

Chapter NR 219

ANALYTICAL TEST METHODS AND PROCEDURES

NR 219.01 Purpose  
 NR 219.02 Applicability  
 NR 219.03 Definitions

NR 219.04 Identification of test procedures  
 NR 219.05 Alternate test procedures  
 NR 219.06 Laboratory certification or registration

Note: A number of the references cited in this chapter are no longer in print. Copies of references which are out-of-print are available at any public library by inter-library loan.

**NR 219.01 Purpose.** The purpose of this chapter is to establish analytical test methods, preservation procedures, requirements for laboratories, and procedures applicable to effluent limitations for discharges from point sources as authorized by ss. 299.11 and 283.55 (1), Stats.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; am. Register, April, 1986, No. 364, eff. 8-28-86; am. Register, June, 1986, No. 366, eff. 7-1-86; am. Register, April, 1988, No. 388, eff. 5-1-88; corrections made under s. 13.93, (2m) (b) 7., Stats., Register, November, 1996, No. 491.

**NR 219.02 Applicability.** (1) The procedures prescribed herein shall, except as provided in s. NR 219.06, be used in the determination of concentrations and quantities of pollutant parameters as required for:

(a) An application submitted to the department for a permit under ch. 283, Stats.

(b) Reports required to be submitted by dischargers in accordance with the conditions of issued permits.

(2) Section NR 219.07 requires that laboratories conducting tests under this chapter be certified, registered, or approved under ch. NR 149, HSS 157 or 165.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; am. Register, April, 1986, No. 364, eff. 8-28-86; am. (1) (intro.), Register, June, 1986, No. 366, eff. 7-1-86; correction in (1) (a) made under s. 13.93 (2m) (b) 7., Stats., Register, November, 1996, No. 491.

**NR 219.03 Definitions.** As used in this chapter:

(1) "EPA" means the U.S. environmental protection agency.

(2) "Department" means the department of natural resources.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; am. (1), (2), (3) and (4m), Register, January, 1978, No. 265, eff. 2-1-78; r. and recr. Register, June, 1986, No. 366, eff. 7-1-86; r. and recr. (1), r. (3) and (4), Register, November, 1992, No. 443, eff. 12-1-92.

**NR 219.04 Identification of test procedures.** (1) ANALYTICAL TEST PROCEDURES. Parameters or pollutants, for which wastewater analytical methods are approved, are listed together with test procedure descriptions and references in tables A to E. Parameters or pollutants, for which sludge analytical methods are approved, are listed together with test procedure descriptions and

references in table EM. Metals samples digestion procedures and references are listed in table BM. The discharge values for the listed parameters shall be determined by one of the standard analytical test procedures identified in a table under this subsection or by an alternate test procedure established under ss. NR 219.05 and 149.12.

(2) **SAMPLE PRESERVATION PROCEDURES.** Sample preservation techniques, container materials, and maximum allowable holding times for parameters identified in tables A to E are prescribed in table F. Sludge samples shall be preserved at the time of collection by cooling to 4° C where required. All samples requiring preservation at 4° C shall be cooled immediately after collection, and the required temperature maintained during shipping. Any person may apply for a variance from the prescribed preservation procedures applicable to samples taken from a specific discharge. Applications for variances may be made by letters to the regional administrator and shall provide sufficient data to assure that the variance does not adversely affect the integrity of the sample. The regional administrator will make a decision on whether to approve or deny a variance within 90 days of receipt of the application.

(3) **TEMPERATURE REPORTING PROCEDURES.** Samples cooled with ice packs or not in direct contact with ice during shipping shall be cooled to 4° C prior to shipping, and a temperature blank shall be submitted with the samples. Samples cooled during shipping with ice packs may not be recorded as received on ice. Samples may be recorded as received on ice only if solid ice is present in the cooler at the time the samples are received. If the samples are not received on ice, the laboratory shall record one of the following at the time of receipt:

(a) The temperature of an actual sample.

(b) The temperature of a temperature blank shipped with the samples.

(c) The temperature of the melt water in the shipping container.

Note: Copies of the publications referenced in Tables A - F are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes. Many of these materials are also available through inter-library loan.

History: Cr. Register, June, 1986, No. 366, eff. 7-1-86; r. and recr. Tables B and E, Register, April, 1988, No. 388, eff. 5-1-88; am.; r. and recr. Tables A to F, Register, November, 1992, No. 443, eff. 12-1-92; am. (1), am. Tables A to F, Register, April, 1994, No. 460, eff. 5-1-94; am. (1) and (2), Tables A to F, cr. (3), Register, February, 1996, No. 482, eff. 3-1-96.

Table A  
 List of Approved Biological Test Procedures For Wastewater

Table A  
 List of Approved Biological Test Procedures For Wastewater

| Parameter and Units   | Method <sup>1</sup>   | EPA                                    | Standard         | USGS                   | WDNR |
|---|---|--|------------------|------------------------|------|
|   |   |  | Methods 18th Ed. |                        |      |
| <b>Bacteria:</b>  |   |  |                  |                        |      |
| 1. Coliform (fecal) number per 100 ml                         | MPN, 5 tube, 3 dilution; or, membrane filter (MF) <sup>2</sup> , single step. | p132 <sup>3</sup><br>p124 <sup>3</sup> | 9221E<br>9222D   | B-0050-85 <sup>4</sup> |      |
| 2. Coliform (fecal) in presence of chlorine number per 100 ml | MPN, 5 tube, 3 dilution; or MF, single step <sup>5</sup>                      | p132 <sup>3</sup><br>p124 <sup>3</sup> | 9221E<br>9222D   |                        |      |

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List of Approved Biological  
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| Parameter and Units   | Method <sup>1</sup>   | EPA  | Standard Methods 18th Ed.              | USGS                   | WDNR |
|---|---|--|--|------------------------|------|
| <b>Bacteria:</b>  |   |  |  |                        |      |
| 3. Coliform (total) number per 100 ml   | MPN, 5 tube, 3 dilution; or, MF <sup>2</sup> single step or two step  | p114 <sup>3</sup><br>p108 <sup>3</sup>   | 9221B<br>9222B                         | B-0025-85 <sup>4</sup> |      |
| 4. Coliform (total) in presence of chlorine, number per 100 ml                | MPN, 5 tube, dilution; or, MF <sup>2</sup> with enrichment.   | p114 <sup>3</sup><br>p111 <sup>3</sup>   | 9221B<br>9222B+B.5c                    |                        |      |
| 5. Fecal strepto-cocci, number per 100 ml                                     | MPN, 5 tube, 3 dilution; MF <sup>2</sup> , or Plate count   | p136 <sup>3</sup><br>p136 <sup>3</sup><br>p143 <sup>3</sup>                            | 9230B<br>9230C                         | B-0055-85 <sup>4</sup> |      |
| <b>Enteroviruses:</b>   |   |  |  |                        |      |
| 6. Enteroviruses in water, plaque forming units per liter.                    | Absorption, elution, and organic flocculation, followed by: Plaque assay (cell culture infectivity) Identification  | Ch. 6 <sup>6</sup><br>Ch. 9 <sup>6</sup><br>Ch. 10 <sup>6</sup><br>Ch. 12 <sup>6</sup> | 9510B,C,D,E<br>9510G<br>9510G<br>9510G |                        |      |
| 7. Enteroviruses in sludge, plaque forming units per liter.                   | Beef extract elution, and organic flocculation, followed by: Plaque assay (cell culture infectivity) Identification | Ch. 7 <sup>6</sup><br>Ch. 9 <sup>6</sup><br>Ch. 10 <sup>6</sup><br>Ch. 12 <sup>6</sup> | 9510F<br>9510G<br>9510G<br>9510G       |                        |      |
| <b>Mutagenicity:</b>  |   |  |  |                        |      |
| 8. Mutagenicity (revertants per liter)  | Ames test, test strains TA97, TA98, TA100, and TA102.   | Note 7   |  |                        |      |
| <b>Acute and Chronic Toxicity:</b>  |   |  |  |                        |      |
| 9. Toxicity, acute, fresh water organisms, percent effluent <sup>10</sup>     | Ceriodaphnia, 48-h static-renewal mortality.  |  |  |                        | 8    |
|   | Fathead minnow, 96-h static-renewal mortality, or 96-h flow-through mortality.                                      |  |  |                        | 8    |
| 10. Toxicity, chronic, fresh water organisms, percent effluent. <sup>10</sup> | Fathead minnow larval survival and growth.  |  |  |                        | 8    |
|   | Ceriodaphnia survival and reproduction.   |  |  |                        | 8    |

<sup>1</sup> The method used must be specified when results are reported.

<sup>2</sup> A 0.45 µm membrane filter (MF) or other pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with their growth.

<sup>3</sup> Bordner, R.H., and J.A. Winter, eds. "Microbiological Methods for Monitoring the Environment, Water and Wastes", United States Environmental Protection Agency, EPA-600/8-78-017, 1978. Available from ORD Publications, CERL, U.S. Environmental Protection Agency, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268.

<sup>4</sup> Britton, L.J., and P.E. Greeson, eds. "1988 Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples", edited by et al., U.S. Geological Survey, Techniques of Water-Resources Investigation (USGS TWRI), Book 5 chapter A4, Laboratory analysis, 1977. Available from U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.

<sup>5</sup> Because the MF technique usually yields low and variable recovery from chlorinated wastewaters, the Most Probable Number method will be required to resolve any controversies.

<sup>6</sup> Berg, G., R.S. Safferman, D.R. Dahling, D. Berman, and C.J. Hurst, 1984. USEPA Manual of Methods for Virology. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4-84/013. (Chapter 9 revised January 1987; Chapter 10 revised December 1987; Chapter 12 revised May 1988; Chapter 7 revised September 1989).

<sup>7</sup> Williams, L.R., and J.E. Preston, eds. 1983. Interim Procedures for Conducting the Salmonella/Microsomal Mutagenicity Assay (Ames Test). Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Las Vegas, Nevada. EPA/600/4-82/068.

<sup>8</sup> Compliance monitoring must be performed in accordance with the specifications in the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 1st Edition," Wisconsin Department of Natural Resources, 1996. This publication is available for inspection at the offices of the Department of Natural Resources, the Secretary of State, and the Revisor of Statutes. Copies are available from the Department of Natural Resource, Bureau of Integrated Science Services, P.O. Box 7921, Madison, WI 53707.

**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods   | EPA <sup>1</sup>   | SW-846 <sup>11,7</sup>                  | Standard Methods <sup>2,2m</sup>   | ASTM <sup>3</sup>                         | USGS <sup>4</sup>      | Other  |
|--|--|---|--|---|------------------------|--|
| 1. Acidity, as CaCO <sub>3</sub> , mg/L;<br>Electrometric end point or<br>phenolphthalein end point  | 305.1  |   | 2310 B(4a)   | D1067-92                                  |                        |  |
| 2. Alkalinity, as CaCO <sub>3</sub> , mg/L;<br>Electrometric or colorimetric;<br>Titration to pH 4.5, manual<br>Or automated   | 310.1<br>310.2   |   | 2320 B   | D1067-92                                  | I-1030-85              | 973.43 <sup>5</sup>                                  |
| 3. Aluminum, mg/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration <sup>6m</sup> ,<br>AA furnace,<br>Inductively coupled plasma<br>(ICP) <sup>6m</sup> ,<br>Inductively coupled plasma-<br>mass spectrometry (ICP-MS),<br>Direct current plasma<br>(DCP) <sup>6m</sup> , or<br>Colorimetric (Eriochrome<br>cyanine R) | 202.1<br>202.2 or<br>200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup> | 7020<br>6010A<br>6020                   | 3111 D<br>3113 B<br>3120 B<br>3500-Al D  | D4190-82(88)                              | I-305I-85              | Note 36  |
| 4. Ammonia (as N), mg/L: Man-<br>ual distillation <sup>8</sup> (at pH 9.5):<br>Followed by<br>Nesslerization,<br>Titration,<br>Electrode,<br>Automated phenate, or<br>Automated electrode  | 350.2<br>350.2<br>350.2<br>350.3<br>350.1 <sup>1m</sup>                                |   | 4500-NH <sub>3</sub> B<br>4500-NH <sub>3</sub> C<br>4500-NH <sub>3</sub> E<br>4500-NH <sub>3</sub> F&G<br>4500-NH <sub>3</sub> H | D1426-89(A)<br>D1426-89(B)                | I-3520-85<br>I-4523.85 | 973.49 <sup>5</sup><br>973.46 <sup>5</sup><br>Note 9 |
| 5. Antimony, ug/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration <sup>6m</sup> ,<br>AA furnace,<br>AA (gaseous borohydride),<br>Inductively coupled plasma <sup>6m</sup> ,<br>or<br>Inductively coupled plasma-<br>mass spectrometry  | 204.1<br>200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup>             | 7040<br>7041<br>7062<br>6010A<br>6020   | 3111 B<br>3113 B<br>3120 B   |   |                        |  |
| 6. Arsenic, ug/L:<br>Digestion <sup>6</sup> followed by<br>AA (gaseous hydride),<br>AA (gaseous borohydride),<br>AA furnace,<br>Inductively coupled plasma <sup>6m</sup> ,<br>Inductively coupled plasma-<br>mass spectrometry,<br>Or, colorimetric (SDDC)   | 206.5<br>206.2 or<br>200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup> | 7061A<br>7062<br>7060A<br>6010A<br>6020 | 3114 B <sup>37</sup><br>3113 B<br>3120 B<br>3500-As C  | D2972-88(B)<br>D2972-88(C)<br>D2972-88(A) | I-3062.85              |  |

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| Parameter, Units & Methods  | EPA <sup>1</sup>             | SW-846 <sup>11,7</sup> | Standard Methods <sup>2,2m</sup> | ASTM <sup>3</sup> | USGS <sup>4</sup>       | Other                |
|---|------------------------------|------------------------|----------------------------------|-------------------|-------------------------|----------------------|
| <b>7. Barium, mg/L:</b>   |                              |                        |                                  |                   |                         |                      |
| Digestion <sup>6</sup> followed by:   |                              |                        |                                  |                   |                         |                      |
| AA direct aspiration <sup>6m</sup> ,  | 208.1                        | 7080A                  | 3111 D                           |                   | I-3084-85               |                      |
| AA furnace,   | 208.2                        | 7081                   | 3113 B                           | D4382-91          |                         |                      |
| Inductively coupled plasma <sup>6m</sup> ,  | 200.7 <sup>1g</sup>          | 6010A                  | 3120 B                           |                   |                         |                      |
| Inductively coupled plasma-mass spectrometry, or  | 200.8 <sup>1g</sup>          | 6020                   |                                  |                   |                         |                      |
| Direct current plasma <sup>6m</sup>   |                              |                        |                                  |                   |                         | Note 36              |
| <b>8. Beryllium, mg/L:</b>  |                              |                        |                                  |                   |                         |                      |
| Digestion <sup>6</sup> followed by:   |                              |                        |                                  |                   |                         |                      |
| AA direct aspiration,   | 210.1                        | 7090                   | 3111 D                           | D3654-(88)(A)     | I-3095-85               |                      |
| AA furnace,   | 210.2 or 200.9 <sup>1g</sup> | 7091                   | 3113 B                           | D3645(88)(B)      |                         |                      |
| Inductively coupled plasma,   | 200.7 <sup>1g</sup>          | 6010A                  | 3120 B                           |                   |                         |                      |
| Inductively coupled plasma-mass spectrometry  | 200.8 <sup>1g</sup>          | 6020                   |                                  |                   |                         |                      |
| Direct current plasma, or   |                              |                        |                                  | D4190-82(88)      |                         | Note 36              |
| Colorimetric (aluminon)   |                              |                        | 3500-Be D                        |                   |                         |                      |
| <b>9. Biochemical oxygen demand (BOD<sub>5</sub>), mg/L:</b>  |                              |                        |                                  |                   |                         |                      |
| Dissolved Oxygen Depletion  |                              |                        | 5210 B                           |                   | I-1578-78 <sup>10</sup> | 973.443 <sup>5</sup> |
| <b>10. Boron, mg/L:</b>   |                              |                        |                                  |                   |                         |                      |
| Colorimetric (curcumin),  | 212.3                        |                        | 4500-B B                         |                   | I-3112-85               |                      |
| Inductively coupled plasma, or  | 200.7 <sup>1g</sup>          | 6010A                  | 3120 B                           |                   |                         |                      |
| Direct current plasma   |                              |                        |                                  | D4190-82(88)      |                         | Note 36              |
| <b>11. Bromide, mg/L: Titrimetric</b>   |                              |                        |                                  |                   |                         |                      |
| Ion Chromatography  | 320.1                        |                        |                                  | D1246-82(88)(C)   | I-1125-85               | p.S44 <sup>12</sup>  |
|   | 300.0 <sup>1m</sup>          | 9056                   |                                  |                   |                         |                      |
| <b>12. Cadmium-Total<sup>6</sup>, mg/L:</b>   |                              |                        |                                  |                   |                         |                      |
| Digestion <sup>6</sup> followed by:   |                              |                        |                                  |                   |                         |                      |
| AA direct aspiration <sup>6m</sup> ,  | 213.1                        | 7130                   | 3111 B or C                      | D3557-90 (A or B) | I-3135-85 or I-3136-85  | 974.27 <sup>5</sup>  |
| AA furnace,   | 213.2 or 200.9 <sup>1g</sup> | 7131A                  | 3113 B                           | D3557-90(D)       |                         |                      |
| Inductively coupled plasma <sup>6m</sup>  | 200.7 <sup>1g</sup>          | 6010A                  | 3120 B                           |                   | I-1472-85               |                      |
| Inductively coupled plasma-mass spectrometry  | 200.8 <sup>1g</sup>          | 6020                   |                                  |                   |                         |                      |
| Direct current plasma <sup>6m</sup> ,   |                              |                        |                                  | D4190-82(88)      |                         | Note 36              |
| Voltametry <sup>13</sup> , or   |                              |                        |                                  | D3557-90(C)       |                         |                      |
| Colorimetric (Dithizone)  |                              |                        | 3500-Cd D                        |                   |                         |                      |
| <b>13. Calcium, mg/L:</b>   |                              |                        |                                  |                   |                         |                      |
| Digestion <sup>6</sup> followed by:   |                              |                        |                                  |                   |                         |                      |
| Atomic absorption,  | 215.1                        | 7140                   | 3111 B                           | D511-92(B)        | I-3152-85               |                      |
| Inductively coupled plasma,   | 200.7 <sup>1g</sup>          | 6010A                  | 3120 B                           |                   |                         |                      |
| Direct current plasma, or   |                              |                        |                                  |                   |                         | Note 36              |
| EDTA titration  | 215.2                        |                        | 3500-Ca D                        | D511-92(A)        |                         |                      |
| <b>14. Carbonaceous Biochemical oxygen demand (CBOD<sub>5</sub>), mg/L: with nitrification inhibitor<sup>14</sup></b> |                              |                        |                                  |                   |                         |                      |
|   |                              |                        | 5210 B                           |                   |                         |                      |

