

EXEMPT

JCAR350611-1215599r01

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE F: PUBLIC WATER SUPPLIES
CHAPTER I: POLLUTION CONTROL BOARD

PART 611
PRIMARY DRINKING WATER STANDARDS

SUBPART A: GENERAL

RECEIVED
CLERK'S OFFICE
NOV 13 2012
STATE OF ILLINOIS
Pollution Control Board

R13-2

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367 AUTHORITY: Implementing Sections 7.2, 17, and 17.5 and authorized by Section 27 of the
 368 Environmental Protection Act [415 ILCS 5/7.2, 17, 17.5, and 27].
 369

370 SOURCE: Adopted in R88-26 at 14 Ill. Reg. 16517, effective September 20, 1990; amended in
 371 R90-21 at 14 Ill. Reg. 20448, effective December 11, 1990; amended in R90-13 at 15 Ill. Reg.
 372 1562, effective January 22, 1991; amended in R91-3 at 16 Ill. Reg. 19010, effective December 1,
 373 1992; amended in R92-3 at 17 Ill. Reg. 7796, effective May 18, 1993; amended in R93-1 at 17
 374 Ill. Reg. 12650, effective July 23, 1993; amended in R94-4 at 18 Ill. Reg. 12291, effective July
 375 28, 1994; amended in R94-23 at 19 Ill. Reg. 8613, effective June 20, 1995; amended in R95-17
 376 at 20 Ill. Reg. 14493, effective October 22, 1996; amended in R98-2 at 22 Ill. Reg. 5020,
 377 effective March 5, 1998; amended in R99-6 at 23 Ill. Reg. 2756, effective February 17, 1999;
 378 amended in R99-12 at 23 Ill. Reg. 10348, effective August 11, 1999; amended in R00-8 at 23 Ill.
 379 Reg. 14715, effective December 8, 1999; amended in R00-10 at 24 Ill. Reg. 14226, effective
 380 September 11, 2000; amended in R01-7 at 25 Ill. Reg. 1329, effective January 11, 2001;
 381 amended in R01-20 at 25 Ill. Reg. 13611, effective October 9, 2001; amended in R02-5 at 26 Ill.
 382 Reg. 3522, effective February 22, 2002; amended in R03-4 at 27 Ill. Reg. 1183, effective January
 383 10, 2003; amended in R03-15 at 27 Ill. Reg. 16447, effective October 10, 2003; amended in
 384 R04-3 at 28 Ill. Reg. 5269, effective March 10, 2004; amended in R04-13 at 28 Ill. Reg. 12666,
 385 effective August 26, 2004; amended in R05-6 at 29 Ill. Reg. 2287, effective January 28, 2005;
 386 amended in R06-15 at 30 Ill. Reg. 17004, effective October 13, 2006; amended in R07-2/R07-11
 387 at 31 Ill. Reg. 11757, effective July 27, 2007; amended in R08-7/R08-13 at 33 Ill. Reg. 633,

388 effective December 30, 2008; amended in R10-1/R10-17/R11-6 at 34 Ill. Reg. 19848, effective
389 December 7, 2010; amended in R12-4 at 36 Ill. Reg. 7110, effective April 25, 2012; amended in
390 R13-2 at 37 Ill. Reg. _____, effective _____.

391

392

SUBPART A: GENERAL

393

394 **Section 611.102 Incorporations by Reference**

395

396 a) Abbreviations and short-name listing of references. The following names and
397 abbreviated names, presented in alphabetical order, are used in this Part to refer to
398 materials incorporated by reference:

399

400 "AMI Turbiwell Method" means "Continuous Measurement of Turbidity
401 Using a SWAN AMI Turbiwell Turbidimeter," available from NEMI or
402 from SWAN Analytische Instrumente AG.

403

404 "ASTM Method" means a method published by and available from the
405 American Society for Testing and Materials (ASTM).

406

407 "Colisure Test" means "Colisure Presence/Absence Test for Detection and
408 Identification of Coliform Bacteria and Escherichia Coli in Drinking
409 Water," available from Millipore Corporation, Technical Services
410 Department.

411

412 "Colitag® Test" means "Colitag® Product as a Test for Detection and
413 Identification of Coliforms and E. coli Bacteria in Drinking Water and
414 Source Water as Required in National Primary Drinking Water
415 Regulations," available from CPI International.

416

417 "Chromocult® Method" means "Chromocult® Coliform Agar
418 Presence/Absence Membrane Filter Test Method for Detection and
419 Identification of Coliform Bacteria and Escherichia coli in Finished
420 Waters," available from EMD Chemicals Inc.

421

422 "Determination of Inorganic Oxyhalide" means "Determination of
423 Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using
424 Ion Chromatography with the Addition of a Postcolumn Reagent for Trace
425 Bromate Analysis," available from NTIS.

426

427 "Dioxin and Furan Method 1613" means "Tetra- through Octa-Chlorinated
428 Dioxins and Furans by Isotope-Dilution HRGC/HRMS," available from
429 NTIS.

430

431 "E*Colite Test" means "Charm E*Colite Presence/Absence Test for
432 Detection and Identification of Coliform Bacteria and Escherichia coli in
433 Drinking Water," available from Charm Sciences, Inc. and USEPA, Water
434 Resource Center.

435
436 "EC-MUG" means "Method 9221 F: Multiple-Tube Fermentation
437 Technique for Members of the Coliform Group, Escherichia coli
438 Procedure (Proposed)," available from American Public Health
439 Association and American Waterworks Association.

440
441 "EML Procedures Manual" means "EML Procedures Manual, HASL
442 300," available from USDOE, EML.

443
444 "Enterolert" means "Evaluation of Enterolert for Enumeration of
445 Enterococci in Recreational Waters," available from American Society for
446 Microbiology.

447
448 "Georgia Radium Method" means "The Determination of Radium-226 and
449 Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE
450 or Ge(Li) Detectors," Revision 1.2, December 2004, available from the
451 Georgia Tech Research Institute.

452
453 "GLI Method 2" means GLI Method 2, "Turbidity," Nov. 2, 1992,
454 available from Great Lakes Instruments, Inc.

455
456 "Guidance Manual for Filtration and Disinfection" means "Guidance
457 Manual for Compliance with the Filtration and Disinfection Requirements
458 for Public Water Systems using Surface Water Sources," March 1991,
459 available from USEPA, NSCEP.

460
461 "Hach FilterTrak Method 10133" means "Determination of Turbidity by
462 Laser Nephelometry," available from Hach Co.

463
464 "Hach SPDANS 2 Method 10225" means "Hach Company SPADNS 2
465 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric
466 Measurement of Fluoride in Water and Wastewater," available from the
467 Hach Co.

468
469 "Hach TNTplus 835/836 Method 10206" means "Hach Company TNTplus
470 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of
471 Nitrate in Water and Wastewater," available from the Hach Co.

472

473 "ITS Method D99-003" means Method D99-003, Revision 3.0, "Free
474 Chlorine Species (HOCl and OCl⁻) by Test Strip," available from
475 Industrial Test Systems, Inc.
476
477 "Kelada 01" means "Kelada Automated Test Methods for Total Cyanide,
478 Acid Dissociable Cyanide, And Thiocyanate," Revision 1.2, available
479 from NTIS.
480
481 "m-ColiBlue24 Test" means "Total Coliforms and E. coli Membrane
482 Filtration Method with m-ColiBlue24® Broth," available from USEPA,
483 Water Resource Center and Hach Company.
484
485 "Method ME355.01" means "Determination of Cyanide in Drinking Water
486 by GC/MS Headspace Analysis," available from NEMI or from H&E
487 Testing Laboratory.
488
489 "Mitchell Method M5271" means "Determination of Turbidity by Laser
490 Nephelometry," available from NEMI and Leck Mitchell, PhD.
491
492 "Mitchell Method M5331" means "Determination of Turbidity by LED
493 Nephelometry," available from NEMI and Leck Mitchell, PhD.
494
495 "Modified Colitag™ Method" means "Modified Colitag™ Test Method
496 for Simultaneous Detection of E. coli and other Total Coliforms in Water,"
497 available from NEMI and CPI International.
498
499 "NA-MUG" means "Method 9222 G: Membrane Filter Technique for
500 Members of the Coliform Group, MF Partition Procedures," available
501 from American Public Health Association and American Waterworks
502 Association.
503
504 "NCRP Report Number 22" means "Maximum Permissible Body Burdens
505 and Maximum Permissible Concentrations of Radionuclides in Air and in
506 Water for Occupational Exposure," available from NCRP.
507
508 "New Jersey Radium Method" means "Determination of Radium 228 in
509 Drinking Water," available from the New Jersey Department of
510 Environmental Protection.
511
512 "New York Radium Method" means "Determination of Ra-226 and Ra-
513 228 (Ra-02)," available from the New York Department of Public Health.
514

515 "OI Analytical Method OIA-1677" means "Method OIA-1677, DW
516 Available Cyanide by Flow Injection, Ligand Exchange, and
517 Amperometry," available from ALPKEM, Division of OI Analytical.
518

519 "ONPG-MUG Test" (meaning "minimal medium ortho-nitrophenyl-beta-
520 d-galactopyranoside-4-methyl-umbelliferyl -beta-d-glucuronide test"),
521 also called the "Autoanalysis Colilert System," is Method 9223, available
522 in "Standard Methods for the Examination of Water and Wastewater,"
523 18th, 19th, 20th, or 21st ed., from American Public Health Association and
524 the American Water Works Association.
525

526 "Orion Method AQ4500" means "Determination of Turbidity by LED
527 Nephelometry," available from Thermo Scientific.
528

529 "Palintest ChloroSense" means "Measurement of Free and Total Chlorine
530 in Drinking Water by Palintest ChloroSense," available from NEMI or
531 Palintest Ltd.
532

533 "Palintest Method 1001" means "Method Number 1001," available from
534 Palintest, Ltd. or the Hach Company.
535

536 "QuikChem Method 10-204-00-1-X" means "Digestion and distillation of
537 total cyanide in drinking and wastewaters using MICRO DIST and
538 determination of cyanide by flow injection analysis," available from
539 Lachat Instruments.
540

541 "Readycult® 2000" means "Readycult Coliforms 100 Presence/Absence
542 Test for Detection and Identification of Coliform Bacteria and Escherichia
543 coli in Finished Waters," v. 1.0, available from EMD Chemicals Inc.
544

545 "Readycult® 2007" means "Readycult® Coliforms 100 Presence/Absence
546 Test for Detection and Identification of Coliform Bacteria and Escherichia
547 coli in Finished Waters," v. 1.1, available from EMD Chemicals Inc.
548

549 "SimPlate Method" means "IDEXX SimPlate™ HPC Test Method for
550 Heterotrophs in Water," available from IDEXX Laboratories, Inc.
551

552 "Standard Methods" means "Standard Methods for the Examination of
553 Water and Wastewater," available from the American Public Health
554 Association or the American Waterworks Association.
555

556 "Standard Methods Online" means the website maintained by the Standard
557 Methods Organization (at www.standardmethods.org) for purchase of the
558 latest versions of methods in an electronic format.
559
560 "Syngenta AG-625" means "Atrazine in Drinking Water by
561 Immunoassay," February 2001 is available from Syngenta Crop
562 Protection, Inc.
563
564 "Systea Easy (1-Reagent)" means "Systea Easy (1-Reagent) Nitrate
565 Method," available from NEMI or Systea Scientific LLC.
566
567 "Technical Bulletin 601" means "Technical Bulletin 601, Standard
568 Method of Testing for Nitrate in Drinking Water," July 1994, available
569 from Analytical Technology, Inc.
570
571 "Technicon Methods" means "Fluoride in Water and Wastewater,"
572 available from Bran & Luebbe.
573
574 "USEPA Asbestos Method 100.1" means Method 100.1, "Analytical
575 Method for Determination of Asbestos Fibers in Water," September 1983,
576 available from NTIS.
577
578 "USEPA Asbestos Method 100.2" means Method 100.2, "Determination
579 of Asbestos Structures over 10-mm in Length in Drinking Water," June
580 1994, available from NTIS.
581
582 "USEPA Environmental Inorganic Methods" means "Methods for the
583 Determination of Inorganic Substances in Environmental Samples,"
584 August 1993, available from NTIS.
585
586 "USEPA Environmental Metals Methods" means "Methods for the
587 Determination of Metals in Environmental Samples," available from
588 NTIS.
589
590 "USEPA Inorganic Methods" means "Methods for Chemical Analysis of
591 Water and Wastes," March 1983, available from NTIS.
592
593 "USEPA Interim Radiochemical Methods" means "Interim Radiochemical
594 Methodology for Drinking Water," EPA 600/4-75/008 (revised), March
595 1976. Available from NTIS.
596

597 "USEPA Method 1600" means "Method 1600: Enterococci in Water by
598 Membrane Filtration Using Membrane-Enterococcus Indoxyl-b-D-
599 Glucoside Agar (mEI)," available from USEPA, Water Resource Center.
600

601 "USEPA Method 1601" means "Method 1601: Male-specific (F⁺) and
602 Somatic Coliphage in Water by Two-step Enrichment Procedure,"
603 available from USEPA, Water Resource Center.
604

605 "USEPA Method 1602" means "Method 1602: Male-specific (F⁺) and
606 Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure,"
607 available from USEPA, Water Resource Center.
608

609 "USEPA Method 1604" means "Method 1604: Total Coliforms and
610 Escherichia coli in Water by Membrane Filtration Using a Simultaneous
611 Detection Technique (MI Medium)," available from USEPA, Water
612 Resource Center.
613

614 "USEPA NERL Method 200.5 (rev. 4.2)" means Method 200.5, Revision
615 4.2, "Determination of Trace Elements in Drinking Water by Axially
616 Viewed Inductively Coupled Plasma – Atomic Emission Spectrometry,"
617 October 2003, EPA 600/R-06/115. Available from USEPA, Office of
618 Research and Development.
619

620 "USEPA NERL Method 415.3 (rev. 1.1)" means Method 415.3, Revision
621 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance
622 at 254 nm in Source Water and Drinking Water," USEPA, February 2005,
623 EPA 600/R-05/055. Available from USEPA, Office of Research and
624 Development.
625

626 "USEPA NERL Method 415.3 (rev. 1.2)" means Method 415.3, Revision
627 1.2, "Determination of Total Organic Carbon and Specific UV Absorbance
628 at 254 nm in Source Water and Drinking Water," USEPA, August 2009,
629 EPA 600/R-09/122. Available from USEPA, Office of Research and
630 Development.
631

632 "USEPA NERL Method 525.3 (ver. 1.0)" means Method 525.3, Version
633 1.0, "Determination of Total Semivolatile Organic Chemicals in Drinking
634 Water by Solid Phase Extraction and Capillary Column Gas
635 Chromatography/Mass Spectrometry (GC/MS)," USEPA, February 2012,
636 EPA 600/R-12/010. Available from USEPA, Office of Research and
637 Development.
638

639 "USEPA NERL Method 549.2" means Method 549.2, Revision 1.0,
 640 "Determination of Diquat and Paraquat in Drinking Water by Liquid-Solid
 641 Extraction and High Performance Liquid Chromatography with
 642 Ultraviolet Detection," June 1997. Available from USEPA, Office of
 643 Research and Development.

644
 645 "USEPA OGWDW Methods" means the methods listed as available from
 646 the USEPA, Office of Ground Water and Drinking Water (Methods 302.0,
 647 317.0 (rev. 2.0), 326.0 (rev. 1.0), 327.0 (rev. 1.1), 334.0, 515.4 (rev. 1.0),
 648 523 (ver. 1.0), 524.3 (rev. 1.0), 531.2 (rev. 1.0), 536 (ver. 1.0), 552.3 (rev.
 649 1.0), 557, 1622 (99), 1622 (01), 1622 (05), 1623 (99), 1623 (01), ~~and 1623~~
 650 ~~(05), and 1623.1~~). Available from NTIS; USEPA, NSCEP; or USEPA,
 651 OGWDW.

652
 653 "USEPA Organic Methods" means "Methods for the Determination of
 654 Organic Compounds in Drinking Water," December 1988 (revised July
 655 1991) (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0)); "Methods for the
 656 Determination of Organic Compounds in Drinking Water – Supplement
 657 I," July 1990 (Methods 547, 550, and 550.1); "Methods for the
 658 Determination of Organic Compounds in Drinking Water – Supplement
 659 II," August 1992 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev.
 660 1.0)); and "Methods for the Determination of Organic Compounds in
 661 Drinking Water – Supplement III," August 1995 (Methods 502.2 (rev.
 662 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev. 1.1), 507 (rev. 2.1), 508
 663 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev. 1.1), 524.2 (rev. 4.1), 525.2 (rev.
 664 2.0), 531.1 (rev. 3.1), 551.1 (rev. 1.0), and 552.2 (rev. 1.0)). Available
 665 from NTIS; USEPA, NSCEP; or USEPA, EMSL.

666
 667 "USEPA Organic and Inorganic Methods" means "Methods for the
 668 Determination of Organic and Inorganic Compounds in Drinking Water,
 669 Volume 1," EPA 815/R-00/014, PB2000-106981, August 2000. Available
 670 from NTIS.

671
 672 "USEPA Radioactivity Methods" means "Prescribed Procedures for
 673 Measurement of Radioactivity in Drinking Water," EPA 600/4-80/032,
 674 August 1980. Available from NTIS.

675
 676 "USEPA Radiochemical Analyses" means "Radiochemical Analytical
 677 Procedures for Analysis of Environmental Samples," March 1979.
 678 Available from NTIS.

679
 680 "USEPA Radiochemistry Procedures" means "Radiochemistry Procedures
 681 Manual," EPA 520/5-84/006, December 1987. Available from NTIS.

682
683 "USEPA Technical Notes" means "Technical Notes on Drinking Water
684 Methods," available from NTIS and USEPA, NSCEP.
685

686 "USGS Methods" means "Methods of Analysis by the U.S. Geological
687 Survey National Water Quality Laboratory – Determination of Inorganic
688 and Organic Constituents in Water and Fluvial Sediments," available from
689 NTIS and USGS.

690 BOARD NOTE: The USGS Methods are available in three volumes
691 published in 1977, 1989, and 1993, as outlined in subsection (b) of this
692 Section.
693

694 "Waters Method B-1011" means "Waters Test Method for the
695 Determination of Nitrite/Nitrate in Water Using Single Column Ion
696 Chromatography," available from Waters Corporation, Technical Services
697 Division.
698

699 b) The Board incorporates the following publications by reference:
700

701 ALPKEM, Division of OI Analytical, P.O. Box 9010, College Station, TX
702 77842-9010, telephone: 979-690-1711, Internet: www.oico.com.
703

704 "Method OIA-1677 DW, Available Cyanide by Flow Injection,
705 Ligand Exchange, and Amperometry," EPA 821/R-04/001,
706 January 2004 (referred to as "OI Analytical Method OIA-1677"),
707 referenced in Section 611.611.

708 BOARD NOTE: Also available online for download from
709 [www.epa.gov/waterscience/methods/method/cyanide/1677-](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf)
710 [2004.pdf](http://www.epa.gov/waterscience/methods/method/cyanide/1677-2004.pdf).
711

712 APHA. American Public Health Association, 1015 Fifteenth Street NW,
713 Washington, DC 20005 202-777-2742.
714

715 "Standard Methods for the Examination of Water and
716 Wastewater," 17th Edition, 1989 (referred to as "Standard Methods,
717 17th ed."). See the methods listed separately for the same
718 references under American Waterworks Association.
719

720 "Standard Methods for the Examination of Water and
721 Wastewater," 18th Edition, 1992, including "Supplement to the 18th
722 Edition of Standard Methods for the Examination of Water and
723 Wastewater," 1994 (collectively referred to as "Standard Methods,
724 18th ed."). See the methods listed separately for the same

725 references under American Waterworks Association.
726

727 "Standard Methods for the Examination of Water and
728 Wastewater," 19th Edition, 1995 (referred to as "Standard
729 Methods, 19th ed."). See the methods listed separately for the
730 same references under American Waterworks Association.
731

732 "Standard Methods for the Examination of Water and
733 Wastewater," 20th Edition, 1998 (referred to as "Standard Methods,
734 20th ed."). See the methods listed separately for the same
735 references under American Waterworks Association.
736

737 "Standard Methods for the Examination of Water and
738 Wastewater," 21st Edition, 2005 (referred to as "Standard Methods,
739 21st ed."). See the methods listed separately for the same
740 references under American Waterworks Association.
741

742 American Society for Microbiology, 1752 N Street N.W., Washington,
743 DC 20036, 202-737-3600:
744

745 "Evaluation of Enterolert for Enumeration of Enterococci in
746 Recreational Waters," Applied and Environmental Microbiology,
747 Oct. 1996, vol. 62, no. 10, p. 3881 (referred to as "Enterolert"),
748 referenced in Section 611.802.
749

750 BOARD NOTE: At the table to 40 CFR 141.402(c)(2), USEPA
751 approved the method as described in the above literature review.
752 The method itself is embodied in the printed instructions to the
753 proprietary kit available from IDEXX Laboratories, Inc.
754 (accessible on-line and available by download from www.asm.org,
755 as "Enterolert™ Procedure"). ASTM approved the method as
756 "Standard Test Method for Enterococci in Water Using
757 Enterolert™," which is available in two versions from ASTM:
758 ASTM Method D6503-99 (superceded) and ASTM Method
759 D6503-99. While it is more conventional to incorporate the
760 method as presented in the kit instructions or as approved by
761 ASTM by reference, the Board is constrained to incorporate the
762 version that appears in the technical literature by reference, which
763 is the version that USEPA has explicitly approved.
764

765 AWWA. American Water Works Association et al., 6666 West Quincy
766 Ave., Denver, CO 80235 (303-794-7711).
767

768 "National Field Evaluation of a Defined Substrate Method for the
769 Simultaneous Enumeration of Total Coliforms and Escherichia coli
770 for Drinking Water: Comparison with the Standard Multiple Tube
771 Fermentation Method," S.C. Edberg, M.J. Allen & D.B. Smith,
772 Applied Environmental Microbiology, vol. 54, iss. 6, pp 1595-
773 1601 (1988), referenced in Appendix D to this Part.
774
775 "Standard Methods for the Examination of Water and
776 Wastewater," 13th Edition, 1971 (referred to as "Standard Methods,
777 13th ed.").

778
779 Method 302, Gross Alpha and Gross Beta Radioactivity in
780 Water (Total, Suspended, and Dissolved), referenced in
781 Section 611.720.
782
783 Method 303, Total Radioactive Strontium and Strontium 90
784 in Water, referenced in Section 611.720.
785
786 Method 304, Radium in Water by Precipitation, referenced
787 in Section 611.720.
788
789 Method 305, Radium 226 by Radon in Water (Soluble,
790 Suspended, and Total), referenced in Section 611.720.
791
792 Method 306, Tritium in Water, referenced in Section
793 611.720.
794
795 "Standard Methods for the Examination of Water and
796 Wastewater," 17th Edition, 1989 (referred to as "Standard Methods,
797 17th ed.").

798
799 Method 7110 B, Gross Alpha and Gross Beta Radioactivity
800 in Water (Total, Suspended, and Dissolved), referenced in
801 Section 611.720.
802
803 Method 7500-Cs B, Radioactive Cesium, Precipitation
804 Method, referenced in Section 611.720.
805
806 Method 7500-³H B, Tritium in Water, referenced in Section
807 611.720.
808
809 Method 7500-I B, Radioactive Iodine, Precipitation
810 Method, referenced in Section 611.720.

