyl methacrylate                                |   | 13   |
| 74-88-4    | Iodomethane                                       | X   | 14   |
| 80-62-6    | Methyl methacrylate                               | X   | 14   |
| 110-83-8   | Cyclohexene                                       | X   | 14   |
| 111-65-9   | n-Octane  | X   | 14   |
| 111-84-2   | n-Nonane  | X   | 14   |
| 540-59-0   | 1,2-Dichloroethene (total) (1,2-Dichloroethylene) | X   | 14   |
| 95-49-8    | o-Chlorotoluene                                   | X   | 14   |
| 100-47-0   | Benzonitrile                                      | X   | 14   |
| 100-51-6   | Benzyl alcohol                                    | X   | 14   |
| 103-65-1   | n-Propyl benzene (Isocumene)                      | X   | 14   |
| 104-51-8   | n-Butylbenzene                                    | X   | 14   |
| 106-43-4   | 4-Chlorotoluene (p-Tolyl chloride)                | X   | 14   |

**Table F-1 Site-Specific PICs Identified in VSL Testing**

| <b>CAS #</b> | <b>Constituent Detected During VSL Testing</b> | <b>Site-Specific PIC COPCs Identified in VSL Testing</b> | <b>Identified as WTP Waste Feed or stack Emissions COPC (Table 2-1 source code shown)</b> |
|--------------|--|--|---|
| 108-86-1     | Bromobenzene (Phenyl bromide)                  | X  | 14  |
| 109-75-1     | 3-Butenenitrile                                | X  | 14  |
| 110-00-9     | Furan  | X  | 14  |
| 1120-21-4    | Undecane                                       | X  | 14  |
| 112-30-1     | 1-Decanol                                      | X  | 14  |
| 112-31-2     | Decanal  | X  | 14  |
| 112-40-3     | Dodecane                                       | X  | 14  |
| 124-18-5     | Decane   | X  | 14  |
| 135-98-8     | sec-Butylbenzene                               | X  | 14  |
| 156-59-2     | cis-1,2-Dichloroethene                         | X  | 14  |
| 2245-38-7    | 2,3,5-Trimethylnaphthalene                     | X  | 14  |
| 4786-20-3    | 2-Butenenitrile                                | X  | 14  |
| 581-42-0     | 2,6-Dimethylnaphthalene                        | X  | 14  |
| 591-50-4     | Benzene, iodo-                                 | X  | 14  |
| 832-69-9     | 1-Methylphenanthrene                           | X  | 14  |
| 87-61-6      | 1,2,3-Trichlorobenzene                         | X  | 14  |
| 90-12-0      | 1-Methylnaphthalene                            | X  | 14  |
| 91-57-6      | 2-Methylnaphthalene                            | X  | 14  |
| 95-63-6      | 1,2,4-Trimethyl benzene                        | X  | 14  |
| 98-06-6      | tert-Butyl benzene                             | X  | 14  |
| 99-87-6      | p-Cymene                                       | X  | 14  |

Notes:  
 COPC = chemical of potential concern  
 EPA = US Environmental Protection Agency  
 PIC = product of incomplete combustion  
 VSL = Vitreous State Laboratory of the Catholic University of America  
 WTP = Hanford Tank Waste Treatment and Immobilization Plant

## **Appendix G**

### **Adjustments to WTP COPC List During Risk Assessment Discussions**

## Appendix G

# Adjustments to WTP COPC List During Risk Assessment Discussions

Several discussions of potential adjustments to the starting list of COPCs were held with the US EPA and Ecology. These meetings included the following:

- Risk Assessment Work Plan discussions September 2004, the WTP COPC list was reconsidered (CCN 097844)
- Environmental Risk Assessment Discussions (CCN 170036)

### G.1 Adjustments to Particle-Bound and Vapor-Phase Compounds COPC List

The September 2004 meeting discussed the disposition of 31 organic COPCs that had not been detected in the Hanford tank waste (Table G-1). Twenty-two of the compounds are particle-bound constituents. Nine of the compounds are vapor-phase pesticides.

Of the 22 particle-bound compounds, ten are considered by EPA to be PICs (5 polycyclic aromatic hydrocarbons, a benzene compound and 4 pesticides). These compounds were compared with the latest update of the TWINS and BBI databases (Appendix A). One (Table G-1, disposition 3) of the ten compounds was detected in Hanford tank waste vapor space by the CHG vapor study (Appendix B); it was retained on the WTP feed COPC list. The remaining nine (Table G-1, disposition 1 and 2) compounds were removed from the WTP feed list and managed as PICs.

The other 12 particle-bound compounds on the WTP COPC list are particle-bound pesticides that have not been detected in Hanford tank waste and do not appear on the EPA PIC list. One compound, trifluralin (CAS No. 1582-09-8), was already removed by the WAC 173-460 toxic air pollutant list revision evaluation (Appendix C). The other 11 (5 from the RDQO starting list and 6 from the low-toxicity list) were removed from the WTP COPC list (Table G-1, disposition 4 and 5).