**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods  | EPA <sup>1</sup>   | SW-846 <sup>11,7</sup>        | Standard Methods <sup>2,2m</sup>   | ASTM <sup>3</sup>                               | USGS <sup>4</sup>                                | Other                              |
|---|--|-------------------------------|--|---|--|------------------------------------|
| 15. Chemical oxygen demand (COD), mg/L:<br>Closed reflux<br>Titrimetric   | 410.1<br>410.2<br>410.3<br>410.4 <sup>1m</sup>   |                               | 5220 C or D<br>5220 B  | D1252-88(A)                                     | I-3560 or<br>I-3562-85                           | Notes 15&16<br>973.46 <sup>5</sup> |
| Automated and manual Spectrophotometric   |  |                               |  | D1252-88(B)                                     | I-3561-85  |                                    |
| 16. Chloride, mg/L:<br>Titrimetric (silver nitrate) or (Mercuric nitrate),<br>Colorimetric (ferricyanide), manual or automated, or<br>Ion chromatography  | 325.3<br>325.1 or 325.2<br>300.0 <sup>1m</sup>   | 9253<br>9252A<br>9250<br>9056 | 4500-Cl- B<br>4500-Cl- C<br>4500-Cl- E                                     | D512-89(B)<br>D512-89(A)                        | I-1183-85<br>I-1184-85<br>I-1187-85<br>I-2187-85 | 973.51 <sup>5</sup>                |
| 17. Chlorine - Total residual, mg/L:<br>amperometric,<br>Starch End point direct<br>Back Titration either end point <sup>17</sup> , or<br>DPD-FAS,<br>Spectrophotometric, DPD; or<br>Electrode  | 330.1<br>330.3<br>330.2<br>330.4<br>330.5  |                               | 4500-Cl D<br>4500-Cl B<br>4500-Cl C<br>4500-Cl F<br>4500-Cl G<br>4500-Cl I | D1253-86(92)                                    |  | Note 18                            |
| 18. Chromium VI dissolved, ug/L:<br>0.45 micron filtration with:<br>Extraction and atomic absorption,<br>Cocprecipitation and atomic absorption,<br>Differential pulse polarography,<br>Colorimetric (Diphenylcarbazide), or<br>Ion Chromatography  | 218.4<br>218.6 <sup>1g</sup>   | 7197<br>7195<br>7198<br>7196A | 3111 A<br>3500-Cr D  | D1687-92(A)                                     | I-1232-85<br>I-1230-85                           | 307B <sup>19</sup>                 |
| 19. Chromium, mg/L:<br>Digestion <sup>6</sup> (optional extraction) followed by:<br>AA direct aspiration <sup>6m</sup> ,<br>AA chelation extraction,<br>AA furnace,<br>Inductively coupled plasma <sup>6m</sup> ,<br>Inductively coupled plasma-mass spectrometry,<br>Direct current plasma <sup>6m</sup> , or<br>Colorimetric (diphenylcarbazide), | 218.1<br>218.3<br>218.2 or 200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup> | 7190<br>7191<br>6010A<br>6020 | 3111 B<br>3111 C<br>3113B<br>3120B   | D1687-92(B)<br>D1687-92(C)<br>D4190-82(88)      | I-3236-85  | 974.24 <sup>5</sup><br>Note 36     |
| 20. Cobalt, mg/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace, or<br>Inductively coupled plasma, or<br>Inductively coupled plasma-mass spectrometry<br>Direct current plasma  | 219.1<br>219.2 or 200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup>          | 7200<br>7201<br>6010A<br>6020 | 3111 B (A or B)<br>3113 B<br>3120 B  | D3558-90(A or B)<br>D3558-90(C)<br>D4190-82(88) | I-3239-84  | Note 36                            |



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| Parameter, Units & Methods                                | EPA <sup>1</sup>    | SW-846 <sup>11,7</sup> | Standard Methods <sup>2,2m</sup> | ASTM <sup>3</sup> | USGS <sup>4</sup>      | Other                |
|---|---------------------|------------------------|----------------------------------|-------------------|------------------------|----------------------|
| <b>29. Iridium, ug/L:</b>                                 |                     |                        |                                  |                   |                        |                      |
| Digestion <sup>6</sup> followed by:                       |                     |                        |                                  |                   |                        |                      |
| AA direct aspiration,                                     | 235.1               |                        | 3111 B                           |                   |                        |                      |
| AA furnace, or  | 235.2               |                        |                                  |                   |                        |                      |
| Inductively coupled plasma                                | 200.7 <sup>1g</sup> | 6010A                  |                                  |                   |                        |                      |
| <b>30. Iron, mg/L:</b>                                    |                     |                        |                                  |                   |                        |                      |
| Digestion <sup>6</sup> followed by:                       |                     |                        |                                  |                   |                        |                      |
| AA direct aspiration <sup>6m</sup> ,                      | 236.1               | 7380                   | 3111 B or C                      | D1068-90(AorB)    | I-3381-84              | 973.275              |
| AA furnace,   | 236.2 or            | 7381                   | 3113 B                           | D1068-90(C)       |                        |                      |
|   | 200.9 <sup>1g</sup> |                        |                                  |                   |                        |                      |
| Inductively coupled plasma <sup>6m</sup> ,                | 200.7 <sup>1g</sup> | 6010A                  | 3120 B                           |                   |                        |                      |
| Direct current plasma <sup>6m</sup> , or                  |                     |                        |                                  | D4190-82(88)      |                        | Note 36              |
| Colorimetric (Phenanthroline)                             |                     |                        | 3500-Fe D                        | D1068-90(D)       |                        | Note 24              |
| <b>31. Kjeldahl nitrogen -- Total (as N), mg/L:</b>       |                     |                        |                                  |                   |                        |                      |
| Digestion and distillation                                | 351.3               |                        | 4500-NorgBorC                    | D3590-89(A)       |                        |                      |
| Followed by titration                                     | 351.3               |                        | 4500-NH <sub>3</sub> E           | D3590-89(A)       |                        | 937.46 <sup>5</sup>  |
| Nesslerization or   | 351.3               |                        | 4500-NH <sub>3</sub> C           | D3590-89(A)       |                        |                      |
| Electrode,  | 351.3               |                        | 4500-NH <sub>3</sub> ForG        |                   |                        |                      |
| Automated phenate,  | 351.1               |                        | 4500-NH <sub>3</sub> H           |                   | I-4551-78 <sup>8</sup> |                      |
| Semi-automated block digester,                            | 351.2 <sup>1m</sup> |                        |                                  | D3590-89(B)       |                        |                      |
| Or potentiometric   | 351.4               |                        |                                  | D3590-89(A)       |                        |                      |
| <b>32. Lead, mg/L:</b>                                    |                     |                        |                                  |                   |                        |                      |
| Digestion <sup>6</sup> followed by:                       |                     |                        |                                  |                   |                        |                      |
| AA direct aspiration <sup>6m</sup> ,                      | 239.1               | 7420                   | 3111 B or C                      | D3559-90(AorB)    | I-3399-90              | 974.27 <sup>5</sup>  |
| AA furnace,   | 239.2 or            | 7421                   | 3113 B                           | D3559-90(C)       |                        |                      |
|   | 200.9 <sup>1g</sup> |                        |                                  |                   |                        |                      |
| Inductively coupled plasma <sup>6m</sup> ,                | 200.7 <sup>1g</sup> | 6010A                  | 3120 B                           |                   |                        |                      |
| Inductively coupled plasma-                               | 200.8 <sup>1g</sup> | 6020                   |                                  |                   |                        |                      |
| mass spectrometry   |                     |                        |                                  |                   |                        |                      |
| Direct current plasma <sup>6m</sup> ,                     |                     |                        |                                  | D4190-82(88)      |                        | Note 36              |
| Voltametry <sup>13</sup> or                               |                     |                        |                                  | D3559-90(C)       |                        |                      |
| Colorimetric (Dithizone)                                  |                     |                        | 3500-Pb D                        |                   |                        |                      |
| <b>33. Magnesium, mg/L:</b>                               |                     |                        |                                  |                   |                        |                      |
| Digestion <sup>6</sup> followed by:                       |                     |                        |                                  |                   |                        |                      |
| Atomic absorption,  | 242.1               | 7450                   | 3111 B                           | D511-92(B)        | I-3447-85              | 974.27 <sup>5</sup>  |
| Inductively coupled plasma,                               | 200.7 <sup>1g</sup> | 6010A                  | 3120 B                           |                   |                        |                      |
| Direct current plasma, or                                 |                     |                        |                                  |                   |                        | Note 36              |
| Gravimetric   |                     |                        | 3500-Mg D                        |                   |                        |                      |
| <b>34. Manganese, mg/L:</b>                               |                     |                        |                                  |                   |                        |                      |
| Digestion <sup>6</sup> followed by:                       |                     |                        |                                  |                   |                        |                      |
| AA direct aspiration <sup>6m</sup> ,                      | 243.1               | 7460                   | 3111 B                           | D858-90(AorB)     | I-3454-85              | 974.27 <sup>5</sup>  |
| AA furnace,   | 243.2 or            | 7461                   | 3113 B                           | D858-90(C)        |                        |                      |
|   | 200.9 <sup>1g</sup> |                        |                                  |                   |                        |                      |
| Inductively coupled plasma <sup>6m</sup> ,                | 200.7 <sup>1g</sup> | 6010A                  | 3120 B                           |                   |                        |                      |
| Inductively coupled plasma-                               | 200.8 <sup>1g</sup> | 6020                   |                                  |                   |                        |                      |
| mass spectrometry,  |                     |                        |                                  |                   |                        |                      |
| Direct current plasma <sup>6m</sup> ,                     |                     |                        |                                  | D4190-82(88)      |                        | Note 36              |
| Colorimetric (Persulfate), or                             |                     |                        | 3500-Mn D                        |                   |                        | 920.205 <sup>3</sup> |
| Periodate   |                     |                        |                                  |                   |                        | Note 25              |
| <b>35. Mercury -- Total<sup>6</sup>, ug/L:</b>            |                     |                        |                                  |                   |                        |                      |
| Cold vapor AA, manual or                                  | 245.1 <sup>1g</sup> | 7470A                  | 3112 B                           | D3223-91          | I-3462-85              | 977.22 <sup>5</sup>  |
| automated, or   | 245.2               |                        |                                  |                   |                        |                      |
| <b>35m. Mercury -- Hg(II) and organomercurials, ug/L:</b> |                     |                        |                                  |                   |                        |                      |
| HPLC with electrochemical                                 | 245.3 <sup>1g</sup> |                        |                                  |                   |                        |                      |
| detection   |                     |                        |                                  |                   |                        |                      |

**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods  | EPA <sup>1</sup>   | SW-846 <sup>11,7</sup> | Standard Methods <sup>2,2m</sup>   | ASTM <sup>3</sup>          | USGS <sup>4</sup>       | Other                                      |
|---|--|------------------------|--|----------------------------|-------------------------|--|
| 36. Molybdenum, mg/L:<br>Digestion <sup>6</sup> followed by:  |  |                        |  |                            |                         |  |
| AA direct aspiration,   | 246.1  | 7480                   | 3111 D   |                            | I-3490-85               |  |
| AA furnace,   | 246.2  | 7481                   | 3113 B   |                            |                         |  |
| Inductively coupled plasma,   | 200.7 <sup>1g</sup>  | 6010A                  | 3120 B   |                            |                         |  |
| Inductively coupled plasma-mass spectrometry, or<br>Direct current plasma   | 200.8 <sup>1g</sup>  | 6020                   |  |                            |                         | Note 36                                    |
| 37. Nickel, mg/L:<br>Digestion <sup>6</sup> followed by:  |  |                        |  |                            |                         |  |
| AA direct aspiration <sup>6m</sup> ,  | 249.1  | 7520                   | 3111 B or C  | D1886-90 (AorB)            | I-3499-85               |  |
| AA furnace,   | 249.2 or<br>200.9 <sup>1g</sup>                              |                        | 3113 B   | D1886-90 (C)               |                         |  |
| Inductively coupled plasma <sup>6m</sup> ,  | 200.7 <sup>1g</sup>  | 6010A                  | 3120 B   |                            |                         |  |
| Inductively coupled plasma-mass spectrometry,<br>Direct current plasma <sup>6m</sup> , or<br>Colorimetric (Heptoxime)                                 | 200.8 <sup>1g</sup>  | 6020                   |  | D4190-82(88)               |                         | Note 36                                    |
| 38. Nitrate (as N), mg/L:<br>Brucine sulfate, or<br>Nitrate-nitrite N minus Nitrite N<br>(see parameters 39 and 40)<br>Ion chromatography             | 352.1  |                        |  |                            |                         | 973.50 <sup>5</sup> , 419D <sup>19</sup>   |
| 39. Nitrate-nitrite (as N), mg/L:<br>Cadmium reduction, manual<br>or automated, or<br>automated hydrazine<br>Ion chromatography                       | 353.3<br>353.2 <sup>1m</sup><br>353.1<br>300.0 <sup>1m</sup> | 9056                   | 4500-NO <sub>3</sub> E<br>4500-NO <sub>3</sub> F<br>4500-NO <sub>3</sub> H | D3867-90(B)<br>D3867-90(A) | I-4545-85               |  |
| 40. Nitrite (as N), mg/L:<br>Spectrophotometric, manual or<br>automated (Diazotization), or<br>Ion chromatography <sup>39</sup>                       | 354.1<br>300.0 <sup>1m</sup>                                 | 9056                   | 4500-NO <sub>2</sub> B   |                            | I-4540-85               | Note 27                                    |
| 41. Oil and grease—Total<br>recoverable, mg/L:<br>Gravimetric (freon extraction)<br>Gravimetric (hexane<br>extraction)                                | 413.1<br>1664  | 9070                   | 5520 B   |                            |                         |  |
| 42. Organic carbon – Total (TOC),<br>mg/L:<br>Combustion or oxidation,<br>Persulfate oxidation  | 415.1<br>415.2 <sup>1m</sup>                                 | 9060                   | 5310 B or D<br>5310C   | D2579-85 (AorB)            |                         | 973.47 <sup>5</sup> p.142 <sup>6</sup>     |
| 43. Organic nitrogen (as N), mg/L:<br>Total Kjeldahl N (Parameter 31)<br>minus ammonia N (Parameter 4)  |  |                        |  |                            |                         |  |
| 44. Orthophosphate (as P), mg/L:<br>Ascorbic acid method,<br>automated<br>Or manual single reagent or<br>Manual two reagent, or<br>Ion chromatography | 365.1<br>365.2<br>365.3<br>300.0 <sup>1m</sup>               | 9056                   | 4500-P F<br>4500-P E   |                            | I-4601-85<br>D515-88(A) | 973.56 <sup>5</sup><br>973.55 <sup>5</sup> |
| 45. Osmium, ug/L:<br>Digestion <sup>6</sup> followed by:  |  |                        |  |                            |                         |  |
| AA direct aspiration,   | 252.1  | 7550                   | 3111 D   |                            |                         |  |
| AA furnace, or<br>Inductively coupled plasma  | 252.2<br>200.7 <sup>1g</sup>                                 | 6010A                  |  |                            |                         |  |



**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods   | EPA <sup>1</sup>   | SW-846 <sup>11,7</sup> | Standard Methods <sup>2,2m</sup>   | ASTM <sup>3</sup>        | USGS <sup>4</sup>          | Other                                      |
|--|--|------------------------|------------------------------------|--------------------------|----------------------------|--|
| 46. Oxygen, dissolved, mg/L:<br>Winkler (Azide modification)<br>Or electrode   | 360.2<br>360.1   |                        | 4500-O C<br>4500-O G               | D888-92(A)<br>D888-92(B) | I-1575-7810<br>I-1576-7810 | 973.45B <sup>5</sup>                       |
| 47. Palladium, mg/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace,<br>Direct current plasma, or<br>Inductively coupled plasma             | 253.1<br>253.2<br>200.7 <sup>1g</sup>                      | 6010A                  | 3111 B                             |                          |                            | Note 36                                    |
| 48. Phenols, ug/L:<br>Manual distillation <sup>28</sup><br>Followed by manual<br>Or automated <sup>22</sup> colorimetric<br>(4AAP), or<br>Semi-automated colorimetric      | 420.1<br>420.1<br>420.2<br>420.4 <sup>1m</sup>             | 9065<br>9066           | 5530 B<br>5530 D                   |                          |                            | Note 29<br>Note 29                         |
| 49. Phosphorus (elemental), mg/L:<br>Gas-Liquid chromatography   |  |                        |                                    |                          |                            | Note 30                                    |
| 50. Phosphorus -- Total, mg/L:<br>Persulfate digestion<br>Followed by manual or<br>Automated ascorbic acid<br>Reduction, or semi-automated<br>block digester               | 365.2<br>365.2 or<br>365.3<br>365.1 <sup>1m</sup><br>365.4 |                        | 4500-P B,5<br>4500-P E<br>4500-P F | D515-88 (A)              | I-4600-85                  | 973.55 <sup>5</sup><br>973.56 <sup>5</sup> |
| 51. Platinum, mg/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace,<br>Direct current plasma, or<br>Inductively coupled plasma              | 255.1<br>255.2<br>200.7 <sup>1g</sup>                      | 6010A                  | 3111 B                             |                          |                            | Note 36                                    |
| 52. Potassium, mg/L:<br>Digestion <sup>6</sup> followed by:<br>Atomic absorption,<br>Inductively coupled plasma,<br>Flame photometric, or<br>Colorimetric (cobalt nitrate) | 258.1<br>200.7 <sup>1g</sup>                               | 7610<br>6010A          | 3111 B<br>3120 B<br>3500-K D       |                          | I-3620-85                  | 973.53 <sup>5</sup><br>317B <sup>19</sup>  |
| 53. Residue -- total, (total solids),<br>mg/L:<br>Gravimetric 103-105°C  | 160.3  |                        | 2540 B                             |                          | I-3750-85                  |  |
| 54. Residue -- filterable, (TDS),<br>mg/L:<br>Gravimetric, 180°C   | 160.1  |                        | 2540 C                             |                          | I-1750-85                  |  |
| 55. Residue -- nonfilterable, (TSS),<br>mg/L: Gravimetric,<br>103-105°C post washing of<br>residue   | 160.2  |                        | 2540 D                             |                          | I-3765-85                  |  |
| 56. Residue -- settleable, mg/L:<br>Volumetric<br>(Imhoff cone) or gravimetric   | 160.5  |                        | 2540 F                             |                          |                            |  |
| 57. Residue -- volatile mg/L:<br>Gravimetric, 550°C  | 160.4  |                        | 2540 E <sup>38</sup>               |                          | I-3753-85                  |  |

**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods   | EPA <sup>1</sup>  | SW-846 <sup>11,7</sup>         | Standard Methods <sup>2,2m</sup>                 | ASTM <sup>3</sup> | USGS <sup>4</sup> | Other   |
|--|---|--------------------------------|--|-------------------|-------------------|---|
| 58. Rhodium, ug/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace, or<br>Inductively coupled plasma   | 265.1<br>265.2<br>200.7 <sup>1g</sup>   | 6010A                          | 3111 B   |                   |                   |   |
| 59. Ruthenium, ug/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace, or<br>Inductively coupled plasma   | 267.1<br>267.2<br>200.7 <sup>1g</sup>   | 6010A                          | 3111 B   |                   |                   |   |
| 60. Selenium, ug/L:<br>Digestion <sup>6</sup> followed by:<br>AA furnace,<br><br>Inductively coupled plasma <sup>6m</sup> ,<br>Inductively coupled plasma-<br>mass spectrometry,<br>or AA (gaseous hydride)  | 270.2 or<br>200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup> | 7740<br>6010A<br>6020<br>7741A | 3113 B<br>3120 B<br>3114 B <sup>37</sup>         |                   |                   | I-3667-85   |
| 61. Silica - Dissolved, mg/L:<br>0.45 micron filtration:<br>Followed by manual or<br>automated colorimetric<br>(Molybdosilicate), or<br>Inductively coupled plasma <sup>6</sup>  | 370.1<br>200.7 <sup>1g</sup>  | 6010A                          | 4500-Si D<br>3120 B                              | D859-88           |                   | I-1700-85<br>I-2700-85  |
| 62. Silver <sup>31</sup> , mg/L:<br>Digestion <sup>6</sup> followed by:<br>AA direct aspiration,<br>AA furnace,<br>Colorimetric (Dithizone),<br>Inductively coupled plasma,<br>Inductively coupled plasma-<br>mass spectrometry,<br>Or direct current plasma | 200.9 <sup>1g</sup><br>200.7 <sup>1g</sup><br>200.8 <sup>1g</sup>             | 7760A<br>7761<br>6010A<br>6020 | 3111 B or C<br>3113 B<br>3120 B                  |                   |                   | I-3720-85<br>973.27 <sup>5</sup><br>319B <sup>19</sup><br><br>Note 36 |
| 63. Sodium, mg/L:<br>Digestion <sup>6</sup> followed by:<br>Atomic absorption,<br>Inductively coupled plasma,<br>Direct current plasma, or<br>Flame photometric  | 273.1<br>200.7 <sup>1g</sup>  | 7770<br>6010A                  | 3111 B<br>3120 B<br>3500-Na D                    |                   |                   | I-3735-85<br>973.54 <sup>5</sup><br><br>Note 36                       |
| 64. Specific conductance,<br>micromhos/cm<br>at 25°C: Wheatstone bridge  | 120.1   | 9050                           | 2510 B   | D1125-91(A)       |                   | I-1780-85<br>973.40 <sup>5</sup>                                      |
| 65. Sulfate (as SO <sub>4</sub> ), mg/L:<br>Automated colorimetric<br>(barium chloroanilate),<br>Semi-automated colorimetric<br>(methylthymol blue)<br>Gravimetric,<br>Turbidimetric, or<br>Ion chromatography   | 375.1<br>375.2 <sup>1m</sup><br>375.3<br>375.4<br>300.0 <sup>1m</sup>         | 9035<br>9036<br>9038<br>9056   |  |                   |                   | 925.54 <sup>5</sup><br>426C <sup>32</sup>                             |
| 66. Sulfide (as S), mg/L:<br>Titrimetric (iodine) or<br>Colorimetric (methylene blue)  | 376.1<br>376.2  |                                | 4500-S <sup>2</sup> -E<br>4500-S <sup>2</sup> -D |                   |                   | I-3840-85<br>228A <sup>33</sup>                                       |
| 67. Sulfite (as SO <sub>3</sub> ), mg/L:<br>Titrimetric (iodine-iodate)  | 377.1   |                                | 4500-SO <sub>3</sub> <sup>2-</sup>               |                   |                   |   |
| 68. Surfactants, mg/L: Colorimetric<br>(methylene blue)  | 425.1   |                                | 5540 C   | D2330-88          |                   |   |