811	
812	Method 7500-I C, Radioactive Iodine, Ion-Exchange
813	Method, referenced in Section 611.720.
814	
815	Method 7500-I D, Radioactive Iodine, Distillation Method,
816	referenced in Section 611.720.
817	
818	Method 7500-Ra B, Radium in Water by Precipitation,
819	referenced in Section 611.720.
820	
821	Method 7500-Ra C, Radium 226 by Radon in Water
822	(Soluble, Suspended, and Total), referenced in Section
823	611.720.
824	
825	Method 7500-Ra D, Radium, Sequential Precipitation
826	Method (Proposed), referenced in Section 611.720.
827	
828	Method 7500-Sr B, Total Radioactive Strontium and
829	Strontium 90 in Water, referenced in Section 611.720.
830	
831	Method 7500-U B, Uranium, Radiochemical Method
832	(Proposed), referenced in Section 611.720.
833	
834	Method 7500-U C, Uranium, Isotopic Method (Proposed),
835	referenced in Section 611.720.
836	
837	"Standard Methods for the Examination of Water and
838	Wastewater," 18 th Edition, 1992 (referred to as "Standard Methods,
839	18 th ed.").
840	
841	Method 2130 B, Turbidity, Nephelometric Method,
842	referenced in Section 611.531.
843	
844	Method 2320 B, Alkalinity, Titration Method, referenced in
845	Section 611.611.
846	
847	Method 2510 B, Conductivity, Laboratory Method,
848	referenced in Section 611.611.
849	
850	Method 2550, Temperature, Laboratory and Field Methods,
851	referenced in Section 611.611.
852	
853	Method 3111 B, Metals by Flame Atomic Absorption

854	Spectrometry, Direct Air-Acetylene Flame Method,
855	referenced in Sections 611.611 and 611.612.
856	
857	Method 3111 D, Metals by Flame Atomic Absorption
858	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
859	Method, referenced in Section 611.611.
860	
861	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
862	Spectrometry, Cold-Vapor Atomic Absorption
863	Spectrometric Method, referenced in Section 611.611.
864	
865	Method 3113 B, Metals by Electrothermal Atomic
866	Absorption Spectrometry, Electrothermal Atomic
867	Absorption Spectrometric Method, referenced in Sections
868	611.611 and 611.612.
869	
870	Method 3114 B, Metals by Hydride Generation/Atomic
871	Absorption Spectrometry, Manual Hydride
872	Generation/Atomic Absorption Spectrometric Method,
873	referenced in Section 611.611.
874	
875	Method 3120 B, Metals by Plasma Emission Spectroscopy,
876	Inductively Coupled Plasma (ICP) Method, referenced in
877	Sections 611.611 and 611.612.
878	
879	Method 3500-Ca D, Calcium, EDTA Titrimetric Method,
880	referenced in Section 611.611.
881	
882	Method 3500-Mg E, Magnesium, Calculation Method,
883	referenced in Section 611.611.
884	
885	Method 4110 B, Determination of Anions by Ion
886	Chromatography, Ion Chromatography with Chemical
887	Suppression of Eluent Conductivity, referenced in Section
888	611.611.
889	
890	Method 4500-CN ⁻ C, Cyanide, Total Cyanide after
891	Distillation, referenced in Section 611.611.
892	
893	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
894	referenced in Section 611.611.
895	
896	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode

897	Method, referenced in Section 611.611.
898	
899	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
900	Chlorination after Distillation, referenced in Section
901	611.611.
902	
903	Method 4500-Cl D, Chlorine, Amperometric Titration
904	Method, referenced in Section 611.531.
905	
906	Method 4500-Cl E, Chlorine, Low-Level Amperometric
907	Titration Method, referenced in Section 611.531.
908	
909	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
910	Method, referenced in Section 611.531.
911	
912	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
913	referenced in Section 611.531.
914	
915	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
916	Method, referenced in Section 611.531.
917	
918	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
919	referenced in Section 611.531.
920	
921	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
922	Method I, referenced in Section 611.531.
923	
924	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,
925	referenced in Section 611.531.
926	
927	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
928	Method II (Proposed), referenced in Section 611.531.
929	
930	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
931	referenced in Section 611.611.
932	
933	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
934	Method, referenced in Section 611.611.
935	
936	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
937	in Section 611.611.
938	
939	Method 4500-F ⁻ E, Fluoride, Complexone Method,

940	referenced in Section 611.611.
941	
942	Method 4500-H ⁺ B, pH Value, Electrometric Method,
943	referenced in Section 611.611.
944	
945	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
946	Method, referenced in Section 611.611.
947	
948	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
949	Method, referenced in Section 611.611.
950	
951	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
952	Reduction Method, referenced in Section 611.611.
953	
954	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
955	Cadmium Reduction Method, referenced in Section
956	611.611.
957	
958	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
959	Colorimetric Method, referenced in Section 611.531.
960	
961	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
962	referenced in Section 611.611.
963	
964	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
965	Reduction Method, referenced in Section 611.611.
966	
967	Method 4500-Si D, Silica, Molybdosilicate Method,
968	referenced in Section 611.611.
969	
970	Method 4500-Si E, Silica, Heteropoly Blue Method,
971	referenced in Section 611.611.
972	
973	Method 4500-Si F, Silica, Automated Method for
974	Molybdate-Reactive Silica, referenced in Section 611.611.
975	
976	Method 6651, Glyphosate Herbicide (Proposed), referenced
977	in Section 611.645.
978	
979	Method 7110 B, Gross Alpha and Beta Radioactivity
980	(Total, Suspended, and Dissolved), Evaporation Method for
981	Gross Alpha-Beta, referenced in Section 611.720.
982	

983	Method 7110 C, Gross Alpha and Beta Radioactivity
984	(Total, Suspended, and Dissolved), Coprecipitation Method
985	for Gross Alpha Radioactivity in Drinking Water
986	(Proposed), referenced in Section 611.720.
987	
988	Method 7500-Cs B, Radioactive Cesium, Precipitation
989	Method, referenced in Section 611.720.
990	
991	Method 7500- ³ H B, Tritium, Liquid Scintillation
992	Spectrometric Method, referenced in Section 611.720.
993	
994	Method 7500-I B, Radioactive Iodine, Precipitation
995	Method, referenced in Section 611.720.
996	
997	Method 7500-I C, Radioactive Iodine, Ion-Exchange
998	Method, referenced in Section 611.720.
999	
1000	Method 7500-I D, Radioactive Iodine, Distillation Method,
1001	referenced in Section 611.720.
1002	
1003	Method 7500-Ra B, Radium, Precipitation Method,
1004	referenced in Section 611.720.
1005	
1006	Method 7500-Ra C, Radium, Emanation Method,
1007	referenced in Section 611.720.
1008	
1009	Method 7500-Ra D, Radium, Sequential Precipitation
1010	Method (Proposed), referenced in Section 611.720.
1011	
1012	Method 7500-Sr B, Total Radioactive Strontium and
1013	Strontium 90, Precipitation Method, referenced in Section
1014	611.720.
1015	
1016	Method 7500-U B, Uranium, Radiochemical Method
1017	(Proposed), referenced in Section 611.720.
1018	
1019	Method 7500-U C, Uranium, Isotopic Method (Proposed),
1020	referenced in Section 611.720.
1021	
1022	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1023	Method, referenced in Section 611.531.
1024	
1025	Method 9221 A, Multiple-Tube Fermentation Technique

1026	for Members of the Coliform Group, Introduction,
1027	referenced in Sections 611.526 and 611.531.
1028	
1029	Method 9221 B, Multiple-Tube Fermentation Technique
1030	for Members of the Coliform Group, Standard Total
1031	Coliform Fermentation Technique, referenced in Sections
1032	611.526 and 611.531.
1033	
1034	Method 9221 C, Multiple-Tube Fermentation Technique
1035	for Members of the Coliform Group, Estimation of
1036	Bacterial Density, referenced in Sections 611.526 and
1037	611.531.
1038	
1039	Method 9221 D, Multiple-Tube Fermentation Technique
1040	for Members of the Coliform Group, Presence-Absence (P-
1041	A) Coliform Test, referenced in Section 611.526.
1042	
1043	Method 9221 E, Multiple-Tube Fermentation Technique
1044	for Members of the Coliform Group, Fecal Coliform
1045	Procedure, referenced in Sections 611.526 and 611.531.
1046	
1047	Method 9222 A, Membrane Filter Technique for Members
1048	of the Coliform Group, Introduction, referenced in Sections
1049	611.526 and 611.531.
1050	
1051	Method 9222 B, Membrane Filter Technique for Members
1052	of the Coliform Group, Standard Total Coliform Membrane
1053	Filter Procedure, referenced in Sections 611.526 and
1054	611.531.
1055	
1056	Method 9222 C, Membrane Filter Technique for Members
1057	of the Coliform Group, Delayed-Incubation Total Coliform
1058	Procedure, referenced in Sections 611.526 and 611.531.
1059	
1060	Method 9222 D, Membrane Filter Technique for Members
1061	of the Coliform Group, Fecal Coliform Membrane Filter
1062	Procedure, referenced in Section 611.531.
1063	
1064	Method 9223, Chromogenic Substrate Coliform Test
1065	(Proposed) (also referred to as the variations "Autoanalysis
1066	Colilert System" and "Colisure Test"), referenced in
1067	Sections 611.526 and 611.531.
1068	

1069	Method 9223 B, Chromogenic Substrate Coliform Test
1070	(Proposed), referenced in Section 611.1004.
1071	
1072	"Supplement to the 18 th Edition of Standard Methods for the
1073	Examination of Water and Wastewater," American Public Health
1074	Association, 1994.
1075	
1076	Method 6610, Carbamate Pesticide Method, referenced in
1077	Section 611.645.
1078	
1079	"Standard Methods for the Examination of Water and
1080	Wastewater," 19 th Edition, 1995 (referred to as "Standard Methods,
1081	19 th ed.").
1082	
1083	Method 2130 B, Turbidity, Nephelometric Method,
1084	referenced in Section 611.531.
1085	
1086	Method 2320 B, Alkalinity, Titration Method, referenced in
1087	Section 611.611.
1088	
1089	Method 2510 B, Conductivity, Laboratory Method,
1090	referenced in Section 611.611.
1091	
1092	Method 2550, Temperature, Laboratory, and Field
1093	Methods, referenced in Section 611.611.
1094	
1095	Method 3111 B, Metals by Flame Atomic Absorption
1096	Spectrometry, Direct Air-Acetylene Flame Method,
1097	referenced in Sections 611.611 and 611.612.
1098	
1099	Method 3111 D, Metals by Flame Atomic Absorption
1100	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
1101	Method, referenced in Section 611.611.
1102	
1103	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
1104	Spectrometry, Cold-Vapor Atomic Absorption
1105	Spectrometric Method, referenced in Section 611.611.
1106	
1107	Method 3113 B, Metals by Electrothermal Atomic
1108	Absorption Spectrometry, Electrothermal Atomic
1109	Absorption Spectrometric Method, referenced in Sections
1110	611.611 and 611.612.
1111	

1112	Method 3114 B, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.
1113	
1114	
1115	
1116	Method 3120 B, Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method, referenced in Sections 611.611 and 611.612.
1117	
1118	
1119	
1120	Method 3500-Ca D, Calcium, EDTA Titrimetric Method, referenced in Section 611.611.
1121	
1122	
1123	Method 3500-Mg E, Magnesium, Calculation Method, referenced in Section 611.611.
1124	
1125	
1126	
1127	Method 4110 B, Determination of Anions by Ion Chromatography, Ion Chromatography with Chemical Suppression of Eluent Conductivity, referenced in Section 611.611.
1128	
1129	
1130	
1131	Method 4500-Cl D, Chlorine, Amperometric Titration Method, referenced in Sections 611.381 and 611.531.
1132	
1133	
1134	
1135	Method 4500-Cl E, Chlorine, Low-Level Amperometric Titration Method, referenced in Sections 611.381 and 611.531.
1136	
1137	
1138	
1139	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric Method, referenced in Sections 611.381 and 611.531.
1140	
1141	
1142	Method 4500-Cl G, Chlorine, DPD Colorimetric Method, referenced in Sections 611.381 and 611.531.
1143	
1144	
1145	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS) Method, referenced in Sections 611.381 and 611.531.
1146	
1147	
1148	Method 4500-Cl I, Chlorine, Iodometric Electrode Method, referenced in Sections 611.381 and 611.531.
1149	
1150	
1151	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric Method I, referenced in Section 611.531.
1152	
1153	
1154	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,

1155	referenced in Sections 611.381 and 611.531.
1156	
1157	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
1158	Method II, referenced in Sections 611.381 and 611.531.
1159	
1160	Method 4500-CN ⁻ C, Cyanide, Total Cyanide after
1161	Distillation, referenced in Section 611.611.
1162	
1163	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
1164	referenced in Section 611.611.
1165	
1166	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
1167	Method, referenced in Section 611.611.
1168	
1169	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
1170	Chlorination after Distillation, referenced in Section
1171	611.611.
1172	
1173	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
1174	referenced in Section 611.611.
1175	
1176	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
1177	Method, referenced in Section 611.611.
1178	
1179	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
1180	in Section 611.611.
1181	
1182	Method 4500-F ⁻ E, Fluoride, Complexone Method,
1183	referenced in Section 611.611.
1184	
1185	Method 4500-H ⁺ B, pH Value, Electrometric Method,
1186	referenced in Section 611.611.
1187	
1188	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
1189	Method, referenced in Section 611.611.
1190	
1191	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
1192	Method, referenced in Section 611.611.
1193	
1194	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
1195	Reduction Method, referenced in Section 611.611.
1196	
1197	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated

1198	Cadmium Reduction Method, referenced in Section
1199	611.611.
1200	
1201	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
1202	Colorimetric Method, referenced in Section 611.531.
1203	
1204	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
1205	referenced in Section 611.611.
1206	
1207	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
1208	Reduction Method, referenced in Section 611.611.
1209	
1210	Method 4500-Si D, Silica, Molybdosilicate Method,
1211	referenced in Section 611.611.
1212	
1213	Method 4500-Si E, Silica, Heteropoly Blue Method,
1214	referenced in Section 611.611.
1215	
1216	Method 4500-Si F, Silica, Automated Method for
1217	Molybdate-Reactive Silica, referenced in Section 611.611.
1218	
1219	Method 5310 B, TOC, Combustion-Infrared Method,
1220	referenced in Section 611.381.
1221	
1222	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1223	Method, referenced in Section 611.381.
1224	
1225	Method 5310 D, TOC, Wet-Oxidation Method, referenced
1226	in Section 611.381.
1227	
1228	Method 5910 B, UV Absorbing Organic Constituents,
1229	Ultraviolet Absorption Method, referenced in Section
1230	611.381.
1231	
1232	Method 6251 B, Disinfection Byproducts: Haloacetic
1233	Acids and Trichlorophenol, Micro Liquid-Liquid
1234	Extraction Gas Chromatographic Method, referenced in
1235	Section 611.381.
1236	
1237	Method 6610, Carbamate Pesticide Method, referenced in
1238	Section 611.645.
1239	
1240	Method 6651, Glyphosate Herbicide (Proposed), referenced

1241	in Section 611.645.
1242	
1243	Method 7110 B, Gross Alpha and Gross Beta
1244	Radioactivity, Evaporation Method for Gross Alpha-Beta,
1245	referenced in Section 611.720.
1246	
1247	Method 7110 C, Gross Alpha and Beta Radioactivity
1248	(Total, Suspended, and Dissolved), Coprecipitation Method
1249	for Gross Alpha Radioactivity in Drinking Water
1250	(Proposed), referenced in Section 611.720.
1251	
1252	Method 7120 B, Gamma-Emitting Radionuclides, Gamma
1253	Spectrometric Method, referenced in Section 611.720.
1254	
1255	Method 7500-Cs B, Radioactive Cesium, Precipitation
1256	Method, referenced in Section 611.720.
1257	
1258	Method 7500- ³ H B, Tritium, Liquid Scintillation
1259	Spectrometric Method, referenced in Section 611.720.
1260	
1261	Method 7500-I B, Radioactive Iodine, Precipitation
1262	Method, referenced in Section 611.720.
1263	
1264	Method 7500-I C, Radioactive Iodine, Ion-Exchange
1265	Method, referenced in Section 611.720.
1266	
1267	Method 7500-I D, Radioactive Iodine, Distillation Method,
1268	referenced in Section 611.720.
1269	
1270	Method 7500-Ra B, Radium, Precipitation Method,
1271	referenced in Section 611.720.
1272	
1273	Method 7500-Ra C, Radium, Emanation Method,
1274	referenced in Section 611.720.
1275	
1276	Method 7500-Ra D, Radium, Sequential Precipitation
1277	Method, referenced in Section 611.720.
1278	
1279	Method 7500-Sr B, Total Radiactive Strontium and
1280	Strontium 90, Precipitation Method, referenced in Section
1281	611.720.
1282	

1283	Method 7500-U B, Uranium, Radiochemical Method,
1284	referenced in Section 611.720.
1285	
1286	Method 7500-U C, Uranium, Isotopic Method, referenced
1287	in Section 611.720.
1288	
1289	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1290	Method, referenced in Section 611.531.
1291	
1292	Method 9221 A, Multiple-Tube Fermentation Technique
1293	for Members of the Coliform Group, Introduction,
1294	referenced in Sections 611.526 and 611.531.
1295	
1296	Method 9221 B, Multiple-Tube Fermentation Technique
1297	for Members of the Coliform Group, Standard Total
1298	Coliform Fermentation Technique, referenced in Sections
1299	611.526 and 611.531.
1300	
1301	Method 9221 C, Multiple-Tube Fermentation Technique
1302	for Members of the Coliform Group, Estimation of
1303	Bacterial Density, referenced in Sections 611.526 and
1304	611.531.
1305	
1306	Method 9221 D, Multiple-Tube Fermentation Technique
1307	for Members of the Coliform Group, Presence-Absence (P-
1308	A) Coliform Test, referenced in Section 611.526.
1309	
1310	Method 9221 E, Multiple-Tube Fermentation Technique
1311	for Members of the Coliform Group, Fecal Coliform
1312	Procedure, referenced in Sections 611.526 and 611.531.
1313	
1314	Method 9222 A, Membrane Filter Technique for Members
1315	of the Coliform Group, Introduction, referenced in Sections
1316	611.526 and 611.531.
1317	
1318	Method 9222 B, Membrane Filter Technique for Members
1319	of the Coliform Group, Standard Total Coliform Membrane
1320	Filter Procedure, referenced in Sections 611.526 and
1321	611.531.
1322	
1323	Method 9222 C, Membrane Filter Technique for Members
1324	of the Coliform Group, Delayed-Incubation Total Coliform
1325	Procedure, referenced in Sections 611.526 and 611.531.

1326
1327 Method 9222 D, Membrane Filter Technique for Members
1328 of the Coliform Group, Fecal Coliform Membrane Filter
1329 Procedure, referenced in Section 611.531.
1330
1331 Method 9222 G, Membrane Filter Technique for Members
1332 of the Coliform Group, MF Partition Procedures,
1333 referenced in Section 611.526.
1334
1335 Method 9223, Chromogenic Substrate Coliform Test (also
1336 referred to as the variations "Autoanalysis Colilert System"
1337 and "Colisure Test"), referenced in Sections 611.526 and
1338 611.531.
1339
1340 Method 9223 B, Chromogenic Substrate Coliform Test
1341 (Proposed), referenced in Section 611.1004.
1342
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1344 Examination of Water and Wastewater," American Public Health
1345 Association, 1996.
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1348 referenced in Section 611.381.
1349
1350 Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1351 Method, referenced in Section 611.381.
1352
1353 Method 5310 D, TOC, Wet-Oxidation Method, referenced
1354 in Section 611.381.
1355
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1357 Wastewater," 20th Edition, 1998 (referred to as "Standard Methods,
1358 20th ed.").
1359
1360 Method 2130 B, Turbidity, Nephelometric Method,
1361 referenced in Section 611.531.
1362
1363 Method 2320 B, Alkalinity, Titration Method, referenced in
1364 Section 611.611.
1365
1366 Method 2510 B, Conductivity, Laboratory Method,
1367 referenced in Section 611.611.
1368

1369	Method 2550, Temperature, Laboratory, and Field
1370	Methods, referenced in Section 611.611.
1371	
1372	Method 3120 B, Metals by Plasma Emission Spectroscopy,
1373	Inductively Coupled Plasma (ICP) Method, referenced in
1374	Sections 611.611 and 611.612.
1375	
1376	<u>Method 3125, Metals by Inductively Coupled Plasma/Mass</u>
1377	<u>Spectrometry, referenced in Sections 611.720.</u>
1378	
1379	Method 3500-Ca B, Calcium, EDTA Titrimetric Method,
1380	referenced in Section 611.611.
1381	
1382	Method 3500-Mg B, Magnesium, EDTA Titrimetric
1383	Method, referenced in Section 611.611.
1384	
1385	Method 4110 B, Determination of Anions by Ion
1386	Chromatography, Ion Chromatography with Chemical
1387	Suppression of Eluent Conductivity, referenced in Section
1388	611.611.
1389	
1390	Method 4500-CN ⁻ C, Cyanide, Total Cyanide after
1391	Distillation, referenced in Section 611.611.
1392	
1393	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
1394	referenced in Section 611.611.
1395	
1396	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
1397	Method, referenced in Section 611.611.
1398	
1399	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
1400	Chlorination after Distillation, referenced in Section
1401	611.611.
1402	
1403	Method 4500-Cl D, Chlorine, Amperometric Titration
1404	Method, referenced in Section 611.531.
1405	
1406	Method 4500-Cl E, Chlorine, Low-Level Amperometric
1407	Titration Method, referenced in Section 611.531.
1408	
1409	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
1410	Method, referenced in Section 611.531.
1411	

1412	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
1413	referenced in Section 611.531.
1414	
1415	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
1416	Method, referenced in Section 611.531.
1417	
1418	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
1419	referenced in Section 611.531.
1420	
1421	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
1422	Method I, referenced in Section 611.531.
1423	
1424	Method 4500-ClO ₂ D, Chlorine Dioxide, DPD Method,
1425	referenced in Section 611.531.
1426	
1427	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
1428	Method II (Proposed), referenced in Section 611.531.
1429	
1430	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
1431	referenced in Section 611.611.
1432	
1433	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
1434	Method, referenced in Section 611.611.
1435	
1436	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
1437	in Section 611.611.
1438	
1439	Method 4500-F ⁻ E, Fluoride, Complexone Method,
1440	referenced in Section 611.611.
1441	
1442	Method 4500-H ⁺ B, pH Value, Electrometric Method,
1443	referenced in Section 611.611.
1444	
1445	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
1446	Method, referenced in Section 611.611.
1447	
1448	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
1449	Method, referenced in Section 611.611.
1450	
1451	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
1452	Reduction Method, referenced in Section 611.611.
1453	

1454	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
1455	Cadmium Reduction Method, referenced in Section
1456	611.611.
1457	
1458	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
1459	Colorimetric Method, referenced in Section 611.531.
1460	
1461	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
1462	referenced in Section 611.611.
1463	
1464	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
1465	Reduction Method, referenced in Section 611.611.
1466	
1467	Method 4500-Si C, Silica, Molybdosilicate Method,
1468	referenced in Section 611.611.
1469	
1470	Method 4500-Si D, Silica, Heteropoly Blue Method,
1471	referenced in Section 611.611.
1472	
1473	Method 4500-Si E, Silica, Automated Method for
1474	Molybdate-Reactive Silica, referenced in Section 611.611.
1475	
1476	Method 5310 B, TOC, Combustion-Infrared Method,
1477	referenced in Section 611.381.
1478	
1479	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1480	Method, referenced in Section 611.381.
1481	
1482	Method 5310 D, TOC, Wet-Oxidation Method, referenced
1483	in Section 611.381.
1484	
1485	Method 5910 B, UV-Absorbing Organic Constituents,
1486	Ultraviolet Absorption Method, referenced in Sections
1487	611.381 and 611.382.
1488	
1489	Method 6251, Disinfection By-Products: Haloacetic Acids
1490	and Trichlorophenol, referenced in Section 611.381.
1491	
1492	Method 6610, Carbamate Pesticide Method, referenced in
1493	Section 611.645.
1494	
1495	Method 6651, Glyphosate Herbicide (Proposed), referenced
1496	in Section 611.645.

1497	
1498	Method 7110 B, Gross Alpha and Gross Beta
1499	Radioactivity, Evaporation Method for Gross Alpha-Beta,
1500	referenced in Section 611.720.
1501	
1502	Method 7110 C, Gross Alpha and Beta Radioactivity
1503	(Total, Suspended, and Dissolved), Coprecipitation Method
1504	for Gross Alpha Radioactivity in Drinking Water
1505	(Proposed), referenced in Section 611.720.
1506	
1507	Method 7120, Gamma-Emitting Radionuclides, referenced
1508	in Section 611.720.
1509	
1510	Method 7500-Cs B, Radioactive Cesium, Precipitation
1511	Method, referenced in Section 611.720.
1512	
1513	Method 7500- ³ H B, Tritium, Liquid Scintillation
1514	Spectrometric Method, referenced in Section 611.720.
1515	
1516	Method 7500-I B, Radioactive Iodine, Precipitation
1517	Method, referenced in Section 611.720.
1518	
1519	Method 7500-I C, Radioactive Iodine, Ion-Exchange
1520	Method, referenced in Section 611.720.
1521	
1522	Method 7500-I D, Radioactive Iodine, Distillation Method,
1523	referenced in Section 611.720.
1524	
1525	Method 7500-Ra B, Radium, Precipitation Method,
1526	referenced in Section 611.720.
1527	
1528	Method 7500-Ra C, Radium, Emanation Method,
1529	referenced in Section 611.720.
1530	
1531	Method 7500-Ra D, Radium, Sequential Precipitation
1532	Method, referenced in Section 611.720.
1533	
1534	Method 7500-Sr B, Total Radioactive Strontium and
1535	Strontium 90, Precipitation Method, referenced in Section
1536	611.720.
1537	
1538	Method 7500-U B, Uranium, Radiochemical Method,
1539	referenced in Section 611.720.

1540	
1541	Method 7500-U C, Uranium, Isotopic Method, referenced
1542	in Section 611.720.
1543	
1544	Method 9215 B, Heterotrophic Plate Count, Pour Plate
1545	Method, referenced in Section 611.531.
1546	
1547	Method 9221 A, Multiple-Tube Fermentation Technique
1548	for Members of the Coliform Group, Introduction,
1549	referenced in Sections 611.526 and 611.531.
1550	
1551	Method 9221 B, Multiple-Tube Fermentation Technique
1552	for Members of the Coliform Group, Standard Total
1553	Coliform Fermentation Technique, referenced in Sections
1554	611.526 and 611.531.
1555	
1556	Method 9221 C, Multiple-Tube Fermentation Technique
1557	for Members of the Coliform Group, Estimation of
1558	Bacterial Density, referenced in Sections 611.526 and
1559	611.531.
1560	
1561	Method 9221 D, Multiple-Tube Fermentation Technique
1562	for Members of the Coliform Group, Presence-Absence (P-
1563	A) Coliform Test, referenced in Sections 611.526.
1564	
1565	Method 9221 E, Multiple-Tube Fermentation Technique
1566	for Members of the Coliform Group, Fecal Coliform
1567	Procedure, referenced in Sections 611.526 and 611.531.
1568	
1569	Method 9221 F, Multiple-Tube Fermentation Technique for
1570	Members of the Coliform Group, Escherichia Coli
1571	Procedure (Proposed), referenced in Section 611.802.
1572	
1573	Method 9222 A, Membrane Filter Technique for Members
1574	of the Coliform Group, Introduction, referenced in Sections
1575	611.526 and 611.531.
1576	
1577	Method 9222 B, Membrane Filter Technique for Members
1578	of the Coliform Group, Standard Total Coliform Membrane
1579	Filter Procedure, referenced in Sections 611.526 and
1580	611.531.
1581	

1582	Method 9222 C, Membrane Filter Technique for Members
1583	of the Coliform Group, Delayed-Incubation Total Coliform
1584	Procedure, referenced in Sections 611.526 and 611.531.
1585	
1586	Method 9222 D, Membrane Filter Technique for Members
1587	of the Coliform Group, Fecal Coliform Membrane Filter
1588	Procedure, referenced in Section 611.531.
1589	
1590	Method 9222 G, Membrane Filter Technique for Members
1591	of the Coliform Group, MF Partition Procedures,
1592	referenced in Section 611.526.
1593	
1594	Method 9223, Chromogenic Substrate Coliform Test (also
1595	referred to as the variations "Autoanalysis Colilert System"
1596	and "Colisure Test"), referenced in Sections 611.526 and
1597	611.531.
1598	
1599	Method 9223 B, Chromogenic Substrate Coliform Test
1600	(also referred to as the variations "Autoanalysis Colilert
1601	System" and "Colisure Test"), referenced in Sections
1602	611.526, 611.802, and 611.1004.
1603	
1604	Method 9230 B, Fecal Streptococcus and Enterococcus
1605	Groups, Multiple Tube Techniques, referenced in Section
1606	611.802.
1607	
1608	Method 9230 C, Fecal Streptococcus and Enterococcus
1609	Groups, Membrane Filter Techniques, referenced in
1610	Section 611.802.
1611	
1612	"Standard Methods for the Examination of Water and
1613	Wastewater," 21 st Edition, 2005 (referred to as "Standard Methods,
1614	21 st ed.").
1615	
1616	Method 2130 B, Turbidity, Nephelometric Method,
1617	referenced in Section 611.531.
1618	
1619	Method 2320 B, Alkalinity, Titration Method, referenced in
1620	Section 611.611.
1621	
1622	Method 2510 B, Conductivity, Laboratory Method,
1623	referenced in Section 611.611.
1624	

1625	Method 2550, Temperature, Laboratory, and Field
1626	Methods, referenced in Section 611.611.
1627	
1628	Method 3111 B, Metals by Flame Atomic Absorption
1629	Spectrometry, Direct Air-Acetylene Flame Method,
1630	referenced in Sections 611.611 and 611.612.
1631	
1632	Method 3111 D, Metals by Flame Atomic Absorption
1633	Spectrometry, Direct Nitrous Oxide-Acetylene Flame
1634	Method, referenced in Section 611.611.
1635	
1636	Method 3112 B, Metals by Cold-Vapor Atomic Absorption
1637	Spectrometry, Cold-Vapor Atomic Absorption
1638	Spectrometric Method, referenced in Section 611.611.
1639	
1640	Method 3113 B, Metals by Electrothermal Atomic
1641	Absorption Spectrometry, Electrothermal Atomic
1642	Absorption Spectrometric Method, referenced in Sections
1643	611.611 and 611.612.
1644	
1645	Method 3114 B, Metals by Hydride Generation/Atomic
1646	Absorption Spectrometry, Manual Hydride
1647	Generation/Atomic Absorption Spectrometric Method,
1648	referenced in Section 611.611.
1649	
1650	Method 3120 B, Metals by Plasma Emission Spectroscopy,
1651	Inductively Coupled Plasma (ICP) Method, referenced in
1652	Sections 611.611 and 611.612.
1653	
1654	<u>Method 3125, Metals by Inductively Coupled Plasma/Mass</u>
1655	<u>Spectrometry, referenced in Section 611.720.</u>
1656	
1657	Method 3500-Ca B, Calcium, EDTA Titrimetric Method,
1658	referenced in Section 611.611.
1659	
1660	Method 3500-Ca D, Calcium, EDTA Titrimetric Method,
1661	referenced in Section 611.611.
1662	
1663	Method 3500-Mg B, Magnesium, Calculation Method,
1664	referenced in Section 611.611.
1665	
1666	Method 4110 B, Determination of Anions by Ion
1667	Chromatography, Ion Chromatography with Chemical