Six of the nine vapor-phase pesticides are considered by EPA to be PICs; one of the EPA PICs, pentachlorophenol (CAS No. 87-86-5) (Table G-1, disposition 6), was found on the TWINS or BBI list during the WAC 173-460 TAPs revision evaluation and thus is retained as a WTP feed COPC (Appendix C). The other five were moved from feed to PICs to be measured in stack emissions (Table G-1, disposition 7 and 8). Of the remaining three constituents, one compound, 2,2-Dichloropropionic acid (CAS No. 7599-0), was removed in the WAC 173-460 TAPs revision evaluation. The other two were removed from the WTP COPC list since there is no record of their disposal to tanks or TWINS data indicating their presence in tank waste (Table G-1, disposition 9 and 10).

### G.2 Other Adjustments

The RDQO listed total PCBs as a feed COPC; however, the RDQO optimization report (BNI 2004), Table 4-2, substituted individual aroclors for the total PCB analysis Appendix D. The individual aroclors are not expected to survive the WTP thermal processes as separate identifiable mixtures; they do not have air concentration limits; and there is insufficient information with which to evaluate them as individual

risk contributors. Instead, total PCBs analysis will be substituted as a feed COPC and the coplanar PCBs will be evaluated in stack emissions (Table G-1, disposition 11 and 12). The individual aroclors will be retained for analysis in the WTP waste feed; however, the higher value from the total PCB analysis or the aggregate sum of aroclors will be used for comparison to waste feed permitting limits. The aroclors are removed from consideration as feed inputs to emissions limits for air permitting or risk assessment purposes.

The RDQO optimization study substituted the measurement of pH for hydroxide. The measurement of pH will not provide additional information for the air permits and risk assessment. Therefore, the measurement of pH was removed (Table G-1, disposition 13). The measurement of pH will continue in the waste feed.

Total xylenes and three individual isomers of xylene compounds are included in the RDQO starting list of waste feed constituents; they also appear on the EPA PIC list (Appendix E). However, toxicity data is available only for total xylenes (CAS 1330-20-7). Therefore, the individual isomers were removed from both the feed and PIC COPC lists and total xylenes was moved from the EPA PIC list to the waste feed COPC list (Table G-1, disposition 14 and 15). Analytical measurements of the individual isomers of xylene will be made, as needed using broad scan sampling and analytical techniques, to determine total xylenes. Determining concentrations of individual isomers of xylene will not add additional information and they were removed from the PIC COPC list.

Dibenzo(a,h)fluoranthene was originally named a constituent of potential concern based on its inclusion as a PIC in the HHRAP (EPA 1998). The compound was listed without a CAS number and physical and toxicological data could not be found. Investigations concluded that a compound with this nomenclature could not structurally exist. WTP recommended eliminating dibenzo(a,h)fluoranthene as a COPC. Ecology and EPA concurred with this recommendation in March 2005 (CCN 139144) (Table G-1, disposition 16).

Although methyl isocyanate (CAS No. 624-83-9) was previously removed as a waste feed constituent by the RDQO optimization study, it also appears as an EPA PIC. This constituent was retained as an EPA PIC COPC (Table G-1, disposition 17).

Hexavalent chromium (CAS No: 18540-29-9) is included on the EPA PIC list. However, total chromium is measured in WTP waste feed and all chromium emissions are treated as hexavalent chromium for risk assessment and air permitting purposes. Therefore, stack measurement of hexavalent chromium will not add information and it was deleted (Table G-1, disposition 18).

Ozone and carbon dioxide are emitted during WTP facility operations as a result of the melter and control device operations. The emission of neither compound can be controlled at the WTP. Ozone is very reactive and will readily oxidize other constituents emitted by WTP. Carbon dioxide forms as a result of various oxidization processes. WTP will qualitatively evaluate the effect of the emission of these two compounds (Table G-1, disposition 19).

### **G.3 References**

CCN 097844. *Discuss and Resolve the Outstanding Risk Assessment Issues in the Risk Assessment Work Plan (RAWP)*, Meeting Minutes from 9 September 2004 between WTP, US Environmental Protection Agency, Region 10, and Washington State Department of Ecology, in Seattle, Washington.

CCN 139144. *Removal of Dibenzo(a,h)fluoranthene from RAWP COPC List*, E-mail communication from Jerry Yokel, Washington State Department of Ecology, to John Cook, WTP, 30 March 2005.

CCN 170036, *Environmental Risk Assessment Discussions*, Meeting Minutes, March 18, 2009.

WAC 173-460. *Controls for New Sources of Toxic Air Pollutants*, Washington Administrative Code, Olympia, Washington.