**Table B**  
**List of Approved Inorganic Test Procedures for Wastewater**

| Parameter, Units & Methods                    | EPA <sup>1</sup>                | SW-846 <sup>11,7</sup> | Standard Methods <sup>2,2m</sup> | ASTM <sup>3</sup> | USGS <sup>4</sup> | Other               |
|---|---------------------------------|------------------------|----------------------------------|-------------------|-------------------|---------------------|
| 69. Temperature, °C: Thermometric             | 170.1                           |                        | 2550 B                           |                   |                   | Note 34             |
| 70. Thallium, ug/L:                           |                                 |                        |                                  |                   |                   |                     |
| Digestion <sup>6</sup> followed by:           |                                 |                        |                                  |                   |                   |                     |
| AA direct aspiration,                         | 279.1                           | 7840                   | 3111 B                           |                   |                   |                     |
| AA furnace,                                   | 279.2 or<br>200.9 <sup>1g</sup> | 7841                   | 3113 B                           |                   |                   |                     |
| Inductively coupled plasma, or                | 200.7 <sup>1g</sup>             | 6010A                  |                                  |                   |                   |                     |
| Inductively coupled plasma-mass spectrometry  | 200.8 <sup>1g</sup>             | 6020                   |                                  |                   |                   |                     |
| 71. Tin, ug/L:                                |                                 |                        |                                  |                   |                   |                     |
| Digestion <sup>6</sup> followed by:           |                                 |                        |                                  |                   |                   |                     |
| AA direct aspiration,                         | 282.1                           | 7870                   | 3111 B                           |                   | I-3850-7810       |                     |
| AA furnace, or                                | 282.2 or<br>200.9 <sup>1g</sup> |                        | 3113 B                           |                   |                   |                     |
| Inductively coupled plasma                    | 200.7 <sup>1g</sup>             | 6010A                  |                                  |                   |                   |                     |
| 72. Titanium, mg/L:                           |                                 |                        |                                  |                   |                   |                     |
| Digestion <sup>6</sup> followed by:           |                                 |                        |                                  |                   |                   |                     |
| AA direct aspiration,                         | 283.1                           |                        | 3111 D                           |                   |                   |                     |
| AA furnace,                                   | 283.2                           |                        | 3113 B                           |                   |                   |                     |
| Direct current plasma, or                     |                                 |                        |                                  |                   |                   | Note 36             |
| Inductively coupled plasma                    | 200.7 <sup>1g</sup>             | 6010A                  |                                  |                   |                   |                     |
| 73. Turbidity, NTU: Nephelometric             | 180.1 <sup>1m</sup>             |                        | 2130 B                           | D1889-88(A)       | I-3860-85         |                     |
| 74. Vanadium, mg/L:                           |                                 |                        |                                  |                   |                   |                     |
| Digestion <sup>6</sup> followed by:           |                                 |                        |                                  |                   |                   |                     |
| AA direct aspiration,                         | 286.1                           | 7910                   | 3111 D                           |                   |                   |                     |
| AA furnace,                                   | 286.2                           | 7911                   | 3113 B                           |                   |                   |                     |
| Inductively coupled plasma,                   | 200.7 <sup>1g</sup>             | 6010A                  | 3120 B                           |                   |                   |                     |
| Inductively coupled plasma-mass spectrometry  | 200.8 <sup>1g</sup>             |                        |                                  |                   |                   |                     |
| Direct current plasma, or                     |                                 |                        |                                  |                   | D4190-82(88)      | Note 36             |
| Colorimetric (Gallic acid)                    |                                 |                        | 3500-V D                         |                   |                   |                     |
| 75. Zinc, mg/L:                               |                                 |                        |                                  |                   |                   |                     |
| Digestion <sup>6</sup> followed by:           |                                 |                        |                                  |                   |                   |                     |
| AA direct aspiration <sup>6m</sup> ,          | 289.1                           | 7950                   | 3111 B or C                      |                   | I-3900-85         | 974.27 <sup>5</sup> |
| AA furnace,                                   | 289.2 or<br>200.9 <sup>1g</sup> | 7951                   | 3113 B                           |                   |                   |                     |
| Inductively coupled plasma <sup>6m</sup> ,    | 200.7 <sup>1g</sup>             | 6010A                  | 3120 B                           |                   |                   |                     |
| Inductively coupled plasma-mass spectrometry, | 200.8 <sup>1g</sup>             | 6020                   |                                  |                   |                   |                     |
| Direct current plasma <sup>6m</sup> ,         |                                 |                        |                                  |                   | D4190-82(88)      | Note 36             |
| Colorimetric (Dithizone), or                  |                                 |                        | 3500-Zn E                        |                   |                   |                     |
| Colorimetric (Zincon)                         |                                 |                        | 3500-Zn F                        |                   |                   | Note 36             |

<sup>1</sup> "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, United States Environmental Protection Agency, Revised March 1983 and 1979 where applicable. Available from National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (703) 487-4650.

<sup>1g</sup> "Methods for the Determination of Metals in Environmental Samples", EPA-600/4-91-010, Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, OH 45268, June 1991. Available from the National Technical Information Service (NTIS), order number PB91-231498, 5258 Port Royal Road, Springfield, Virginia 22161, (703) 487-4650.

<sup>1m</sup> "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, Environmental Protection Agency, August 1993, Office of Research and Development, Washington D.C. 20460, August 1993. Available from NTIS, 5285 Port Royal Road, Springfield, Virginia 22161 (703) 487-4650.

<sup>2</sup> "Standard Methods for the Examination of Water and Wastewater", Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 18th Edition, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

<sup>2m</sup> The 18th edition of "Standard Methods for the Examination of Water and Wastewater" is not significantly different from the 17th edition. The 17th edition remains an acceptable reference for those methods which cite the 18th edition.

- <sup>3</sup> "1993 Annual Book of Standards, Section 11.01 and 11.02, Water and Environmental Technology", American Society for Testing and Materials, 1993. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.
- <sup>4</sup> "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments", U.S. Department of the Interior, U.S. Geological Survey, Open-File Report 85-495, 1989, unless otherwise stated. Available from U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.
- <sup>5</sup> "Official Methods of Analysis of the Association of Official Analytical Chemists", methods manual, 15th Edition (1990). Available from The Association of Official Analytical Chemists, 1111 N. 19th Street, Suite 210, Arlington, VA 22209.
- <sup>6</sup> A digestion procedure is required to solubilize suspended material and to destroy possible organic metal complexes. The required digestion procedure(s) for a particular metals analysis is listed in Table BM, Metals Digestion Procedures. Use of the graphite furnace AA technique, inductively coupled plasma, direct current plasma, as well as determination for certain elements such as arsenic, mercury, selenium, silver, and titanium require a modified digestion procedure. In all cases, the analytical method should be consulted for specific instructions and cautions.
- If a digestion procedure is given in the determinative method for any of the metals in table B, and this digestion is not listed in table BM, the procedure given in the analytical method should be used however if the digestion included in one of the approved non-EPA references (e.g. "Standard Methods for the Examination of Water and Wastewater") is significantly different from one of the EPA procedures listed in table BM, than the EPA procedure from table BM should be used.
- Sample digestion may be omitted for AA (direct aspiration or graphite furnace), direct current plasma, and inductively coupled plasma analyses provided the sample solution to be analyzed meets the following criteria:
- (a) has a low COD (<20),
  - (b) is visibly transparent with a turbidity measurement of 1 NTU or less,
  - (c) is colorless with no perceptible odor, and
  - (d) is of one liquid phase and free of particulate or suspended matter following acidification.
- <sup>6m</sup> Either of the following microwave digestion procedures may be used:
- "Closed Vessel Microwave Digestion of Wastewater Samples for Determination of Metals", CEM corporation, P.O. Box 200, Matthews, North Carolina 28106-0200, April 16, 1992. Available from the CEM Corporation.
- "Test Methods for Evaluating Solid Waste", SW-846 method 3015. United States EPA SW-846, 3rd Edition. Footnote 11 lists the complete reference.
- <sup>7</sup> SW-846 series 6000 and 7000 methods include SW-846 method 7000A, the general AA method description.
- <sup>8</sup> Manual distillation is not required if comparability data on representative effluent samples are on company file to show that this preliminary distillation step is not necessary; however, manual distillation will be required to resolve any controversies.
- <sup>9</sup> Ammonia, Automated Electrode Method, Industrial Method Number 379-75WE, dated February 19, 1976, Technicon AutoAnalyzerII. Available from Technicon Industrial Systems, Benedict Avenue, Tarrytown, NY 10591.
- <sup>10</sup> The approved method is that cited in "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments", USGS TWRI, Book 5, Chapter A1 (1979). Available on inter-library loan.
- <sup>11</sup> "Test Methods for Evaluating Solid Waste", 3rd Edition, SW-846, Office of Solid Waste and Emergency Response, Environmental Protection Agency, November 1986, including July 1992, August 1993, September 1994 and January 1995 updates, Washington D.C. 20460. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington DC, (202) 512-1800.
- <sup>12</sup> "Selected Analytical Methods Approved and cited by the United States Environmental Protection Agency", Supplement to the Fifteenth Edition of "Standard Methods for the Examination of Water and Wastewater," from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005, 1981. Available on inter-library loan.
- <sup>13</sup> The use of normal and differential pulse voltage ramps to increase sensitivity and resolution is acceptable.
- <sup>14</sup> Carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) must not be confused with the traditional BOD<sub>5</sub> test which measures "total BOD<sub>5</sub>." The addition of the nitrification inhibitor is not a procedural option, but must be included to report the CBOD<sub>5</sub> parameter. A discharger whose permit requires reporting the traditional BOD<sub>5</sub> may not use a nitrification inhibitor in the procedure for reporting the results. Only when a discharger's permit specifically states CBOD<sub>5</sub> is required, can the permittee report data obtained using the nitrification inhibitor.
- <sup>15</sup> OIC Chemical Oxygen Demand Method. Available from Oceanography International Corporation, 512 West loop, P.O. Box 2980, College Station, TX 77840.
- <sup>16</sup> Chemical Oxygen Demand, Method 8000, Hach Handbook of Water Analysis, 1979. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.
- <sup>17</sup> The back titration method will be used.
- <sup>18</sup> ORION Research Instruction Manual, Residual Chlorine Electrode Model 97-70, 1977. Available from Orion Research Incorporated, 840 Memorial Drive, Cambridge, MA 02138.
- <sup>19</sup> The approved method is that cited in the "Standard Methods for the Examination of Water and Wastewater", 14th Edition, 1976. Available on inter-library loan.
- <sup>20</sup> "An Investigation of Improved Procedures for Measurement of Mill Effluent and Receiving Water Color", NCASI Technical Bulletin No. 253. December, 1971. Available from National Council of the Paper Industry for Air and Stream Improvements, Inc., 260 Madison Avenue, New York, NY 10016.
- <sup>21</sup> Copper, Bicinchoninate Method, Method 8506, Hach Handbook of Water Analysis, 1979. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.

- <sup>22</sup> After the manual distillation is completed, the auto-analyzer manifolds in EPA Methods 335.03 (Cyanide) or 420.2 (phenols) are simplified by connecting the re-sample line directly to the sampler. When using the manifold setup shown in Method 335.3, the buffer 6.2 should be replaced with the buffer 7.6 found in Method 335.2.
- <sup>23</sup> Hydrogen Ion (pH) Automated Electrode Method, Industrial Method Number 378-75WA, October 1976, Technicon AutoAnalyzer II. Available from Technicon Industrial Systems, Benedict Avenue, Tarrytown, NY 10591.
- <sup>24</sup> 1, 10-Phenanthroline Method for Iron, Hach Method 8008, 1980. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.
- <sup>25</sup> Periodate Oxidation Method for Manganese, Method 8034. Hach Handbook of Wastewater Analysis, 1979, pp. 2-113 and 2-117. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.
- <sup>26</sup> "Methods for Analysis of Organic Substances in Water", by D. F. Goerlitz and Eugene Brown: USGS-TWRI, Book 5, Chapter A3, p. 4, 1972. Available from U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.
- <sup>27</sup> Nitrite Nitrogen, Hach Method 8507. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.
- <sup>28</sup> Just prior to distillation, adjust the sulfuric acid preserved sample to pH 4 with 1 + 9 NaOH.
- <sup>29</sup> The approved method is that cited in "Standard Methods for the Examination of Water and Wastewater", 14th Edition. The colorimetric reaction is conducted at a pH of 10.0 + 0.2. The approved methods are given on pp. 576-81 of the 14th Edition: Method 510A for distillation, Method 510B for the manual colorimetric procedure, or Method 510C for the manual spectrophotometric procedure. Available on inter-library loan.
- <sup>30</sup> "Direct Determination of Elemental Phosphorus by Gas-Liquid Chromatography", by R. F. Addison and R. G. Ackman, Journal of Chromatography, Volume 47, No. 3, pp. 421-426, 1970. Available in most public libraries. Back volumes of the Journal of Chromatography are available from Elsevier/North-Holland, Inc., Journal Information Centre, 52 Vanderbilt Avenue, New York, NY 10164.
- <sup>31</sup> Approved methods for the analysis of silver in industrial wastewaters at concentrations of 1 mg/L and above are inadequate where silver exists as an inorganic halide. Silver halides such as the bromide and chloride are relatively insoluble in reagents such as nitric acid but are readily soluble in an aqueous buffer of sodium thiosulfate and sodium hydroxide to a pH of 12. Therefore, for levels of silver above 1 mg/L, 20 mL of sample should be diluted to 100 mL by adding 40 mL each of 2M Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> and 2M NaOH. Standards should be prepared in the same manner. For levels of silver below 1 mg/L the approved method is satisfactory.
- <sup>32</sup> The approved method is that cited in "Standard Methods for the Examination of Water and Wastewater", 15th Edition. Available on inter-library loan.
- <sup>33</sup> The approved method is that cited in "Standard Methods for the Examination of Water and Wastewater", 13th Edition. Available on inter-library loan.
- <sup>34</sup> "Water Temperature-Influential Factors, Field Measurement, and Data Presentation", by H. H. Stevens, Jr., J. Ficke, and G. F. Smoot: USGS-TWRI Book 1, Chapter D1, 1975. Available from U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.
- <sup>35</sup> Zincon Method of Zinc Method 8009. Hach Handbook for Water Analysis, 1979, pp. 2-231 and 2-333. Available from Hach Chemical Company, P.O. Box 389, Loveland, CO 80537.
- <sup>36</sup> Direct Current Plasma (DCP) Optical Emission Spectrometric Method for Trace Elemental Analysis of Water and Wastes, Method AES0029, "1986 Revised 1991, Fison Instruments, Inc., 32 32 Commerce Center, Cherry Hill Drive, Danvers MA 01923.
- <sup>37</sup> Use the digestion given in the method.
- <sup>38</sup> The temperature must be maintained between 500-550° C, and not the temperature listed in the method.
- <sup>39</sup> Nitrate-nitrite determinations by ion chromatography must be analyzed within 48 hours.

Table BM  
Metals Digestion Procedures

| Analysis                              | SW-846 <sup>1</sup>   | EPA <sup>2</sup>    | EPA <sup>3</sup> |
|---------------------------------------|---|---------------------|------------------|
| Dissolved Metals <sup>4</sup>         | 3005A, 3040A <sup>10</sup>  | _____               | 4.1.1            |
| Suspended Metals <sup>5</sup>         | 3005A   | _____               | 4.1.2            |
| Total Metals <sup>6</sup>             | 3010A, 3020A <sup>11</sup><br>3050A <sup>10</sup> , 3051A <sup>10</sup> | _____               | 4.1.3            |
| Total Recoverable Metals <sup>7</sup> | 3005A   | 200.2               | 4.1.4            |
| Acid Soluble Metals <sup>8</sup>      | _____   | 200.1 <sup>12</sup> | _____            |
| Available Metals <sup>9</sup>         | 3015 <sup>13</sup>  | _____               | _____            |

<sup>1</sup> "Test Methods for Evaluating Solid Waste", 3rd Edition, SW-846, Office of Solid Waste and Emergency Response, Environmental Protection Agency, November 1986, including December 1987, July 1992, August 1993, September 1994 and January 1995 updates, Washington D.C. 20460. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402, (202) 512-1800.

<sup>2</sup> "Methods for the Determination of Metals in Environmental Samples", EPA-600/4-91-010, Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, OH 45268, June 1991. Available from the National Technical Information Service (NTIS), order number PB91-231498, 5258 Port Royal Road, Springfield, Virginia 22161, (703) 487-4650.

- <sup>3</sup>"Methods for Chemical Analysis of water and Wastes", EPA-600/4-79-020, United States Environmental Protection Agency, Revised March 1983 and 1979 where applicable. Available from National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (703) 487-4650.
- <sup>4</sup>"Dissolved metals" means those constituents of a sample that will pass through a 0.45 micron membrane filter prior to sample acidification.
- <sup>5</sup>"Suspended metals" means the concentration of metals determined in the portion of a sample retained by a 0.45 micron membrane filter prior to acidification.
- <sup>6</sup>"Total metals" means the concentration of metals determined on a solid sample or unfiltered aqueous sample following a vigorous digestion, or alternatively the sum of the metals determined in both the dissolved and suspended fractions.
- <sup>7</sup>"Total recoverable metals" means the concentration of metals determined on an unfiltered sample following treatment with hot dilute mineral acid.
- <sup>8</sup>"Acid soluble metals" means those constituents of a sample that will pass through a 0.45 micron membrane filter after the sample has been adjusted to pH 1.75 and held for 16 hours. This method is applicable to arsenic, cadmium, chromium, copper, and lead.
- <sup>9</sup>"Available metals" are equivalent to "total metals". SW-846 lists method 3015 as a preparation for available metals.
- <sup>10</sup>These methods are for total metals analysis of sediment, sludge, and soil samples and do not apply to wastewater. The required analytical methodology for metals in wastewater sludge is given in Table EM.
- <sup>11</sup>Method 3020 is applicable for analysis by GFAA. Method 3010 requires sample acidification with HCl.
- <sup>12</sup>Method 200.1 is only applicable for As, Cd, Cr, Cu and Pb.
- <sup>13</sup>This method is a microwave-assisted acid leachate digestion.