1668	Suppression of Eluent Conductivity, referenced in Section 611.611.
1669	
1670	
1671	Method 4500-Cl D, Chlorine, Amperometric Titration
1672	Method, referenced in Section 611.381.
1673	
1674	Method 4500-Cl E, Chlorine, Low-Level Amperometric
1675	Titration Method, referenced in Section 611.381.
1676	
1677	Method 4500-Cl F, Chlorine, DPD Ferrous Titrimetric
1678	Method, referenced in Section 611.381.
1679	
1680	Method 4500-Cl G, Chlorine, DPD Colorimetric Method,
1681	referenced in Section 611.381.
1682	
1683	Method 4500-Cl H, Chlorine, Syringaldazine (FACTS)
1684	Method, referenced in Section 611.381.
1685	
1686	Method 4500-Cl I, Chlorine, Iodometric Electrode Method,
1687	referenced in Section 611.381.
1688	
1689	Method 4500-ClO ₂ C, Chlorine Dioxide, Amperometric
1690	Method I, referenced in Section 611.531.
1691	
1692	Method 4500-ClO ₂ E, Chlorine Dioxide, Amperometric
1693	Method II (Proposed), referenced in Section 611.381.
1694	
1695	Method 4500-CN ⁻ E, Cyanide, Colorimetric Method,
1696	referenced in Section 611.611.
1697	
1698	Method 4500-CN ⁻ F, Cyanide, Cyanide-Selective Electrode
1699	Method, referenced in Section 611.611.
1700	
1701	Method 4500-CN ⁻ G, Cyanide, Cyanides Amenable to
1702	Chlorination after Distillation, referenced in Section
1703	611.611.
1704	
1705	Method 4500-F ⁻ B, Fluoride, Preliminary Distillation Step,
1706	referenced in Section 611.611.
1707	
1708	Method 4500-F ⁻ C, Fluoride, Ion-Selective Electrode
1709	Method, referenced in Section 611.611.
1710	

1711	Method 4500-F ⁻ D, Fluoride, SPADNS Method, referenced
1712	in Section 611.611.
1713	
1714	Method 4500-F ⁻ E, Fluoride, Complexone Method,
1715	referenced in Section 611.611.
1716	
1717	Method 4500-H ⁺ B, pH Value, Electrometric Method,
1718	referenced in Section 611.611.
1719	
1720	Method 4500-NO ₂ ⁻ B, Nitrogen (Nitrite), Colorimetric
1721	Method, referenced in Section 611.611.
1722	
1723	Method 4500-NO ₃ ⁻ D, Nitrogen (Nitrate), Nitrate Electrode
1724	Method, referenced in Section 611.611.
1725	
1726	Method 4500-NO ₃ ⁻ E, Nitrogen (Nitrate), Cadmium
1727	Reduction Method, referenced in Section 611.611.
1728	
1729	Method 4500-NO ₃ ⁻ F, Nitrogen (Nitrate), Automated
1730	Cadmium Reduction Method, referenced in Section
1731	611.611.
1732	
1733	Method 4500-O ₃ B, Ozone (Residual) (Proposed), Indigo
1734	Colorimetric Method, referenced in Section 611.531.
1735	
1736	Method 4500-P E, Phosphorus, Ascorbic Acid Method,
1737	referenced in Section 611.611.
1738	
1739	Method 4500-P F, Phosphorus, Automated Ascorbic Acid
1740	Reduction Method, referenced in Section 611.611.
1741	
1742	Method 4500-SiO ₂ C, Silica, Molybdosilicate Method,
1743	referenced in Section 611.611.
1744	
1745	Method 4500-SiO ₂ D, Silica, Heteropoly Blue Method,
1746	referenced in Section 611.611.
1747	
1748	Method 4500-SiO ₂ E, Silica, Automated Method for
1749	Molybdate-Reactive Silica, referenced in Section 611.611.
1750	
1751	Method 5310 B, TOC, Combustion-Infrared Method,
1752	referenced in Section 611.381.
1753	

1754	Method 5310 C, TOC, Persulfate-Ultraviolet Oxidation
1755	Method, referenced in Section 611.381.
1756	
1757	Method 5310 D, TOC, Wet-Oxidation Method, referenced
1758	in Section 611.381.
1759	
1760	Method 5910 B, UV-Absorbing Organic Constituents,
1761	Ultraviolet Absorption Method, referenced in Sections
1762	611.381 and 611.382.
1763	
1764	Method 6251, Disinfection By-Products: Haloacetic Acids
1765	and Trichlorophenol, referenced in Section 611.381.
1766	
1767	Method 6610, Method 6610 B, Carbamate Pesticide
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2238 Note that the most recent version of an ASTM method may not be
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2278 mail:adellenbusch@emscience.com).
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2297 Atlanta, GA 30332 (404-407-6339).
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2318 4224/Internet address: www.hach.com).
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2420 611.381 and 611.531. See also Palintest.
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2426 PO Box 130140, Ann Arbor, Michigan 48113-0140 (734-769-8010).
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2432 Commerce, 5301 Shawnee Road, Alexandria, VA 22312 (703-605-6000
2433 or 800-553-6847, www.ntis.gov) ~~5285 Port Royal Road, Springfield, VA~~
2434 ~~22161 (703-487-4600 or 800-553-6847).~~

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 2513 Supplement II," August 1992, EPA 600/R-92/129, Doc. No. PB92-
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 2520 506 (rev. 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2

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2533 Procedures for Analysis of Environmental Samples," March 1979,
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2538 Manual," EPA 520/5-84-006, August 1984, Doc. No. PB84-
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2545 104766, referenced in Sections 611.531, 611.611, and 611.645.
2546 See also USEPA, NSCEP.
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2548 BOARD NOTE: USEPA made the following assertion with
2549 regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and
2550 (n)(11) (2012)(2014): "This document contains other analytical
2551 test procedures and approved analytical methods that remain
2552 available for compliance monitoring until July 1, 1996." Also
2553 available online at
2554 <http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm> under the
2555 document designation "600R94173."
2556
2557 New Jersey Department of Environment, Division of Environmental
2558 Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing
2559 Street, Trenton, NJ 08625.
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"Determination of Ra-226 and Ra-228 (Ra-02)," January 1980, Revised June 1982 (referred to as "New York Radium Method"), referenced in Section 611.720.

Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY (800-835-9629).

Palintest Method 1001, "Lead in Drinking Water by Differential Pulse Anodic Stripping Voltammetry," Method 1001, August 1999, referenced in Section 611.611.

Palintest ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009, referenced in Sections 611.381 and 611.531. See also NEMI.

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Method 3112 B-09, Metals by Cold-Vapor Atomic Absorption Spectrometry, Cold-Vapor Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 3113 B-04, Metals by Electrothermal Atomic Absorption Spectrometry, Electrothermal Atomic Absorption Spectrometric Method, referenced in Sections 611.611 and 611.612.

Method 3114 B-04, Metals by Hydride Generation/Atomic Absorption Spectrometry, Manual Hydride Generation/Atomic Absorption Spectrometric Method, referenced in Section 611.611.

Method 6610 B-04, Carbamate Pesticides, High-Performance Liquid Chromatographic Method, referenced in Section 611.645.

Method 9230 B-04, Fecal Streptococcus and Enterococcus Groups, Multiple Tube Techniques, referenced in Section 611.802.

BOARD NOTE: Where, in appendix A to subpart C of 40 CFR 141 (2012)(2011), USEPA has authorized use of an approved alternative method from Standard Methods Online, and that

2607 version of the method appears also in Standard Methods, 21st ed.,
2608 the Board cites only to Standard Methods, 21st ed. for that method.
2609 The methods that USEPA listed as available from Standard
2610 Methods Online, and which are listed above as in Standard
2611 Methods, 21st edition, are the following: 4500-P E-99 and 4500-P
2612 F-99; (for orthophosphate); 4500-SO₄⁻² C-97, 4500-SO₄⁻² D-97,
2613 4500-SO₄⁻² E-97, and 4500-SO₄⁻² F-97 (for sulfate); 6640 B-01
2614 (for 2,4-D, 2,4,5-TP (silvex) (dalapon, dinoseb, pentachlorophenol,
2615 and picloram); 5561 B-00 (for glyphosate); and 9223 B-97 (for E.
2616 coli). Since each method is the same version from both sources,
2617 the Board views a copy from Standard Methods Online as
2618 equivalent to a copy from Standard Methods Online, even though
2619 the Board does not also cite to Standard Methods Online. The
2620 Board intends that use of the version of the method that is
2621 incorporated by reference is acceptable from either source.
2622

2623 SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340,
2624 Hinwil, Switzerland.
2625

2626 AMI Turbiwell Method, "Continuous Measurement of Turbidity
2627 Using a SWAN AMI Turbiwell Turbidimeter," August 2009,
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2630 Syngenta Crop Protection, Inc., 410 Swing Road, Post Office Box 18300,
2631 Greensboro, NC 27419 (336-632-6000).
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2633 "Atrazine in Drinking Water by Immunoassay," February 2001
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2637 Systea Scientific LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.
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2639 Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate
2640 Method," February 2009, referenced in Section 611.611. See also
2641 NEMI.
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2643 Thermo Scientific, 166 Cummings Center, Beverly, MA 01915
2644 (www.thermo.com).
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2646 Orion Method AQ4500, "Determination of Turbidity by LED
2647 Nephelometry," May 2009, referenced in Section 611.531. See
2648 also NEMI.
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2650 USDOE, EML. United States Department of Energy, Environmental
2651 Measurements Laboratory, U.S. Department of Energy, 376 Hudson
2652 Street, New York, NY 10014-3621.
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2654 "EML Procedures Manual," HASL 300, 27th Edition, Volume 1,
2655 1990 (referred to as "EML Procedures Manual (27th ed.)"),
2656 referenced in Section 611.720.
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2658 "EML Procedures Manual," HASL 300, 28th ed., 1997 (referred to
2659 as "EML Procedures Manual (28th ed.)"), referenced in Section
2660 611.720.
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2662 USEPA, EMSL. United States Environmental Protection Agency,
2663 Environmental Monitoring and Support Laboratory, Cincinnati, OH 45268
2664 (513-569-7586).
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2666 USEPA Interim Radiochemical Methods, "Interim Radiochemical
2667 Methodology for Drinking Water," EPA 600/4-75/008 (revised),
2668 March 1976, referenced in Section 611.720. See also NTIS.
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2670 USEPA Organic Methods, "Methods for the Determination of
2671 Organic Compounds in Drinking Water," December 1988 (revised
2672 July 1991), EPA 600/4-88/039, referenced in Sections 611.645 and
2673 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);
2674 "Methods for the Determination of Organic Compounds in
2675 Drinking Water – Supplement I," July 1990, EPA 600/4-90/020,
2676 referenced in Sections 611.645 and 611.648 (Methods 547, 550,
2677 and 550.1 only); "Methods for the Determination of Organic
2678 Compounds in Drinking Water – Supplement II," August 1992,
2679 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645
2680 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)
2681 only); "Methods for the Determination of Organic Compounds in
2682 Drinking Water – Supplement III," August 1995, EPA 600/R-
2683 95/131, referenced in Sections 611.381, 611.645, and 611.648
2684 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev.
2685 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev.
2686 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 551.1 (rev. 1.0), and 552.2
2687 (rev. 1.0) only). See also NTIS and USEPA, NSCEP.
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2690 Aqueous Solutions," referenced in Section 611.720. See also
2691 NTIS.
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2693 USEPA, NSCEP. United States Environmental Protection Agency,
 2694 National Service Center for Environmental Publications, P.O. Box 42419,
 2695 Cincinnati, OH 45242-0419 (accessible on-line and available by download
 2696 from <http://www.epa.gov/nscep/>).
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 2698 Dioxin and Furan Method 1613, Revision B, "Tetra- through Octa-
 2699 Chlorinated Dioxins and Furans by Isotope Dilution
 2700 HRGC/HRMS," October 1994, EPA 821/B-94/005, referenced in
 2701 Section 611.645. See also NTIS.
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 2704 Manual for Compliance with the Filtration and Disinfection
 2705 Requirements for Public Water Systems Using Surface Water
 2706 Sources," March 1991, EPA 570/3-91-001, referenced in Section
 2707 611.111.
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 2709 USEPA Asbestos Method 100.1, "Analytical Method for
 2710 Determination of Asbestos Fibers in Water," September 1983, EPA
 2711 600/4-83-043, referenced in Section 611.611. See also NTIS.
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 2713 USEPA Asbestos Method 100.2, "Determination of Asbestos
 2714 Structures over 10-mm in Length in Drinking Water," June 1994,
 2715 EPA 600/R-94-134, referenced in Section 611.611. See also
 2716 NTIS.
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 2718 USEPA Environmental Inorganic Methods, "Methods for the
 2719 Determination of Inorganic Substances in Environmental
 2720 Samples," August 1993, EPA 600/R-93-100, referenced in Sections
 2721 611.381, 611.531, and 611.611. (Methods 180.1 (rev. 2.0), 300.0
 2722 (rev. 2.1), 335.4 (rev. 1.0), 353.2 (rev. 2.0), and 365.1 (rev. 2.0)
 2723 only.) See also NTIS.
 2724
 2725 USEPA Environmental Metals Methods, "Methods for the
 2726 Determination of Metals in Environmental Samples – Supplement
 2727 I," May 1994, EPA 600/R-94-111, referenced in Sections 611.611,
 2728 611.612, and 611.720. (Methods 200.7 (rev. 4.4), 200.8 (rev. 5.3),
 2729 200.9 (rev. 2.2), and 245.1 (rev. 3.0) only.) See also NTIS.
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 2731 USEPA Inorganic Methods, "Methods for Chemical Analysis of
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 2733 Section 611.611. (Methods 150.1, 150.2, and 245.2 only.) See
 2734 also NTIS.
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2737 Bromate in Drinking Water Using Two-Dimensional Ion
2738 Chromatography with Suppressed Conductivity Detection,"
2739 September 2009, EPA 815/B-09/014, referenced in Sections
2740 611.381 and 611.382. See also USEPA, OGWDW.
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2742 USEPA OGWDW Methods, Method 317.0, rev. 2.0,
2743 "Determination of Inorganic Oxyhalide Disinfection By-Products
2744 in Drinking Water Using Ion Chromatography with the Addition of
2745 a Postcolumn Reagent for Trace Bromate Analysis," July 2001,
2746 EPA 815/B-01/001, referenced in Sections 611.381 and 611.382.
2747 See also USEPA, OGWDW.
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2749 USEPA OGWDW Methods, Method 326.0, rev. 1.0,
2750 "Determination of Inorganic Oxyhalide Disinfection By-Products
2751 in Drinking Water Using Ion Chromatography Incorporating the
2752 Addition of a Suppressor Acidified Postcolumn Reagent for Trace
2753 Bromate Analysis," June 2002, EPA 815/R-03/007, referenced in
2754 Sections 611.381 and 611.382. See also NTIS and USEPA,
2755 OGWDW.
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2758 "Determination of Chlorine Dioxide and Chlorite Ion in Drinking
2759 Water Using Lissamine Green B and Horseradish Peroxidase with
2760 Detection by Visible Spectrophotometry," May 2005, EPA 815/R-
2761 05/008, referenced in Sections 611.381 and 611.531. See also
2762 USEPA, OGWDW.
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2764 USEPA OGWDW Methods, Method 334.0, "Determination of
2765 Residual in Drinking Water Using an On-line Chlorine Analyzer,"
2766 August 2009, EPA 815/B-09/013, referenced in Section 611.531.
2767 See also USEPA, OGWDW.
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2772 2011, EPA 815/R-11/002, referenced in Section 611.645. See also
2773 USEPA, OGWDW.
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2777 methylcarbamates in Water by Direct Aqueous Injection HPLC
2778 with Postcolumn Derivatization," September 2001, EPA 815/B-

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 2780 Section 611.645. See also USEPA, OGWDW.
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 2782 USEPA OGWDW Methods, Method 552.3, rev. 1.0,
 2783 "Determination of Haloacetic Acids and Dalapon in Drinking
 2784 Water by Liquid-Liquid Microextraction, Derivatization, and Gas
 2785 Chromatography with Electron Capture Detection," July 2003,
 2786 EPA 815/B-03/002, referenced in Sections 611.381 and 611.645.
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 2788 USEPA OGWDW Methods, Method 557, "Determination of
 2789 Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion
 2790 Chromatography Electrospray Ionization Tandem Mass
 2791 Spectrometry," July 2003, EPA 815/B-03/002, referenced in
 2792 Sections 611.381, 611.382, and 611.645. See also USEPA,
 2793 OGWDW.
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 2795 USEPA OGWDW Methods, Method 1622 (01), "Cryptosporidium
 2796 in Water by Filtration/IMS/FA," April 2001, EPA 821/R-01/026,
 2797 referenced in Section 611.1007. See also USEPA, OGWDW.
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 2799 USEPA Organic and Inorganic Methods, "Methods for the
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 2801 Water, Volume 1," August 2000, EPA 815/R-00/014, referenced in
 2802 Section 611.381. (Methods 300.1 (rev. 1.0) and 321.8 (rev. 1.0)
 2803 only.) See also NTIS.
 2804
 2805 USEPA Organic Methods, "Methods for the Determination of
 2806 Organic Compounds in Drinking Water," December 1988, revised
 2807 July 1991, EPA 600/4-88/039, referenced in Sections 611.645 and
 2808 611.648 (Methods 508A (rev. 1.0) and 515.1 (rev. 4.0) only);
 2809 "Methods for the Determination of Organic Compounds in
 2810 Drinking Water – Supplement I," July 1990, EPA 600/4-90/020,
 2811 referenced in Section 611.645 and 611.648 (Methods 547, 550, and
 2812 550.1 only); "Methods for the Determination of Organic
 2813 Compounds in Drinking Water – Supplement II," August 1992,
 2814 EPA 600/R-92/129, referenced in Sections 611.381 and 611.645
 2815 (Methods 548.1 (rev. 1.0), 552.1 (rev. 1.0), and 555 (rev. 1.0)
 2816 only); "Methods for the Determination of Organic Compounds in
 2817 Drinking Water – Supplement III," August 1995, EPA 600/R-
 2818 95/131, referenced in Sections 611.381, 611.645, and 611.648
 2819 (Methods 502.2 (rev. 2.1), 504.1 (rev. 1.1), 505 (rev. 2.1), 506 (rev.
 2820 1.1), 507 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 515.2 (rev.
 2821 4.1), 524.2 (rev. 4.1), 525.2 (rev. 2.0), 531.1 (rev. 3.1), 551.1 (rev.

2822 1.0), and 552.2 (rev. 1.0) only). See also NTIS and USEPA,
2823 EMSL.

2824
2825 USEPA Radioactivity Methods, "Prescribed Procedures for
2826 Measurement of Radioactivity in Drinking Water," August 1980,
2827 EPA 600/4-80/032, referenced in Section 611.720. (For methods
2828 900.0, 901, 901.1, 902, 903, 903.1, 904, 905, 906, 908, 908.1
2829 only.) See also NTIS.

2830
2831 USEPA Technical Notes, "Technical Notes on Drinking Water
2832 Methods," October 1994, EPA 600/R-94/173, referenced in
2833 Sections 611.531, 611.611, and 611.645. See also NTIS.

2834
2835 BOARD NOTE: USEPA made the following assertion with
2836 regard to this reference at 40 CFR 141.23(k)(1) and 141.24(e) and
2837 (n)(11) (2012)(2014): "This document contains other analytical
2838 test procedures and approved analytical methods that remain
2839 available for compliance monitoring until July 1, 1996." Also
2840 available online at
2841 <http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm> under the
2842 document designation "600R94173."

2843
2844 USEPA, OGWDW. United States Environmental Protection Agency,
2845 Office of Ground Water and Drinking Water (accessible on-line and
2846 available by download from <http://www.epa.gov/safewater/methods/>).

2847
2848 USEPA OGWDW Methods, Method 302.0, "Determination of
2849 Bromate in Drinking Water Using Two-Dimensional Ion
2850 Chromatography with Suppressed Conductivity Detection,"
2851 September 2009, EPA 815/B-09/014, referenced in Section
2852 611.381. See also USEPA, NSCEP.

2853
2854 USEPA OGWDW Methods, Method 317.0, rev. 2.0,
2855 "Determination of Inorganic Oxyhalide Disinfection By-Products
2856 in Drinking Water Using Ion Chromatography with the Addition of
2857 a Postcolumn Reagent for Trace Bromate Analysis," USEPA, July
2858 2001, EPA 815/B-01/001, referenced in Section 611.381. See also
2859 USEPA, NSCEP.

2860
2861 USEPA OGWDW Methods, Method 326.0, rev. 1.0,
2862 "Determination of Inorganic Oxyhalide Disinfection By-Products
2863 in Drinking Water Using Ion Chromatography Incorporating the
2864 Addition of a Suppressor Acidified Postcolumn Reagent for Trace

2865 Bromate Analysis," USEPA, June 2002, EPA 815/R-03/007,
 2866 referenced in Section 611.381. See also NTIS and USEPA,
 2867 NSCEP.
 2868
 2869 USEPA OGWDW Methods, Method 327.0, rev. 1.1,
 2870 "Determination of Chlorine Dioxide and Chlorite Ion in Drinking
 2871 Water Using Lissamine Green B and Horseradish Peroxidase with
 2872 Detection by Visible Spectrophotometry," USEPA, May 2005,
 2873 EPA 815/R-05/008, referenced in Sections 611.381 and 611.531.
 2874 See also USEPA, NSCEP.
 2875
 2876 USEPA OGWDW Methods, Method 334.0, "Determination of
 2877 Residual in Drinking Water Using an On-line Chlorine Analyzer,"
 2878 USEPA, August 2009, EPA 815/B-09/013, referenced in Section
 2879 611.531. See also USEPA, NSCEP.
 2880
 2881 USEPA OGWDW Methods, Method 515.4, rev. 1.0,
 2882 "Determination of Chlorinated Acids in Drinking Water by Liquid-
 2883 Liquid Microextraction, Derivatization and Fast Gas
 2884 Chromatography with Electron Capture Detection," April 2000,
 2885 EPA 815/B-00/001 (document file name "met515_4.pdf"),
 2886 referenced in Section 611.645.
 2887
 2888 USEPA OGWDW Methods, Method 523, ver. 1.0, "Determination
 2889 of Triazine Pesticides and Other Degradates in Drinking Water by
 2890 Gas Chromatography/Mass Spectrometry (GC/MS)," February
 2891 2011, EPA 815/R-11/002, referenced in Section 611.645. See also
 2892 USEPA, NSCEP.
 2893
 2894 USEPA OGWDW Methods, Method 524.3, rev. 1.0,
 2895 "Measurement of Purgeable Organic Compounds in Water by
 2896 Capillary Column Gas Chromatography/Mass Spectrometry," June
 2897 2009, EPA 815/B-09/009 (referred to as "Method 524.3 (rev.
 2898 1.0)"), referenced in Sections 611.381 and 611.645.
 2899
 2900 USEPA OGWDW Methods, Method 531.2, rev. 1.0,
 2901 "Measurement of N-methylcarbamoyloximes and N-
 2902 methylcarbamates in Water by Direct Aqueous Injection HPLC
 2903 with Postcolumn Derivatization," September 2001, EPA 815/B-
 2904 01/002 (document file name "met531_2.pdf"), referenced in
 2905 Section 611.645. See also USEPA, NSCEP.
 2906

2907 USEPA OGWDW Methods, Method 536, ver. 1.0, "Determination
2908 of Triazine Pesticides and Other Degradates in Drinking Water by
2909 Liquid Chromatography Electrospray Ionization Tandem Mass
2910 Spectrometry (LC/ESI-MS/MS)," October 2007, EPA 815/R-
2911 07/002, referenced in Section 611.645.
2912
2913 USEPA OGWDW Methods, Method 552.3, rev. 1.0,
2914 "Determination of Haloacetic Acids and Dalapon in Drinking
2915 Water by Liquid-liquid Microextraction, Derivatization, and Gas
2916 Chromatography with Electron Capture Detection," USEPA, July
2917 2003, EPA 815/B-03/002, referenced in Sections 611.381 and
2918 611.645.
2919
2920 USEPA OGWDW Methods, Method 557, "Determination of
2921 Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion
2922 Chromatography Electrospray Ionization Tandem Mass
2923 Spectrometry," July 2003, EPA 815/B-03/002, referenced in
2924 Sections 611.381 and 611.645. See also USEPA, NSCEP.
2925
2926 USEPA OGWDW Methods, Method 1622 (05), "Method 1622:
2927 Cryptosporidium in Water by Filtration/IMS/FA," December 2005,
2928 EPA 815/R-05/001, referenced in Sections 611.1004 and
2929 611.1007.
2930
2931 USEPA OGWDW Methods, Method 1622 (01), "Method 1622:
2932 Cryptosporidium in Water by Filtration/IMS/FA," April 2001,
2933 EPA 821/R-01/026, referenced in Section 611.1007. See also
2934 USEPA, NSCEP.
2935
2936 USEPA OGWDW Methods, Method 1622 (99), "Method 1622:
2937 Cryptosporidium in Water by Filtration/IMS/FA," April 1999,
2938 EPA 821/R-99/001, referenced in Section 611.1007.
2939
2940 USEPA OGWDW Methods, Method 1623 (05), "Method 1623:
2941 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"
2942 December 2005, EPA 815/R-05/002, referenced in Sections
2943 611.1004 and 611.1007.
2944
2945 USEPA OGWDW Methods, Method 1623 (01), "Method 1623:
2946 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"
2947 April 2001, EPA 821/R-01/025, referenced in Section 611.1007.
2948

2949 USEPA OGWDW Methods, Method 1623 (99), "Method 1623:
2950 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"
2951 January 1999, EPA 821/R-99/006, referenced in Section
2952 611.1007.

2953
2954 USEPA OGWDW Methods, Method 1623.1, "Method 1623.1:
2955 Cryptosporidium and Giardia in Water by Filtration/IMS/FA,"
2956 January 2012, EPA 8161/R-12/001, referenced in Section
2957 611.1004.

2958
2959 BOARD NOTE: Many of the above-listed documents available
2960 from the USEPA, Office of Ground Water and Drinking Water are
2961 also listed as available from NTIS.