**Table G-1 Modifications to WTP COPC List**

| CAS #      | Constituent                                | Disposition Code <sup>a</sup> |
|------------|--|-------------------------------|
| 100-25-4   | 1,4-Dinitrobenzene                         | 1                             |
| 319-85-7   | beta-BHC                                   | 1                             |
| 58-89-9    | gamma-BHC (Lindane)                        | 1                             |
| 205-82-3   | Benzo[j]fluoranthene                       | 2                             |
| 72-43-5    | Methoxychlor                               | 2                             |
| 72-55-9    | 4,4-DDE                                    | 2                             |
| 205-99-2   | Benzo(b)fluoranthene                       | 3                             |
| 207-08-9   | Benzo(k)fluoranthene                       | 3                             |
| 218-01-9   | Chrysene                                   | 3                             |
| 56-55-3    | Benzo(a)anthracene                         | 3                             |
| 309-00-2   | Aldrin                                     | 4                             |
| 60-57-1    | Dieldrin                                   | 4                             |
| 72-20-8    | Endrin                                     | 4                             |
| 8001-35-2  | Toxaphene                                  | 4                             |
| 88-85-7    | 2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb | 4                             |
| 1582-09-8  | Trifluralin *                              | 5                             |
| 1836-75-5  | Nitrofen                                   | 5                             |
| 319-86-8   | delta-BHC                                  | 5                             |
| 50-29-3    | 4,4-DDT                                    | 5                             |
| 72-54-8    | 4,4-DDD                                    | 5                             |
| 93-72-1    | Silvex (2,4,5-TP)                          | 5                             |
| 93-76-5    | 2,4,5-T                                    | 5                             |
| 118-74-1   | Hexachlorobenzene                          | 6                             |
| 87-86-5    | Pentachlorophenol                          | 6                             |
| 319-84-6   | alpha-BHC                                  | 7                             |
| 76-44-8    | Heptachlor                                 | 7                             |
| 82-68-8    | Pentachloronitrobenzene (PCNB)             | 7                             |
| 94-75-7    | 2,4-D and esters                           | 8                             |
| 465-73-6   | Isodrin                                    | 9                             |
| 2385-85-5  | Mirex                                      | 10                            |
| 75-99-0    | 2,2-Dichloropropionic acid *               | 10                            |
| 1336-36-3  | Polychlorinated biphenyls (PCBs)           | 11                            |
| 11096-82-5 | Aroclor-1260                               | 12                            |
| 11097-69-1 | Aroclor-1254                               | 12                            |
| 11104-28-2 | Aroclor-1221                               | 12                            |
| 11141-16-5 | Aroclor-1232                               | 12                            |
| 12672-29-6 | Aroclor-1248                               | 12                            |
| 12674-11-2 | Aroclor-1016                               | 12                            |
| 53469-21-9 | Aroclor-1242                               | 12                            |
| N/A        | pH   | 13                            |
| 1330-20-7  | Xylene (total)                             | 14                            |
| 106-42-3   | p-Xylene                                   | 15                            |
| 108-38-3   | m-Xylene                                   | 15                            |
| 95-47-6    | o-Xylene                                   | 15                            |

**Table G-1 Modifications to WTP COPC List**

| CAS #      | Constituent              | Disposition Code <sup>a</sup> |
|------------|--------------------------|-------------------------------|
| N/A        | Dibenzo(a,h)fluoranthene | 16                            |
| 624-83-9   | Methyl isocyanate        | 17                            |
| 18540-29-9 | Chromium (hexavalent)    | 18                            |
| 10028-15-6 | Ozone                    | 19                            |
| 124-38-9   | Carbon dioxide           | 19                            |

<sup>a</sup> Disposition Code:

- 1 Particle-bound RDQO COPCs; move to EPA PIC (CCN 097844).
- 2 Particle-bound low-toxicity COPCs; move to EPA PIC (CCN 097844).
- 3 Particle-bound low-toxicity feed COPCs; proposed to manage as EPA PICs (CCN 097844); found in TWINS/BBI and retained as feed COPCs.
- 4 Particle-bound RDQO COPCs; eliminate (CCN 097844).
- 5 Particle-bound low-toxicity COPCs; eliminate (CCN 097844).
- 6 Vapor-phase RDQO COPCs; proposed to move to EPA PIC (CCN 097844); found in TWINS or BBI and retained as feed COPC.
- 7 Vapor-phase RDQO COPCs; move to EPA PIC (CCN 097844).
- 8 Vapor-phase low-toxicity feed COPCs; move to EPA PIC (CCN 097844).
- 9 Vapor-phase RDQO COPCs; eliminate (CCN 097844).
- 10 Vapor-phase low-toxicity feed COPCs; eliminate (CCN 097844).
- 11 Move total PCBs from EPA PIC to feed COPC to substitute for aroclors (CCN 170036).
- 12 Delete aroclors from WTP feed COPC list (CCN 170036)
- 13 pH Removed; doesn't add useful information for risk assessment or air permitting.
- 14 Substitute total xylenes for individual isomers as a WTP feed COPC; remove from the EPA PIC list (CCN 170036).
- 15 Delete individual isomers of xylene from WTP feed list; substitute total xylenes; although they also appear as EPA PICs do not add to the PIC list (CCN 170036).
- 16 Removed by agreement with Ecology (CCN 139144).
- 17 Constituent removed by Optimization Study appears on EPA PIC list and retained.
- 18 Hexavalent chromium removed; total chromium treated as if it's hexavalent for risk assessment and air permitting; doesn't add useful information for risk assessment or air permitting.
- 19 Address qualitatively (CCN 170036).

<sup>b</sup> These compounds evaluated as part of the WAC 173-460 TAPs revision analysis and removed.

N/A = no CAS number available.