**Table C**  
**List of Approved Test Procedures for Non-Pesticide Organic Compounds in Wastewater**

| Parameter                 | EPA Method Number <sup>1,6</sup> |                  | Standard Methods <sup>8,13</sup> | SW-846 Method Number <sup>11,12</sup> |                      |                 |                         | Other         |
|---------------------------|----------------------------------|------------------|----------------------------------|---------------------------------------|----------------------|-----------------|-------------------------|---------------|
|                           | GC                               | GC/MS            |                                  | GC capillary                          | GC pkd <sup>14</sup> | GC/MS capillary | GC/MS pkd <sup>14</sup> |               |
|                           |                                  |                  |                                  |                                       |                      |                 |                         |               |
| I. Volatiles              |                                  | 624 <sup>3</sup> |                                  | 8021A                                 | ---                  | 8260A           | 8240B                   |               |
| A. Halogenated volatiles  | 601                              | 1624             | 6230 B, 6210 B                   | ---                                   | 8010B                | ---             | ---                     |               |
| Bromodichloromethane      |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Bromoform                 |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Bromomethane              |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Carbon tetrachloride      |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| Chloroethane              |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Chloroform                |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| Chloromethane             |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Dibromochloromethane      |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Dichlorodifluoromethane   |                                  | ---              | not 6210 B                       |                                       |                      |                 |                         |               |
| 1,1-Dichloroethane        |                                  |                  |                                  |                                       |                      |                 |                         |               |
| 1,2-Dichloroethane        |                                  |                  |                                  |                                       |                      |                 |                         |               |
| 1,1-Dichloroethene        |                                  |                  |                                  |                                       |                      |                 |                         |               |
| trans-1,2-Dichloroethene  |                                  |                  |                                  |                                       |                      |                 |                         |               |
| 1,2-Dichloropropane       |                                  |                  |                                  |                                       |                      |                 |                         |               |
| cis-1,3-Dichloropropene   |                                  |                  |                                  |                                       |                      |                 |                         |               |
| trans-1,3-Dichloropropene |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Methylene chloride        |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| 1,1,2,2-Tetrachloroethane |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| Tetrachloroethene         |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| 1,1,1-Trichloroethane     |                                  |                  |                                  |                                       |                      |                 |                         |               |
| 1,1,2-Trichloroethane     |                                  |                  |                                  |                                       |                      |                 |                         | Note 2, p.130 |
| Trichloroethene           |                                  |                  |                                  |                                       |                      |                 |                         |               |
| Trichlorofluoromethane    | ---                              |                  |                                  |                                       |                      |                 |                         |               |
| Vinyl chloride            |                                  |                  |                                  |                                       |                      |                 |                         |               |
| B. Aromatic volatiles     | 602                              |                  | 6220B                            | ---                                   | 8020A                | ---             | ---                     |               |
| Benzene                   |                                  | 1624             | 6210B                            |                                       |                      |                 |                         |               |
| Chlorobenzene             | 601                              | 1624             | 6210B, 6230B                     |                                       |                      |                 |                         | Note 2, p.130 |
| 1,2-Dichlorobenzene       | 601, 612                         | 625, 1625        | 6230B, 6410B                     |                                       |                      |                 |                         |               |

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List of Approved Test Procedures for Non-Pesticide Organic Compounds in Wastewater

| Parameter                           | EPA Method Number <sup>1,6</sup> |                | Standard Methods <sup>9,13</sup> | SW-846 Method Number <sup>11,12</sup> |                      |                 |                         | Other                |
|-------------------------------------|----------------------------------|----------------|----------------------------------|---------------------------------------|----------------------|-----------------|-------------------------|----------------------|
|                                     | GC                               | GC/MS          |                                  | GC capillary                          | GC pkd <sup>14</sup> | GC/MS capillary | GC/MS pkd <sup>14</sup> |                      |
| 1,3-Dichlorobenzene                 | 601, 612                         | 625, 1625      | 6230B, 6410B                     |                                       |                      |                 |                         |                      |
| 1,4-Dichlorobenzene                 | 601, 612                         | 625, 1625      | 6230B, 6410B                     |                                       |                      |                 |                         |                      |
| Ethylbenzene                        |                                  | 1624           | 6210B                            |                                       |                      |                 |                         |                      |
| Toluene                             |                                  | 1624           | 6210B                            |                                       |                      |                 |                         |                      |
| C. Other volatiles                  | 603                              | 1624, 624<br>3 |                                  | 8030A                                 | —                    | 8260A           | 8240B                   |                      |
| Acrolein                            |                                  |                |                                  |                                       |                      |                 |                         | LC:8315<br>(SW-846)  |
| Acrylonitrile                       |                                  |                |                                  | 8031                                  |                      |                 |                         | LC: 8316<br>(SW-846) |
| II. Phenols                         | 604                              | 625, 1625      | 6410B, 6420B                     | —                                     | 8040<br>A            | 8270B           | 8250A                   |                      |
| 4-Chloro-3-methylphenol             |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2-Chlorophenol                      |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2,4-Dichlorophenol                  |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2,4-Dimethylphenol                  |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2,4-Dinitrophenol                   |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2-Methyl-4,6-dinitrophenol          |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2-Nitrophenol                       |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 4-Nitrophenol                       |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Pentachlorophenol                   |                                  |                |                                  |                                       |                      |                 |                         | Note 2, p.140        |
| Phenol                              |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2,4,6-Trichlorophenol               |                                  |                |                                  |                                       |                      |                 |                         |                      |
| III. Phthalate esters               | 606                              | 625, 1625      | 6410 B                           | 8061                                  | 8060                 | 8270B           | 8250A                   |                      |
| Benzyl butyl phthalate              |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Bis(2-ethylhexyl)phthalate          |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Diethyl phthalate                   |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Dimethyl phthalate                  |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Di-n-butyl phthalate                |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Di-n-octyl phthalate                |                                  |                |                                  |                                       |                      |                 |                         |                      |
| IV. Nitrosamines                    | 607                              | 625, 1625      | 6410 B                           | —                                     | 8070                 | 8270B           | 8250A                   |                      |
| N-Nitrosodimethylamine              |                                  | note 4         |                                  |                                       |                      |                 |                         |                      |
| N-Nitrosodi-n-propylamine           |                                  |                |                                  |                                       |                      |                 |                         |                      |
| N-Nitrosodiphenylamine              |                                  | note 4         |                                  |                                       |                      |                 |                         |                      |
| V. Polychlorinated biphenyls        | 608                              | 625            | 6410 B                           | 8081                                  | 8080<br>A            | 8270B           | 8250A                   | Note 2, p.43         |
| PCB-1016                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1221                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1232                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1242                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1248                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1254                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| PCB-1260                            |                                  |                |                                  |                                       |                      |                 |                         |                      |
| VI. Nitroaromatics & cyclic ketones | 609                              | 625, 1625      | 6410 B                           | —                                     | 8090                 | 8270B           | 8250A                   |                      |
| 2,4-Dinitrotoluene                  |                                  |                |                                  |                                       |                      |                 |                         |                      |
| 2,6-Dinitrotoluene                  |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Isophorone                          |                                  |                |                                  |                                       |                      |                 |                         |                      |
| Nitrobenzene                        |                                  |                |                                  |                                       |                      |                 |                         |                      |

**Table C**  
**List of Approved Test Procedures for Non-Pesticide Organic Compounds in Wastewater**

| Parameter                                       | EPA Method Number <sup>1,6</sup> |                     | Standard Methods <sup>8,13</sup> | SW-846 Method Number <sup>11,12</sup> |                      |                 |                         | Other                                |
|---|----------------------------------|---------------------|----------------------------------|---------------------------------------|----------------------|-----------------|-------------------------|--------------------------------------|
|   | GC                               | GC/MS               |                                  | GC capillary                          | GC pkd <sup>14</sup> | GC/MS capillary | GC/MS pkd <sup>14</sup> |                                      |
| VII. Polynuclear aromatic hydrocarbons          | 610/FI<br>D                      | 625,<br>1625        | 6410 B,<br>6440 B                | —                                     | 8100                 | 8270B           | 8250A                   | Note 9; 610,<br>LC: 8310<br>(SW-846) |
| Acenaphthene                                    |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Acenaphthylene                                  |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Anthracene                                      |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Benzo(a)anthracene                              |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Benzo(a)pyrene                                  |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Benzo(b)fluoranthene                            |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Benzo(g,h,i)perylene                            |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Benzo(k)fluoranthene                            |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Chrysene  |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Dibenzo(a,h)anthracene                          |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Fluoranthene                                    |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Fluorene  |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Ideno (1,2-3-cd)pyrene                          |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Naphthalene                                     |                                  |                     |                                  | 8021A                                 |                      |                 |                         |                                      |
| Phenanthrene                                    |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Pyrene  |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| VIII. Haloethers                                | 611                              | 625,<br>1625        | 6410 B                           | —                                     | 8110                 | 8270B           | 8250A                   |                                      |
| Bis(2-chloroethoxy) methane                     |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| Bis(2-chloroethyl)ether                         |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| 4-Bromophenylphenyl ether                       |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| 4-Chlorophenylphenyl ether                      |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| 2,2-Oxybis (1-chloropropane)                    |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| IX. Chlorinated hydrocarbons                    | 612                              | 625,<br>1625        | 6410 B                           | 8121                                  | 8120A                | 8270B<br>8260A  | 8250A,<br>8240A         |                                      |
| Benzyl chloride                                 | —                                | —                   | —                                |                                       | 8010B                | not<br>8270B    | not<br>8250A            | Note 2, p.130;<br>Note 5, p.S102     |
| 2-Chloronaphthalene                             |                                  |                     |                                  |                                       |                      | not<br>8260A    | not<br>8240A            | 8410<br>(SW-846)                     |
| Epichlorohydrin                                 | —                                | —                   | —                                |                                       | 8010B                | not<br>8270B    | not<br>8250A            | Note 2, p.130;<br>Note 5, p.S102     |
| Hexachlorobenzene                               |                                  |                     |                                  | 8081                                  |                      | not<br>8260A    | not<br>8240A            | 8410<br>(SW-846)                     |
| Hexachlorobutadiene                             |                                  |                     |                                  | 8021A                                 |                      |                 | not<br>8240A            | 8410<br>(SW-846)                     |
| Hexachlorocyclopentadiene                       |                                  | note 4              |                                  | 8081                                  |                      | not<br>8260A    | not<br>8240A            | 8410<br>(SW-846)                     |
| 1,2,4-Trichlorobenzene                          |                                  |                     |                                  | 8021A                                 |                      |                 | not<br>8240A            | Note 2, p.130                        |
| Hexachloroethane                                |                                  |                     |                                  |                                       |                      |                 | not<br>8240A            | 8410<br>(SW-846)                     |
| Benzidine                                       |                                  | note 4              |                                  | —                                     | —                    | not<br>8260A    | not<br>8240A            | LC: 605                              |
| 3,3-Dichlorobenzidine                           |                                  |                     |                                  | —                                     | —                    | not<br>8260A    | not<br>8240A            |                                      |
| X. Polychlorinated dibenzo-p-dioxins and furans |                                  | 1613 A <sup>7</sup> |                                  | —                                     | —                    | 8280,<br>8290   | —                       |                                      |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin       |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran           |                                  |                     |                                  |                                       |                      |                 |                         |                                      |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran           |                                  |                     |                                  |                                       |                      |                 |                         |                                      |



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| Parameter                              | EPA Method Number <sup>1,6</sup> |                   | Standard Methods <sup>9,13</sup> | SW-846 Method Number <sup>11,12</sup> |                      |                 |                         | Other |
|--|----------------------------------|-------------------|----------------------------------|---------------------------------------|----------------------|-----------------|-------------------------|-------|
|  | GC                               | GC/MS             |                                  | GC capillary                          | GC pkd <sup>14</sup> | GC/MS capillary | GC/MS pkd <sup>14</sup> |       |
|  |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,4,7,8-Hexachlorodibenzofuran     |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,6,7,8-Hexachlorodibenzofuran     |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,7,8,9-Hexachlorodibenzofuran     |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 2,3,4,6,7,8-Hexachlorodibenzofuran     |                                  |                   |                                  |                                       |                      |                 |                         |       |
| Octachlorodibenzo-p-dioxin             |                                  |                   |                                  |                                       |                      |                 |                         |       |
| Octachlorodibenzofuran                 |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin  |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 1,2,3,7,8-Pentachlorodibenzofuran      |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 2,3,4,7,8-Tetrachlorodibenzo-p-dioxin  |                                  |                   |                                  |                                       |                      |                 |                         |       |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin    |                                  | 613 <sup>5m</sup> |                                  |                                       |                      |                 | Note 10                 |       |
| 2,3,7,8-Tetrachlorodibenzofuran        |                                  |                   |                                  |                                       |                      |                 |                         |       |

<sup>1</sup>The full text of Methods 601-613, 624, 625, 1624, and 1625, are given in Appendix A of 40 CFR part 136, "Test Procedures for Analysis of Organic Pollutants". The standardized test procedure to be used to determine the method detection limit (MDL) for these procedures is given in Appendix B of 40 CFR part 136, "Definition and Procedure for the Determination of the Method Detection Limit." Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

<sup>2</sup>Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater, "Environmental Monitoring and Support Laboratory, United States Environmental Protection Agency, Cincinnati, Ohio 1978. Available from: ORD Publications, CERL, U.S. Environmental Protection Agency, 26 W. St. Claire, Cincinnati, Ohio 45268.

<sup>3</sup>Method 624 may be extended to screen samples for Acrolein and Acrylonitrile. However, when they are known to be present, the preferred method for these two compounds is Method 603 or Method 1624.

<sup>4</sup>Method 625 may be extended to include benzidine, hexachlorocyclopentadiene, N-nitrosodimethylamine, and N-nitrosodiphenylamine. However, when they are known to be present, Methods 605, 607, and 612, or Method 1625, are preferred methods for these compounds.

<sup>5</sup>Selected Analytical Methods approved and Cited by the United States Environmental Protection Agency, "Supplement to the 15th Edition of "Standard Methods for the Examination of Water and Wastewater" (1981). Available from: American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20036.

<sup>5m</sup>625 Screening only.

<sup>6</sup>Each analyst must make an initial, one-time, demonstration of their ability to generate acceptable precision and accuracy with Methods 601-613, 624, 625, 1613A, 1624, and 1625 in accordance with procedures in section 8.2 of each of these Methods. Additionally, each laboratory, on an on-going basis must spike and analyze 10% (5% for Methods 624 and 625 and 100% for Methods 1624 and 1625) of all samples to monitor and evaluate laboratory data quality in accordance with sections 8.3 and 8.4 of these Methods. When the recovery of any parameter falls outside the warning limits, the analytical results for that parameter in the unspiked sample are suspect and cannot be reported to demonstrate regulatory compliance.

<sup>7</sup>Method 1613 Revision A: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Environmental Protection Agency, Federal Register, page 5098, February 1991. Available from the Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402.

<sup>8</sup>"Standard Methods for the Examination of Water and Wastewater", Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 18th Edition, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

<sup>9</sup>Method D4657-92, "Annual Book of Standards- Water and Environmental Technology", Section 11, Parts 11.01 and 11.02, American Society for Testing and Materials, 1993. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

<sup>10</sup>Method D4675-92, "Annual Book of Standards- Water and Environmental Technology", Section 11, Parts 11.01 and 11.02, American Society for Testing and Materials, 1993. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

<sup>11</sup>"Test Methods for Evaluating Solid Waste", 3rd Edition. SW-846, Office of Solid Waste and Emergency Response, Environmental Protection Agency, November 1986, including December 1987, July 1992, August 1993, September 1994 and January 1995 updates, Washington DC 20460. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800.

<sup>12</sup>SW-846 methods 8021, 8061, 8081, and 8121 require one of the following sample preparation (extraction/clean-up) procedures: 3500/3510 (liquid-liquid extraction), 3500/3520 (continuous liquid-liquid extraction), or 5030 (purge and trap method). The required sample preparation procedure is given in the determinative procedure. Method 8021 requires 5030 (purge and trap). Methods 8081 and 8121 require either 3500/3510 or 3500/3520 in addition to 3600. Method 8061 requires 3510. For methods 8021, 8061, 8081, and 8121 see also SW-846 method 8000A.

<sup>13</sup>The 18th edition of "Standard Methods for the Examination of Water and Wastewater" is not significantly different from the 17th edition. The 17th edition remains an acceptable reference for those methods which cite the 18th edition.

<sup>14</sup>In order to reference these methods, the laboratory must use a packed column for the GC separations.

Table D  
List of Approved Test Procedures for Pesticides<sup>1</sup> in Wastewater

| Parameter                  | Method        | EPA <sup>2,7</sup>      | SW-846 <sup>A,8</sup> |                | Standard Methods <sup>R,9</sup> | ASTM <sup>c</sup> | Other  |
|----------------------------|---------------|-------------------------|-----------------------|----------------|---------------------------------|-------------------|--|
|                            |               |                         | pkd <sup>11</sup>     | cap.           |                                 |                   |  |
| 1. Aldrin                  | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630B&C<br>6410B                | D3086-90          | Note 3, p. 7; Note 4, p. 30                  |
| 2. Ametryn                 | GC            |                         |                       |                |                                 |                   | Note 3, p. 83; Note 6, p. 868                |
| 3. Aminocarb               | HPLC          |                         |                       |                |                                 |                   | Note 10                                      |
| 4. Atraton                 | GC            |                         |                       |                |                                 |                   | Note 3, p.83; Note 6, p.S68                  |
| 5. Atrazine                | GC            |                         | 8140                  | 8141A          |                                 |                   | Note 3, p.83; Note 6, p.S68                  |
| 6. Azinphos methyl         | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 3, p.25; Note 6, p.S51                  |
| 7. Barban                  | HPLC<br>GC/MS |                         | 8250A                 | 8270B          |                                 |                   | Note 10                                      |
| 8. $\alpha$ -BHC           | GC<br>GC/MS   | 608<br>625 <sup>5</sup> | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7                                  |
| 9. $\beta$ -BHC            | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 C<br>6410 B                | D3086-90          |  |
| 10. $\delta$ -BHC          | GC<br>GC/MS   | 608<br>625 <sup>5</sup> | 8080A<br>8250A        | 8081<br>8270B  | 6630C<br>6410B                  | D3086-90          |  |
| 11. $\gamma$ -BHC(Lindane) | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630B & C<br>6410B              | D3086-90          | Note 3, p. 7; Note 4, p. 30                  |
| 12. Captan                 | GC<br>GC/MS   |                         | 8250A                 | 8270B          | 6630B                           | D3086-90          | Note 3, p. 7.                                |
| 13. Carbaryl               | HPLC<br>GC/MS |                         | 8250A                 | 8270B          |                                 |                   | Note 10                                      |
| 14. Carbophenothion        | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 4, p.30; Note 6, p.S73                  |
| 15. Chlordane              | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7                                  |
| 16. Chloroprotham          | HPLC          |                         |                       |                |                                 |                   | Note 10                                      |
| 17. 2,4-D                  | GC            |                         | 8150B                 | 8151           | 6640 B                          |                   | Note 3, p.115; Note 4, p.35                  |
| 18. 4,4'-DDD               | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7; Note 4, p.30                    |
| 19. 4,4'-DDE               | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7; Note 4, p.30                    |
| 20. 4,4'-DDT               | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7; Note 4, p.30                    |
| 21. Demeton-O              | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 3, p.25; Note 6, p.S51                  |
| 22. Demeton-S              | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 3, p.25; Note 6, p.S51                  |
| 23. Diazinon               | GC            |                         | 8140                  | 8141           |                                 |                   | Note 3, p.25; Note 4, p.30;<br>Note 6, p.S51 |
| 24. Dicamba                | GC            |                         | 8150B                 | 8151           |                                 |                   | Note 3, p.115                                |
| 25. Dichlofenthion         | GC            |                         | 8140                  | 8141           |                                 |                   | Note 4, p.30; Note 6, p.S73                  |
| 26. Dichloran              | GC            |                         |                       |                | 6630 B & C                      | D3086-90          |  |
| 27. Dicofol                | GC            |                         |                       |                |                                 |                   |  |
| 28. Dieldrin               | GC<br>GC/MS   | 608<br>625              | 8080A<br>8250A        | 8081<br>8270B  | 6630 B & C<br>6410 B            |                   | Note 3, p.7; Note 4, p.30                    |
| 29. Dioxathion             | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 4, p.30; Note 6, p.S73                  |
| 30. Disulfoton             | GC<br>GC/MS   |                         | 8140<br>8250A         | 8141A<br>8270B |                                 |                   | Note 3, p.25; Note 6, p.S51                  |
| 31. Diuron                 | HPLC          |                         |                       |                |                                 |                   | Note 10                                      |