2962
2963 USEPA, ORD. USEPA, Office of Research and Development, National
2964 Exposure Research Laboratory, Microbiological & Chemical Exposure
2965 Assessment Research Division (accessible on-line and available by
2966 download from <http://www.epa.gov/nerlcwww/ordmeth.htm>).

2967
2968 USEPA NERL Method 200.5, rev. 4.2, "Determination of Trace
2969 Elements in Drinking Water by Axially Viewed Inductively
2970 Coupled Plasma – Atomic Emission Spectrometry," October 2003,
2971 EPA 600/R-06/115, referenced in Sections 611.611 and 611.612.

2972
2973 USEPA NERL Method 415.3, rev. 1.1, "Determination of Total
2974 Organic Carbon and Specific UV Absorbance at 254 nm in Source
2975 Water and Drinking Water," February 2005, EPA 600/R-05/055,
2976 referenced in Section 611.381.

2977
2978 USEPA NERL Method 415.3, rev. 1.2, "Determination of Total
2979 Organic Carbon and Specific UV Absorbance at 254 nm in Source
2980 Water and Drinking Water," February 2005, EPA 600/R-09/122,
2981 referenced in Section 611.381.

2982
2983 USEPA NERL Method 525.3, ver. 1.0, "Determination of Total
2984 Semivolatile Organic Chemicals in Drinking Water by Solid Phase
2985 Extraction and Capillary Column Gas Chromatography/Mass
2986 Spectrometry (GC/MS)," February 2012, EPA 600/R-12/010,
2987 referenced in Section 611.645.

2988
2989 USEPA NERL Method 549.2, rev. 1.0, "Determination of Diquat
2990 and Paraquat in Drinking Water by Liquid-Solid Extraction and

2991 High Performance Liquid Chromatography with Ultraviolet
2992 Detection," June 1997.
2993
2994 USEPA Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue,
2995 NW, Washington, DC 20460:
2996
2997 E*Colite Test, "Charm E*Colite Presence/Absence Test for
2998 Detection and Identification of Coliform Bacteria and Escherichia
2999 coli in Drinking Water," January 9, 1998, referenced in Section
3000 611.802. See also Charm Sciences, Inc.
3001
3002 m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane
3003 Filtration Method with m-ColiBlue24® Broth," Method No.
3004 10029, rev. 2, August 17, 1999, referenced in Section 611.802.
3005 See also The Hach Company.
3006
3007 USEPA Method 1600, "EPA Method 1600: Enterococci in Water
3008 by Membrane Filtration Using Membrane-Enterococcus Indoxyl-
3009 b-D-Glucoside Agar (mEI)," September 2002, EPA 821/R-02/022
3010 is an approved variation of Standard Methods, Method 9230 C,
3011 "Fecal Streptococcus and Enterococcus Groups, Membrane Filter
3012 Techniques" (which has not itself been approved for use by
3013 USEPA) (accessible on-line and available by download from
3014 <http://www.epa.gov/nerlcwww/1600sp02.pdf>), referenced in
3015 Section 611.802.
3016
3017 USEPA Method 1601, "Method 1601: Male-specific (F⁺) and
3018 Somatic Coliphage in Water by Two-step Enrichment Procedure,"
3019 April 2001, EPA 821/R-01/030 (accessible on-line and available
3020 by download from <http://www.epa.gov/nerlcwww/1601ap01.pdf>),
3021 referenced in Section 611.802.
3022
3023 USEPA Method 1602, "Method 1602: Male-specific (F⁺) and
3024 Somatic Coliphage in Water by Single Agar Layer (SAL)
3025 Procedure," April 2001, EPA 821/R-01/029 (accessible on-line
3026 and available by download from
3027 <http://www.epa.gov/nerlcwww/1602ap01.pdf>), referenced in
3028 Section 611.802.
3029
3030 USEPA Method 1604, "Method 1604: Total Coliforms and
3031 Escherichia coli in Water by Membrane Filtration Using a
3032 Simultaneous Detection Technique (MI Medium)," September
3033 2002, EPA 821/R-02/024 (accessible on-line and available by

3034 download from <http://www.epa.gov/nerlcwww/1604sp02.pdf>),
3035 referenced in Section 611.802.
3036

3037 USGS. ~~Books and Open File Reports Section~~, United States Geological
3038 Survey, Federal Center, Box 25286, Denver, CO 80225-0425.
3039

3040 ~~Method~~Methods available upon request by method number from
3041 "Methods for Analysis by the U.S. Geological Survey National
3042 Water Quality Laboratory – Determination of Inorganic and
3043 Organic Constituents in Water and Fluvial Sediments," Open File
3044 Report 93-125, 1993, ~~or Book 5, Chapter A-1, "Methods for~~
3045 ~~Determination of Inorganic Substances in Water and Fluvial~~
3046 ~~Sediments," 3rd ed., Open File Report 85-495, 1989, as~~
3047 appropriate (referred to as "USGS Methods").
3048

3049 ~~I-1030-85, referenced in Section 611.611.~~

3050
3051 ~~I-1601-85, referenced in Section 611.611.~~

3052
3053 ~~I-1700-85, referenced in Section 611.611.~~

3054
3055 ~~I-2598-85, referenced in Section 611.611.~~

3056
3057 I-2601-90, referenced in Section 611.611.

3058
3059 ~~I-2700-85, referenced in Section 611.611.~~

3060
3061 ~~I-3300-85, referenced in Section 611.611.~~

3062
3063 Methods available upon request by method number from Book 5,
3064 Chapter A-1, "Methods for Determination of Inorganic Substances
3065 in Water and Fluvial Sediments," 3rd ed., USGS Techniques of
3066 Water-Resource Investigation: 05-A1, 1989 (referred to as "USGS
3067 Methods").
3068

3069 I-1030-85, referenced in Section 611.611.

3070
3071 I-1601-85, referenced in Section 611.611.

3072
3073 I-1700-85, referenced in Section 611.611.

3074
3075 I-2598-85, referenced in Section 611.611.
3076

3077 I-2700-85, referenced in Section 611.611.

3078
3079 I-3300-85, referenced in Section 611.611.

3080
3081 Methods available upon request by method number from "Methods
3082 for Determination of Radioactive Substances in Water and Fluvial
3083 Sediments," Chapter A5 in Book 5 of "Techniques of Water-
3084 Resources Investigations of the United States Geological Survey,"
3085 1977+1997.

3086
3087 R-1110-76, referenced in Section 611.720.

3088
3089 R-1111-76, referenced in Section 611.720.

3090
3091 R-1120-76, referenced in Section 611.720.

3092
3093 R-1140-76, referenced in Section 611.720.

3094
3095 R-1141-76, referenced in Section 611.720.

3096
3097 R-1142-76, referenced in Section 611.720.

3098
3099 R-1160-76, referenced in Section 611.720.

3100
3101 R-1171-76, referenced in Section 611.720.

3102
3103 R-1180-76, referenced in Section 611.720.

3104
3105 R-1181-76, referenced in Section 611.720.

3106
3107 R-1182-76, referenced in Section 611.720.

3108
3109 BOARD NOTE: USGS methods are freely available for download
3110 in an electronic format from the USGS Publications Warehouse at
3111 pubs.er.usgs.gov/. Sections 611.611 and 611.720 do not
3112 distinguish the volume in which each USGS method appears. The
3113 distinction as to which volume where a particular method appears
3114 is made in this incorporation by reference.

3115
3116 Waters Corporation, Technical Services Division, 34 Maple St., Milford,
3117 MA 01757 (800-252-4752 or 508-478-2000, www.waters.com~~508-482-~~
3118 ~~2131~~, fax: ~~508-482-3625~~).

3119

"Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," Method B-1011, August 1987 (referred to as "Waters Method B-1011"), referenced in Section 611.611.

c) The Board incorporates the following federal regulations by reference:

40 CFR 3.2 (2012)(2014) (How Does This Part Provide for Electronic Reporting?), referenced in Section 611.105.

40 CFR 3.3 (2012)(2014) (What Definitions Are Applicable to This Part?), referenced in Section 611.105.

40 CFR 3.10 (2012)(2014) (What Are the Requirements for Electronic Reporting to EPA?), referenced in Section 611.105.

40 CFR 3.2000 (2012)(2014) (What Are the Requirements Authorized State, Tribe, and Local Programs' Reporting Systems Must Meet?), referenced in Section 611.105.

40 CFR 136.3(a) (2012)(2014), referenced in Section 611.1004.

Appendix B to 40 CFR 136 (2012)(2014), referenced in Sections 611.359, 611.609, and 611.646.

40 CFR 142.20(b)(1) (2012)(2014), referenced in Section 611.112.

d) This Part incorporates no later amendments or editions.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART F: MAXIMUM CONTAMINANT LEVELS (MCLs)
AND MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)

Section 611.300 Old MCLs for Inorganic Chemical Contaminants

a) The old MCLs listed in subsection (b) of this Section for inorganic chemical contaminants (IOCs) apply only to CWS suppliers. Compliance with old MCLs for inorganic chemicals is calculated pursuant to Section 611.612, ~~except that analyses and determination of compliance with the 0.05 mg/l MCL for arsenic are to be performed pursuant to Sections 611.600 through 611.611.~~

BOARD NOTE: ~~Formerly derived~~ Derived from 40 CFR 141.11(a), this

3163 subsection (a) has become an additional State requirement. ~~(2002).~~

3164
3165 b) The following are the old MCLs for IOCs:

3166

Contaminant	Level, mg/ℓ	Additional State Requirement (*)
Arsenic, until January 23, 2006	0.05	
Iron	1.0	*
Manganese	0.15	*
Zinc	5.	*

3167
3168 BOARD NOTE: ~~Formerly derived~~ Derived from 40 CFR 141.11(b), ~~this~~ (2002).
3169 This subsection (b) ~~will~~ has become an additional State requirement ~~after~~
3170 ~~expiration of the old arsenic MCL on the January 23, 2006 effective date of the~~
3171 ~~federal amendments that instituted a new MCL for Arsenic.~~

3172
3173 c) This subsection corresponds with 40 CFR 141.11(c), marked as reserved by
3174 USEPA. This statement maintains structural parity with the federal rules.

3175
3176 d) Nitrate.
3177 Non-CWSs may exceed the MCL for nitrate under the following circumstances:

- 3178
- 3179 1) The nitrate level must not exceed 20 mg/ℓ,
 - 3180
 - 3181 2) The water must not be available to children under six months of age,
 - 3182
 - 3183 3) The NCWS supplier is meeting the public notification requirements under
3184 Section 611.909, including continuous posting of the fact that the nitrate
3185 level exceeds 10 mg/ℓ together with the potential health effects of
3186 exposure,
 - 3187
 - 3188 4) The supplier will annually notify local public health authorities and the
3189 Department of Public Health of the nitrate levels that exceed 10 mg/ℓ, and
 - 3190
 - 3191 5) No adverse public health effects result.

3192
3193 BOARD NOTE: Derived from 40 CFR 141.11(d) ~~(2012)~~(2002). The
3194 Department of Public Health regulations may impose a nitrate limitation
3195 requirement. Those regulations are at 77 Ill. Adm. Code 900.50.

3196
3197 e) The following supplementary condition applies to the MCLs listed in subsection
3198 (b) of this Section for iron and manganese:

3199

- 3200 1) CWS suppliers that serve a population of 1000 or fewer, or 300 service
 3201 connections or fewer, are exempt from the standards for iron and
 3202 manganese.
 3203
 3204 2) The Agency may, by a SEP issued pursuant to Section 611.110, allow iron
 3205 and manganese in excess of the MCL if sequestration tried on an
 3206 experimental basis proves to be effective. If sequestration is not effective,
 3207 positive iron or manganese reduction treatment as applicable must be
 3208 provided. Experimental use of a sequestering agent may be tried only if
 3209 approved by a SEP issued pursuant to Section 611.110.
 3210

3211 BOARD NOTE: ~~This~~The requirements of this subsection (e) isare an additional
 3212 State requirement.
 3213

3214 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 3215

3216 **Section 611.301 Revised MCLs for Inorganic Chemical Contaminants**
 3217

- 3218 a) This subsection corresponds with 40 CFR 141.62(a), reserved by USEPA. This
 3219 statement maintains structural consistency with USEPA rules.
 3220
 3221 b) The MCLs in the following table apply to CWSs. Except for fluoride, the MCLs
 3222 also apply to NTNCWSs. The MCLs for nitrate, nitrite, and total nitrate and
 3223 nitrite also apply to transient non-CWSs.
 3224

Contaminant	MCL	Units
Antimony	0.006	mg/l
Arsenic (effective —January 23, 2006)	0.010	mg/l
Asbestos	7	MFL
Barium	2	mg/l
Beryllium	0.004	mg/l
Cadmium	0.005	mg/l
Chromium	0.1	mg/l
Cyanide (as free CN ⁻)	0.2	mg/l
Fluoride	4.0	mg/l
Mercury	0.002	mg/l
Nitrate (as N)	10	mg/l
Nitrite (as N)	1	mg/l
Total Nitrate and Nitrite (as N)	10	mg/l
Selenium	0.05	mg/l
Thallium	0.002	mg/l

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BOARD NOTE: See Section 611.300(d) for an elevated nitrate level for non-CWSs. USEPA removed and reserved the MCL for nickel on June 29, 1995, at 60 Fed. Reg. 33932, as a result of a judicial order in Nickel Development Institute v. EPA, No. 92-1407, and Specialty Steel Industry of the U.S. v. Browner, No. 92-1410 (D.C. Cir. Feb. 23 & Mar. 6, 1995), while retaining the contaminant, analytical methodology, and detection limit listings for this contaminant.

c) USEPA has identified the following as BAT for achieving compliance with the MCL for the IOCs identified in subsection (b) of this Section, except for fluoride:

Contaminant	BATs
Antimony	C/F RO
Arsenic (BATs for As ^V . Pre-oxidation may be required to convert As ^{III} to As ^V .)	AAL C/F IX LIME RO ED O/F (To obtain high removals, the iron to arsenic ratio must be at least 20:1)
Asbestos	C/F DDF CC
Barium	IX LIME RO ED
Beryllium	AA C/F IX LIME RO
Cadmium	C/F IX

	LIME RO
Chromium	C/F IX LIME, BAT for Cr ^{III} only RO
Cyanide	IX RO ALK Cl ₂
Mercury	C/F, BAT only if influent Hg concentrations less than or equal to 10 µg/l GAC LIME, BAT only if influent Hg concentrations less than or equal to 10 µg/l RO, BAT only if influent Hg concentrations less than or equal to 10 µg/l
Nickel	IX LIME RO
Nitrate	IX RO ED
Nitrite	IX RO
Selenium	AAL C/F, BAT for Se ^{IV} only LIME RO ED
Thallium	AAL IX

Abbreviations

AAL	Activated alumina
ALK C1 ₂	Alkaline chlorination (pH ≥ 8.5)
C/F	Coagulation/filtration (not BAT for a system that has fewer than 500 service connections)
CC	Corrosion control
C1 ₂	Oxidation (chlorine)
DDF	Direct and diatomite filtration
ED	Electrodialysis
GAC	Granular activated carbon
IX	Ion exchange
LIME	Lime softening
O/F	Oxidation/filtration
RO	Reverse osmosis
UV	Ultraviolet irradiation

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- d) At 40 CFR 141.62(d) (2012)(2003), USEPA identified the following as the affordable technology, treatment technique, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

Small System Compliance Technologies (SSCTs)¹ for Arsenic²

Small system compliance technology	Affordable for listed small system categories ³
Activated alumina (centralized)	All size categories
Activated alumina (point-of-use) ⁴	All size categories
Coagulation/filtration ⁵	501-3,300 persons, 3,301-10,000 persons
Coagulation-assisted microfiltration	501-3,300 persons, 3,301-10,000 persons
Electrodialysis reversal ⁶	501-3,300 persons, 3,301-10,000 persons
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH >10.5)	All size categories
Ion exchange	All size categories
Lime softening ⁵	501-3,300 persons, 3,301-10,000 persons
Oxidation/filtration ⁷	All size categories
Reverse osmosis (centralized) ⁶	501-3,300 persons, 3,301-10,000 persons
Reverse osmosis (point-of-use) ⁴	All size categories

3244
3245

¹ Section 1412(b)(4)(E)(ii) of the federal SDWA (42 USC 300g-1(b)(4)(E)(ii))

- 3246 specifies that SSCTs must be affordable and technically feasible for a small
 3247 system supplier.
 3248 ² SSCTs for As^V. Pre-oxidation may be required to convert As^{III} to As^V.
 3249 ³ The federal SDWA specifies three categories of small system suppliers: (1)
 3250 those serving 25 or more, but fewer than 501 persons, (2) those serving more
 3251 than 500 but fewer than 3,301 persons, and (3) those serving more than 3,300
 3252 but fewer than 10,001 persons.
 3253 ⁴ When POU or POE devices are used for compliance, programs to ensure
 3254 proper long-term operation, maintenance, and monitoring must be provided
 3255 by the water supplier to ensure adequate performance.
 3256 ⁵ Unlikely to be installed solely for arsenic removal. May require pH
 3257 adjustment to optimal range if high removals are needed.
 3258 ⁶ Technologies reject a large volume of water – may not be appropriate for
 3259 areas where water quantity may be an issue.
 3260 ⁷ To obtain high removals, iron to arsenic ratio must be at least 20:1.
 3261

3262 BOARD NOTE: Derived from 40 CFR 141.62 (2012)(2003).

3263 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 3264

3265
 3266 **Section 611.311 Revised MCLs for Organic Chemical Contaminants**
 3267

- 3268 a) Volatile organic chemical contaminants. The following MCLs for volatile organic
 3269 chemical contaminants (VOCs) apply to CWS suppliers and NTNCWS suppliers.
 3270

CAS No.	Contaminant	MCL (mg/ℓ)
71-43-2	Benzene	0.005
56-23-5	Carbon tetrachloride	0.005
95-50-1	o-Dichlorobenzene	0.6
106-46-7	p-Dichlorobenzene	0.075
107-06-2	1,2-Dichloroethane	0.005
75-35-4	1,1-Dichloroethylene	0.007
156-59-2	cis-1,2-Dichloroethylene	0.07
156-60-5	trans-1,2-Dichloroethylene	0.1
75-09-2	Dichloromethane (methylene chloride)	0.005
78-87-5	1,2-Dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
120-82-1	1,2,4-Trichlorobenzene	0.07

71-55-6	1,1,1-Trichloroethane	0.2
79-00-5	1,1,2-Trichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-01-4	Vinyl chloride	0.002
1330-20-7	Xylenes (total)	10

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BOARD NOTE: See the definition of "initial compliance period" at Section 611.101.

b) USEPA has identified, as indicated below, granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as BAT for achieving compliance with the MCLs for volatile organic chemical contaminants (VOCs) and synthetic organic chemical contaminants (SOCs) in subsections (a) and (c) of this Section.

15972-60-8	Alachlor	GAC
116-06-3	Aldicarb*	GAC
1646-87-4	Aldicarb sulfone*	GAC
1646-87-3	Aldicarb sulfoxide*	GAC
1912-24-9	Atrazine	GAC
71-43-2	Benzene	GAC, PTA
50-32-8	Benzo(a)pyrene	GAC
1563-66-2	Carbofuran	GAC
56-23-5	Carbon tetrachloride	GAC, PTA
57-74-9	Chlordane	GAC
94-75-7	2,4-D	GAC
75-99-0	Dalapon	GAC
96-12-8	Dibromochloropropane	GAC, PTA
95-50-1	o-Dichlorobenzene	GAC, PTA
106-46-7	p-Dichlorobenzene	GAC, PTA
107-06-2	1,2-Dichloroethane	GAC, PTA
156-59-2	cis-1,2-Dichloroethylene	GAC, PTA
156-60-5	trans-1,2-Dichloroethylene	GAC, PTA
75-35-4	1,1-Dichloroethylene	GAC, PTA
75-09-2	Dichloromethane	PTA
78-87-5	1,2-Dichloropropane	GAC, PTA
103-23-1	Di(2-ethylhexyl)adipate	GAC, PTA
117-81-7	Di(2-ethylhexyl)phthalate	GAC
88-85-7	Dinoseb	GAC
85-00-7	Diquat	GAC
145-73-3	Endothall	GAC
72-20-8	Endrin	GAC
106-93-4	Ethylene dibromide (EDB)	GAC, PTA

100-41-4	Ethylbenzene	GAC, PTA
1071-53-6	Glyphosate	OX
76-44-8	Heptachlor	GAC
1024-57-3	Heptachlor epoxide	GAC
118-74-1	Hexachlorobenzene	GAC
77-47-3	Hexachlorocyclopentadiene	GAC, PTA
58-89-9	Lindane	GAC
72-43-5	Methoxychlor	GAC
108-90-7	Monochlorobenzene	GAC, PTA
23135-22-0	Oxamyl	GAC
87-86-5	Pentachlorophenol	GAC
1918-02-1	Picloram	GAC
1336-36-3	Polychlorinated biphenyls (PCB)	GAC
122-34-9	Simazine	GAC
100-42-5	Styrene	GAC, PTA
1746-01-6	2,3,7,8-TCDD	GAC
127-18-4	Tetrachloroethylene	GAC, PTA
108-88-3	Toluene	GAC
8001-35-2	Toxaphene	GAC
120-82-1	1,2,4-trichlorobenzene	GAC, PTA
71-55-6	1,1,1-Trichloroethane	GAC, PTA
79-00-5	1,1,2-trichloroethane	GAC, PTA
79-01-6	Trichloroethylene	GAC, PTA
93-72-1	2,4,5-TP	GAC
75-01-4	Vinyl chloride	PTA
1330-20-7	Xylene	GAC, PTA

*See the Board note appended to the end of this Section.

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- c) Synthetic organic chemical contaminants. The following MCLs for SOCs apply to CWS and NTNCWS suppliers.

CAS Number	Contaminant	MCL (mg/ℓ)
15972-60-8	Alachlor	0.002
116-06-3	Aldicarb*	0.002
1646-87-4	Aldicarb sulfone*	0.002
1646-87-3	Aldicarb sulfoxide*	0.004
1912-24-9	Atrazine	0.003
50-32-8	Benzo(a)pyrene	0.0002
1563-66-2	Carbofuran	0.04
57-74-9	Chlordane	0.002
94-75-7	2,4-D	0.07
75-99-0	Dalapon	0.2

96-12-8	Dibromochloropropane	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (Vydate)	0.2
87-86-5	Pentachlorophenol	0.001
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls (PCBs)	0.0005
122-34-9	Simazine	0.004
1746-01-6	2,3,7,8-TCDD (Dioxin)	0.00000003
8001-35-2	Toxaphene	0.003
93-72-1	2,4,5-TP	0.05

* See the Board note appended to the end of this Section.

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BOARD NOTE: Derived from 40 CFR 141.61 (2012)(2003). See the definition of "initial compliance period" at Section 611.101. More stringent state MCLs for 2,4-D, heptachlor, and heptachlor epoxide appear at Section 611.310. See the Board Note at that provision. In 40 CFR 141.6(g), USEPA postponed the effectiveness of the MCLs for aldicarb, aldicarb sulfone, and aldicarb sulfoxide until it took further action on those MCLs. See 40 CFR 141.6(g) and 57 Fed. Reg. 22178 (May 27, 1992). USEPA has since stated that it anticipates taking no action until 2005 on a federal national primary drinking water regulation (NPDWR) applicable to the aldicarbs. 68 Fed. Reg. 31108 (May 27, 2003). An entry for the aldicarbs last appeared in USEPA's Spring 2007 semiannual regulatory agenda, indicating no projected dates for further action. (See 72 Fed. Reg. 23156, 97 (Apr. 30, 2007); see also 72 Fed. Reg. 70118, 23 (Dec. 10, 2007) (the first USEPA regulatory agenda that included no entry for the aldicarbs).) While the Board must maintain entries for aldicarb, aldicarb sulfoxide, and aldicarb sulfone to maintain consistency with the letter of the federal regulations (see 415 ILCS 5/7.2 and 17.5 (2010); 42 USC 300g-2 (2010); 40 CFR 142.10 (2012)), the Board intends that no ~~no~~ aldicarb requirements apply in Illinois until after USEPA adopts such requirements; and the Board ~~has removed~~ removes this

3306 statement.

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 3308 (Source: Amended at 37 Ill. Reg. _____, effective _____)
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3310 **Section 611.330 Maximum Contaminant Levels for Radionuclides**

- 3311
- 3312 a) This subsection corresponds with 40 CFR 141.66(a), marked reserved by USEPA.
 - 3313 This statement maintains structural consistency with USEPA rules.
 - 3314
 - 3315 b) MCL for combined radium-226 and -228. The maximum contaminant level for
 - 3316 combined radium-226 and radium-228 is 5 pCi/ℓ. The combined radium-226 and
 - 3317 radium-228 value is determined by the addition of the results of the analysis for
 - 3318 radium-226 and the analysis for radium-228.
 - 3319
 - 3320 c) MCL for gross alpha particle activity (excluding radon and uranium). The
 - 3321 maximum contaminant level for gross alpha particle activity (including radium-
 - 3322 226 but excluding radon and uranium) is 15 pCi/ℓ.
 - 3323
 - 3324 d) ~~Effective December 8, 2003,~~ MCL for beta particle and photon radioactivity.
 - 3325
 - 3326 1) The average annual concentration of beta particle and photon radioactivity
 - 3327 from man-made radionuclides in drinking water must not produce an
 - 3328 annual dose equivalent to the total body or any internal organ greater than
 - 3329 4 millirem/year (mrem/year).
 - 3330
 - 3331 2) Except for the radionuclides listed in the following table, the concentration
 - 3332 of man-made radionuclides causing 4 mrem total body or organ dose
 - 3333 equivalents must be calculated on the basis of two liters per day drinking
 - 3334 water intake, using the 168-hour data list set forth in "Maximum
 - 3335 Permissible Body Burdens and Maximum Permissible Concentrations of
 - 3336 Radionuclides in Air and in Water for Occupational Exposure,"
 - 3337 incorporated by reference in Section 611.102, available from the NTIS. If
 - 3338 two or more radionuclides are present, the sum of their annual dose
 - 3339 equivalent to the total body or to any organ must not exceed 4 mrem/year.
 - 3340

Average Annual Concentrations Assumed to Produce
 a Total Body or Organ Dose of 4 mrem/yr

Radionuclide	Critical organ	pCi per liter
1. Tritium	Total body	20,000
2. Strontium-90	Bone Marrow	8

- 3341
- 3342 e) MCL for uranium. ~~The Effective December 8, 2003,~~ the maximum contaminant
 - 3343 level for uranium is 30 µg/ℓ.

- 3344
 3345 f) Compliance dates for combined radium-226 and -228, gross alpha particle
 3346 activity, gross beta particle and photon radioactivity, and uranium. ~~Effective~~
 3347 ~~December 8, 2003~~, CWS supplier must comply with the MCLs listed in
 3348 subsections (b) through (e) of this Section, and compliance must be determined in
 3349 accordance with the requirements of Subpart Q of this Part.
 3350
 3351 g) Best available technologies (BATs) for radionuclides. USEPA has identified the
 3352 technologies indicated in the following table as the BAT for achieving
 3353 compliance with the MCLs for combined radium-226 and -228, uranium, gross
 3354 alpha particle activity, and beta particle and photon radioactivity.
 3355

BAT for Combined Radium-226 and Radium-228, Uranium, Gross Alpha Particle Activity, and Beta Particle and Photon Radioactivity

Contaminant	BAT
1. Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening.
2. Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/ filtration.
3. Gross alpha particle activity (excluding Radon and Uranium)	Reverse osmosis.
4. Beta particle and photon radioactivity	Ion exchange, reverse osmosis.

- 3356
 3357 h) Small systems compliance technologies list for radionuclides.
 3358

List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use

Unit technologies	Limitations (see footnotes)	Operator skill level required ¹	Raw water quality range and considerations ¹
1. Ion exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU ²) IE	(b)	Basic	All ground waters.
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre-filtration.
4. POU ² RO	(b)	Basic	Surface waters usually require pre-filtration.

5. Lime softening	(d)	Advanced	All waters.
6. Green sand filtration	(e)	Basic	
7. Co-precipitation with Barium sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8. Electrodialysis/ electrodialysis reversal		Basic to Intermediate	All ground waters.
9. Pre-formed hydrous Manganese oxide filtration	(g)	Intermediate	All ground waters.
10. Activated alumina	(a), (h)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
11. Enhanced coagulation/ filtration	(i)	Advanced	Can treat a wide range of water qualities.

¹ National Research Council (NRC). "Safe Water from Every Tap: Improving Water Service to Small Communities," National Academy Press, Washington, D.C. 1997.

² A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap. BOARD NOTE: USEPA refers the reader to the notice of data availability (NODA) at 66 Fed. Reg. 21576 (April 21, 2000) for more details.

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Limitations Footnotes: Technologies for Radionuclides:

- (a) The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.
- (b) When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.
- (c) Reject water disposal options should be carefully considered before choosing this technology.

3372
 3373 BOARD NOTE: In corresponding 40 CFR 141.66, Table C, footnote c
 3374 states in part as follows: "See other RO limitations described in the
 3375 SWTR Compliance Technologies Table." Table C was based in significant
 3376 part on "Table 13. – Technologies for Radionuclides" that appears at 63
 3377 Fed. Reg. 42032 at 42043 (August 6, 1998), which refers to "Table 2. –
 3378 SWTR Compliance Technology Table: Filtration." That Table 2 lists the
 3379 limitations on RO as follows:

3380
 3381 ^d Blending (combining treated water with untreated raw water) cannot
 3382 be practiced at risk of increasing microbial concentrations in finished
 3383 water.

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 3385 ^e Post-disinfection recommended as a safety measure and for residual
 3386 maintenance.

3387
 3388 ^f Post-treatment corrosion control will be needed prior to distribution.

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 3390 63 Fed. Reg. at 42036.

3391
 3392 (d) The combination of variable source water quality and the complexity of
 3393 the water chemistry involved may make this technology too complex for
 3394 small surface water systems.

3395
 3396 (e) Removal efficiencies can vary depending on water quality.

3397
 3398 (f) This technology may be very limited in application to small systems.
 3399 Since the process requires static mixing, detention basins, and filtration, it
 3400 is most applicable to systems with sufficiently high sulfate levels that
 3401 already have a suitable filtration treatment train in place.

3402
 3403 (g) This technology is most applicable to small systems that already have
 3404 filtration in place.

3405
 3406 (h) Handling of chemicals required during regeneration and pH adjustment
 3407 may be too difficult for small systems without an adequately trained
 3408 operator.

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 3410 (i) Assumes modification to a coagulation/filtration process already in place.

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Compliance Technologies by System Size Category
 for Radionuclide NPDWRs

Contaminant	Compliance technologies ¹ for system size
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	categories (population served)		
	25-500	501-3,300	3,300-10,000
1. Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Gross alpha particle activity	3, 4	3, 4	3, 4
3. Beta particle activity and photon activity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
4. Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

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Note:

¹ Numbers correspond to those technologies found listed in the table, "List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use," set forth above.

BOARD NOTE: Derived from 40 CFR 141.66 (2012)(2003).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART G: LEAD AND COPPER

Section 611.359 Analytical Methods

Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature must be conducted using the methods set forth in Section 611.611(a).

- a) Analyses for lead and copper performed for the purposes of compliance with this Subpart G must only be conducted by laboratories that have been certified by USEPA or the Agency. To obtain certification to conduct analyses for lead and copper, laboratories must do the following:
 - 1) Analyze performance evaluation samples that include lead and copper provided by USEPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the Agency; ~~and~~
 - 2) Achieve quantitative acceptance limits as follows:
 - A) For lead: ±30 percent of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to 0.005 mg/l (the PQL for lead is 0.005 mg/l);
 - B) For copper: ±10 percent of the actual amount in the performance

3445 evaluation sample when the actual amount is greater than or equal
 3446 to 0.050 mg/l (the PQL for copper is 0.050 mg/l);
 3447

3448 C) ~~Achieve the method detection limit (MDL) for lead (0.001 mg/l,~~
 3449 ~~as defined in Section 611.350(a) according to the procedures in 35~~
 3450 ~~Ill. Adm. Code 186 and appendix B to 40 CFR 136: "Definition~~
 3451 ~~and Procedure for the Determination of the Method Detection~~
 3452 ~~Limit—Revision 1.11", incorporated by reference in Section~~
 3453 ~~611.102(c). This need only be accomplished if the laboratory will~~
 3454 ~~be processing source water composite samples under Section~~
 3455 ~~611.358(a)(1)(D); and~~
 3456

3457 D) ~~Be currently certified by USEPA or the Agency to perform~~
 3458 ~~analyses to the specifications described in subsection (a)(1) of this~~
 3459 ~~Section.~~
 3460

3461 3) Achieve the method detection limit (MDL) for lead (0.001 mg/l, as
 3462 defined in Section 611.350(a) according to the procedures in 35 Ill. Adm.
 3463 Code 186 and appendix B to 40 CFR 136: "Definition and Procedure for
 3464 the Determination of the Method Detection Limit – Revision 1.11",
 3465 incorporated by reference in Section 611.102(c). This need only be
 3466 accomplished if the laboratory will be processing source water composite
 3467 samples under Section 611.358(a)(1)(D); and
 3468

3469 4) Be currently certified by USEPA or the Agency to perform analyses to the
 3470 specifications described in subsection (a)(1) of this Section.
 3471

3472 BOARD NOTE: Subsection (a) is derived from 40 CFR 141.89(a) and (a)(1)
 3473 (2012)(2007), as amended at 72 Fed. Reg. 57782 (October 10, 2007).
 3474

3475 b) The Agency must, by a SEP issued pursuant to Section 611.110, allow a supplier
 3476 to use previously collected monitoring data for the purposes of monitoring under
 3477 this Subpart G if the data were collected and analyzed in accordance with the
 3478 requirements of this Subpart G.
 3479

3480 BOARD NOTE: Subsection (b) is derived from 40 CFR 141.89(a)(2)
 3481 (2012)(2007).
 3482

3483 c) Reporting lead and copper levels.
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3485 1) All lead and copper levels greater than or equal to the lead and copper
 3486 PQL (Pb ≥ 0.005 mg/l and Cu ≥ 0.050 mg/l) must be reported as
 3487 measured.

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- 2) All lead and copper levels measured less than the PQL and greater than the MDL (0.005 mg/ℓ > Pb > MDL and 0.050 mg/ℓ > Cu > MDL) must be either reported as measured or as one-half the PQL set forth in subsection (a) of this Section (i.e., reported as 0.0025 mg/ℓ for lead or 0.025 mg/ℓ for copper).
- 3) All lead and copper levels below the lead and copper MDL (MDL > Pb) must be reported as zero.

BOARD NOTE: Subsection (c) is derived from 40 CFR 141.89(a)(3) and (a)(4) (2012)(2007).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART I: DISINFECTANT RESIDUALS, DISINFECTION
BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS

Section 611.382 Monitoring Requirements

- a) General requirements.
 - 1) A supplier must take all samples during normal operating conditions.
 - 2) A supplier may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required with Agency approval.
 - 3) Failure to monitor in accordance with the monitoring plan required under subsection (f) of this Section is a monitoring violation.
 - 4) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the supplier's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs, this failure to monitor will be treated as a violation for the entire period covered by the annual average.
 - 5) A supplier must use only data collected under the provisions of this Subpart I to qualify for reduced monitoring.
- b) Monitoring requirements for disinfection byproducts (DBPs).
 - 1) TTHMs and HAA5.

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- A) Routine monitoring. A supplier must monitor at the following frequency:
 - i) A Subpart B system supplier that serves 10,000 or more persons must collect four water samples per quarter per treatment plant. At least 25 percent of all samples collected each quarter must be collected at locations representing maximum residence time. The remaining samples may be taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account the number of persons served, the different sources of water, and the different treatment methods.
 - ii) A Subpart B system supplier that serves from 500 to 9,999 persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.
 - iii) A Subpart B system supplier that serves fewer than 500 persons must collect one sample per year per treatment plant during month of warmest water temperature. The samples must be collected from locations representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the supplier must increase the monitoring frequency to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the supplier meets the standards in subsection (b)(1)(D) of this Section.
 - iv) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves 10,000 or more persons must collect one water sample per quarter per treatment plant. The samples must be collected from locations representing maximum residence time.
 - v) A supplier that uses only groundwater not under direct influence of surface water, which uses chemical disinfectant, and which serves fewer than 10,000 persons must collect one sample per year per treatment plant during

3574 month of warmest water temperature. The samples must be
3575 collected from locations representing maximum residence
3576 time. If the sample (or average of annual samples, if more
3577 than one sample is taken) exceeds MCL, the supplier must
3578 increase monitoring to one sample per treatment plant per
3579 quarter, taken at a point reflecting the maximum residence
3580 time in the distribution system, until the supplier meets
3581 standards in subsection (b)(1)(D) of this Section.
3582

3583 BOARD NOTE: If a supplier elects to sample more frequently
3584 than the minimum required, at least 25 percent of all samples
3585 collected each quarter (including those taken in excess of the
3586 required frequency) must be taken at locations that represent the
3587 maximum residence time of the water in the distribution system.
3588 The remaining samples must be taken at locations representative of
3589 at least average residence time in the distribution system. For a
3590 supplier using groundwater not under the direct influence of
3591 surface water, multiple wells drawing water from a single aquifer
3592 may be considered one treatment plant for determining the
3593 minimum number of samples required, with Agency approval.
3594

3595 B) A supplier may reduce monitoring, except as otherwise provided,
3596 in accordance with the following:
3597

3598 i) A Subpart B system supplier that serves 10,000 or more
3599 persons and which has a source water annual average TOC
3600 level, before any treatment, of less than or equal to 4.0
3601 mg/ℓ may reduce monitoring if it has monitored for at least
3602 one year and its TTHM annual average is less than or equal
3603 to 0.040 mg/ℓ and HAA5 annual average is less than or
3604 equal to 0.030 mg/ℓ. The reduced monitoring allowed is a
3605 minimum of one sample per treatment plant per quarter at a
3606 distribution system location reflecting maximum residence
3607 time.
3608

3609 ii) A Subpart B system supplier that serves from 500 to 9,999
3610 persons and which has a source water annual average TOC
3611 level, before any treatment, of less than or equal to 4.0
3612 mg/ℓ may reduce monitoring if it has monitored at least one
3613 year and its TTHM annual average is less than or equal to
3614 0.040 mg/ℓ and HAA5 annual average is less than or equal
3615 to 0.030 mg/ℓ. The reduced monitoring allowed is a
3616 minimum of one sample per treatment plant per year at a

distribution system location reflecting maximum residence time during month of warmest water temperature.

BOARD NOTE: Any Subpart B system supplier that serves fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.

iii) A supplier using only groundwater not under direct influence of surface water using chemical disinfectant and that serves 10,000 or more persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ. The reduced monitoring allowed is a minimum of one sample per treatment plant per year at a distribution system location reflecting maximum residence time during month of warmest water temperature.

iv) A supplier using only groundwater not under direct influence of surface water that uses chemical disinfectant and which serves fewer than 10,000 persons may reduce monitoring if it has monitored at least one year and its TTHM annual average is less than or equal to 0.040 mg/ℓ and HAA5 annual average is less than or equal to 0.030 mg/ℓ for two consecutive years or TTHM annual average is less than or equal to 0.020 mg/ℓ and HAA5 annual average is less than or equal to 0.015 mg/ℓ for one year. The reduced monitoring allowed is a minimum of one sample per treatment plant per three year monitoring cycle at a distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which the supplier qualifies for reduced monitoring.

C) Monitoring requirements for source water TOC. In order to qualify for reduced monitoring for TTHM and HAA5 under subsection (b)(1)(B) of this Section, a Subpart B system supplier not monitoring under the provisions of subsection (d) of this Section must take monthly TOC samples every 30 days at a location prior to any treatment, ~~beginning no later than April 1, 2008~~. In addition to meeting other criteria for reduced monitoring

in subsection (b)(1)(B) of this Section, the source water TOC running annual average must be ≤ 4.0 mg/l (based on the most recent four quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under subsection (b)(1)(B) of this Section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

D) A Subpart B system supplier on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for a supplier that must monitor quarterly) or the result of the sample (for a supplier that must monitor no more frequently than annually) is no more than 0.060 mg/l and 0.045 mg/l for TTHMs and HAA5, respectively. A supplier that does not meet these levels must resume monitoring at the frequency identified in subsection (b)(1)(A) of this Section in the quarter immediately following the monitoring period in which the supplier exceeds 0.060 mg/l for TTHMs or 0.045 mg/l for HAA5. For a supplier that uses only groundwater not under the direct influence of surface water and which serves fewer than 10,000 persons, if either the TTHM annual average is greater than 0.080 mg/l or the HAA5 annual average is greater than 0.060 mg/l, the supplier must go to increased monitoring identified in subsection (b)(1)(A) of this Section in the quarter immediately following the monitoring period in which the supplier exceeds 0.080 mg/l for TTHMs or 0.060 mg/l for HAA5.

E) The Agency may return a supplier to routine monitoring.

2) Chlorite. A CWS or NTNCWS supplier using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

A) Routine monitoring.

i) Daily monitoring. A supplier must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the supplier must take additional samples in the distribution system the following day at the locations required by subsection (b)(2)(B) of this Section, in addition to the sample required at the entrance to the distribution system.

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- ii) Monthly monitoring. A supplier must take a three-sample set each month in the distribution system. The supplier must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The supplier may use the results of additional monitoring conducted under subsection (b)(2)(B) of this Section to meet the requirement for monitoring in this subsection (b)(2)(A)(ii).

 - B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the supplier must take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

 - C) Reduced monitoring.
 - i) Chlorite monitoring at the entrance to the distribution system required by subsection (b)(2)(A)(i) of this Section may not be reduced.

 - ii) Chlorite monitoring in the distribution system required by subsection (b)(2)(A)(ii) of this Section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subsection (b)(2)(A)(ii) of this Section has exceeded the chlorite MCL and the supplier has not been required to conduct monitoring under subsection (b)(2)(B) of this Section. The supplier may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under subsection (b)(2)(A)(ii) of this Section exceeds the chlorite MCL or the supplier is required to conduct monitoring under subsection (b)(2)(B) of this Section, at which time the supplier must revert to

routine monitoring.

3) Bromate.

- A) Routine monitoring. A CWS or NTNCWS supplier using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. A supplier must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

- B) Reduced monitoring. A supplier required to analyze for bromate may reduce monitoring from monthly to quarterly if the supplier's running annual average bromate concentration is not greater than 0.0025 mg/ℓ based on monthly bromate measurements under subsection (b)(3)(A) of this Section for the most recent four quarters, with samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0 (rev. 2.0), Method 326.0 (rev. 1.0), or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8. If a supplier has qualified for reduced bromate monitoring under subsection (b)(3)(B)(i) of this Section, that supplier may remain on reduced monitoring as long as the running annual average of quarterly bromate samples not greater than 0.0025 mg/ℓ based on samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0, Method 326.0, or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8. If the running annual average bromate concentration is greater than 0.0025 mg/ℓ, the supplier must resume routine monitoring required by subsection (b)(3)(A) of this Section.
 - i) ~~Until March 31, 2009, a supplier required to analyze for bromate may reduce monitoring from monthly to quarterly, if the supplier demonstrates that the average source water bromide concentration is less than 0.05 mg/ℓ based on representative monthly bromide measurements for one year. The supplier may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/ℓ based on representative monthly measurements. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/ℓ, the supplier must resume routine monitoring required by subsection (b)(3)(A) of this Section in the following month.~~

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- ii) Beginning April 1, 2009, a Subpart B system supplier may no longer use the provisions of subsection (b)(3)(B)(i) of this Section to qualify for reduced monitoring. A supplier required to analyze for bromate may reduce monitoring from monthly to quarterly, if the supplier's running annual average bromate concentration is not greater than 0.0025 mg/ℓ based on monthly bromate measurements under subsection (b)(3)(A) of this Section for the most recent four quarters, with samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0 (rev. 2.0), Method 326.0 (rev. 1.0), or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8. If a supplier has qualified for reduced bromate monitoring under subsection (b)(3)(B)(i) of this Section, that supplier may remain on reduced monitoring as long as the running annual average of quarterly bromate samples not greater than 0.0025 mg/ℓ based on samples analyzed using USEPA OGWDW Methods, Method 302.0, Method 317.0, Method 326.0, or Method 557 or USEPA Organic and Inorganic Methods, Method 321.8. If the running annual average bromate concentration is greater than 0.0025 mg/ℓ, the supplier must resume routine monitoring required by subsection (b)(3)(A) of this Section.
- 3813 c) Monitoring requirements for disinfectant residuals.
- 3814
- 1) Chlorine and chloramines.
 - 3817 A) Routine monitoring. A CWS or NTNCWS supplier that uses chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in Section 611.521. A Subpart B system supplier may use the results of residual disinfectant concentration sampling conducted under Section 611.532 for unfiltered systems or Section 611.533 for systems that filter, in lieu of taking separate samples.
 - 3826 B) Reduced monitoring. Monitoring may not be reduced.
 - 3828 2) Chlorine dioxide.
 - 3830 A) Routine monitoring. A CWS, an NTNCWS, or a transient non-CWS supplier that uses chlorine dioxide for disinfection or
 - 3831

3832 oxidation must take daily samples at the entrance to the
3833 distribution system. For any daily sample that exceeds the MRDL,
3834 the supplier must take samples in the distribution system the
3835 following day at the locations required by subsection (c)(2)(B) of
3836 this Section, in addition to the sample required at the entrance to
3837 the distribution system.

3838
3839 B) Additional monitoring. On each day following a routine sample
3840 monitoring result that exceeds the MRDL, the supplier must take
3841 three chlorine dioxide distribution system samples. If chlorine
3842 dioxide or chloramines are used to maintain a disinfectant residual
3843 in the distribution system, or if chlorine is used to maintain a
3844 disinfectant residual in the distribution system and there are no
3845 disinfection addition points after the entrance to the distribution
3846 system (i.e., no booster chlorination), the supplier must take three
3847 samples as close to the first customer as possible, at intervals of at
3848 least six hours. If chlorine is used to maintain a disinfectant
3849 residual in the distribution system and there are one or more
3850 disinfection addition points after the entrance to the distribution
3851 system (i.e., booster chlorination), the supplier must take one
3852 sample at each of the following locations: as close to the first
3853 customer as possible, in a location representative of average
3854 residence time, and as close to the end of the distribution system as
3855 possible (reflecting maximum residence time in the distribution
3856 system).

3857
3858 C) Reduced monitoring. Monitoring may not be reduced.
3859

3860 d) Monitoring requirements for disinfection byproduct (DBP) precursors.

3861
3862 1) Routine monitoring. A Subpart B system supplier that uses conventional
3863 filtration treatment (as defined in Section 611.101) must monitor each
3864 treatment plant for TOC not past the point of combined filter effluent
3865 turbidity monitoring and representative of the treated water. A supplier
3866 required to monitor under this subsection (d)(1) must also monitor for
3867 TOC in the source water prior to any treatment at the same time as
3868 monitoring for TOC in the treated water. These samples (source water
3869 and treated water) are referred to as paired samples. At the same time as
3870 the source water sample is taken, a system must monitor for alkalinity in
3871 the source water prior to any treatment. A supplier must take one paired
3872 sample and one source water alkalinity sample per month per plant at a
3873 time representative of normal operating conditions and influent water
3874 quality.

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- 2) Reduced monitoring. A Subpart B system supplier with an average treated water TOC of less than 2.0 mg/ℓ for two consecutive years, or less than 1.0 mg/ℓ for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The supplier must revert to routine monitoring in the month following the quarter when the annual average treated water TOC greater than or equal to 2.0 mg/ℓ.
 - e) Bromide. A supplier required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the supplier demonstrates that the average source water bromide concentration is less than 0.05 mg/ℓ based upon representative monthly measurements for one year. The supplier must continue bromide monitoring to remain on reduced bromate monitoring.
 - f) Monitoring plans. Each supplier required to monitor under this Subpart I must develop and implement a monitoring plan. The supplier must maintain the plan and make it available for inspection by the Agency and the general public no later than 30 days following the applicable compliance dates in Section 611.380(b). A Subpart B system supplier that serves more than 3,300 persons must submit a copy of the monitoring plan to the Agency no later than the date of the first report required under Section 611.384. After review, the Agency may require changes in any plan elements. The plan must include at least the following elements:
 - 1) Specific locations and schedules for collecting samples for any parameters included in this Subpart I;
 - 2) How the supplier will calculate compliance with MCLs, MRDLs, and treatment techniques; and
 - 3) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of Section 611.500, the sampling plan must reflect the entire distribution system.

3909 BOARD NOTE: Derived from 40 CFR 141.132 (2012)(~~2010~~).

3910 (Source: Amended at 37 Ill. Reg. _____, effective _____)

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3913 **SUBPART N: INORGANIC MONITORING AND ANALYTICAL REQUIREMENTS**

3914
3915 **Section 611.600 Applicability**

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3917 The following types of suppliers must conduct monitoring to determine compliance with the old

3918 MCLs in Section 611.300 and the revised MCLs in 611.301, as appropriate, in accordance with
 3919 this Subpart N:

- 3920
- 3921 a) CWS suppliers.
- 3922
- 3923 b) NTNCWS suppliers.
- 3924
- 3925 c) Transient non-CWS suppliers to determine compliance with the nitrate and nitrite
 3926 MCLs.
- 3927
- 3928 d) Detection limits. The following are detection limits for purposes of this Subpart
 3929 N (MCLs from Section 611.301 are set forth for information purposes only):
 3930

Contaminant	MCL (mg/ℓ, except asbestos)	Method	Detection Limit (mg/ℓ)
Antimony	0.006	Atomic absorption – furnace technique	0.003
		Atomic absorption – furnace technique (stabilized temperature)	0.0008 ⁵
		Inductively coupled plasma- mass spectrometry	0.0004
		Atomic absorption – gaseous hydride technique	0.001
Arsenic	0.010 ⁶	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.00005 ⁶⁷
		Atomic absorption – gaseous hydride technique	0.001
		Inductively coupled plasma- mass spectrometry	0.0014 ⁷⁸
Asbestos	7 MFL ¹	Transmission electron	0.01

		microscopy	MFL
Barium	2	Atomic absorption – furnace technique	0.002
		Atomic absorption – direct aspiration technique	0.1
		Inductively coupled plasma arc furnace	0.002
Beryllium	0.004	Inductively coupled plasma	0.001
		Atomic absorption – furnace technique	0.0002
		Atomic absorption – furnace technique (stabilized temperature)	0.00002 ⁵
		Inductively coupled plasma ²	0.0003
		Inductively coupled plasma-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption – furnace technique	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption – furnace technique	0.001
		Inductively coupled plasma	0.007
		Inductively coupled plasma	0.001
Cyanide	0.2	Distillation, spectrophotometric ³	0.02
		Automated distillation, spectrophotometric ³	0.005
		Distillation, selective electrode ³	0.05

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		Distillation, amenable, spectrophotometric ⁴	0.02
		UV, distillation, spectrophotometric ⁸⁹	0.0005
		Micro distillation, flow injection, spectrophotometric ³	0.0006
		Ligand exchange with amperometry ⁴	0.0005
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nickel	No MCL	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.0006 ⁵
		Inductively coupled plasma ²	0.005
		Inductively coupled plasma-mass spectrometry	0.0005
Nitrate (as N)	10	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion-selective electrode	1
		Ion chromatography	0.01
		Capillary ion electrophoresis	0.076

Nitrite (as N)	1	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
		Capillary ion electrophoresis	0.103
Selenium	0.05	Atomic absorption – furnace technique	0.002
		Atomic absorption – gaseous hydride technique	0.002
Thallium	0.002	Atomic absorption – furnace technique	0.001
		Atomic absorption – furnace technique (stabilized temperature)	0.0007 ⁵
		Inductively coupled plasma-mass spectrometry	0.0003

Footnotes.

- ¹ "MFL" means millions of fibers per liter less than 10 µm.
- ² Using a 2x preconcentration step as noted in Method 200.7. Lower MDLs may be achieved when using a 4x preconcentration.
- ³ Screening method for total cyanides.
- ⁴ Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.
- ⁵ Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.
- ⁶ ~~The value for arsenic is effective January 23, 2006. Until then, the MCL is 0.05 mg/ℓ.~~
- ⁶⁷ The MDL reported for USEPA Method 200.9 (atomic absorption-platform furnace (stabilized temperature)) was determined using a 2x concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses (i.e., no sample digestion) will be higher. Using multiple depositions, USEPA Method 200.9 is capable of obtaining an MDL of 0.0001 mg/ℓ.

⁷⁸ Using selective ion monitoring, USEPA Method 200.8 (ICP-MS) is capable of obtaining an MDL of 0.0001 mg/ℓ.

⁸⁹ Measures total cyanides when UV-digester is used, and "free" cyanides when UV-digester is bypassed.

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3932 BOARD NOTE: Subsections (a) through (c) of this Section are derived from 40 CFR 141.23

3933 preamble ~~(2012)(2007)~~ and subsection (d) of this Section is derived from 40 CFR 141.23

3934 (a)(4)(i) ~~(2007)~~ and appendix A to 40 CFR 141 ~~(2012)~~, as added at 73 Fed. Reg. 31616 (June 3,

3935

2008). See the Board Note at Section 611.301(b) relating to the MCL for nickel.

3936

(Source: Amended at 37 Ill. Reg. _____, effective _____)

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3938 **Section 611.603 Inorganic Monitoring Frequency**

3939

3940 The frequency of monitoring conducted to determine compliance with the revised MCLs in

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3942 Section 611.301 for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide,

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3944 fluoride, mercury, nickel, selenium, and thallium is as follows:

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a) Suppliers must take samples at each sampling point, beginning in the initial compliance period, as follows:

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1) For a GWS supplier: at least one sample during each compliance period;

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2) For an SWS or a mixed system supplier: at least one sample each year.

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BOARD NOTE: Derived from 40 CFR 141.23(c)(1) ~~(2012)(2002)~~.