Table D  
List of Approved Test Procedures for Pesticides<sup>1</sup> in Wastewater

| Parameter              | Method | EPA <sup>2,7</sup> | SW-846 <sup>A,8</sup> |       | Standard Methods <sup>R,9</sup> | ASTM <sup>c</sup> | Other                                     |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|------------------------|--------|--------------------|-----------------------|-------|---------------------------------|-------------------|---|------------------------|---------------------|-----------------|-------|-------|----------------------|----------|---|-----------------|------------------|-------|-------|------------------------|--------|-------------|---|-----------------------------|---------------|-------|-----------------------------|------------|------------------------------|-----------------|---------------------------|-----------------------------|----------------------|-------------|--------|------------------------|---|------------------|-----------------------------|-----------------------------|------------------------------|-----------------|---|----------------|---------------------------|----------------------|-----------------------------|---------------------|---|------------------------|---------|-----------------------------|----------------------------|--------------|-----------------------------|----------------|---|----------|---------------------------|-----------------------------|---------------|------------------------|---------|------------------|-------------|-----------------|-----------------------------|-----------------------------|---|-----------------|---------------------------|----------------|--------------|-------------|--------------|---------------------|---|-----------------|------------|-----------------------------|------------------------------|-----------------|----------------------|----------------|---------------------------|------------|-------------|-----------------|----------|-----------------------------|---|------------------|-------------|-------------|-----------------------------|---------------|---|-----------------------------|---------------------------|---------|--------------|------------------------|---|-----------------------------|---------|-----------------------------|------------------|-----------------------------|---|----------------|-----------------------------|---------------|---------------------------|-----------------|--------------|-------------|----------|----------------------|-----------------------------|-----------------|-----------------------------|-------------|----------------|---------------|----------------------------|-------|-----------------------------|---------------|---------|----------------------|---|-----------------------------|--------------|-------------|-----------------------------|----------------|----------------------------|----------------|--------------|-----------------------------|---------------|-----------------|---|---------------------|---------|-----------------------------|--------------|-----------------------------|---------------|----------------|--------------|----------------|---------------------------|--------------|----------|-----------------------------|-------------|----------------------|-----------------------------|-----------------|-----------------------------|---------------|-------------|-------------|----------------------------|----------|-------------|-----------------|-----------------------------|-----------------------------|---------|----------------------|----------------|-----------|-----------------------------|---------------|-----------------------------|-------------|----------------------------|--------------|-------------|-------|-----------------------------|----------------------|---------|---------------------|-----------------------------|---------------|--------------|-------|-----------------------------|-------------|--------------|----------------|-----------------------------|-----------------------------|--------------|---------------------|-----------------------------|--------------|---------|-------------|-----------------------------|-------------|--------------|----------|-------------|-----------------|---------|--------------|---------|----------------------|-------------|--------------|-----------------------------|---------------|-----------------------------|--------------|----------------------------|-----------------------------|-------|--------------|-----------------------------|----------------------|-------------|---------------------|---------|-------------|-----------------------------|---------------|-----------------------------|--------------|--------------|--------------|---------|--------------|-----------------------------|---------------------|-------------|--------------|-----------------------------|---------------|-----------------------------|--------------|-----------------------------|-------------|-------------|----------------|-----------------------------|---------------|-------------|----------|---------|--------------|-----------------------------|-------------|-----------------------------|-------------|-------------|-------------|---------|----------------|---------|--------------|---------|--------------|-----------------------------|-------|-----------------------------|---------------|-----------------------------|--------------|---------|----------------|-------|------|-----------------------------|---------------|-------------|----------|-----------------------------|---------------|------|--|-----------------------------|--------------|---------|-------------|-----------------------------|---------------|------------|------|-------------|--------------|-----------------------------|--|-----------------------------|--------------|------|--|---------|----------------|------------|--|-------------|--------------|--------|--|-----------------------------|-------------|------|--|---------|----------------|------|--|---------|--------------|--------|--|-----------------------------|-------------|------|--|-----------------------------|--------------|----|--|---------|--------------|------------|--|-------------|----------|------|--|-----------------------------|--------------|----|--|---------|-------------|------------|--|-------------|----------|--------|--|-----------------------------|--|--|--|---------|-------------|----|--|-------|
|                        |        |                    | pkd <sup>11</sup>     | cap.  |                                 |                   |   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 32. Endosulfan I       | GC     | 608                | 8080A                 | 8081  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7                               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 33. Endosulfan II      | GC                  | 608             | 8080A | 8081  | 6630 B & C<br>6410 B | D3086-90 | Note 3, p.7                             | GC/MS           | 625              | 8250A | 8270B | 34. Endosulfan sulfate | GC     | 608         | 8080A                                     | 8081                        | 6630 C        |       |                             |            | GC/MS                        | 625             | 8250A                     | 8270B                       | 6410 B               |             |        | 35. Endrin             | GC  | 608              | 8080A                       | 8081                        | 6630 B & C<br>6410 B         | D3086-90        | Note 3, p.7; Note 4, p.30               | GC/MS          | 625                       | 8250A                | 8270B                       | 36. Endrin aldehyde | GC  | 608                    | 8080A   | 8081                        | 6410 B                     | D3086-90     |                             | GC/MS          | 625                                     | 8250A    | 8270B                     | 37. Ethion                  | GC            |                        | 8140    | 8141A            |             |                 | Note 4, p.30; Note 6, p.S73 | GC/MS                       |   | 8250A           | 8270B                     |                |              | 38. Fenuron | HPLC         |                     |   |                 |            |                             | Note 3, p.104; Note 6, p.S64 | 39. Fenuron-TCA | HPLC                 |                |                           |            |             |                 | Note 10  | 40. Heptachlor              | GC  | 608              | 8080A       | 8081        | 6630 B & C<br>6410 B        | D3086-90      | Note 3, p.7; Note 4, p.30               | GC/MS                       | 625                       | 8250A   | 8270B        | 41. Heptachlor epoxide | GC  | 608                         | 8080A   | 8081                        | 6630 B<br>6410 B | D3086-90                    | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS          | 625                         | 8250A         | 8270B                     | 42. Isodrin     | GC           |             | 8080A    | 8081                 |                             |                 | Note 4, p.30; Note 6, p.S73 | GC/MS       |                | 8250A         | 8270B                      |       |                             | 43. Linuron   | HPLC    |                      |   |                             |              |             | Note 10                     | 44. Malathion  | GC                         |                | 8140         | 8141A                       | 6630 C        |                 | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS               |         | 8250A                       | 8270B        |                             |               | 45. Methiocarb | HPLC         |                |                           |              |          |                             | Note 10     | 46. Methoxychlor     | GC                          |                 | 8080A                       | 8081          | 6630 B & C  | D3086-90    | Note 3, p.7; Note 4, p.30  | GC/MS    |             | 8250A           | 8270B                       |                             |         | 47. Mexacarbate      | HPLC           |           |                             |               |                             |             | Note 10                    | GC/MS        |             | 8250A | 8270B                       |                      |         | 48. Mirex           | GC                          |               | 8080A        | 8081  | 6630 B & C                  |             | Note 3, p.7  | GC/MS          |                             | 8250A                       | 8270B        |                     |                             | 49. Monuron  | HPLC    |             |                             |             |              |          | Note 10     | 50. Monuron-TCA | HPLC    |              |         |                      |             |              | Note 10                     | 51. Neburon   | HPLC                        |              |                            |                             |       |              | Note 10                     | 52. Parathion methyl | GC          |                     | 8140    | 8141A       | 6630 C                      |               | Note 3, p.25; Note 4, p.30  | GC/MS        |              | 8250A        | 8270B   |              |                             | 53. Parathion ethyl | GC          |              | 8140                        | 8141A         | 6630 C                      | D3086-90     | Note 3, p.25                | GC/MS       |             | 8250A          | 8270B                       |               |             | 54. PCNB | GC      |              | 8080A                       | 8081        | 6630 B & C                  |             | Note 3, p.7 | GC/MS       |         | 8250A          | 8270B   |              |         | 55. Perthane | GC                          |       | 8080A                       | 8081          |                             | D3086-90     |         | 56. Prometon   | GC    |      |                             |               |             |          | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC   |  |                             |              |         |             | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC         |      |             |              |                             |  | Note 3, p.83; Note 6, p.S68 | 58. Propham  | HPLC |  |         |                |            |  | Note 10     | 59. Propoxur | HPLC   |  |                             |             |      |  | Note 10 | 60. Secbumeton | HPLC |  |         |              |        |  | Note 10                     | 61. Siduron | HPLC |  |                             |              |    |  | Note 10 | 62. Simazine | GC         |  | 8140        | 8141A    |      |  | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC |  | 8080A   | 8081        | 6630 B & C |  | Note 3, p.7 | 64. Swep | HPLC   |  |                             |  |  |  | Note 10 | 65. 2,4,5-T | GC |  | 8150B |
| 33. Endosulfan II      | GC     | 608                | 8080A                 | 8081  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7                               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 34. Endosulfan sulfate | GC                  | 608             | 8080A | 8081  | 6630 C               |          |   |                 | GC/MS            | 625   | 8250A | 8270B                  | 6410 B |             |   | 35. Endrin                  | GC            | 608   | 8080A                       | 8081       | 6630 B & C<br>6410 B         | D3086-90        | Note 3, p.7; Note 4, p.30 | GC/MS                       | 625                  | 8250A       | 8270B  | 36. Endrin aldehyde    | GC  | 608              | 8080A                       | 8081                        | 6410 B                       | D3086-90        |   | GC/MS          | 625                       | 8250A                | 8270B                       | 37. Ethion          | GC  |                        | 8140    | 8141A                       |                            |              | Note 4, p.30; Note 6, p.S73 | GC/MS          |   | 8250A    | 8270B                     |                             |               | 38. Fenuron            | HPLC    |                  |             |                 |                             |                             | Note 3, p.104; Note 6, p.S64            | 39. Fenuron-TCA | HPLC                      |                |              |             |              |                     | Note 10                                   | 40. Heptachlor  | GC         | 608                         | 8080A                        | 8081            | 6630 B & C<br>6410 B | D3086-90       | Note 3, p.7; Note 4, p.30 | GC/MS      | 625         | 8250A           | 8270B    | 41. Heptachlor epoxide      | GC  | 608              | 8080A       | 8081        | 6630 B<br>6410 B            | D3086-90      | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS                       | 625                       | 8250A   | 8270B        | 42. Isodrin            | GC  |                             | 8080A   | 8081                        |                  |                             | Note 4, p.30; Note 6, p.S73             | GC/MS          |                             | 8250A         | 8270B                     |                 |              | 43. Linuron | HPLC     |                      |                             |                 |                             |             | Note 10        | 44. Malathion | GC                         |       | 8140                        | 8141A         | 6630 C  |                      | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS                       |              | 8250A       | 8270B                       |                |                            | 45. Methiocarb | HPLC         |                             |               |                 |   |                     | Note 10 | 46. Methoxychlor            | GC           |                             | 8080A         | 8081           | 6630 B & C   | D3086-90       | Note 3, p.7; Note 4, p.30 | GC/MS        |          | 8250A                       | 8270B       |                      |                             | 47. Mexacarbate | HPLC                        |               |             |             |                            |          | Note 10     | GC/MS           |                             | 8250A                       | 8270B   |                      |                | 48. Mirex | GC                          |               | 8080A                       | 8081        | 6630 B & C                 |              | Note 3, p.7 | GC/MS |                             | 8250A                | 8270B   |                     |                             | 49. Monuron   | HPLC         |       |                             |             |              |                | Note 10                     | 50. Monuron-TCA             | HPLC         |                     |                             |              |         |             | Note 10                     | 51. Neburon | HPLC         |          |             |                 |         |              | Note 10 | 52. Parathion methyl | GC          |              | 8140                        | 8141A         | 6630 C                      |              | Note 3, p.25; Note 4, p.30 | GC/MS                       |       | 8250A        | 8270B                       |                      |             | 53. Parathion ethyl | GC      |             | 8140                        | 8141A         | 6630 C                      | D3086-90     | Note 3, p.25 | GC/MS        |         | 8250A        | 8270B                       |                     |             | 54. PCNB     | GC                          |               | 8080A                       | 8081         | 6630 B & C                  |             | Note 3, p.7 | GC/MS          |                             | 8250A         | 8270B       |          |         | 55. Perthane | GC                          |             | 8080A                       | 8081        |             | D3086-90    |         | 56. Prometon   | GC      |              |         |              |                             |       | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC                          |              |         |                |       |      | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC          |          |                             |               |      |  | Note 3, p.83; Note 6, p.S68 | 58. Propham  | HPLC    |             |                             |               |            |      | Note 10     | 59. Propoxur | HPLC                        |  |                             |              |      |  | Note 10 | 60. Secbumeton | HPLC       |  |             |              |        |  | Note 10                     | 61. Siduron | HPLC |  |         |                |      |  | Note 10 | 62. Simazine | GC     |  | 8140                        | 8141A       |      |  | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC |  | 8080A   | 8081         | 6630 B & C |  | Note 3, p.7 | 64. Swep | HPLC |  |                             |              |    |  | Note 10 | 65. 2,4,5-T | GC         |  | 8150B       | 8151     | 6640 B |  | Note 3, p.115; Note 4, p.35 |  |  |  |         |             |    |  |       |
| 34. Endosulfan sulfate | GC     | 608                | 8080A                 | 8081  | 6630 C                          |                   |   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B | 6410 B                          |                   |   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 35. Endrin             | GC     | 608                | 8080A                 | 8081  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7; Note 4, p.30                 |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 36. Endrin aldehyde    | GC                  | 608             | 8080A | 8081  | 6410 B               | D3086-90 |   | GC/MS           | 625              | 8250A | 8270B | 37. Ethion             | GC     |             | 8140                                      | 8141A                       |               |       | Note 4, p.30; Note 6, p.S73 | GC/MS      |                              | 8250A           | 8270B                     |                             |                      | 38. Fenuron | HPLC   |                        |   |                  |                             |                             | Note 3, p.104; Note 6, p.S64 | 39. Fenuron-TCA | HPLC                                    |                |                           |                      |                             |                     | Note 10                                   | 40. Heptachlor         | GC      | 608                         | 8080A                      | 8081         | 6630 B & C<br>6410 B        | D3086-90       | Note 3, p.7; Note 4, p.30               | GC/MS    | 625                       | 8250A                       | 8270B         | 41. Heptachlor epoxide | GC      | 608              | 8080A       | 8081            | 6630 B<br>6410 B            | D3086-90                    | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS           | 625                       | 8250A          | 8270B        | 42. Isodrin | GC           |                     | 8080A                                     | 8081            |            |                             | Note 4, p.30; Note 6, p.S73  | GC/MS           |                      | 8250A          | 8270B                     |            |             | 43. Linuron     | HPLC     |                             |   |                  |             |             | Note 10                     | 44. Malathion | GC                                      |                             | 8140                      | 8141A   | 6630 C       |                        | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS                       |         | 8250A                       | 8270B            |                             |   | 45. Methiocarb | HPLC                        |               |                           |                 |              |             | Note 10  | 46. Methoxychlor     | GC                          |                 | 8080A                       | 8081        | 6630 B & C     | D3086-90      | Note 3, p.7; Note 4, p.30  | GC/MS |                             | 8250A         | 8270B   |                      |   | 47. Mexacarbate             | HPLC         |             |                             |                |                            |                | Note 10      | GC/MS                       |               | 8250A           | 8270B                                     |                     |         | 48. Mirex                   | GC           |                             | 8080A         | 8081           | 6630 B & C   |                | Note 3, p.7               | GC/MS        |          | 8250A                       | 8270B       |                      |                             | 49. Monuron     | HPLC                        |               |             |             |                            |          | Note 10     | 50. Monuron-TCA | HPLC                        |                             |         |                      |                |           | Note 10                     | 51. Neburon   | HPLC                        |             |                            |              |             |       | Note 10                     | 52. Parathion methyl | GC      |                     | 8140                        | 8141A         | 6630 C       |       | Note 3, p.25; Note 4, p.30  | GC/MS       |              | 8250A          | 8270B                       |                             |              | 53. Parathion ethyl | GC                          |              | 8140    | 8141A       | 6630 C                      | D3086-90    | Note 3, p.25 | GC/MS    |             | 8250A           | 8270B   |              |         | 54. PCNB             | GC          |              | 8080A                       | 8081          | 6630 B & C                  |              | Note 3, p.7                | GC/MS                       |       | 8250A        | 8270B                       |                      |             | 55. Perthane        | GC      |             | 8080A                       | 8081          |                             | D3086-90     |              | 56. Prometon | GC      |              |                             |                     |             |              | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC                          |              |                             |             |             |                | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC          |          |         |              |                             |             | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC        |             |         |                |         |              | Note 10 | 59. Propoxur | HPLC                        |       |                             |               |                             |              | Note 10 | 60. Secbumeton | HPLC  |      |                             |               |             |          | Note 10                     | 61. Siduron   | HPLC |  |                             |              |         |             | Note 10                     | 62. Simazine  | GC         |      | 8140        | 8141A        |                             |  | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC   |  | 8080A   | 8081           | 6630 B & C |  | Note 3, p.7 | 64. Swep     | HPLC   |  |                             |             |      |  | Note 10 | 65. 2,4,5-T    | GC   |  | 8150B   | 8151         | 6640 B |  | Note 3, p.115; Note 4, p.35 |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 36. Endrin aldehyde    | GC     | 608                | 8080A                 | 8081  | 6410 B                          | D3086-90          |   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 37. Ethion             | GC                  |                 | 8140  | 8141A |                      |          | Note 4, p.30; Note 6, p.S73             | GC/MS           |                  | 8250A | 8270B |                        |        | 38. Fenuron | HPLC                                      |                             |               |       |                             |            | Note 3, p.104; Note 6, p.S64 | 39. Fenuron-TCA | HPLC                      |                             |                      |             |        |                        | Note 10                                   | 40. Heptachlor   | GC                          | 608                         | 8080A                        | 8081            | 6630 B & C<br>6410 B                    | D3086-90       | Note 3, p.7; Note 4, p.30 | GC/MS                | 625                         | 8250A               | 8270B                                     | 41. Heptachlor epoxide | GC      | 608                         | 8080A                      | 8081         | 6630 B<br>6410 B            | D3086-90       | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS    | 625                       | 8250A                       | 8270B         | 42. Isodrin            | GC      |                  | 8080A       | 8081            |                             |                             | Note 4, p.30; Note 6, p.S73             | GC/MS           |                           | 8250A          | 8270B        |             |              | 43. Linuron         | HPLC                                      |                 |            |                             |                              |                 | Note 10              | 44. Malathion  | GC                        |            | 8140        | 8141A           | 6630 C   |                             | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS            |             | 8250A       | 8270B                       |               |   | 45. Methiocarb              | HPLC                      |         |              |                        |   |                             | Note 10 | 46. Methoxychlor            | GC               |                             | 8080A                                   | 8081           | 6630 B & C                  | D3086-90      | Note 3, p.7; Note 4, p.30 | GC/MS           |              | 8250A       | 8270B    |                      |                             | 47. Mexacarbate | HPLC                        |             |                |               |                            |       | Note 10                     | GC/MS         |         | 8250A                | 8270B                                     |                             |              | 48. Mirex   | GC                          |                | 8080A                      | 8081           | 6630 B & C   |                             | Note 3, p.7   | GC/MS           |   | 8250A               | 8270B   |                             |              | 49. Monuron                 | HPLC          |                |              |                |                           |              | Note 10  | 50. Monuron-TCA             | HPLC        |                      |                             |                 |                             |               | Note 10     | 51. Neburon | HPLC                       |          |             |                 |                             |                             | Note 10 | 52. Parathion methyl | GC             |           | 8140                        | 8141A         | 6630 C                      |             | Note 3, p.25; Note 4, p.30 | GC/MS        |             | 8250A | 8270B                       |                      |         | 53. Parathion ethyl | GC                          |               | 8140         | 8141A | 6630 C                      | D3086-90    | Note 3, p.25 | GC/MS          |                             | 8250A                       | 8270B        |                     |                             | 54. PCNB     | GC      |             | 8080A                       | 8081        | 6630 B & C   |          | Note 3, p.7 | GC/MS           |         | 8250A        | 8270B   |                      |             | 55. Perthane | GC                          |               | 8080A                       | 8081         |                            | D3086-90                    |       | 56. Prometon | GC                          |                      |             |                     |         |             | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC                          |              |              |              |         |              | Note 3, p.83; Note 6, p.S68 | 57. Propazine       | GC          |              |                             |               |                             |              | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC        |                |                             |               |             |          | Note 10 | 59. Propoxur | HPLC                        |             |                             |             |             |             | Note 10 | 60. Secbumeton | HPLC    |              |         |              |                             |       | Note 10                     | 61. Siduron   | HPLC                        |              |         |                |       |      | Note 10                     | 62. Simazine  | GC          |          | 8140                        | 8141A         |      |  | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC      |             | 8080A                       | 8081          | 6630 B & C |      | Note 3, p.7 | 64. Swep     | HPLC                        |  |                             |              |      |  | Note 10 | 65. 2,4,5-T    | GC         |  | 8150B       | 8151         | 6640 B |  | Note 3, p.115; Note 4, p.35 |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 37. Ethion             | GC     |                    | 8140                  | 8141A |                                 |                   | Note 4, p.30; Note 6, p.S73               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   | 38. Fenuron            | HPLC                |                 |       |       |                      |          | Note 3, p.104; Note 6, p.S64            | 39. Fenuron-TCA | HPLC             |       |       |                        |        |             | Note 10                                   | 40. Heptachlor              | GC            | 608   | 8080A                       | 8081       | 6630 B & C<br>6410 B         | D3086-90        | Note 3, p.7; Note 4, p.30 | GC/MS                       | 625                  | 8250A       | 8270B  | 41. Heptachlor epoxide | GC  | 608              | 8080A                       | 8081                        | 6630 B<br>6410 B             | D3086-90        | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS          | 625                       | 8250A                | 8270B                       | 42. Isodrin         | GC  |                        | 8080A   | 8081                        |                            |              | Note 4, p.30; Note 6, p.S73 | GC/MS          |   | 8250A    | 8270B                     |                             |               | 43. Linuron            | HPLC    |                  |             |                 |                             |                             | Note 10                                 | 44. Malathion   | GC                        |                | 8140         | 8141A       | 6630 C       |                     | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS           |            | 8250A                       | 8270B                        |                 |                      | 45. Methiocarb | HPLC                      |            |             |                 |          |                             | Note 10                                   | 46. Methoxychlor | GC          |             | 8080A                       | 8081          | 6630 B & C                              | D3086-90                    | Note 3, p.7; Note 4, p.30 | GC/MS   |              | 8250A                  | 8270B                                     |                             |         | 47. Mexacarbate             | HPLC             |                             |   |                |                             |               | Note 10                   | GC/MS           |              | 8250A       | 8270B    |                      |                             | 48. Mirex       | GC                          |             | 8080A          | 8081          | 6630 B & C                 |       | Note 3, p.7                 | GC/MS         |         | 8250A                | 8270B                                     |                             |              | 49. Monuron | HPLC                        |                |                            |                |              |                             | Note 10       | 50. Monuron-TCA | HPLC                                      |                     |         |                             |              |                             | Note 10       | 51. Neburon    | HPLC         |                |                           |              |          |                             | Note 10     | 52. Parathion methyl | GC                          |                 | 8140                        | 8141A         | 6630 C      |             | Note 3, p.25; Note 4, p.30 | GC/MS    |             | 8250A           | 8270B                       |                             |         | 53. Parathion ethyl  | GC             |           | 8140                        | 8141A         | 6630 C                      | D3086-90    | Note 3, p.25               | GC/MS        |             | 8250A | 8270B                       |                      |         | 54. PCNB            | GC                          |               | 8080A        | 8081  | 6630 B & C                  |             | Note 3, p.7  | GC/MS          |                             | 8250A                       | 8270B        |                     |                             | 55. Perthane | GC      |             | 8080A                       | 8081        |              | D3086-90 |             | 56. Prometon    | GC      |              |         |                      |             |              | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC                          |              |                            |                             |       |              | Note 3, p.83; Note 6, p.S68 | 57. Propazine        | GC          |                     |         |             |                             |               | Note 3, p.83; Note 6, p.S68 | 58. Propham  | HPLC         |              |         |              |                             |                     | Note 10     | 59. Propoxur | HPLC                        |               |                             |              |                             |             | Note 10     | 60. Secbumeton | HPLC                        |               |             |          |         |              | Note 10                     | 61. Siduron | HPLC                        |             |             |             |         |                | Note 10 | 62. Simazine | GC      |              | 8140                        | 8141A |                             |               | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC      |                | 8080A | 8081 | 6630 B & C                  |               | Note 3, p.7 | 64. Swep | HPLC                        |               |      |  |                             |              | Note 10 | 65. 2,4,5-T | GC                          |               | 8150B      | 8151 | 6640 B      |              | Note 3, p.115; Note 4, p.35 |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 38. Fenuron            | HPLC   |                    |                       |       |                                 |                   | Note 3, p.104; Note 6, p.S64              |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 39. Fenuron-TCA        | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 40. Heptachlor         | GC     | 608                | 8080A                 | 8081  | 6630 B & C<br>6410 B            | D3086-90          | Note 3, p.7; Note 4, p.30                 |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 41. Heptachlor epoxide | GC                  | 608             | 8080A | 8081  | 6630 B<br>6410 B     | D3086-90 | Note 3, p.7; Note 4, p.30; Note 6 p.S73 | GC/MS           | 625              | 8250A | 8270B | 42. Isodrin            | GC     |             | 8080A                                     | 8081                        |               |       | Note 4, p.30; Note 6, p.S73 | GC/MS      |                              | 8250A           | 8270B                     |                             |                      | 43. Linuron | HPLC   |                        |   |                  |                             |                             | Note 10                      | 44. Malathion   | GC                                      |                | 8140                      | 8141A                | 6630 C                      |                     | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS                  |         | 8250A                       | 8270B                      |              |                             | 45. Methiocarb | HPLC                                    |          |                           |                             |               |                        | Note 10 | 46. Methoxychlor | GC          |                 | 8080A                       | 8081                        | 6630 B & C                              | D3086-90        | Note 3, p.7; Note 4, p.30 | GC/MS          |              | 8250A       | 8270B        |                     |   | 47. Mexacarbate | HPLC       |                             |                              |                 |                      |                | Note 10                   | GC/MS      |             | 8250A           | 8270B    |                             |   | 48. Mirex        | GC          |             | 8080A                       | 8081          | 6630 B & C                              |                             | Note 3, p.7               | GC/MS   |              | 8250A                  | 8270B                                     |                             |         | 49. Monuron                 | HPLC             |                             |   |                |                             |               | Note 10                   | 50. Monuron-TCA | HPLC         |             |          |                      |                             |                 | Note 10                     | 51. Neburon | HPLC           |               |                            |       |                             |               | Note 10 | 52. Parathion methyl | GC  |                             | 8140         | 8141A       | 6630 C                      |                | Note 3, p.25; Note 4, p.30 | GC/MS          |              | 8250A                       | 8270B         |                 |   | 53. Parathion ethyl | GC      |                             | 8140         | 8141A                       | 6630 C        | D3086-90       | Note 3, p.25 | GC/MS          |                           | 8250A        | 8270B    |                             |             | 54. PCNB             | GC                          |                 | 8080A                       | 8081          | 6630 B & C  |             | Note 3, p.7                | GC/MS    |             | 8250A           | 8270B                       |                             |         | 55. Perthane         | GC             |           | 8080A                       | 8081          |                             | D3086-90    |                            | 56. Prometon | GC          |       |                             |                      |         |                     | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC           |       |                             |             |              |                | Note 3, p.83; Note 6, p.S68 | 57. Propazine               | GC           |                     |                             |              |         |             | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC         |          |             |                 |         |              | Note 10 | 59. Propoxur         | HPLC        |              |                             |               |                             |              | Note 10                    | 60. Secbumeton              | HPLC  |              |                             |                      |             |                     | Note 10 | 61. Siduron | HPLC                        |               |                             |              |              |              | Note 10 | 62. Simazine | GC                          |                     | 8140        | 8141A        |                             |               | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC                          |             | 8080A       | 8081           | 6630 B & C                  |               | Note 3, p.7 | 64. Swep | HPLC    |              |                             |             |                             |             | Note 10     | 65. 2,4,5-T | GC      |                | 8150B   | 8151         | 6640 B  |              | Note 3, p.115; Note 4, p.35 |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 41. Heptachlor epoxide | GC     | 608                | 8080A                 | 8081  | 6630 B<br>6410 B                | D3086-90          | Note 3, p.7; Note 4, p.30; Note 6 p.S73   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  | 625                | 8250A                 | 8270B |                                 |                   |   | 42. Isodrin            | GC                  |                 | 8080A | 8081  |                      |          | Note 4, p.30; Note 6, p.S73             | GC/MS           |                  | 8250A | 8270B |                        |        | 43. Linuron | HPLC                                      |                             |               |       |                             |            | Note 10                      | 44. Malathion   | GC                        |                             | 8140                 | 8141A       | 6630 C |                        | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS            |                             | 8250A                       | 8270B                        |                 |   | 45. Methiocarb | HPLC                      |                      |                             |                     |   |                        | Note 10 | 46. Methoxychlor            | GC                         |              | 8080A                       | 8081           | 6630 B & C                              | D3086-90 | Note 3, p.7; Note 4, p.30 | GC/MS                       |               | 8250A                  | 8270B   |                  |             | 47. Mexacarbate | HPLC                        |                             |   |                 |                           |                | Note 10      | GC/MS       |              | 8250A               | 8270B                                     |                 |            | 48. Mirex                   | GC                           |                 | 8080A                | 8081           | 6630 B & C                |            | Note 3, p.7 | GC/MS           |          | 8250A                       | 8270B                                     |                  |             | 49. Monuron | HPLC                        |               |   |                             |                           |         | Note 10      | 50. Monuron-TCA        | HPLC                                      |                             |         |                             |                  |                             | Note 10                                 | 51. Neburon    | HPLC                        |               |                           |                 |              |             | Note 10  | 52. Parathion methyl | GC                          |                 | 8140                        | 8141A       | 6630 C         |               | Note 3, p.25; Note 4, p.30 | GC/MS |                             | 8250A         | 8270B   |                      |   | 53. Parathion ethyl         | GC           |             | 8140                        | 8141A          | 6630 C                     | D3086-90       | Note 3, p.25 | GC/MS                       |               | 8250A           | 8270B                                     |                     |         | 54. PCNB                    | GC           |                             | 8080A         | 8081           | 6630 B & C   |                | Note 3, p.7               | GC/MS        |          | 8250A                       | 8270B       |                      |                             | 55. Perthane    | GC                          |               | 8080A       | 8081        |                            | D3086-90 |             | 56. Prometon    | GC                          |                             |         |                      |                |           | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC                          |             |                            |              |             |       | Note 3, p.83; Note 6, p.S68 | 57. Propazine        | GC      |                     |                             |               |              |       | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC         |                |                             |                             |              |                     | Note 10                     | 59. Propoxur | HPLC    |             |                             |             |              |          | Note 10     | 60. Secbumeton  | HPLC    |              |         |                      |             |              | Note 10                     | 61. Siduron   | HPLC                        |              |                            |                             |       |              | Note 10                     | 62. Simazine         | GC          |                     | 8140    | 8141A       |                             |               | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC           |              | 8080A   | 8081         | 6630 B & C                  |                     | Note 3, p.7 | 64. Swep     | HPLC                        |               |                             |              |                             |             | Note 10     | 65. 2,4,5-T    | GC                          |               | 8150B       | 8151     | 6640 B  |              | Note 3, p.115; Note 4, p.35 |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 42. Isodrin            | GC     |                    | 8080A                 | 8081  |                                 |                   | Note 4, p.30; Note 6, p.S73               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   | 43. Linuron            | HPLC                |                 |       |       |                      |          | Note 10                                 | 44. Malathion   | GC               |       | 8140  | 8141A                  | 6630 C |             | Note 3, p.25; Note 4, p.30; Note 6, p.S51 | GC/MS                       |               | 8250A | 8270B                       |            |                              | 45. Methiocarb  | HPLC                      |                             |                      |             |        |                        | Note 10                                   | 46. Methoxychlor | GC                          |                             | 8080A                        | 8081            | 6630 B & C                              | D3086-90       | Note 3, p.7; Note 4, p.30 | GC/MS                |                             | 8250A               | 8270B                                     |                        |         | 47. Mexacarbate             | HPLC                       |              |                             |                |   |          | Note 10                   | GC/MS                       |               | 8250A                  | 8270B   |                  |             | 48. Mirex       | GC                          |                             | 8080A                                   | 8081            | 6630 B & C                |                | Note 3, p.7  | GC/MS       |              | 8250A               | 8270B                                     |                 |            | 49. Monuron                 | HPLC                         |                 |                      |                |                           |            | Note 10     | 50. Monuron-TCA | HPLC     |                             |   |                  |             |             | Note 10                     | 51. Neburon   | HPLC                                    |                             |                           |         |              |                        | Note 10                                   | 52. Parathion methyl        | GC      |                             | 8140             | 8141A                       | 6630 C                                  |                | Note 3, p.25; Note 4, p.30  | GC/MS         |                           | 8250A           | 8270B        |             |          | 53. Parathion ethyl  | GC                          |                 | 8140                        | 8141A       | 6630 C         | D3086-90      | Note 3, p.25               | GC/MS |                             | 8250A         | 8270B   |                      |   | 54. PCNB                    | GC           |             | 8080A                       | 8081           | 6630 B & C                 |                | Note 3, p.7  | GC/MS                       |               | 8250A           | 8270B                                     |                     |         | 55. Perthane                | GC           |                             | 8080A         | 8081           |              | D3086-90       |                           | 56. Prometon | GC       |                             |             |                      |                             |                 | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC          |             |                            |          |             |                 | Note 3, p.83; Note 6, p.S68 | 57. Propazine               | GC      |                      |                |           |                             |               | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC                       |              |             |       |                             |                      | Note 10 | 59. Propoxur        | HPLC                        |               |              |       |                             |             | Note 10      | 60. Secbumeton | HPLC                        |                             |              |                     |                             |              | Note 10 | 61. Siduron | HPLC                        |             |              |          |             |                 | Note 10 | 62. Simazine | GC      |                      | 8140        | 8141A        |                             |               | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC                         |                             | 8080A | 8081         | 6630 B & C                  |                      | Note 3, p.7 | 64. Swep            | HPLC    |             |                             |               |                             |              | Note 10      | 65. 2,4,5-T  | GC      |              | 8150B                       | 8151                | 6640 B      |              | Note 3, p.115; Note 4, p.35 |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 43. Linuron            | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 44. Malathion          | GC     |                    | 8140                  | 8141A | 6630 C                          |                   | Note 3, p.25; Note 4, p.30; Note 6, p.S51 |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        | 45. Methiocarb      | HPLC            |       |       |                      |          |   | Note 10         | 46. Methoxychlor | GC    |       | 8080A                  | 8081   | 6630 B & C  | D3086-90                                  | Note 3, p.7; Note 4, p.30   | GC/MS         |       | 8250A                       | 8270B      |                              |                 | 47. Mexacarbate           | HPLC                        |                      |             |        |                        |   | Note 10          | GC/MS                       |                             | 8250A                        | 8270B           |   |                | 48. Mirex                 | GC                   |                             | 8080A               | 8081                                      | 6630 B & C             |         | Note 3, p.7                 | GC/MS                      |              | 8250A                       | 8270B          |   |          | 49. Monuron               | HPLC                        |               |                        |         |                  |             | Note 10         | 50. Monuron-TCA             | HPLC                        |   |                 |                           |                |              | Note 10     | 51. Neburon  | HPLC                |   |                 |            |                             |                              | Note 10         | 52. Parathion methyl | GC             |                           | 8140       | 8141A       | 6630 C          |          | Note 3, p.25; Note 4, p.30  | GC/MS                                     |                  | 8250A       | 8270B       |                             |               | 53. Parathion ethyl                     | GC                          |                           | 8140    | 8141A        | 6630 C                 | D3086-90                                  | Note 3, p.25                | GC/MS   |                             | 8250A            | 8270B                       |   |                | 54. PCNB                    | GC            |                           | 8080A           | 8081         | 6630 B & C  |          | Note 3, p.7          | GC/MS                       |                 | 8250A                       | 8270B       |                |               | 55. Perthane               | GC    |                             | 8080A         | 8081    |                      | D3086-90                                  |                             | 56. Prometon | GC          |                             |                |                            |                |              | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC              |   |                     |         |                             |              | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC             |              |                |                           |              |          | Note 3, p.83; Note 6, p.S68 | 58. Propham | HPLC                 |                             |                 |                             |               |             | Note 10     | 59. Propoxur               | HPLC     |             |                 |                             |                             |         | Note 10              | 60. Secbumeton | HPLC      |                             |               |                             |             |                            | Note 10      | 61. Siduron | HPLC  |                             |                      |         |                     |                             | Note 10       | 62. Simazine | GC    |                             | 8140        | 8141A        |                |                             | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC                  |                             | 8080A        | 8081    | 6630 B & C  |                             | Note 3, p.7 | 64. Swep     | HPLC     |             |                 |         |              |         | Note 10              | 65. 2,4,5-T | GC           |                             | 8150B         | 8151                        | 6640 B       |                            | Note 3, p.115; Note 4, p.35 |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 45. Methiocarb         | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 46. Methoxychlor       | GC     |                    | 8080A                 | 8081  | 6630 B & C                      | D3086-90          | Note 3, p.7; Note 4, p.30                 |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        |                     | 47. Mexacarbate | HPLC  |       |                      |          |   |                 | Note 10          | GC/MS |       | 8250A                  | 8270B  |             |   | 48. Mirex                   | GC            |       | 8080A                       | 8081       | 6630 B & C                   |                 | Note 3, p.7               | GC/MS                       |                      | 8250A       | 8270B  |                        |   | 49. Monuron      | HPLC                        |                             |                              |                 |   |                | Note 10                   | 50. Monuron-TCA      | HPLC                        |                     |   |                        |         |                             | Note 10                    | 51. Neburon  | HPLC                        |                |   |          |                           |                             | Note 10       | 52. Parathion methyl   | GC      |                  | 8140        | 8141A           | 6630 C                      |                             | Note 3, p.25; Note 4, p.30              | GC/MS           |                           | 8250A          | 8270B        |             |              | 53. Parathion ethyl | GC  |                 | 8140       | 8141A                       | 6630 C                       | D3086-90        | Note 3, p.25         | GC/MS          |                           | 8250A      | 8270B       |                 |          | 54. PCNB                    | GC  |                  | 8080A       | 8081        | 6630 B & C                  |               | Note 3, p.7                             | GC/MS                       |                           | 8250A   | 8270B        |                        |   | 55. Perthane                | GC      |                             | 8080A            | 8081                        |   | D3086-90       |                             | 56. Prometon  | GC                        |                 |              |             |          |                      | Note 3, p.83; Note 6, p.S68 | 57. Prometryn   | GC                          |             |                |               |                            |       | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC      |                      |   |                             |              |             | Note 3, p.83; Note 6, p.S68 | 58. Propham    | HPLC                       |                |              |                             |               |                 | Note 10                                   | 59. Propoxur        | HPLC    |                             |              |                             |               |                | Note 10      | 60. Secbumeton | HPLC                      |              |          |                             |             |                      | Note 10                     | 61. Siduron     | HPLC                        |               |             |             |                            |          | Note 10     | 62. Simazine    | GC                          |                             | 8140    | 8141A                |                |           | Note 3, p.83; Note 6, p.S68 | 63. Strobane  | GC                          |             | 8080A                      | 8081         | 6630 B & C  |       | Note 3, p.7                 | 64. Swep             | HPLC    |                     |                             |               |              |       | Note 10                     | 65. 2,4,5-T | GC           |                | 8150B                       | 8151                        | 6640 B       |                     | Note 3, p.115; Note 4, p.35 |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 47. Mexacarbate        | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   | 48. Mirex              | GC                  |                 | 8080A | 8081  | 6630 B & C           |          | Note 3, p.7                             | GC/MS           |                  | 8250A | 8270B |                        |        | 49. Monuron | HPLC                                      |                             |               |       |                             |            | Note 10                      | 50. Monuron-TCA | HPLC                      |                             |                      |             |        |                        | Note 10                                   | 51. Neburon      | HPLC                        |                             |                              |                 |   |                | Note 10                   | 52. Parathion methyl | GC                          |                     | 8140                                      | 8141A                  | 6630 C  |                             | Note 3, p.25; Note 4, p.30 | GC/MS        |                             | 8250A          | 8270B                                   |          |                           | 53. Parathion ethyl         | GC            |                        | 8140    | 8141A            | 6630 C      | D3086-90        | Note 3, p.25                | GC/MS                       |   | 8250A           | 8270B                     |                |              | 54. PCNB    | GC           |                     | 8080A                                     | 8081            | 6630 B & C |                             | Note 3, p.7                  | GC/MS           |                      | 8250A          | 8270B                     |            |             | 55. Perthane    | GC       |                             | 8080A                                     | 8081             |             | D3086-90    |                             | 56. Prometon  | GC                                      |                             |                           |         |              |                        | Note 3, p.83; Note 6, p.S68               | 57. Prometryn               | GC      |                             |                  |                             |   |                | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC                        |                 |              |             |          |                      | Note 3, p.83; Note 6, p.S68 | 58. Propham     | HPLC                        |             |                |               |                            |       | Note 10                     | 59. Propoxur  | HPLC    |                      |   |                             |              |             | Note 10                     | 60. Secbumeton | HPLC                       |                |              |                             |               |                 | Note 10                                   | 61. Siduron         | HPLC    |                             |              |                             |               |                | Note 10      | 62. Simazine   | GC                        |              | 8140     | 8141A                       |             |                      | Note 3, p.83; Note 6, p.S68 | 63. Strobane    | GC                          |               | 8080A       | 8081        | 6630 B & C                 |          | Note 3, p.7 | 64. Swep        | HPLC                        |                             |         |                      |                |           | Note 10                     | 65. 2,4,5-T   | GC                          |             | 8150B                      | 8151         | 6640 B      |       | Note 3, p.115; Note 4, p.35 |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 48. Mirex              | GC     |                    | 8080A                 | 8081  | 6630 B & C                      |                   | Note 3, p.7                               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        | 49. Monuron         | HPLC            |       |       |                      |          |   | Note 10         | 50. Monuron-TCA  | HPLC  |       |                        |        |             |   | Note 10                     | 51. Neburon   | HPLC  |                             |            |                              |                 |                           | Note 10                     | 52. Parathion methyl | GC          |        | 8140                   | 8141A                                     | 6630 C           |                             | Note 3, p.25; Note 4, p.30  | GC/MS                        |                 | 8250A                                   | 8270B          |                           |                      | 53. Parathion ethyl         | GC                  |   | 8140                   | 8141A   | 6630 C                      | D3086-90                   | Note 3, p.25 | GC/MS                       |                | 8250A                                   | 8270B    |                           |                             | 54. PCNB      | GC                     |         | 8080A            | 8081        | 6630 B & C      |                             | Note 3, p.7                 | GC/MS                                   |                 | 8250A                     | 8270B          |              |             | 55. Perthane | GC                  |   | 8080A           | 8081       |                             | D3086-90                     |                 | 56. Prometon         | GC             |                           |            |             |                 |          | Note 3, p.83; Note 6, p.S68 | 57. Prometryn                             | GC               |             |             |                             |               |   | Note 3, p.83; Note 6, p.S68 | 57. Propazine             | GC      |              |                        |   |                             |         | Note 3, p.83; Note 6, p.S68 | 58. Propham      | HPLC                        |   |                |                             |               |                           | Note 10         | 59. Propoxur | HPLC        |          |                      |                             |                 |                             | Note 10     | 60. Secbumeton | HPLC          |                            |       |                             |               |         | Note 10              | 61. Siduron                               | HPLC                        |              |             |                             |                |                            | Note 10        | 62. Simazine | GC                          |               | 8140            | 8141A                                     |                     |         | Note 3, p.83; Note 6, p.S68 | 63. Strobane | GC                          |               | 8080A          | 8081         | 6630 B & C     |                           | Note 3, p.7  | 64. Swep | HPLC                        |             |                      |                             |                 |                             | Note 10       | 65. 2,4,5-T | GC          |                            | 8150B    | 8151        | 6640 B          |                             | Note 3, p.115; Note 4, p.35 |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 49. Monuron            | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 50. Monuron-TCA        | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 51. Neburon            | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 52. Parathion methyl   | GC     |                    | 8140                  | 8141A | 6630 C                          |                   | Note 3, p.25; Note 4, p.30                |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        | 53. Parathion ethyl | GC              |       | 8140  | 8141A                | 6630 C   | D3086-90                                | Note 3, p.25    | GC/MS            |       | 8250A | 8270B                  |        |             | 54. PCNB                                  | GC                          |               | 8080A | 8081                        | 6630 B & C |                              | Note 3, p.7     | GC/MS                     |                             | 8250A                | 8270B       |        |                        | 55. Perthane                              | GC               |                             | 8080A                       | 8081                         |                 | D3086-90                                |                | 56. Prometon              | GC                   |                             |                     |   |                        |         | Note 3, p.83; Note 6, p.S68 | 57. Prometryn              | GC           |                             |                |   |          |                           | Note 3, p.83; Note 6, p.S68 | 57. Propazine | GC                     |         |                  |             |                 |                             | Note 3, p.83; Note 6, p.S68 | 58. Propham                             | HPLC            |                           |                |              |             |              | Note 10             | 59. Propoxur                              | HPLC            |            |                             |                              |                 |                      | Note 10        | 60. Secbumeton            | HPLC       |             |                 |          |                             |   | Note 10          | 61. Siduron | HPLC        |                             |               |   |                             |                           | Note 10 | 62. Simazine | GC                     |   | 8140                        | 8141A   |                             |                  | Note 3, p.83; Note 6, p.S68 | 63. Strobane                            | GC             |                             | 8080A         | 8081                      | 6630 B & C      |              | Note 3, p.7 | 64. Swep | HPLC                 |                             |                 |                             |             |                | Note 10       | 65. 2,4,5-T                | GC    |                             | 8150B         | 8151    | 6640 B               |   | Note 3, p.115; Note 4, p.35 |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 53. Parathion ethyl    | GC     |                    | 8140                  | 8141A | 6630 C                          | D3086-90          | Note 3, p.25                              |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        |                     | 54. PCNB        | GC    |       | 8080A                | 8081     | 6630 B & C                              |                 | Note 3, p.7      | GC/MS |       | 8250A                  | 8270B  |             |   | 55. Perthane                | GC            |       | 8080A                       | 8081       |                              | D3086-90        |                           | 56. Prometon                | GC                   |             |        |                        |   |                  | Note 3, p.83; Note 6, p.S68 | 57. Prometryn               | GC                           |                 |   |                |                           |                      | Note 3, p.83; Note 6, p.S68 | 57. Propazine       | GC  |                        |         |                             |                            |              | Note 3, p.83; Note 6, p.S68 | 58. Propham    | HPLC                                    |          |                           |                             |               |                        | Note 10 | 59. Propoxur     | HPLC        |                 |                             |                             |   |                 | Note 10                   | 60. Secbumeton | HPLC         |             |              |                     |   |                 | Note 10    | 61. Siduron                 | HPLC                         |                 |                      |                |                           |            | Note 10     | 62. Simazine    | GC       |                             | 8140                                      | 8141A            |             |             | Note 3, p.83; Note 6, p.S68 | 63. Strobane  | GC                                      |                             | 8080A                     | 8081    | 6630 B & C   |                        | Note 3, p.7                               | 64. Swep                    | HPLC    |                             |                  |                             |   |                | Note 10                     | 65. 2,4,5-T   | GC                        |                 | 8150B        | 8151        | 6640 B   |                      | Note 3, p.115; Note 4, p.35 |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 54. PCNB               | GC     |                    | 8080A                 | 8081  | 6630 B & C                      |                   | Note 3, p.7                               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
|                        | GC/MS  |                    | 8250A                 | 8270B |                                 |                   |   |                        | 55. Perthane        | GC              |       | 8080A | 8081                 |          | D3086-90                                |                 | 56. Prometon     | GC    |       |                        |        |             |   | Note 3, p.83; Note 6, p.S68 | 57. Prometryn | GC    |                             |            |                              |                 |                           | Note 3, p.83; Note 6, p.S68 | 57. Propazine        | GC          |        |                        |   |                  |                             | Note 3, p.83; Note 6, p.S68 | 58. Propham                  | HPLC            |   |                |                           |                      |                             | Note 10             | 59. Propoxur                              | HPLC                   |         |                             |                            |              |                             | Note 10        | 60. Secbumeton                          | HPLC     |                           |                             |               |                        |         | Note 10          | 61. Siduron | HPLC            |                             |                             |   |                 |                           | Note 10        | 62. Simazine | GC          |              | 8140                | 8141A                                     |                 |            | Note 3, p.83; Note 6, p.S68 | 63. Strobane                 | GC              |                      | 8080A          | 8081                      | 6630 B & C |             | Note 3, p.7     | 64. Swep | HPLC                        |   |                  |             |             |                             | Note 10       | 65. 2,4,5-T                             | GC                          |                           | 8150B   | 8151         | 6640 B                 |   | Note 3, p.115; Note 4, p.35 |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 55. Perthane           | GC     |                    | 8080A                 | 8081  |                                 | D3086-90          |   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 56. Prometon           | GC     |                    |                       |       |                                 |                   | Note 3, p.83; Note 6, p.S68               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 57. Prometryn          | GC     |                    |                       |       |                                 |                   | Note 3, p.83; Note 6, p.S68               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 57. Propazine          | GC     |                    |                       |       |                                 |                   | Note 3, p.83; Note 6, p.S68               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 58. Propham            | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 59. Propoxur           | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 60. Secbumeton         | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 61. Siduron            | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 62. Simazine           | GC     |                    | 8140                  | 8141A |                                 |                   | Note 3, p.83; Note 6, p.S68               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 63. Strobane           | GC     |                    | 8080A                 | 8081  | 6630 B & C                      |                   | Note 3, p.7                               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 64. Swep               | HPLC   |                    |                       |       |                                 |                   | Note 10                                   |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |
| 65. 2,4,5-T            | GC     |                    | 8150B                 | 8151  | 6640 B                          |                   | Note 3, p.115; Note 4, p.35               |                        |                     |                 |       |       |                      |          |   |                 |                  |       |       |                        |        |             |   |                             |               |       |                             |            |                              |                 |                           |                             |                      |             |        |                        |   |                  |                             |                             |                              |                 |   |                |                           |                      |                             |                     |   |                        |         |                             |                            |              |                             |                |   |          |                           |                             |               |                        |         |                  |             |                 |                             |                             |   |                 |                           |                |              |             |              |                     |   |                 |            |                             |                              |                 |                      |                |                           |            |             |                 |          |                             |   |                  |             |             |                             |               |   |                             |                           |         |              |                        |   |                             |         |                             |                  |                             |   |                |                             |               |                           |                 |              |             |          |                      |                             |                 |                             |             |                |               |                            |       |                             |               |         |                      |   |                             |              |             |                             |                |                            |                |              |                             |               |                 |   |                     |         |                             |              |                             |               |                |              |                |                           |              |          |                             |             |                      |                             |                 |                             |               |             |             |                            |          |             |                 |                             |                             |         |                      |                |           |                             |               |                             |             |                            |              |             |       |                             |                      |         |                     |                             |               |              |       |                             |             |              |                |                             |                             |              |                     |                             |              |         |             |                             |             |              |          |             |                 |         |              |         |                      |             |              |                             |               |                             |              |                            |                             |       |              |                             |                      |             |                     |         |             |                             |               |                             |              |              |              |         |              |                             |                     |             |              |                             |               |                             |              |                             |             |             |                |                             |               |             |          |         |              |                             |             |                             |             |             |             |         |                |         |              |         |              |                             |       |                             |               |                             |              |         |                |       |      |                             |               |             |          |                             |               |      |  |                             |              |         |             |                             |               |            |      |             |              |                             |  |                             |              |      |  |         |                |            |  |             |              |        |  |                             |             |      |  |         |                |      |  |         |              |        |  |                             |             |      |  |                             |              |    |  |         |              |            |  |             |          |      |  |                             |              |    |  |         |             |            |  |             |          |        |  |                             |  |  |  |         |             |    |  |       |