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3953

b) SEP Application.

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1) The supplier may apply to the Agency for a SEP that allows reduction from the monitoring frequencies specified in subsection (a) of this Section pursuant to subsections (d) through (f) of this Section and Section 611.110.

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2) The supplier may apply to the Agency for a SEP that relieves it of the requirement for monitoring cyanide pursuant to subsections (d) through (f) of this Section and Section 611.110 if it can demonstrate that its system is not vulnerable due to a lack of any industrial source of cyanide.

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BOARD NOTE: Drawn from 40 CFR 141.23(c)(2) and (c)(6) ~~(2012)(2002)~~.

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c) SEP Procedures. The Agency must review the request pursuant to the SEP procedures of Section 611.110 based on consideration of the factors in subsection

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3969

3970 (e) of this Section.

3971
3972 BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (2012)~~(2002)~~.

3973
3974 d) Standard for SEP reduction in monitoring. The Agency must grant a SEP that
3975 allows a reduction in the monitoring frequency if the supplier demonstrates that
3976 all previous analytical results were less than the MCL, provided the supplier
3977 meets the following minimum data requirements:

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3979 1) For GWS suppliers: a minimum of three rounds of monitoring.
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3981 2) For an SWS or mixed system supplier: annual monitoring for at least
3982 three years.
3983
3984 3) At least one sample must have been taken since January 1, 1990.
3985
3986 4) A supplier that uses a new water source is not eligible for a SEP until it
3987 completes three rounds of monitoring from the new source.
3988

3989 BOARD NOTE: Drawn from 40 CFR 141.23(c)(4) (2012)~~(2002)~~.

3990
3991 e) Standard for SEP monitoring conditions. As a condition of any SEP, the Agency
3992 must require that the supplier take a minimum of one sample during the term of
3993 the SEP. In determining the appropriate reduced monitoring frequency, the
3994 Agency must consider the following:

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3996 1) Reported concentrations from all previous monitoring;
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3998 2) The degree of variation in reported concentrations; and
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4000 3) Other factors that may affect contaminant concentrations, such as changes
4001 in groundwater pumping rates, changes in the CWS's configuration, the
4002 CWS's operating procedures, or changes in stream flows or characteristics.
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4004 BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) and (c)(5) (2012)~~(2002)~~.

4005
4006 f) SEP Conditions and Revision.

- 4007
4008 1) A SEP will expire at the end of the compliance cycle for which it was
4009 issued.

4010
4011 BOARD NOTE: Drawn from 40 CFR 141.23(c)(3) (2012)~~(2002)~~.

4012

4013 2) In issuing a SEP, the Agency must specify the level of the contaminant
4014 upon which the "reliably and consistently" determination was based. A
4015 SEP must provide that the Agency will review and, where appropriate,
4016 revise its determination of the appropriate monitoring frequency when the
4017 supplier submits new monitoring data or when other data relevant to the
4018 supplier's appropriate monitoring frequency become available.

4019 BOARD NOTE: Drawn from 40 CFR 141.23(c)(6) (2012)~~(2002)~~.

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4022 g) A supplier that exceeds the MCL as determined in Section 611.609, must monitor
4023 quarterly for that contaminant, beginning in the next quarter after the violation
4024 occurred.

4025 BOARD NOTE: Derived from 40 CFR 141.23(c)(7) (2012)~~(2002)~~.

4026
4027 h) Reduction of quarterly monitoring.

4028 1) The Agency must grant a SEP pursuant to Section 611.110 that reduces
4029 the monitoring frequency to that specified by subsection (a) of this Section
4030 if it determines that the sampling point is reliably and consistently below
4031 the MCL.

4032 2) A request for a SEP must include the following minimal information:

4033 A) For a GWS: two quarterly samples.

4034 B) For an SWS or mixed system supplier: four quarterly samples.

4035 3) In issuing the SEP, the Agency must specify the level of the contaminant
4036 upon which the "reliably and consistently" determination was based. Any
4037 SEP that allows less frequent monitoring based on an Agency "reliably
4038 and consistently" determination must include a condition requiring the
4039 supplier to resume quarterly monitoring for any contaminant pursuant to
4040 subsection (g) of this Section if it violates the MCL specified by Section
4041 611.609 for that contaminant.

4042 BOARD NOTE: Derived from 40 CFR 141.23(c)(8) (2012)~~(2002)~~.

4043
4044 i) A new system supplier ~~that begins operation after January 22, 2004~~ or a supplier
4045 whose system uses a new source of water ~~beginning after January 22, 2004~~ must
4046 demonstrate compliance with the MCL within a period of time specified by a
4047 permit issued the Agency. The supplier must also comply with the initial
4048 sampling frequencies specified by the Agency to ensure a system can demonstrate
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4056 compliance with the MCL. Routine and increased monitoring frequencies must
4057 be conducted in accordance with the requirements in this Section.

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4059 BOARD NOTE: Derived from 40 CFR 141.23(c)(9) (2012)~~(2002)~~.

4060
4061 (Source: Amended at 37 Ill. Reg. _____, effective _____)

4062
4063 **Section 611.609 Determining Compliance**

4064
4065 Compliance with the MCLs of Section 611.300 or 611.301 (as appropriate) must be determined
4066 based on the analytical results obtained at each sampling point.

4067
4068 a) For suppliers that monitor at a frequency greater than annual, compliance with the
4069 MCLs for antimony, arsenic ~~(effective January 22, 2004)~~, asbestos, barium,
4070 beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or
4071 thallium is determined by a running annual average at each sampling point.
4072 ~~Effective January 22, 2004, if a system fails to collect the required number of~~
4073 ~~samples, compliance (average concentration) will be based on the total number of~~
4074 ~~samples collected.~~

- 4075
4076 1) If the average at any sampling point is greater than the MCL, then the
4077 supplier is out of compliance.
4078
4079 2) If any one sample would cause the annual average to be exceeded, then the
4080 supplier is out of compliance immediately.
4081
4082 3) Any sample below the method detection limit must be calculated at zero
4083 for the purpose of determining the annual average.

4084
4085 BOARD NOTE: The "method detection limit" is different from the
4086 "detection limit," as set forth in Section 611.600. The "method detection
4087 limit" is the level of contaminant that can be determined by a particular
4088 method with a 95 percent degree of confidence, as determined by the
4089 method outlined in appendix B to 40 CFR 136, incorporated by reference
4090 at Section 611.102.

4091 4) If a system fails to collect the required number of samples, compliance
4092 (average concentration) will be based on the total number of samples
4093 collected.

4094
4095 b) For suppliers that monitor annually or less frequently, compliance with the MCLs
4096 for antimony, arsenic ~~(effective January 22, 2004)~~, asbestos, barium, beryllium,
4097 cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is
4098 determined by the level of the contaminant at any sampling point. If confirmation

4099 samples are required by the Agency, the determination of compliance will be
4100 based on the average of the annual average of the initial MCL exceedence and any
4101 Agency-required confirmation samples. ~~If a~~Effective January 22, 2004, if a
4102 supplier fails to collect the required number of samples, compliance (average
4103 concentration) will be based on the total number of samples collected.
4104

4105 c) Compliance with the MCLs for nitrate and nitrite is determined based on one
4106 sample if the levels of these contaminants are below the MCLs. If the levels of
4107 nitrate or nitrite in the initial sample exceed the MCLs, Section 611.606 requires
4108 confirmation sampling, and compliance is determined based on the average of the
4109 initial and confirmation samples.
4110

4111 d) Arsenic sampling results must be reported to the nearest 0.001 mg/l.
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4113 BOARD NOTE: Derived from 40 CFR 141.23(i) (2012)(~~2005~~).

4114 (Source: Amended at 37 Ill. Reg. _____, effective _____)
4115

4116
4117 **Section 611.611 Inorganic Analysis**
4118

4119 Analytical methods are from documents incorporated by reference in Section 611.102. These are
4120 mostly referenced by a short name defined by Section 611.102(a). Other abbreviations are
4121 defined in Section 611.101.
4122

4123 a) Analysis for the following contaminants must be conducted using the following
4124 methods or an alternative method approved pursuant to Section 611.480. Criteria
4125 for analyzing arsenic, chromium, copper, lead, nickel, selenium, sodium, and
4126 thallium with digestion or directly without digestion, and other analytical
4127 procedures, are contained in USEPA Technical Notes, incorporated by reference
4128 in Section 611.102.
4129

4130 BOARD NOTE: Because MDLs reported in USEPA Environmental Metals
4131 Methods 200.7 and 200.9 were determined using a 2x preconcentration step
4132 during sample digestion, MDLs determined when samples are analyzed by direct
4133 analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium
4134 and arsenic by USEPA Environmental Metals Method 200.7, and arsenic by
4135 Standard Methods, Method 3120 B, sample preconcentration using pneumatic
4136 nebulization may be required to achieve lower detection limits. Preconcentration
4137 may also be required for direct analysis of antimony, lead, and thallium by
4138 USEPA Environmental Metals Method 200.9; antimony and lead by Standard
4139 Methods, 18th, 19th, or 21st ed., Method 3113 B; and lead by ASTM Method
4140 D3559-96 D or D3559-03 D unless multiple in-furnace depositions are made.
4141

- 4142 1) Alkalinity.
- 4143
- 4144 A) Titrimetric.
- 4145
- 4146 i) ASTM Method D1067-92 B, D1067-02 B, or D1067-06 B;r
- 4147
- 4148 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2320
- 4149 B; or
- 4150
- 4151 iii) Standard Methods Online, Method 3113 B-04.
- 4152
- 4153 B) Electrometric titration: USGS Methods, Method I-1030-85.
- 4154

4155 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2320
4156 B as an approved alternative method for alkalinity in appendix A to
4157 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
4158 USEPA added ASTM Method D1067-06 B and Standard Methods Online,
4159 Method 3113 B-04 as approved alternative methods for alkalinity in
4160 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.
4161 37014).

- 4162 2) Antimony.
- 4163
- 4164
- 4165 A) Inductively coupled plasma-mass spectrometry: USEPA
- 4166 Environmental Metals Methods, Method 200.8 (rev. 5.3).
- 4167
- 4168 B) Atomic absorption, hydride technique: ASTM Method D3697-92,
- 4169 D3697-02, or D3697-07.
- 4170
- 4171 C) Atomic absorption, platform furnace technique: USEPA
- 4172 Environmental Metals Methods, Method 200.9 (rev.2.2).
- 4173
- 4174 D) Atomic absorption, furnace technique:
- 4175
- 4176 i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
- 4177
- 4178 ii) Standard Methods Online, Method 3113 B-04.
- 4179
- 4180 E) Axially viewed inductively coupled plasma-atomic emission
- 4181 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 4182

4183 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
4184 3113B and USEPA NERL Method 200.5 as approved alternative methods
4185 for antimony in appendix A to subpart C of 40 CFR 141 on June 3, 2008

4186 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3697-07 as an
 4187 approved alternative method for antimony in appendix A to subpart C of
 4188 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908. USEPA
 4189 added Standard Methods Online, Method 3113 B-04 as an approved
 4190 alternative method for antimony in appendix A to subpart C of 40 CFR
 4191 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

4192
 4193 3) Arsenic.
 4194

4195 BOARD NOTE: If ultrasonic nebulization is used in the determination of
 4196 arsenic by Method 200.8, the arsenic must be in the pentavalent state to
 4197 provide uniform signal response. For direct analysis of arsenic with
 4198 Method 200.8 using ultrasonic nebulization, samples and standards must
 4199 contain one mg/ℓ of sodium hypochlorite.

- 4200
 4201 A) Inductively coupled plasma-mass spectrometry: USEPA
 4202 Environmental Metals Methods, Method 200.8 (rev. 5.3).
 4203
 4204 B) Atomic absorption, platform furnace technique: USEPA
 4205 Environmental Metals Methods, Method 200.9 (rev. 2.2).
 4206
 4207 C) Atomic absorption, furnace technique.
 4208
 4209 i) ASTM Method D2972-97 C, D2972-03 C, or D2972-08 C;
 4210
 4211 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B;
 4212 or
 4213
 4214 iii) Standard Methods Online, Method 3113 B-04.
 4215
 4216 D) Atomic absorption, hydride technique.
 4217
 4218 i) ASTM Method D2972-97 B, D2972-03 C, or D2972-08 B;
 4219
 4220 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3114 B;
 4221 or
 4222
 4223 iii) Standard Methods Online, Method 3114 B-04.
 4224
 4225 E) Axially viewed inductively coupled plasma-atomic emission
 4226 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4227 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4228 3113 B and 3114 B and USEPA NERL Method 200.5 as approved
 4229 alternative methods for arsenic in appendix A to subpart C of 40 CFR 141

4230 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods
 4231 D2972-08 B and C as approved alternative methods for arsenic in
 4232 appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74
 4233 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113
 4234 B-04 and Method 3114 B-04 as approved alternative methods for arsenic
 4235 in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed.
 4236 Reg. 37014).

4237
 4238 4) Asbestos: Transmission electron microscopy: USEPA Asbestos Method-
 4239 100.1 or USEPA Asbestos Method-100.2.

4240
 4241 5) Barium.

4242
 4243 A) Inductively coupled plasma.

4244
 4245 i) USEPA Environmental Metals Methods, Method 200.7
 4246 (rev. 4.4); or

4247
 4248 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
 4249 B.

4250
 4251 B) Inductively coupled plasma-mass spectrometry: USEPA
 4252 Environmental Metals Methods, Method 200.8 (rev. 5.3).

4253
 4254 C) Atomic absorption, direct aspiration technique: Standard Methods,
 4255 18th, 19th, or 21st ed., Method 3111 D.

4256
 4257 D) Atomic absorption, furnace technique:

4258
 4259 i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or

4260
 4261 ii) Standard Methods Online, Method 3113 B-04.

4262
 4263 E) Axially viewed inductively coupled plasma-atomic emission
 4264 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4265
 4266 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4267 3111 D, 3113 B, and 3120 B and USEPA NERL Method 200.5 as
 4268 approved alternative methods for barium in appendix A to subpart C of 40
 4269 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4270 Standard Methods Online, Method 3113 B-04 as an approved alternative
 4271 method for barium in appendix A to subpart C of 40 CFR 141 on June 24,
 4272 2011 (at 76 Fed. Reg. 37014).

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- 6) Beryllium.
 - A) Inductively coupled plasma.
 - i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or
 - ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120 B.
 - B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
 - C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
 - D) Atomic absorption, furnace technique.
 - i) ASTM Method D3645-97 B, D3645-03 B, or D3645-08 B;
 - ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
 - iii) Standard Methods Online, Method 3113 B-04.
 - E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 3113 B and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for beryllium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3645-08 B as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for beryllium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
- 7) Cadmium.
 - A) Inductively coupled plasma arc furnace: USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4).

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- B) Inductively coupled plasma-mass spectrometry: USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3).
 - C) Atomic absorption, platform furnace technique: USEPA Environmental Metals Methods, Method 200.9 (rev. 2.2).
 - D) Atomic absorption, furnace technique:
 - i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
 - ii) Standard Methods Online, Method 3113 B-04.
 - E) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113 B and USEPA NERL Method 200.5 as approved alternative methods for cadmium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for cadmium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
- 8) Calcium.
 - A) EDTA titrimetric.
 - i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or
 - ii) Standard Methods, 18th or 19th ed., Method 3500-Ca D or Standard Methods, 20th or 21st ed., Method 3500-Ca B.
 - B) Atomic absorption, direct aspiration.
 - i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or
 - ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.
 - C) Inductively coupled plasma.
 - i) USEPA Environmental Metals Methods, Method 200.7 (rev. 4.4); or

- 4359 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
 4360 B.
 4361
 4362 D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
 4363
 4364 E) Axially viewed inductively coupled plasma-atomic emission
 4365 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
 4366

4367 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4368 3111 B, 3120 B, and 3500-Ca B and USEPA NERL Method 200.5 as
 4369 approved alternative methods for calcium in appendix A to subpart C of
 4370 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4371 ASTM Methods D511-09 A and B as approved alternative methods for
 4372 calcium in appendix A to subpart C of 40 CFR 141 on November 10, 2009
 4373 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09 as an
 4374 approved alternative method for calcium in appendix A to subpart C of 40
 4375 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
 4376

4377 9) Chromium.

- 4378 A) Inductively coupled plasma.
 4379 i) USEPA Environmental Metals Methods, Method 200.7
 4380 (rev. 4.4); or
 4381 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
 4382 B.
 4383
 4384 B) Inductively coupled plasma-mass spectrometry: USEPA
 4385 Environmental Metals Methods, Method 200.8 (rev. 5.3).
 4386
 4387 C) Atomic absorption, platform furnace technique: USEPA
 4388 Environmental Metals Methods, Method 200.9 (rev. 2.2).
 4389
 4390 D) Atomic absorption, furnace technique:
 4391 i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
 4392 ii) Standard Methods Online, Method 3113 B-04.
 4393
 4394 E) Axially viewed inductively coupled plasma-atomic emission
 4395 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
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4402 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4403 3113 B and 3120 B and USEPA NERL Method 200.5 as approved
 4404 alternative methods for chromium in appendix A to subpart C of 40 CFR
 4405 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard
 4406 Methods Online, Method 3113 B-04 as an approved alternative method for
 4407 chromium in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at
 4408 76 Fed. Reg. 37014).

4409
 4410 10) Copper.

4411
 4412 A) Atomic absorption, furnace technique.

- 4413 i) ASTM Method D1688-95 C, D1688-02 C, or D1688-07 C;
- 4414 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B;
- 4415 or
- 4416 iii) Standard Methods Online, Method 3113 B-04.

4417
 4418
 4419 B) Atomic absorption, direct aspiration.

- 4420 i) ASTM Method D1688-95 A, D1688-02 A, or D1688-07
- 4421 A; or
- 4422 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.

4423
 4424 C) Inductively coupled plasma.

- 4425 i) USEPA Environmental Metals Methods, Method 200.7
- 4426 (rev. 4.4); or
- 4427 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
- 4428 B.

4429
 4430 D) Inductively coupled plasma-mass spectrometry: USEPA
 4431 Environmental Metals Methods, Method 200.8 (rev. 5.3).

4432
 4433 E) Atomic absorption, platform furnace technique: USEPA
 4434 Environmental Metals Methods, Method 200.9 (rev. 2.2).

4435
 4436 F) Axially viewed inductively coupled plasma-atomic emission
 4437 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

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4445 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4446 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as an
 4447 approved alternative method for copper in appendix A to subpart C of 40
 4448 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM
 4449 Methods D1688-07 A and C as approved alternative methods for copper in
 4450 appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74
 4451 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113
 4452 B-04 as an approved alternative method for copper in appendix A to
 4453 subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
 4454

4455 11) Conductivity; Conductance.

- 4456 A) ASTM Method D1125-95(1999) A; or
 4457
 4458 B) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 2510 B.
 4459

4460 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2510
 4461 B as an approved alternative method for conductivity in appendix A to
 4462 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 4463
 4464

4465 12) Cyanide.

- 4466 A) Manual distillation (ASTM Method D2036-98 A or Standard
 4467 Methods, 18th, 19th, or 20th ed., Method 4500-CN⁻ C), followed by
 4468 spectrophotometric, amenable.
 4469

- 4470 i) ASTM Method D2036-98 B or 2036-06 B; or
 4471
 4472 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4473 4500-CN⁻ G.
 4474

- 4475 B) Manual distillation (ASTM Method D2036-98 A or Standard
 4476 Methods, 18th, 19th, or 20th ed., Method 4500-CN⁻ C), followed
 4477 by spectrophotometric, manual.
 4478

- 4479 i) ASTM Method D2036-98 A or D2036-06 A;
 4480
 4481 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4482 4500-CN⁻ E; or
 4483
 4484 iii) USGS Methods, Method I-3300-85.
 4485
 4486

- 4487 C) Spectrophotometric, semiautomated: USEPA Environmental
 4488 Inorganic Methods, Method 335.4 (rev. 1.0).
 4489
 4490 D) Selective electrode: Standard Methods, 18th, 19th, 20th, or 21st ed.,
 4491 Method 4500-CN⁻ F.
 4492
 4493 E) UV/Distillation/Spectrophotometric: Kelada 01.
 4494
 4495 F) Microdistillation/Flow Injection/Spectrophotometric:
 4496 QuickChem 10-204-00-1-X.
 4497
 4498 G) Ligand exchange and amperometry.
 4499
 4500 i) ASTM Method D6888-03.
 4501
 4502 ii) OI Analytical Method OIA-1677 DW.
 4503
 4504 H) Gas chromatography-mass spectrometry headspace: Method
 4505 ME355.01.
 4506

4507 BOARD NOTE: USEPA added ASTM Method D2036-06 A and
 4508 Standard Methods, 21st ed., Methods 4500-CNE, F, and G as approved
 4509 alternative methods for cyanide in appendix A to subpart C of 40 CFR 141
 4510 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Method
 4511 ME355.01 as an approved alternative method for cyanide in appendix A to
 4512 subpart C of 40 CFR 141 on August 3, 2009 (at 74 Fed. Reg. 38348).
 4513

4514 13) Fluoride.

- 4515
 4516 A) Ion Chromatography.
 4517
 4518 i) USEPA Environmental Inorganic Methods, Method 300.0
 4519 (rev. 2.1) or USEPA Organic and Inorganic Methods,
 4520 Method 300.1 (rev. 1.0);
 4521
 4522 ii) ASTM Method D4327-97 or D4327-03;
 4523
 4524 iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110
 4525 B; or
 4526
 4527 iv) Hach SPADNS 2 Method 10225.
 4528

- 4529 B) Manual distillation, colorimetric SPADNS: Standard Methods,
 4530 18th, 19th, 20th, or 21st ed., Method 4500-F⁻ B and D.
 4531
 4532 C) Manual electrode.
 4533
 4534 i) ASTM Method D1179-93 B, D1179-99 B, ~~or~~ D1179-04 B,
 4535 or D1179-10 B; or
 4536
 4537 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4538 4500-F⁻ C.
 4539
 4540 D) Automated electrode: Technicon Methods, Method 380-75WE.
 4541
 4542 E) Automated alizarin.
 4543
 4544 i) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4545 4500-F⁻ E; or
 4546
 4547 ii) Technicon Methods, Method 129-71W.
 4548
 4549 F) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
 4550
 4551 BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200),
 4552 USEPA amended the entry for fluoride to add capillary ion
 4553 electrophoresis in the table at corresponding 40 CFR 141.23(k)(1)
 4554 to allow the use of "Waters Method D6508, Rev. 2." The Board
 4555 attempt to locate a copy of the method disclosed that it is an
 4556 ASTM method originally approved in 2000 and reapproved in
 4557 2005. The Board has cited to the ASTM Method D6508-00
 4558 (2005).
 4559
 4560 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4561 4110 B and 4500-F⁻ B, C, D, and E and ASTM Method D1179-04 B as
 4562 approved alternative methods for fluoride in appendix A to subpart C of
 4563 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4564 Hach SPADNS 2 Method 10225 as an approved alternative method for
 4565 fluoride in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at
 4566 76 Fed. Reg. 37014). USEPA added ASTM Method D1179-10 B as an
 4567 approved alternative method for fluoride in appendix A to subpart C of 40
 4568 CFR 141 on June 28, 2012 (at 77 Fed. Reg. 38528).
 4569
 4570 14) Lead.
 4571

- 4572 A) Atomic absorption, furnace technique.
- 4573
- 4574 i) ASTM Method D3559-96 D, D3559-03 D, or D3559-08 D;
- 4575
- 4576 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
- 4577
- 4578 iii) Standard Methods Online, Method 3113 B-04.
- 4579
- 4580 B) Inductively coupled plasma-mass spectrometry: USEPA
- 4581 Environmental Metals Methods, Method 200.8 (rev. 5.3).
- 4582
- 4583 C) Atomic absorption, platform furnace technique: USEPA
- 4584 Environmental Metals Methods, Method 200.9 (rev. 2.2).
- 4585
- 4586 D) Differential Pulse Anodic Stripping Voltammetry: Palintest
- 4587 Method 1001.
- 4588
- 4589 E) Axially viewed inductively coupled plasma-atomic emission
- 4590 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 4591

4592 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113
4593 B and USEPA NERL Method 200.5 as approved alternative methods for
4594 lead in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73
4595 Fed. Reg. 31616). USEPA added ASTM Method D3559-08 D as an
4596 approved alternative method for lead in appendix A to subpart C of 40
4597 CFR 141 on November 10, 2009 (at 74 Fed. Reg. 57908). USEPA added
4598 Standard Methods Online, Method 3113 B-04 as an approved alternative
4599 method for lead in appendix A to subpart C of 40 CFR 141 on June 24,
4600 2011 (at 76 Fed. Reg. 37014).

4601 15) Magnesium.

- 4602 A) Atomic absorption.
- 4603
- 4604 i) ASTM Method D511-93 B, D511-03 B, or D511-09 B; or
- 4605
- 4606 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3111 B.
- 4607
- 4608
- 4609 B) Inductively coupled plasma.
- 4610
- 4611 i) USEPA Environmental Metals Methods, Method 200.7
- 4612 (rev. 4.4); or
- 4613
- 4614

- 4615 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
 4616 B.
 4617
 4618 C) Complexation titrimetric.
 4619
 4620 i) ASTM Method D511-93 A, D511-03 A, or D511-09 A; or
 4621
 4622 ii) Standard Methods, 18th or 19th ed., Method 3500-Mg E or
 4623 Standard Methods, 20th or 21st ed., Method 3500-Mg B.
 4624
 4625 D) Ion chromatography: ASTM Method D6919-03 or D6919-09.
 4626
 4627 E) Axially viewed inductively coupled plasma-atomic emission
 4628 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
 4629

4630 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4631 3111 B, 3120 B, and 3500-Mg B and USEPA NERL Method 200.5 as
 4632 approved alternative methods for magnesium in appendix A to subpart C
 4633 of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4634 ASTM Methods D511-09 A and B as approved alternative methods for
 4635 magnesium in appendix A to subpart C of 40 CFR 141 on November 10,
 4636 2009 (at 74 Fed. Reg. 57908). USEPA added ASTM Method D6919-09
 4637 as an approved alternative method for magnesium in appendix A to
 4638 subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
 4639

4640 16) Mercury.

- 4641 A) Manual cold vapor technique.
 4642
 4643 i) USEPA Environmental Metals Methods, Method 245.1
 4644 (rev. 3.0);
 4645
 4646 ii) ASTM Method D3223-97 or D3223-02;~~or~~
 4647
 4648 iii) Standard Methods, 18th, 19th, or 21st ed., Method 3112 B;~~or~~
 4649
 4650 iv) Standard Methods Online, Method 3112 B-09.
 4651
 4652 B) Automated cold vapor technique: USEPA Inorganic Methods,
 4653 Method 245.2.
 4654
 4655 C) Inductively coupled plasma-mass spectrometry: USEPA
 4656 Environmental Metals Methods, Method 200.8 (rev. 5.3).
 4657
 4658

4659 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3112
 4660 B as an approved alternative method for mercury in appendix A to subpart
 4661 C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4662 Standard Methods Online, Method 3112 B-09 as an approved alternative
 4663 method for mercury in appendix A to subpart C of 40 CFR 141 on June
 4664 28, 2012 (at 77 Fed. Reg. 38528).