Table D  
List of Approved Test Procedures for Pesticides<sup>1</sup> in Wastewater

| Parameter             | Method | EPA <sup>2,7</sup> | SW-846 <sup>A,8</sup> |       | Standard Methods <sup>R,9</sup> | ASTM <sup>c</sup> | Other                       |
|-----------------------|--------|--------------------|-----------------------|-------|---------------------------------|-------------------|-----------------------------|
|                       |        |                    | pkd <sup>11</sup>     | cap.  |                                 |                   |                             |
| 66. 2,4,5-TP (Silvex) | GC     |                    | 8150B                 | 8151  | 6640 B                          |                   | Note 3, p.115               |
| 67. Terbutylazine     | GC     |                    |                       |       |                                 |                   | Note 3, p.83; Note 6, p.S68 |
| 68. Toxaphene         | GC     | 608                | 8080A                 | 8081  | 6630 B & C                      | D3086-90          | Note 3, p.7; Note 4, p.30   |
|                       | GC/MS  | 625                | 8250A                 | 8270B | 6410 B                          |                   |                             |
| 70. Trifluralin       | GC     |                    | 8080A                 | 8081  | 6630 B                          |                   | Note 3, p.7                 |
|                       | GC/MS  |                    | 8080A                 | 8270B |                                 |                   |                             |

<sup>A</sup>"Test Methods for Evaluating Solid Waste", 3rd Edition. SW-846, Office of Solid Waste and Emergency Response, Environmental Protection Agency, November 1986, including December 1987, July 1992, August 1993, September 1994 and January 1995 updates, Washington DC 20460. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800.

<sup>B</sup>"Standard Methods for the Examination of Water and Wastewater", 18th Edition, Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 1015 Fifteenth Street, N.W., Washington, D.C. 20005, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

<sup>C</sup>"Annual Book of Standards—Water and Environmental Technology", Section 11, Parts 11.01 and 11.02, American Society for Testing and Materials, 1993. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

<sup>1</sup>Pesticides are listed in this table by common name for the convenience of the reader. Additional pesticides may be found under Table D, where entries are listed by chemical name and type.

<sup>2</sup>The full text of methods 608 and 625 are given in Appendix A of the Federal Register, October 26, 1984 (Part VIII, 40 CFR part 136), "Test Procedure for Analysis of Organic Pollutants". The standardized test procedure to be used to determine the method detection limit (MDL) for these test procedures is given in Appendix B of 40 CFR part 136, "Definition and Procedure for the Determination of the Method Detection Limit". Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

<sup>3</sup>"Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater". U.S. Environmental Protection Agency, September, 1978. This EPA publication includes thin-layer chromatography (TLC) methods. Available from: ORD Publications, CERL, U.S. Environmental Protection Agency, 26 W. St. Claire, Cincinnati, Ohio 45268.

<sup>4</sup>"Methods for Analysis of Organic Substances in Water"; Book 5, Chapter A3, 1987. Available from: U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.

<sup>5</sup>The method may be extended to include a(alpha)-BHC, d(delta)-BHC, endosulfan I, endosulfan II, and endrin. However, when they are known to exist, Method 608 is the preferred method.

<sup>6</sup>"Selected Analytical Methods Approved and Cited by the United States Environmental Protection Agency," Supplement to the Fifteenth Edition of "Standard Methods for Examination of Water and Wastewater" (1981). Available from: American Public Health Association, 1015 15th St., N.W., Washington, D.C. 20005.

<sup>7</sup>Each analyst must make an initial, one-time demonstration of their ability to generate acceptable precision and accuracy with Methods 608 and 625 (See Appendix A in 40 CFR part 136) in accordance with procedures given in Section 8.2 of each of these methods. Additionally, each laboratory, on an on-going basis, must spike and analyze 10% of all samples analyzed with Method 608 or 5% of all samples analyzed with Method 625 to monitor and evaluate laboratory data quality in accordance with Sections 8.3 and 8.4 of these methods. When the recovery of any parameter falls outside the warning limits, the analytical results for that parameter in the unspiked sample are suspect and cannot be reported to demonstrate regulatory compliance. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

<sup>8</sup>Some of these methods require a preliminary extraction. Methods 8141 A and 8081 require the use of either SW-846 method 3500/3510 or 3500/3520. Methods 8151 and 8270 B include the extraction steps necessary for most compounds. For methods 8081, 8141, and 8151 see also SW-846 method 8000 A and 3600.

<sup>9</sup>The 18th edition of "Standard Methods for the Examination of Water and Wastewater" is not significantly different from the 17th edition. The 17th edition remains an acceptable reference for those methods which cite the 18th edition.

<sup>10</sup>HPLC method 623 from "Methods for Nonconventional Pesticides Chemicals Analysis of Industrial and Municipal Wastewater", EPA 440/1-83/079-C, United States Environmental Protection Agency. Available from National Technical Information Service, 5258 Port Royal Road, Springfield, Virginia, 22161 (703) 487-4650.

<sup>11</sup>In order to reference these methods, the laboratory must use a packed column for the GC separations.

Table E  
List of Approved Radiological Test Procedures For Wastewater

| Parameter and Units                    | Method                                | EPA <sup>1</sup> | Standard Methods <sup>2</sup> | ASTM <sup>3</sup> | USGS <sup>4</sup>          |
|--|---------------------------------------|------------------|-------------------------------|-------------------|----------------------------|
| 1. Alph-Total, pCi per liter           | Proportional or Scintillation Counter | 900.0            | 7110 B                        | D1943-90          | pp. 75 and 78 <sup>5</sup> |
| 2. Alpha-Counting error, pCi per liter | Proportional or Scintillation Counter | Appendix B       | 7110 B                        | D1943-90          | p. 79                      |
| 3. Beta-Total, pCi per liter           | Proportional Counter                  | 900.0            | 7110 B                        | D1890-90          | pp. 75 and 78 <sup>5</sup> |

Table E  
List of Approved Radiological Test Procedures For Wastewater

| Parameter and Units         | Method                | EPA <sup>1</sup> | Standard Methods <sup>2</sup> | ASTM <sup>3</sup> | USGS <sup>4</sup> |
|-----------------------------|-----------------------|------------------|-------------------------------|-------------------|-------------------|
| 4. Beta-Counting error, pCi | Proportional Counter  | Appendix B       | 7110 B                        | D1890-90          | p. 79             |
| 5. (a) Radium-Total         | Proportional Counter  | 903.0            | 7500Ra B                      | D2460-90          |                   |
| (b) 226Ra, pCi per liter    | Scintillation Counter | 903.1            | 7500Ra C                      | D3454-7991        | p. 81             |

<sup>1</sup> "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA-600/4-80-032, U.S. Environmental Protection Agency, August 1980.

<sup>2</sup> "Standard Methods for the Examination of Water and Wastewater", 17th or 18th Edition, Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 1015 Fifteenth Street, N.W., Washington, D.C. 20005, 1989. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

<sup>3</sup> "1993 Annual Book of Standards, Water" Section 11.01 and 11.02, Water and Environmental Technology, American Society for Testing and Materials, 1993. Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

<sup>4</sup> "Selected Methods of the U.S. Geological Survey of Analysis of Wastewaters," U.S. Geological Survey, Open-File Report 76-177 (1976)

<sup>5</sup> The method found on p. 75 measures only the dissolved portion while the method on p. 78 measures only the suspended portion. Therefore, the two results must be added to obtain the "total".