4665
 4666 17) Nickel.

- 4667 A) Inductively coupled plasma.
- 4668 i) USEPA Environmental Metals Methods, Method 200.7
- 4669 (rev. 4.4); or
- 4670 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
- 4671 B.
- 4672 B) Inductively coupled plasma-mass spectrometry: USEPA
- 4673 Environmental Metals Methods, Method 200.8 (rev. 5.3).
- 4674 C) Atomic absorption, platform furnace technique: USEPA
- 4675 Environmental Metals Methods, Method 200.9 (rev. 2.2).
- 4676 D) Atomic absorption, direct aspiration technique: Standard Methods,
- 4677 18th, 19th, or 21st ed., Method 3111 B.
- 4678 E) Atomic absorption, furnace technique:
- 4679 i) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
- 4680 ii) Standard Methods Online, Method 3113 B-04.
- 4681 F) Axially viewed inductively coupled plasma-atomic emission
- 4682 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

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 4691 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4692 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as
 4693 approved alternative methods for nickel in appendix A to subpart C of 40
 4694 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added
 4695 Standard Methods Online, Method 3113 B-04 as an approved alternative
 4696 method for nickel in appendix A to subpart C of 40 CFR 141 on June 24,
 4697 2011 (at 76 Fed. Reg. 37014).

4700
 4701

- 4702 18) Nitrate.
 4703
 4704 A) Ion chromatography.
 4705
 4706 i) USEPA Environmental Inorganic Methods, Method 300.0
 4707 (rev. 2.1) or USEPA Organic and Inorganic Methods,
 4708 Method 300.1 (rev. 1.0);
 4709
 4710 ii) ASTM Method D4327-97 or D4327-03;
 4711
 4712 iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110
 4713 B; or
 4714
 4715 iv) Waters Test Method B-1011, available from Millipore
 4716 Corporation.
 4717
 4718 B) Automated cadmium reduction.
 4719
 4720 i) USEPA Environmental Inorganic Methods, Method 353.2
 4721 (rev. 2.0);
 4722
 4723 ii) ASTM Method D3867-90 A; or
 4724
 4725 iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4726 4500-NO₃⁻ F.
 4727
 4728 C) Ion selective electrode.
 4729
 4730 i) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4731 4500-NO₃⁻ D; or
 4732
 4733 ii) Technical Bulletin 601.
 4734
 4735 D) Manual cadmium reduction.
 4736
 4737 i) ASTM Method D3867-90 B; or
 4738
 4739 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4740 4500-NO₃⁻ E.
 4741
 4742 E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
 4743

BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200), USEPA amended the entry for nitrate to add capillary ion electrophoresis in the table at corresponding 40 CFR 141.23(k)(1) to allow the use of "Waters Method D6508, Rev. 2." The Board attempt to locate a copy of the method disclosed that it is an ASTM method originally approved in 2000 and reapproved in 2005. The Board has cited to the ASTM Method D6508-00(2005).

- F) Reduction-colorimetric: Systea Easy (1-Reagent).
- G) Direct colorimetric: Hach TNTplus 835/836 Method 10206.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110 B and 4500-NO₃⁻ D, E, and F as approved alternative methods for nitrate in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Systea Easy (1-Reagent) as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348). USEPA added Hach TNTplus 835/836 Method 10206 as an approved alternative method for nitrate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

19) Nitrite.

- A) Ion chromatography.
 - i) USEPA Environmental Inorganic Methods, Method 300.0 (rev. 2.1) or USEPA Organic and Inorganic Methods, Method 300.1 (rev. 1.0);
 - ii) ASTM Method D4327-97 or D4327-03;
 - iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110 B; or
 - iv) Waters Test Method B-1011, available from Millipore Corporation.
- B) Automated cadmium reduction.
 - i) USEPA Environmental Inorganic Methods, Method 353.2 (rev. 2.0);

- 4787 ii) ASTM Method D3867-90 A; or
 4788
 4789 iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4790 4500-NO₃⁻ F.
 4791
 4792 C) Manual cadmium reduction.
 4793
 4794 i) ASTM Method D3867-90 B; or
 4795
 4796 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4797 4500-NO₃⁻ E.
 4798
 4799 D) Spectrophotometric: Standard Methods, 18th, 19th, 20th, or 21st ed.,
 4800 Method 4500-NO₂⁻ B.
 4801
 4802 E) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
 4803
 4804 ~~BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200),~~
 4805 ~~USEPA amended the entry for nitrite to add capillary ion~~
 4806 ~~electrophoresis in the table at corresponding 40 CFR 141.23(k)(1)~~
 4807 ~~to allow the use of "Waters Method D6508, Rev. 2." The Board~~
 4808 ~~attempt to locate a copy of the method disclosed that it is an~~
 4809 ~~ASTM method originally approved in 2000 and reapproved in~~
 4810 ~~2005. The Board has cited to the ASTM Method D6508-00(2005).~~
 4811
 4812 F) Reduction-colorimetric: Systea Easy (1-Reagent).
 4813
 4814 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4815 4110 B, 4500-NO₃⁻ E and F; and 4500-NO₂⁻ B as approved alternative
 4816 methods for nitrite in appendix A to subpart C of 40 CFR 141 on June 3,
 4817 2008 (at 73 Fed. Reg. 31616). USEPA added Systea Easy (1-Reagent) as
 4818 an approved alternative method for nitrite in appendix A to subpart C of
 4819 40 CFR 141 on August 3, 2009 (at 73 Fed. Reg. 38348).
 4820
 4821 20) Orthophosphate (unfiltered, without digestion or hydrolysis).
 4822
 4823 A) Automated colorimetric, ascorbic acid.
 4824
 4825 i) USEPA Environmental Inorganic Methods, Method 365.1
 4826 (rev. 2.0); or
 4827
 4828 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
 4829 4500-P F.

- 4830
- 4831 B) Single reagent colorimetric, ascorbic acid.
- 4832
- 4833 i) ASTM Method D515-88 A; or
- 4834
- 4835 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method
- 4836 4500-P E.
- 4837
- 4838 C) Colorimetric, phosphomolybdate: USGS Methods, Method I-
- 4839 1601-85.
- 4840
- 4841 D) Colorimetric, phosphomolybdate, automated-segmented flow:
- 4842 USGS Methods, Method I-2601-90.
- 4843
- 4844 E) Colorimetric, phosphomolybdate, automated discrete: USGS
- 4845 Methods, Method I-2598-85.
- 4846
- 4847 F) Ion Chromatography.
- 4848
- 4849 i) USEPA Environmental Inorganic Methods, Method 300.0
- 4850 (rev. 2.1) or USEPA Organic and Inorganic Methods,
- 4851 Method 300.1 (rev. 1.0);
- 4852
- 4853 ii) ASTM Method D4327-97 or D4327-03; or
- 4854
- 4855 iii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4110
- 4856 B.
- 4857
- 4858 G) Capillary ion electrophoresis: ASTM Method D6508-00(2005).
- 4859
- 4860 ~~BOARD NOTE: On March 12, 2007 (at 72 Fed. Reg. 11200);~~
- 4861 ~~USEPA amended the entry for orthophosphate to add capillary ion~~
- 4862 ~~electrophoresis in the table at corresponding 40 CFR 141.23(k)(1)~~
- 4863 ~~to allow the use of "Waters Method D6508, Rev. 2." The Board~~
- 4864 ~~attempt to locate a copy of the method disclosed that it is an~~
- 4865 ~~ASTM method originally approved in 2000 and reapproved in~~
- 4866 ~~2005. The Board has cited to the ASTM Method D6508-00(2005).~~
- 4867
- 4868 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 4110
- 4869 B, 4500-P E and F as approved alternative methods for orthophosphate in
- 4870 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.
- 4871 31616).
- 4872

- 4873 21) pH: electrometric.
 4874
 4875 A) USEPA Inorganic Methods, Method 150.1 or Method 150.2;
 4876
 4877 B) ASTM Method D1293-95 or D1293-99; or
 4878
 4879 C) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 4500-H⁺ B.
 4880

4881 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
 4882 4500-H⁺ B as an approved alternative method for pH in appendix A to
 4883 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 4884

- 4885 22) Selenium.
 4886
 4887 A) Atomic absorption, hydride.
 4888
 4889 i) ASTM Method D3859-98 A, D3859-03 A, or D3859-08 A;
 4890
 4891 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3114 B; or
 4892
 4893 iii) Standard Methods Online, Method 3114 B-09.
 4894
 4895 B) Inductively coupled plasma-mass spectrometry: USEPA
 4896 Environmental Metals Methods, Method 200.8 (rev. 5.3).
 4897
 4898 C) Atomic absorption, platform furnace technique: USEPA
 4899 Environmental Metals Methods, Method 200.9 (rev. 2.2).
 4900
 4901 D) Atomic absorption, furnace technique.
 4902
 4903 i) ASTM Method D3859-98 B, D3859-03 B, or D3859-08 B;
 4904
 4905 ii) Standard Methods, 18th, 19th, or 21st ed., Method 3113 B; or
 4906
 4907 iii) Standard Methods Online, Method 3113 B-04.
 4908
 4909 E) Axially viewed inductively coupled plasma-atomic emission
 4910 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4911 BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods
 4912 3113 B and 3114 B and USEPA NERL Method 200.5 as approved
 4913 alternative methods for selenium in appendix A to subpart C of 40 CFR
 4914 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM
 4915 Methods D3859-08 A and B as approved alternative methods for selenium

4916 in appendix A to subpart C of 40 CFR 141 on November 10, 2009 (at 74
 4917 Fed. Reg. 57908). USEPA added Standard Methods Online, Method 3113
 4918 B-04 and Method 3114 B-09 as approved alternative methods for selenium
 4919 in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed.
 4920 Reg. 37014).

4921
 4922 23) Silica.

- 4923
 4924 A) Colorimetric, molybdate blue: USGS Methods, Method I-1700-
 4925 85.
 4926
 4927 B) Colorimetric, molybdate blue, automated-segmented flow: USGS
 4928 Methods, Method I-2700-85.
 4929
 4930 C) Colorimetric: ASTM Method D859-94, D859-00, ~~or~~ D859-05, or
 4931 D859-10.
 4932
 4933 D) Molybdosilicate: Standard Methods, 18th or 19th ed., Method
 4934 4500-Si D or Standard Methods, 20th or 21st ed., Method 4500-
 4935 SiO₂ C.
 4936
 4937 E) Heteropoly blue: Standard Methods, 18th or 19th ed., Method
 4938 4500-Si E or Standard Methods, 20th or 21st ed., Method 4500-SiO₂
 4939 D.
 4940
 4941 F) Automated method for molybdate-reactive silica: Standard
 4942 Methods, 18th or 19th ed., Method 4500-Si F or Standard Methods,
 4943 20th or 21st ed., Method 4500-SiO₂ E.
 4944
 4945 G) Inductively coupled plasma.
 4946
 4947 i) USEPA Environmental Metals Methods, Method 200.7
 4948 (rev. 4.4); or
 4949
 4950 ii) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 3120
 4951 B.
 4952
 4953 H) Axially viewed inductively coupled plasma-atomic emission
 4954 spectrometry (AVICP-AES): USEPA NERL Method 200.5.

4955
 4956 BOARD NOTE: USEPA added ASTM Method D859-05, Standard
 4957 Methods, 21st ed.; Methods 3120 B and 4500-SiO₂ C, D, and E; and
 4958 USEPA NERL Method 200.5 as approved alternative methods for silica in

4959 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.
 4960 31616). USEPA added ASTM Method D859-10 as an approved
 4961 alternative method for silica in appendix A to subpart C of 40 CFR 141 on
 4962 June 28, 2012 (at 77 Fed. Reg. 38528).

4963
 4964 24) Sodium.

- 4965
 4966 A) Inductively coupled plasma: USEPA Environmental Metals
 4967 Methods, Method 200.7 (rev. 4.4).
 4968
 4969 B) Atomic absorption, direct aspiration: Standard Methods, 18th, 19th,
 4970 or 21st ed., Method 3111 B.
 4971
 4972 C) Ion chromatography: ASTM Method D6919-03 or D6919-09.
 4973
 4974 D) Axially viewed inductively coupled plasma-atomic emission
 4975 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
 4976

4977 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 3113
 4978 B and USEPA NERL Method 200.5 as approved alternative methods for
 4979 sodium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73
 4980 Fed. Reg. 31616). USEPA added ASTM Method D6919-09 as an
 4981 approved alternative method for sodium in appendix A to subpart C of 40
 4982 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
 4983

4984 25) Temperature; thermometric: Standard Methods, 18th, 19th, 20th, or 21st ed.,
 4985 Method 2550.
 4986

4987 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 2550
 4988 as an approved alternative method for temperature in appendix A to
 4989 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 4990

4991 26) Thallium.

- 4992
 4993 A) Inductively coupled plasma-mass spectrometry: USEPA
 4994 Environmental Metals Methods, Method 200.8 (rev. 5.3).
 4995
 4996 B) Atomic absorption, platform furnace technique: USEPA
 4997 Environmental Metals Methods, Method 200.9 (rev. 2.2).
 4998

4999 b) Sample collection for antimony, arsenic (~~effective January 22, 2004~~), asbestos,
 5000 barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel,
 5001 nitrate, nitrite, selenium, and thallium pursuant to Sections 611.600 through

5002 611.604 must be conducted using the following sample preservation, container,
5003 and maximum holding time procedures:

5004
5005 BOARD NOTE: For cyanide determinations samples must be adjusted with
5006 sodium hydroxide to pH 12 at the time of collection. When chilling is indicated
5007 the sample must be shipped and stored at 4° C or less. Acidification of nitrate or
5008 metals samples may be with a concentrated acid or a dilute (50% by volume)
5009 solution of the applicable concentrated acid. Acidification of samples for metals
5010 analysis is encouraged and allowed at the laboratory rather than at the time of
5011 sampling provided the shipping time and other instructions in Section 8.3 of
5012 USEPA Environmental Metals Method 200.7, 200.8, or 200.9 are followed.

- 5013
5014 1) Antimony.
- 5015 A) Preservative: Concentrated nitric acid to pH less than 2.
 - 5016 B) Plastic or glass (hard or soft).
 - 5017 C) Holding time: Samples must be analyzed as soon after collection
 - 5018 as possible, but in any event within six months.
 - 5019
- 5020
5021 2) Arsenic.
- 5022 A) Preservative: Concentrated nitric acid to pH less than 2.
 - 5023 B) Plastic or glass (hard or soft).
 - 5024 C) Holding time: Samples must be analyzed as soon after collection
 - 5025 as possible, but in any event within six months.
 - 5026
- 5027
5028 3) Asbestos.
- 5029 A) Preservative: Cool to 4° C.
 - 5030 B) Plastic or glass (hard or soft).
 - 5031 C) Holding time: Samples must be analyzed as soon after collection
 - 5032 as possible, but in any event within 48 hours.
 - 5033
- 5034
5035 4) Barium.
- 5036 A) Preservative: Concentrated nitric acid to pH less than 2.
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- B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 5) Beryllium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 6) Cadmium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 7) Chromium.
- A) Preservative: Concentrated nitric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
- 8) Cyanide.
- A) Preservative: Cool to 4° C. Add sodium hydroxide to pH greater than 12. See the analytical methods for information on sample preservation.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.

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5129
- 9) Fluoride.
 - A) Preservative: None.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within one month.
 - 10) Mercury.
 - A) Preservative: Concentrated nitric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 28 days.
 - 11) Nickel.
 - A) Preservative: Concentrated nitric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within six months.
 - 12) Nitrate, chlorinated.
 - A) Preservative: Cool to 4° C.
 - B) Plastic or glass (hard or soft).
 - C) Holding time: Samples must be analyzed as soon after collection as possible, but in any event within 14 days.
 - 13) Nitrate, non-chlorinated.
 - A) Preservative: Concentrated sulfuric acid to pH less than 2.
 - B) Plastic or glass (hard or soft).

5130 C) Holding time: Samples must be analyzed as soon after collection
5131 as possible, but in any event within 14 days.

5132
5133 14) Nitrite.

5134
5135 A) Preservative: Cool to 4° C.

5136
5137 B) Plastic or glass (hard or soft).

5138
5139 C) Holding time: Samples must be analyzed as soon after collection
5140 as possible, but in any event within 48 hours.

5141
5142 15) Selenium.

5143
5144 A) Preservative: Concentrated nitric acid to pH less than 2.

5145
5146 B) Plastic or glass (hard or soft).

5147
5148 C) Holding time: Samples must be analyzed as soon after collection
5149 as possible, but in any event within six months.

5150
5151 16) Thallium.

5152
5153 A) Preservative: Concentrated nitric acid to pH less than 2.

5154
5155 B) Plastic or glass (hard or soft).

5156
5157 C) Holding time: Samples must be analyzed as soon after collection
5158 as possible, but in any event within six months.

5159
5160 c) Analyses under this Subpart N must be conducted by laboratories that received
5161 approval from USEPA or the Agency. The Agency must certify laboratories to
5162 conduct analyses for antimony, arsenic (~~effective January 23, 2006~~), asbestos,
5163 barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel,
5164 nitrate, nitrite, selenium, and thallium if the laboratory does as follows:

5165
5166 1) It analyzes performance evaluation (PE) samples, provided by the Agency
5167 pursuant to 35 Ill. Adm. Code 186, that include those substances at levels
5168 not in excess of levels expected in drinking water; and

5169
5170 2) It achieves quantitative results on the analyses within the following
5171 acceptance limits:
5172

- 5173 A) Antimony: $\pm 30\%$ at greater than or equal to 0.006 mg/l.
- 5174
- 5175 B) Arsenic: $\pm 30\%$ at greater than or equal to 0.003 mg/l.
- 5176
- 5177 C) Asbestos: 2 standard deviations based on study statistics.
- 5178
- 5179 D) Barium: $\pm 15\%$ at greater than or equal to 0.15 mg/l.
- 5180
- 5181 E) Beryllium: $\pm 15\%$ at greater than or equal to 0.001 mg/l.
- 5182
- 5183 F) Cadmium: $\pm 20\%$ at greater than or equal to 0.002 mg/l.
- 5184
- 5185 G) Chromium: $\pm 15\%$ at greater than or equal to 0.01 mg/l.
- 5186
- 5187 H) Cyanide: $\pm 25\%$ at greater than or equal to 0.1 mg/l.
- 5188
- 5189 I) Fluoride: $\pm 10\%$ at 1 to 10 mg/l.
- 5190
- 5191 J) Mercury: $\pm 30\%$ at greater than or equal to 0.0005 mg/l.
- 5192
- 5193 K) Nickel: $\pm 15\%$ at greater than or equal to 0.01 mg/l.
- 5194
- 5195 L) Nitrate: $\pm 10\%$ at greater than or equal to 0.4 mg/l.
- 5196
- 5197 M) Nitrite: $\pm 15\%$ at greater than or equal to 0.4 mg/l.
- 5198
- 5199 N) Selenium: $\pm 20\%$ at greater than or equal to 0.01 mg/l.
- 5200
- 5201 O) Thallium: $\pm 30\%$ at greater than or equal to 0.002 mg/l.
- 5202

5203 BOARD NOTE: Derived from 40 CFR 141.23(k) and appendix A to 40 CFR 141 (2012)(2011).

5204 (Source: Amended at 37 Ill. Reg. _____, effective _____)

5205

5206

5207 **Section 611.612 Monitoring Requirements for Old Inorganic MCLs**

- 5208
- 5209 a) Analyses for the purpose of determining compliance with the old inorganic MCLs
- 5210 of Section 611.300 are required as follows:
- 5211
- 5212 1) Analyses for all CWSs utilizing surface water sources must be repeated at
- 5213 yearly intervals.
- 5214
- 5215 2) Analyses for all CWSs utilizing only groundwater sources must be

- 5216 repeated at three-year intervals.
 5217
 5218 3) This subsection (a)(3) corresponds with 40 CFR 141.23(1)(3), which
 5219 requires monitoring for the repealed old MCL for nitrate at a frequency
 5220 specified by the state. The Board has followed the USEPA lead and
 5221 repealed that old MCL. This statement maintains structural consistency
 5222 with USEPA rules.
 5223
 5224 4) This subsection (a)(4) corresponds with 40 CFR 141.23(1)(4) ,which
 5225 authorizes the state to determine compliance and initiate enforcement
 5226 action. This statement maintains structural consistency with USEPA
 5227 rules.
 5228
 5229 b) If the result of an analysis made under subsection (a) of this Section indicates that
 5230 the level of any contaminant listed in Section 611.300 exceeds the old MCL, the
 5231 supplier must report to the Agency within seven days and initiate three additional
 5232 analyses at the same sampling point within one month.
 5233
 5234 c) When the average of four analyses made pursuant to subsection (b) of this
 5235 Section, rounded to the same number of significant figures as the old MCL for the
 5236 substance in question, exceeds the old MCL, the supplier must notify the Agency
 5237 and give notice to the public pursuant to Subpart V of this Part. Monitoring after
 5238 public notification must be at a frequency designated by the Agency by a SEP
 5239 granted pursuant to Section 611.110 and must continue until the old MCL has not
 5240 been exceeded in two successive samples or until a different monitoring schedule
 5241 becomes effective as a condition to a variance, an adjusted standard, a site
 5242 specific rule, an enforcement action, or another SEP granted pursuant to Section
 5243 611.110.
 5244
 5245 d) This subsection (d) corresponds with 40 CFR 141.23(o), which pertains to
 5246 monitoring for the repealed old MCL for nitrate. This statement maintains
 5247 structural consistency with USEPA rules.
 5248
 5249 e) This subsection (e) corresponds with 40 CFR 141.23(p), which pertains to the use
 5250 of existing data up until a date long since expired. This statement maintains
 5251 structural consistency with USEPA rules.
 5252
 5253 f) ~~Analyses Except for arsenic, for which analyses must be made in accordance with~~
 5254 ~~Section 611.611, analyses~~ conducted to determine compliance with the old MCLs
 5255 of Section 611.300 must be made in accordance with the following methods,
 5256 incorporated by reference in Section 611.102, or alternative methods approved by
 5257 the Agency pursuant to Section 611.480.
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5301
- 1) Fluoride: The methods specified in Section 611.611(c) must apply for the purposes of this Section.
 - 2) Iron.
 - A) Standard Methods.
 - i) Method 3111 B, 18th, 19th, or 21st ed.;
 - ii) Method 3113 B, 18th, 19th, or 21st ed.; or
 - iii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
 - B) Standard Methods Online, Method 3113 B-04.
 - C) USEPA Environmental Metals Methods.
 - i) Method 200.7 (rev. 4.4); or
 - ii) Method 200.9 (rev. 2.2).
 - D) Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES): USEPA NERL Method 200.5.

 BOARD NOTE: USEPA added this method as an approved alternative method in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for iron in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

 BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for iron in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
 - 3) Manganese.
 - A) Standard Methods.
 - i) Method 3111 B, 18th, 19th, or 21st ed.;
 - ii) Method 3113 B, 18th, 19th, or 21st ed.; or

- 5302 iii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
- 5303
- 5304 B) Standard Methods Online, Method 3113 B-04.
- 5305
- 5306 C) USEPA Environmental Metals Methods.
- 5307
- 5308 i) Method 200.7 (rev. 4.4);
- 5309
- 5310 ii) Method 200.8 (rev. 5.3); or
- 5311
- 5312 iii) Method 200.9 (rev. 2.2).
- 5313
- 5314 D) Axially viewed inductively coupled plasma-atomic emission
- 5315 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 5316

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B, 3113 B, and 3120 B and USEPA NERL Method 200.5 as approved alternative methods for manganese in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added Standard Methods Online, Method 3113 B-04 as an approved alternative method for manganese in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).

- 5317
- 5318
- 5319
- 5320
- 5321
- 5322
- 5323
- 5324
- 5325 4) Zinc.
- 5326
- 5327 A) Standard Methods.
- 5328
- 5329 i) Method 3111 B, 18th, 19th, or 21st ed.; or
- 5330
- 5331 ii) Method 3120 B, 18th, 19th, 20th, or 21st ed.
- 5332
- 5333 B) USEPA Environmental Metals Methods.
- 5334
- 5335 i) Method 200.7 (rev. 4.4); or
- 5336
- 5337 ii) Method 200.8 (rev. 5.3).
- 5338
- 5339 C) Axially viewed inductively coupled plasma-atomic emission
- 5340 spectrometry (AVICP-AES): USEPA NERL Method 200.5.
- 5341

BOARD NOTE: USEPA added Standard Methods, 21st ed.; Methods 3111 B and 3120 B and USEPA NERL Method 200.5 as approved

5342
5343

5344 alternative methods for zinc in appendix A to subpart C of 40 CFR 141 on
5345 June 3, 2008 (at 73 Fed. Reg. 31616).

5346
5347 BOARD NOTE: The provisions of subsections (a) through (e) of this Section derive
5348 from 40 CFR 141.23(l) through (p) (2012)(2011). Subsections (f)(2) through (f)(4) of
5349 this Section relate exclusively to additional State requirements. The Board retained
5350 subsection (f) of this Section to set forth methods for the inorganic contaminants for
5351 which there is a State-only MCL. The methods specified are those set forth in 40 CFR
5352 143.4(b) and appendix A to subpart C of 40 CFR 141 (2012)(2011), for secondary MCLs.

5353
5354 (Source: Amended at 37 Ill. Reg. _____, effective _____)

5355
5356 SUBPART O: ORGANIC MONITORING AND ANALYTICAL REQUIREMENTS

5357
5358 **Section 611.641 Old MCLs**

- 5359
- 5360 a) An analysis of substances for the purpose of determining compliance with the old
5361 MCLs of Section 611.310 must be made as follows:
 - 5362
 - 5363 1) The Agency ~~must~~shall, by SEP, require CWS suppliers utilizing surface
5364 water sources to collect samples during the period of the year when
5365 contamination by pesticides is most likely to occur. The Agency must
5366 require the supplier to repeat these analyses at least annually.
 - 5367
 - 5368 2) The Agency ~~must~~shall, by SEP, require CWS suppliers utilizing only
5369 groundwater sources to collect samples at least once every three years.
 - 5370
 - 5371 b) If the result of an analysis made pursuant to subsection (a) indicates that the level
5372 of any contaminant exceeds its old MCL, the CWS supplier must report to the
5373 Agency within seven days and initiate three additional analyses within one
5374 month.
 - 5375
 - 5376 c) When the average of four analyses made pursuant to subsection (a), rounded to
5377 the same number of significant figures as the MCL for the substance in question,
5378 exceeds the old MCL, the CWS supplier must report to the Agency and give
5379 notice to the public pursuant to Subpart T of this Part. Monitoring after public
5380 notification must be at a frequency designated by the Agency and must continue
5381 until the MCL has not been exceeded in two successive samples or until a
5382 monitoring schedule as a condition to a variance, adjusted standard, or
5383 enforcement action becomes effective.
 - 5384
 - 5385 d) Analysis made to determine compliance with the old MCLs of Section 611.310
5386 must be made in accordance with the appropriate methods specified in Section

5387 611.645.