Table EM  
Approved Analytical Methods For Sludge

| Parameter                 | Digestion | Method                              | Method Number |
|---------------------------|-----------|-------------------------------------|---------------|
| <b>Metals<sup>1</sup></b> |           |                                     |               |
| Arsenic                   | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Arsenic                   | 7061A     | Gaseous Hydride <sup>2</sup>        | 7061A         |
| Arsenic                   | 3050A     | Graphite Furnace                    | 7060A         |
| Beryllium                 | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Beryllium                 | 3050A     | Flame Atomic Absorption             | 7090          |
| Beryllium                 | 3050A     | Graphite Furnace                    | 7091          |
| Cadmium                   | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Cadmium                   | 3050A     | Flame Atomic Absorption             | 7130          |
| Cadmium                   | 3050A     | Graphite Furnace                    | 7131A         |
| Chromium                  | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Chromium                  | 3050A     | Flame Atomic Absorption             | 7190          |
| Chromium                  | 3050A     | Graphite Furnace                    | 7191          |
| Copper                    | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Copper                    | 3050A     | Flame Atomic Absorption             | 7210          |
| Lead                      | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Lead                      | 3050A     | Flame Atomic Absorption             | 7420          |
| Lead                      | 3050A     | Graphite Furnace <sup>3</sup>       | 7421          |
| Mercury                   | 7471A     | Cold Vapor                          | 7471A         |
| Molybdenum                | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Molybdenum                | 3050A     | Flame Atomic Absorption             | 7480          |
| Molybdenum                | 3050A     | Graphite Furnace                    | 7481          |
| Nickel                    | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Nickel                    | 3050A     | Flame Atomic Absorption             | 7520          |
| Selenium                  | 3050A     | Inductively Coupled Plasma Emission | 6010A         |
| Selenium                  | 7741A     | Gaseous Hydride <sup>2</sup>        | 7741A         |
| Selenium                  | 3050A     | Graphite Furnace                    | 7740          |
| Zinc                      | 3050A     | Inductively Coupled Plasma Emission | 6010A         |

| Parameter                          | Digestion | Method                                       | Method Number                 |
|------------------------------------|-----------|--|-------------------------------|
| Zinc                               | 3050A     | Flame Atomic Absorption                      | 7950                          |
| <b>Biological</b>                  |           |  |                               |
| Enteric viruses                    | NA        | Centrifuge Concentration                     | D 4994-89 <sup>4</sup>        |
| Fecal coliform                     | NA        | Most Probable Number Membrane Filter         | 9221 B or 9222 D <sup>5</sup> |
| Helminth ova                       | NA        | Density Gradient Flotation                   | 6                             |
| Specific Oxygen Uptake Rate        | NA        | Respirometer                                 | 2710 B <sup>5</sup>           |
| Salmonella                         | NA        | Most Probable Number Selective Media Culture | 9260 D.1 <sup>5</sup><br>7    |
| <b>Physical</b>                    |           |  |                               |
| Solids                             | NA        | Gravimetric                                  | 2540 G <sup>5</sup>           |
| Percent Volatiles Solids Reduction | NA        | Calculation                                  | 8                             |

<sup>1</sup>"Test Methods for Evaluating Solid Waste", SW-846, Office of Solid Waste and Emergency Response, Environmental Protection Agency, November 1986, including December 1987 and July 1992 updates, Washington, DC 20460. Available from the Superintendent of Documents, U.S. Government Printing Office, Room 190, Federal Building, P.O. Box 371954, Pittsburgh, PA 15250-7954, (202) 783-3238.

<sup>2</sup>High levels of chromium, copper, mercury, silver, cobalt, or molybdenum may interfere with the analysis. Consult method 3114, of "Standard Method for the Examination of Water and Wastewater", 17th or 18th edition, for more information.

<sup>3</sup>Concentrations of lead in municipal sludge may exceed the working range of Graphite Furnace.

<sup>4</sup>"1993 Annual Book of ASTM Standards, Section 11.02, Water and Environmental Technology", American Society for Testing and Materials, 1993, 1916 Race Street, Philadelphia, PA 19103. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

<sup>5</sup>"Standard Methods for the Examination of Water and Wastewater", 18th ed., American Public Health Association, 1015 Fifteenth Street NW, Washington D.C. 20005, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

<sup>6</sup>"Occurrence of Pathogens in Distribution and Marketing Municipal Sludges", EPA 600/1-87-014, Environmental Protection Agency, 1987. Available from the National Technical Information Service, order # PB 88-154273/AS, 5285 Port Royal Road, Springfield, Virginia 22161, (703) 487-4650.

<sup>7</sup>"Determination and Enumeration of *Salmonella* and *Pseudomonas aeruginosa*", Kenner, B.A. and H.A. Clark, J. Water Pollution Control Federation, 46(9):2163-2171, 1994. Available from the Water Environment Federation, 601 Wythe St., Alexandria, VA 22314.

<sup>8</sup>"Environmental Regulations and Technology - Control of Pathogens and Bextors in Sewage Sludge", EPA-625/R-92/013, Environmental Protection Agency, Cincinnati, OH, 1992. Available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, (703) 487-4650.

<sup>9</sup>If an alternative digestion procedure is specified in the analytical method, the digestion in the method shall be used. In all cases, consult the analytical method for special requirements and cautions. SW-846 method 3051 is an acceptable alternate digestion procedure to SW-846 method 3050A.

| Parameter No./name                          | Container <sup>1</sup> | Preservation <sup>2,3</sup>   | Maximum holding time <sup>4</sup> |
|---|------------------------|---|-----------------------------------|
| <b>TABLE A - Bacterial Tests:</b>           |                        |   |                                   |
| 1-5. Bacteria                               | P,G                    | Cool, 4°C, 0.008%, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup> | 6 hours                           |
| 6-7. Enteroviruses                          | P,G                    | Cool, 4°C   | 24 hours                          |
| 8. Mutagenicity                             | G, Teflon-lined cap    | Cool, 4°C   | 7 days                            |
| 9-12. Acute & chronic toxicity              | P,G                    | Cool, 4°C   | 48 hours                          |
| <b>TABLE B - Inorganic Tests:</b>           |                        |   |                                   |
| 1. Acidity                                  | P,G                    | Cool, 4°C   | 14 days                           |
| 2. Alkalinity                               | P,G                    | Cool, 4°C   | 14 days                           |
| 4. Ammonia                                  | P,G                    | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH<2                             | 28 days                           |
| 9. Biochemical oxygen demand                | P,G                    | Cool, 4°C   | 48 hours                          |
| 11. Bromide                                 | P,G                    | None required   | 28 days                           |
| 14. Biochemical oxygen demand, carbonaceous | P,G                    | Cool, 4°C   | 48 hours                          |
| 15. Chemical oxygen demand                  | P,G                    | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH<2                             | 28 days                           |

| Table F<br>Required Containers, Preservation Techniques, and Holding Times for Wastewater |   |                        |  |                                   |
|---|---|------------------------|--|-----------------------------------|
| Parameter No./name  |   | Container <sup>1</sup> | Preservation <sup>2,3</sup>  | Maximum holding time <sup>4</sup> |
| 16.   | Chloride                                    | P,G                    | None required  | 28 days                           |
| 17.   | Chlorine, total residual                    | P,G                    | None required  | Analyze immediately               |
| 21.   | Color                                       | P,G                    | Cool, 4°C  | 48 hours                          |
| 23-24.  | Cyanide, total and amenable to chlorination | P,G                    | Cool, 4°C, NaOH to pH>12, 0.6g ascorbic acid <sup>5</sup>                                  | 14 days <sup>6</sup>              |
| 25.   | Fluoride                                    | P                      | None required  | 28 days                           |
| 27.   | Hardness                                    | P,G                    | HNO <sub>3</sub> to pH<2, H <sub>2</sub> SO <sub>4</sub> to pH<2                           | 6 months                          |
| 28.   | Hydrogen ion (pH)                           | P,G                    | None required  | Analyze immediately               |
| 31.,43.   | Kjeldahl and organic nitrogen               | P,G                    | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH<2  | 28 days                           |
| 38.   | Nitrate                                     | P,G                    | Cool, 4°C  | 48 hours                          |
| 39.   | Nitrate-nitrite                             | P,G                    | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH  | 28 days                           |
| 40.   | Nitrite                                     | P,G                    | Cool, 4°C  | 48 hours                          |
| 41.   | Oil and grease                              | G                      | Cool, 4°C, HCl or H <sub>2</sub> SO <sub>4</sub> to pH<2                                   | 28 days                           |
| 42.   | Organic carbon                              | G                      | Cool, 4°C, HCl or H <sub>2</sub> SO <sub>4</sub> or H <sub>3</sub> PO <sub>4</sub> to pH<2 | 28 days                           |
| 44.   | Orthophosphate                              | P,G                    | Filter immediately, Cool, 4°C  | 48 hours                          |
| 46.   | Oxygen, Dissolved Probe                     | G Bottle and top       | None required  | Analyze immediately               |
| 47.   | Winkler                                     | G Bottle and top       | Fix on site and store in dark  | 8 hours                           |
| 48.   | Phenols                                     | G only                 | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH<2  | 28 days                           |
| 49.   | Phosphorus (elemental)                      | G                      | Cool, 4°C  | 48 hours                          |
| 50.   | Phosphorus, total                           | P,G                    | Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH<2  | 28 days                           |
| 53.   | Residue, total                              | P,G                    | Cool, 4°C  | 7 days                            |
| 54.   | Residue, Filterable                         | P,G                    | Cool, 4°C  | 7 days                            |
| 55.   | Residue, Nonfilterable (TSS)                | P,G                    | Cool, 4°C  | 7 days                            |
| 56.   | Residue, Settleable                         | P,G                    | Cool, 4°C  | 48 hours                          |
| 57.   | Residue, Volatile                           | P,G                    | Cool, 4°C  | 7 days                            |
| 61.   | Silica                                      | P, or Quartz           | Cool, 4°C  | 28 days                           |
| 64.   | Specific conductance                        | P,G                    | Cool, 4°C  | 28 days                           |
| 65.   | Sulfate                                     | P,G                    | Cool, 4°C  | 28 days                           |
| 66.   | Sulfide                                     | P,G                    | Cool, 4°C, add zinc acetate plus NaOH to pH >9   | 7 days                            |
| 67.   | Sulfite                                     | P,G                    | None required  | Analyze immediately               |
| 68.   | Surfactants                                 | P,G                    | Cool, 4°C  | 48 hours                          |
| 69.   | Temperature                                 | P,G                    | None required  | Analyze immediately               |
| 73.   | Turbidity                                   | P,G                    | Cool, 4°C  | 48 hours                          |
| TABLE B – Metals <sup>7</sup> :   |   |                        |  |                                   |
| 10.   | Boron                                       | P, or Quartz           | HNO <sub>3</sub> to pH<2   | 6 months                          |
| 18.   | Chromium VI                                 | P,G                    | Cool, 4°C  | 24 hours                          |
| 35. & 35m.  | Mercury                                     | P,G, or Teflon         | HNO <sub>3</sub> to pH<2   | 28 days                           |
| 71.   | Tin   | P                      | HCl or HNO <sub>3</sub> to pH<2  | 6 months                          |

| Table F<br>Required Containers, Preservation Techniques, and Holding Times for Wastewater   |  |                             |   |   |
|---|--|-----------------------------|---|---|
| Parameter No./name  | Container <sup>1</sup>   | Preservation <sup>2,3</sup> | Maximum holding time <sup>4</sup>   |   |
| 3, 5-8, 10, 12, 13, Metals:19, 20, 22, 26, 29, ( except Cr VI, Sn, Hg, & B)30, 32-34, 36, 37,45, 47, 51, 52, 58-60, 62, 63, 70-72,74, 75. | P,G  | HNO <sub>3</sub> to pH<2    | 6 months  |   |
| TABLE C – Organic Tests <sup>8</sup> :  |  |                             |   |   |
| IA.   | Purgeable halocarbons  | G, Teflon-lined septum      | Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                                | 14 days   |
| IB.   | Purgeable aromatics  | G, Teflon-lined septum      | Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup> , HCl to pH<2                  | 14 days   |
| IC.   | Acrolein and acrylonitrile                                     | G, Teflon-lined septum      | Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup> Adjust pH to 4-5 <sup>10</sup> | 14 days   |
| II.   | Phenols  | G, Teflon-lined cap         | Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                                | 7 days until extraction; 40 days after extraction |
| IX.   | Benzidines (Benzidine and 3,3-Dichlorobenzidine) <sup>11</sup> | G, Teflon-lined cap         | Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                                | 7 days after extraction 13                        |
| III.  | Phthlate esters <sup>11</sup>                                  | G, Teflon-lined cap         | Cool, 4°C   | 7 days until extraction; 40 days after extraction |
| IV.   | Nitrosamines <sup>11,14</sup>                                  | G, Teflon-lined cap         | Cool, 4°C, store in dark, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                 | 7 days until extraction; 40 days after extraction |
| V.  | PCBs <sup>11</sup>   | G, Teflon-lined cap         | Cool, 4°C   | 7 days until extraction; 40 days after extraction |
| VI.   | Nitroaromatics, cyclic ketones and isophorone <sup>11</sup>    | G, Teflon-lined cap         | Cool, 4° C, store in dark, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                | 7 days until extraction; 40 days after extraction |
| VII.  | Polynuclear aromatic hydrocarbons <sup>11</sup>                | G, Teflon-lined cap         | Cool, 4° C, store in dark, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                | 7 days until extraction; 40 days after extraction |
| VIII.   | Haloethers <sup>11</sup>                                       | G, Teflon-lined cap         | Cool, 4° C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                               | 7 days until extraction; 40 days after extraction |
| IX.   | Chlorinated hydrocarbons <sup>11</sup>                         | G, Teflon-lined cap         | Cool, 4° C  | 7 days until extraction; 40 days after extraction |
| X.  | Chorinated Dioxans and Furans                                  | G, Teflon-lined cap         | Cool, 4° C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <sup>5</sup>                               | 7 days until extraction; 40 days after extraction |



| Table F<br>Required Containers, Preservation Techniques, and Holding Times for Wastewater |                          |                        |                                 |   |
|---|--------------------------|------------------------|---------------------------------|---|
| Parameter No./name  |                          | Container <sup>1</sup> | Preservation <sup>2,3</sup>     | Maximum holding time <sup>4</sup>                 |
| TABLE E – Pesticide Tests:  |                          |                        |                                 |   |
| 1-70.   | Pesticides <sup>11</sup> | G, Teflon-lined cap    | Cool, 4°C, pH 5-9 <sup>15</sup> | 7 days until extraction; 40 days after extraction |
| 1-5.  | Alpha, beta, and radium  | P,G                    | HNO <sub>3</sub> to pH<2        | 6 months  |

<sup>1</sup>Polyethylene (P) or Glass (G). For microbiology, plastic sample containers must be made of sterilizable materials (polypropylene or other autoclavable plastic)

<sup>2</sup>All samples requiring preservation at 4°C must be cooled immediately after collection, and the temperature of the samples shall be documented upon receipt at the laboratory. If the samples are shipped in crushed or cube ice (not "blue ice" packs) and solid ice is still present in the cooler, the lab may simply report the samples as "received on ice". If the ice has melted, the lab must report the either the temperature of the meltwater or of a temperature blank. A temperature blank is defined as an aliquot of deionized water, in an appropriate sample container, which is transported along with the samples. If sampling teams use "blue ice" packs, it is necessary to pre-chill all sample containers to at least 4 degrees celsius with ice or refrigeration prior to shipping. Since shipping simply with "blue ice" packs does not insure that samples are maintained at the appropriate temperatures, the sample collector must submit a temperature blank when using these ice packs for shipping. For composite chemical samples each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by maintaining at 4°C until compositing and sample splitting are completed.

<sup>3</sup>When any sample is to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table J, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCl) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HNO<sub>3</sub>) in water solutions at concentrations of 0.15% by weight or less (pH about 1.62 or greater); Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) in water solutions at concentrations of 0.35% by weight or less (pH about 1.15 or greater); and Sodium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).

<sup>4</sup>Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Virus samples can be stored indefinitely at -70°C. Samples used for toxicity tests are to be used for test initiation or for renewal of test solutions within 36 hours of collection as grab samples or after removal from composite samplers. For other composite samples, the holding time commences immediately after the samples are removed from the composite sampler. The time the sample spends in the sampler during collection does not count towards the maximum holding time. Samples for biological or chemical analysis may be held for longer periods than specified in this table only if the permittee or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the Regional Administrator (s. NR 219.05). Some samples may not be stable for the maximum time period given in the table. A permittee or monitoring laboratory is obligated to hold the sample for a shorter time if knowledge exists to show that this is necessary to maintain sample stability.

<sup>5</sup>Should only be used in the presence of residual chlorine.

<sup>6</sup>Maximum holding time is 24 hours when sulfide is present. Optionally all samples may be tested with lead acetate paper before pH adjustments in order to determine if sulfide is present. If sulfide is present it can be removed by the addition of cadmium nitrate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.

<sup>7</sup>Samples should be filtered immediately on-site before adding preservative for dissolved metals.

<sup>8</sup>Guidance applies to samples to be analyzed by GC, LC, or GC/MS for specific compounds.

<sup>9</sup>Samples receiving no pH adjustment must be analyzed within seven days of sampling.

<sup>10</sup>The pH adjustment is not required if acrolein will not be measured. Samples for acrolein receiving no pH adjustment must be analyzed within 3 days of sampling.

<sup>11</sup>When the extractable analytes of concern fall within a single chemical category, the specified preservation and maximum holding times should be observed for optimum safeguard of sample integrity. When the analytes of concern fall within two or more chemical categories, the sample may be preserved by cooling to 4°C, reducing residual chlorine with 0.008% sodium thiosulfate, storing in the dark, and adjusting the pH to 6-9; samples preserved in this manner may be held for seven days before extraction and for forty days after extraction. Exceptions to this optional preservation and holding time procedure are noted in footnote 5 (re the requirement for thiosulfate reduction of residual chlorine), and footnotes 12, 13 (re the analysis of benzidine).

<sup>12</sup>If 1,2-diphenylhydrazine is likely to be present, adjust the pH of the sample to 4.0 + 0.2 to prevent rearrangement to benzidine.

<sup>13</sup>Extracts may be stored up to 7 days before analysis if storage is conducted under an inert (oxidant-free) atmosphere.

<sup>14</sup>For the analysis of diphenylnitrosamine, add 0.008% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> and adjust pH to 7-10 with NaOH within 24 hours of sampling.

<sup>15</sup>The pH adjustment may be performed upon receipt at the laboratory and may be omitted if the samples are extracted within 72 hours of collection. For the analysis of aldrin, add 0.008% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>.

**NR 219.05 Alternate test procedures.** Approvals of alternate test procedures for nationwide use and specific discharges are granted by EPA. The department may approve the use of an alternate test procedure on a case-by-case basis if the crite-

ria for approval of the alternate procedure established in s. NR 149.12 are met. If the department or the EPA approves an alternate test procedure, it shall be considered equivalent to the approved method.

Note: The federal requirements for alternate test procedure approval are given in 40 CFR 136.5.

History: Cr. Register, August, 1976, No. 248, eff. 9-1-76; r. and recr. January, 1978, No. 265, eff. 2-1-78; renun. from NR 219.04 and am. Register, June, 1986, No. 366, eff. 7-1-86; r. and recr. Register, November, 1992, No. 443, eff. 12-1-92; am. Register, February, 1996, No. 482, eff. 3-1-96.

**NR 219.06 Laboratory certification or registration.** Bacteriological analyses of groundwater samples, and all radiological analyses shall be performed by the state laboratory of hygiene or at a laboratory certified or approved by the department of health and social services. Other laboratory test results, including effluent toxicity, submitted to the department under a WPDES permit shall be performed by a laboratory certified or registered under ch. NR 149. The following tests are excluded from this

requirement:

- (1) Temperature,
- (2) Turbidity,
- (3) Bacteria tests in wastewater effluent and sludges,
- (4) pH,
- (5) Chlorine residual,
- (6) Specific conductance,
- (7) Physical properties of soils and sludges,
- (8) Nutrient tests of soils and sludges,
- (9) Flow measurements.

History: Cr. Register, April, 1986, No. 364, eff. 8-28-86; renun. from NR 219.07 and am. (intro.) Register, November, 1992, No. 443, eff. 7-1-93; am. Register February, 1996, No. 482, eff. 3-1-96.