5388
 5389 BOARD NOTE: This provision now applies only to State-only MCLs. It was
 5390 formerly derived from 40 CFR 141.24(a) through (e), which USEPA removed and
 5391 reserved.

5392
 5393 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 5394

5395 **Section 611.645 Analytical Methods for Organic Chemical Contaminants**
 5396

5397 Analysis for the Section 611.311(a) VOCs under Section 611.646; the Section 611.311(c) SOCs
 5398 under Section 611.648; the Section 611.310 old MCLs under Section 611.641; and for THMs,
 5399 TTHMs, and TTHM potential must be conducted using the methods listed in this Section. All
 5400 methods are incorporated by reference in Section 611.102. Other required analytical test
 5401 procedures germane to the conduct of these analyses are contained in the USEPA document,
 5402 "Technical Notes of Drinking Water Methods," incorporated by reference in Section 611.102.
 5403

- 5404 a) Volatile Organic Chemical Contaminants (VOCs).
 5405

Contaminant	Analytical Methods
Benzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Carbon tetrachloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Chlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,4-Dichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2-Dichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method

cis-Dichloroethylene	524.3 (rev. 1.0) USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
trans-Dichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Dichloromethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2-Dichloropropane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Ethylbenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Styrene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Tetrachloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
1,1,1-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Trichloroethylene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Toluene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,2,4-Trichlorobenzene	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1);

1,1-Dichloroethylene	USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
1,1,2-Trichloroethane	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Vinyl chloride	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)
Xylenes (total)	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0)

5406
 5407 BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an
 5408 alternative method for all of the VOCs in appendix A to subpart C of 40 CFR 141
 5409 on August 3, 2009 (at 74 Fed. Reg. 38348).

5410
 5411 b) Synthetic Organic Chemical Contaminants (SOCs).
 5412

Contaminant	Analytical Methods
2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or dioxin) 2,4-D	Dioxin and Furan Method 1613 (rev. B) USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98; Standard Methods, 21 st ed., Method 6640 B

2,4,5-TP (Silvex)	USEPA Organic Methods, Methods 515.2 (rev. 1.1), 555 (rev. 1.0), and 515.1 (rev. 4.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98; Standard Methods, 21 st ed., Method 6640 B
Alachlor	USEPA Organic Methods, Methods 505 (rev. 2.1) ¹ , 507 (rev. 2.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Atrazine	USEPA Organic Methods, Methods 505 (rev. 2.1) ¹ , 507 (rev. 2.1), 508.1 (rev. 2.1), <u>523 (ver. 1.0)</u> , 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , <u>536 (ver. 1.0)</u> , and 551.1 (rev. 1.0); Syngenta AG-625 ²
Benzo(a)pyrene	USEPA Organic Methods, Methods 525.2 (rev. 2.0), <u>525.3 (ver 1.0)</u> , 550, and 550.1
Carbofuran	USEPA Organic Methods, Methods 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18 th ed. Supplement, 19 th ed., or 20 th ed., Method 6610; Standard Methods, 21 st ed., Method 6610 B; Standard Methods Online, Method 6610 B-04
Chlordane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.1), and 525.2 (rev. 2.0), and <u>525.3 (ver. 1.0)</u>
Dalapon	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 552.1 (rev. 1.0), and 552.2 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Methods 515.4 (rev. 1.0), 552.3 (rev. 1.0), and 557; Standard Methods, 21 st ed., Method 6640 B

Di(2-ethylhexyl)adipate	USEPA Organic Methods, Methods 506 (rev. 1.1), and 525.2 (rev. 2.0), <u>and 525.3 (ver. 1.0)</u>
Di(2-ethylhexyl)phthalate	USEPA Organic Methods, Methods 506 (rev. 1.1), and 525.2 (rev. 2.0), <u>and 525.3 (ver. 1.0)</u>
Dibromochloropropane (DBCP)	USEPA Organic Methods, Methods 504.1 (rev. 1.1), USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev. 1.0)
Dinoseb	USEPA Organic Methods, Methods 515.1 (rev. 4.0) and 515.2 (rev. 1.1); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Methods 515.4 (rev. 1.0) and 555 (rev. 1.0); Standard Methods, 21 st ed., Method 6640 B
Diquat	USEPA NERL Method 549.2 (rev. 1.0)
Endothall	USEPA Organic Methods, Method 548.1 (rev. 1.0)
Endrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Ethylene dibromide (EDB)	USEPA Organic Methods, Method 504.1 (rev. 1.1); USEPA OGWDW Methods, Methods 524.3 (rev. 1.0) and 551.1 (rev.1.0)
Glyphosate	USEPA Organic Methods, Method 547; Standard Methods, 18 th ed., 19 th ed., 20 th , or 21 st ed., Method 6651 B
Heptachlor	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Heptachlor Epoxide	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev.1.0)

Hexachlorobenzene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Hexachlorocyclopentadiene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Lindane	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Methoxychlor	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Oxamyl	USEPA Organic Methods, Method 531.1 (rev. 3.1); USEPA OGWDW Methods, Method 531.2 (rev. 1.0); Standard Methods, 18 th ed. Supplement, 19 th ed. or 20 th ed. Method 6610; Standard Methods, 21 st ed., Method 6610 B; Standard Methods Online, Method 6610 B-04
PCBs (measured for compliance purposes as decachlorobiphenyl)	USEPA Organic Methods, Method 508A (rev. 1.0)
PCBs (qualitatively identified as Aroclors)	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0), and <u>525.3 (ver. 1.0)</u>
Pentachlorophenol	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1), 525.2 (rev. 2.0), <u>525.3 (ver. 1.0)</u> , and 555 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98 (2003); Standard Methods, 21 st ed., Method 6640 B

Picloram	USEPA Organic Methods, Methods 515.1 (rev. 4.0), 515.2 (rev. 1.1) and 555 (rev. 1.0); USEPA Organic and Inorganic Methods, Method 515.3 (rev. 1.0); USEPA OGWDW Methods, Method 515.4 (rev. 1.0); ASTM Method D5317-93 or D5317-98 (2003); Standard Methods, 21 st ed., Method 6640 B
Simazine	USEPA Organic Methods, Methods 505 (rev. 2.1) ¹ , 507 (rev. 2.1), 508.1 (rev. 2.0), <u>523 (ver. 1.0)</u> , <u>525.2 (rev. 2.0)</u> , <u>525.3 (ver. 1.0)</u> , <u>536 (ver. 1.0)</u> , and 551.1 (rev. 1.0)
Toxaphene	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 2.1), 508.1 (rev. 2.0), and <u>525.2 (rev. 2.0)</u> , <u>and</u> <u>525.3 (ver. 1.0)</u>

5413
5414 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 6610 B and
5415 Standard Methods Online, Method 6610 B-04 as approved alternative methods for
5416 carbofuran and oxamyl on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added USEPA
5417 OGWDW Method 524.3 (rev. 1.0) as an alternative method for dibromochloropropane
5418 and ethylene dibromide in appendix A to subpart C of 40 CFR 141 on August 3, 2009 (at
5419 74 Fed. Reg. 38348). USEPA approved Standard Methods, 21st ed., Method 6640 B and
5420 Standard Methods Online, Method 6640 B-01 and USEPA OGWDW Methods, Method
5421 557 as approved alternative methods for dalapon in appendix A to subpart C of 40 CFR
5422 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added Standard Methods, 21st ed.,
5423 Method 6640 B as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dinoseb,
5424 pentachlorophenol, and picloram in appendix A to subpart C of 40 CFR 141 on June 24,
5425 2011 (at 76 Fed. Reg. 37014). USEPA added Standard Methods, Online, Method 6640
5426 B-01 as an approved alternative method for 2,4-D, 2,4,5-TP (Silvex), dalapon, dinoseb,
5427 pentachlorophenol, and picloram and in appendix A to subpart C of 40 CFR 141 on June
5428 24, 2011 (at 76 Fed. Reg. 37014). Since the version of Method 6640 B that appears in
5429 Standard Methods Online is the same as that which appears in Standard Methods, 21st
5430 ed., the Board has cited only to Standard Methods, 21st ed. USEPA added Standard
5431 Methods, 21st ed., Method 6651 B as an approved alternative method for glyphosate in
5432 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg. 37014).
5433 USEPA added Standard Methods Online, Method 6651 B-00 as an approved alternative
5434 method for glyphosate in appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76
5435 Fed. Reg. 37014). Since the version of Method 6651 B that appears in Standard Methods
5436 Online is the same as that which appears in Standard Methods, 21st ed., the Board has
5437 cited only to Standard Methods, 21st ed. USEPA approved USEPA OGWDW Methods,

5438 Method 523 (ver. 1.0) and Method 536 (ver. 1.0) as approved alternative methods for
 5439 atrazine and simazine and USEPA NERL Methods, Method 525.3 as an approved
 5440 alternative method for alachlor, atrazine, benzo(a)pyrene, chlordane, di(2-ethylhexyl)-
 5441 adipate, di(2-ethylhexyl)phthalate, endrin, heptachlor, heptachlor epoxide, hexachloro-
 5442 benzene, hexachlorocyclopentadiene, lindane, methoxychlor, PCBs (as aroclors), penta-
 5443 chlorophenol, simazine, and toxaphene in appendix A to subpart C of 40 CFR 141 on
 5444 June 8, 2012 (at 77 Fed. Reg. 38523).

5445
 5446 c) Total Trihalomethanes (TTHMs).
 5447

Contaminant	Analytical Methods
Total Trihalomethanes (TTHMs), Trihalomethanes (THMs), and Maximum Total Trihalomethane Potential	USEPA Organic Methods, Methods 502.2 (rev. 2.1) and 524.2 (rev. 4.1); USEPA OGWDW Methods, Method 524.3 (rev. 1.0) and 551.1 (rev. 1.0)

5448
 5449 BOARD NOTE: USEPA added USEPA OGWDW Method 524.3 (rev. 1.0) as an
 5450 alternative method for total trihalomethane in appendix A to subpart C of 40 CFR
 5451 141 on August 3, 2009 (at 74 Fed. Reg. 38348).
 5452

5453 d) State-Only MCLs (for which a method is not listed in subsections (a) through (c)
 5454 of this Section).
 5455

Contaminant	Analytical Methods
Aldrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)
DDT	USEPA Organic Methods, Methods 505 (rev. 2.1) and 508 (rev. 3.1)
Dieldrin	USEPA Organic Methods, Methods 505 (rev. 2.1), 508 (rev. 3.1), 508.1 (rev. 2.0), and 525.2 (rev. 2.0)

5456
 5457 e) The following footnotes are appended to method entries in subsections (a) and (b)
 5458 of this Section:
 5459

5460 ¹ denotes that, for the particular contaminant, a nitrogen-phosphorus detector
 5461 should be substituted for the electron capture detector in method 505 (or

5462 another approved method should be used) to determine alachlor, atrazine, and
5463 simazine if lower detection limits are required.

5464
5465 ² denotes that Syngenta Method AG-625 may not be used for the analysis of
5466 atrazine in any system where chlorine dioxide is used for drinking water
5467 treatment. In samples from all other systems, any result for atrazine generated
5468 by Syngenta Method AG-625 that is greater than one-half the maximum
5469 contaminant level (MCL) (in other words, greater than 0.0015mg/l or 1.5
5470 µg/l) must be confirmed using another approved method for this contaminant
5471 and should use additional volume of the original sample collected for
5472 compliance monitoring. In instances where a result from Syngenta Method
5473 AG-625 triggers such confirmatory testing, the confirmatory result is to be
5474 used to determine compliance.

5475
5476 BOARD NOTE: Derived from 40 CFR 141.24(e) and appendix A to subpart C of 40 CFR 141
5477 (2012)~~(2011)~~.

5478
5479 (Source: Amended at 37 Ill. Reg. _____, effective _____)
5480

5481 **Section 611.646 Phase I, Phase II, and Phase V Volatile Organic Contaminants**
5482

5483 Monitoring of the Phase I, Phase II, and Phase V VOCs for the purpose of determining
5484 compliance with the MCL must be conducted as follows:
5485

5486 a) Definitions. As used in this Section the following have the given meanings:
5487

5488 "Detect" and "detection" mean that the contaminant of interest is present at
5489 a level greater than or equal to the "detection limit."
5490

5491 "Detection limit" means 0.0005 mg/l.
5492

5493 BOARD NOTE: Derived from 40 CFR 141.24(f)(7), (f)(11), (f)(14)(i),
5494 and (f)(20) (2012)~~(2005)~~. This is a "trigger level" for Phase I, Phase II,
5495 and Phase V VOCs inasmuch as it prompts further action. The use of the
5496 term "detect" in this Section is not intended to include any analytical
5497 capability of quantifying lower levels of any contaminant, or the "method
5498 detection limit." Note, however, that certain language at the end of federal
5499 paragraph (f)(20) is capable of meaning that the "method detection limit"
5500 is used to derive the "detection limit." The Board has chosen to disregard
5501 that language at the end of paragraph (f)(20) in favor of the more direct
5502 language of paragraphs (f)(7) and (f)(11).
5503

5504 "Method detection limit," as used in subsections (q) and (t) of this Section

5505 means the minimum concentration of a substance that can be measured
5506 and reported with 99 percent confidence that the analyte concentration is
5507 greater than zero and is determined from analysis of a sample in a given
5508 matrix containing the analyte.

5509
5510 BOARD NOTE: Derived from appendix B to 40 CFR 136 (2012)(2005).
5511 The method detection limit is determined by the procedure set forth in
5512 appendix B to 40 CFR 136, incorporated by reference in Section
5513 611.102(c). See subsection (t) of this Section.

5514
5515 b) Required sampling. Each supplier must take a minimum of one sample at each
5516 sampling point at the times required in subsection (u) of this Section.

5517
5518 c) Sampling points.

5519
5520 1) Sampling points for a GWS. Unless otherwise provided by a SEP granted
5521 by the Agency pursuant to Section 611.110, a GWS supplier must take at
5522 least one sample from each of the following points: each entry point that
5523 is representative of each well after treatment.

5524
5525 2) Sampling points for an SWS or mixed system supplier. Unless otherwise
5526 provided by a SEP granted by the Agency pursuant to Section 611.110, an
5527 SWS or mixed system supplier must sample from each of the following
5528 points:

5529
5530 A) Each entry point after treatment; or

5531
5532 B) Points in the distribution system that are representative of each
5533 source.

5534
5535 3) The supplier must take each sample at the same sampling point unless the
5536 Agency has granted a SEP pursuant to Section 611.110 that designates
5537 another location as more representative of each source, treatment plant, or
5538 within the distribution system.

5539
5540 4) If a system draws water from more than one source, and the sources are
5541 combined before distribution, the supplier must sample at an entry point
5542 during periods of normal operating conditions when water is
5543 representative of all sources being used.

5544
5545 BOARD NOTE: Subsections (b) and (c) of this Section derived from 40 CFR
5546 141.24(f)(1) through (f)(3) (2012)(2005).

5547

- 5548 d) Each CWS and NTNCWS supplier must take four consecutive quarterly samples
5549 for each of the Phase I VOCs, excluding vinyl chloride, and Phase II VOCs
5550 during each compliance period, beginning in the compliance period starting in the
5551 initial compliance period.
5552
- 5553 e) Reduction to annual monitoring frequency. If the initial monitoring for the Phase
5554 I, Phase II, and Phase V VOCs, as allowed in subsection (r)(1) of this Section,
5555 was completed by December 31, 1992, and the supplier did not detect any of the
5556 Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs, then
5557 the supplier must take one sample annually beginning in the initial compliance
5558 period.
5559
- 5560 f) GWS reduction to triennial monitoring frequency. After a minimum of three
5561 years of annual sampling, GWS suppliers that have not previously detected any of
5562 the Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs
5563 must take one sample during each three-year compliance period.
5564
- 5565 g) A CWS or NTNCWS supplier that has completed the initial round of monitoring
5566 required by subsection (d) of this Section and which did not detect any of the
5567 Phase I VOCs, including vinyl chloride; Phase II VOCs; and Phase V VOCs may
5568 apply to the Agency for a SEP pursuant to Section 611.110 that releases it from
5569 the requirements of subsection (e) or (f) of this Section. A supplier that serves
5570 fewer than 3300 service connections may apply to the Agency for a SEP that
5571 releases it from the requirements of subsection (d) of this Section as to 1,2,4-
5572 trichlorobenzene.
5573
- 5574 BOARD NOTE: Derived from 40 CFR 141.24(f)(7) and (f)(10) (2012)~~(2005)~~,
5575 and the discussion at 57 Fed. Reg. 31825 (July 17, 1992). Provisions concerning
5576 the term of the waiver appear in subsections (i) and (j) of this Section. The
5577 definition of "detect," parenthetically added to the federal counterpart paragraph,
5578 is in subsection (a) of this Section.
5579
- 5580 h) Vulnerability assessment. The Agency must consider the factors of Section
5581 611.110(e) in granting a SEP from the requirements of subsection (d), (e), or (f)
5582 of this Section sought pursuant to subsection (g) of this Section.
5583
- 5584 i) A SEP issued to a GWS pursuant to subsection (g) of this Section is for a
5585 maximum of six years, except that a SEP as to the subsection (d) of this Section
5586 monitoring for 1,2,4-trichlorobenzene must apply only to the initial round of
5587 monitoring. As a condition of a SEP, except as to a SEP from the initial round
5588 of subsection (d) of this Section monitoring for 1,2,4-trichlorobenzene, the
5589 supplier shall, within 30 months after the beginning of the period for which the
5590 waiver was issued, reconfirm its vulnerability assessment required by subsection

5591 (h) of this Section and submitted pursuant to subsection (g) of this Section, by
5592 taking one sample at each sampling point and reapplying for a SEP pursuant to
5593 subsection (g) of this Section. Based on this application, the Agency must do
5594 either of the following:
5595

- 5596 1) If it determines that the PWS meets the standard of Section 611.610(e),
5597 issue a SEP that reconfirms the prior SEP for the remaining three-year
5598 compliance period of the six-year maximum term; or
5599
- 5600 2) Issue a new SEP requiring the supplier to sample annually.
5601

5602 BOARD NOTE: Subsection (i) of this Section does not apply to an SWS or
5603 mixed system supplier.
5604

5605 j) Special considerations for a SEP for an SWS or mixed-system supplier.
5606

- 5607 1) The Agency must determine that an SWS is not vulnerable before issuing
5608 a SEP pursuant to Section 611.110 to an SWS supplier. A SEP issued to
5609 an SWS or mixed system supplier pursuant to subsection (g) of this
5610 Section is for a maximum of one compliance period; and
5611
- 5612 2) The Agency may require, as a condition to a SEP issued to an SWS or
5613 mixed supplier, that the supplier take such samples for Phase I, Phase II,
5614 and Phase V VOCs at such a frequency as the Agency determines are
5615 necessary, based on the vulnerability assessment.
5616

5617 BOARD NOTE: There is a great degree of similarity between 40 CFR
5618 141.24(f)(7) (2012)(2005), the provision applicable to GWSs, and 40 CFR
5619 141.24(f)(10) (2012)(2005), the provision for SWSs. The Board has consolidated
5620 the common requirements of both paragraphs into subsection (g) of this Section.
5621 Subsection (j) of this Section represents the elements unique to an SWSs or mixed
5622 system, and subsection (i) of this Section relates to a GWS supplier. Although 40
5623 CFR 141.24(f)(7) and (f)(10) are silent as to a mixed system supplier, the Board
5624 has included a mixed system supplier with an SWS supplier because this best
5625 follows the federal scheme for all other contaminants.
5626

5627 k) If one of the Phase I VOCs, excluding vinyl chloride; a Phase II VOC; or a Phase
5628 V VOC is detected in any sample, then the following must occur:
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- 5630 1) The supplier must monitor quarterly for that contaminant at each sampling
5631 point that resulted in a detection.
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- 5633 2) Annual monitoring.

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- A) The Agency must grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annual at a sampling point if it determines that the sampling point is reliably and consistently below the MCL.
 - B) A request for a SEP must include the following minimal information:
 - i) For a GWS, two quarterly samples.
 - ii) For an SWS or mixed system supplier, four quarterly samples.
 - C) In issuing a SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (k)(1) of this Section if it violates the MCL specified by Section 611.311.
- 3) Suppliers that monitor annually must monitor during the quarters that previously yielded the highest analytical result.
- 4) Suppliers that do not detect a contaminant at a sampling point in three consecutive annual samples may apply to the Agency for a SEP pursuant to Section 611.110 that allows it to discontinue monitoring for that contaminant at that point, as specified in subsection (g) of this Section.
- 5) A GWS supplier that has detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) of this Section must monitor quarterly for vinyl chloride as described in subsection (k)(5)(B) of this Section, subject to the limitation of subsection (k)(5)(C) of this Section.
- A) "Two-carbon contaminants" (Phase I or II VOC) are the following:
 - 1,2-Dichloroethane (Phase I)
 - 1,1-Dichloroethylene (Phase I)
 - cis-1,2-Dichloroethylene (Phase II)

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trans-1,2-Dichloroethylene (Phase II)

Tetrachloroethylene (Phase II)

1,1,1-Trichloroethylene (Phase I)

Trichloroethylene (Phase I)

- B) The supplier must sample quarterly for vinyl chloride at each sampling point at which it detected one or more of the two-carbon contaminants listed in subsection (k)(5)(A) of this Section.
 - C) The Agency must grant a SEP pursuant to Section 611.110 that allows the supplier to reduce the monitoring frequency for vinyl chloride at any sampling point to once in each three-year compliance period if it determines that the supplier has not detected vinyl chloride in the first sample required by subsection (k)(5)(B) of this Section.
- l) Quarterly monitoring following MCL violations.
- 1) Suppliers that violate an MCL for one of the Phase I VOCs, including vinyl chloride; Phase II VOCs; or Phase V VOCs, as determined by subsection (o) of this Section, must monitor quarterly for that contaminant, at the sampling point where the violation occurred, beginning the next quarter after the violation.
 - 2) Annual monitoring.
 - A) The Agency must grant a SEP pursuant to Section 611.110 that allows a supplier to reduce the monitoring frequency to annually if it determines that the sampling point is reliably and consistently below the MCL.
 - B) A request for a SEP must include the following minimal information: four quarterly samples.
 - C) In issuing a SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (l)(1) of this

Section if it violates the MCL specified by Section 611.311.

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D) The supplier must monitor during the quarters that previously yielded the highest analytical result.

m) Confirmation samples. The Agency may issue a SEP pursuant to Section 610.110 to require a supplier to use a confirmation sample for results that it finds dubious for whatever reason. The Agency must state its reasons for issuing the SEP if the SEP is Agency-initiated.

- 1) If a supplier detects any of the Phase I, Phase II, or Phase V VOCs in a sample, the supplier must take a confirmation sample as soon as possible, but no later than 14 days after the supplier receives notice of the detection.
- 2) Averaging is as specified in subsection (o) of this Section.
- 3) The Agency must delete the original or confirmation sample if it determines that a sampling error occurred, in which case the confirmation sample will replace the original or confirmation sample.

n) This subsection (n) corresponds with 40 CFR 141.24(f)(14), an optional USEPA provision relating to compositing of samples that USEPA does not require for state programs. This statement maintains structural consistency with USEPA rules.

o) Compliance with the MCLs for the Phase I, Phase II, and Phase V VOCs must be determined based on the analytical results obtained at each sampling point. ~~If Effective January 22, 2004, if one sampling point is in violation of an MCL, the system is in violation of the MCL.~~

- 1) ~~For Effective January 22, 2004, for a supplier that monitors more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.~~
- 2) ~~A Effective January 22, 2004, a supplier that monitors annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.~~
- 3) ~~If Effective January 22, 2004, if any sample result will cause the running annual average to exceed the MCL at any sampling point, the supplier is out of compliance with the MCL immediately.~~

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- 4) ~~If effective January 22, 2004, if a supplier fails to collect the required number of samples, compliance will be based on the total number of samples collected.~~

 - 5) ~~If effective January 22, 2004, if a sample result is less than the detection limit, zero will be used to calculate the annual average.~~

 - 6) ~~Until January 22, 2004, for a supplier that conducts monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point.~~
 - A) ~~If the annual average of any sampling point is greater than the MCL, then the supplier is out of compliance.~~

 - B) ~~If the initial sample or a subsequent sample would cause the annual average to exceed the MCL, then the supplier is out of compliance immediately.~~

 - C) ~~Any samples below the detection limit must be deemed as zero for purposes of determining the annual average.~~

 - 7) ~~Until January 22, 2004, if monitoring is conducted annually, or less frequently, the supplier is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. Until January 22, 2004, if a confirmation sample is taken, the determination of compliance is based on the average of two samples.~~

 - p) This subsection (p) corresponds with 40 CFR 141.24(f)(16), which USEPA removed and reserved. This statement maintains structural consistency with the federal regulations.

 - q) Analysis under this Section must only be conducted by laboratories that have received certification by USEPA or the Agency according to the following conditions:
 - 1) To receive certification to conduct analyses for the Phase I VOCs, excluding vinyl chloride; Phase II VOCs; and Phase V VOCs, the laboratory must do the following:
 - A) It must analyze performance evaluation (PE) samples that include these substances provided by the Agency pursuant to 35 Ill. Adm. Code 186.170;

- 5806 B) It must achieve the quantitative acceptance limits under
 5807 subsections (q)(1)(C) and (q)(1)(D) of this Section for at least 80
 5808 percent of the regulated organic contaminants in the PE sample;
 5809
- 5810 C) It must achieve quantitative results on the analyses performed
 5811 under subsection (q)(1)(A) of this Section that are within ± 20
 5812 percent of the actual amount of the substances in the PE sample
 5813 when the actual amount is greater than or equal to 0.010 mg/l;
 5814
- 5815 D) It must achieve quantitative results on the analyses performed
 5816 under subsection (q)(1)(A) of this Section that are within ± 40
 5817 percent of the actual amount of the substances in the PE sample
 5818 when the actual amount is less than 0.010 mg/l; and
 5819
- 5820 E) It must achieve a method detection limit of 0.0005 mg/l, according
 5821 to the procedures in appendix B to 40 CFR 136, incorporated by
 5822 reference in Section 611.102.
 5823
- 5824 2) To receive certification to conduct analyses for vinyl chloride the
 5825 laboratory must do the following:
 5826
- 5827 A) It must analyze PE samples provided by the Agency pursuant to 35
 5828 Ill. Adm. Code 186.170;
 5829
- 5830 B) It must achieve quantitative results on the analyses performed
 5831 under subsection (q)(2)(A) of this Section that are within ± 40
 5832 percent of the actual amount of vinyl chloride in the PE sample;
 5833
- 5834 C) It must achieve a method detection limit of 0.0005 mg/l, according
 5835 to the procedures in appendix B to 40 CFR 136, incorporated by
 5836 reference in Section 611.102; and
 5837
- 5838 D) It must obtain certification pursuant to subsection (q)(1) of this
 5839 Section for Phase I VOCs, excluding vinyl chloride; Phase II
 5840 VOCs; and Phase V VOCs.
 5841
- 5842 r) This subsection (r) corresponds with 40 CFR 141.24(f)(18), an obsolete provision
 5843 that relates to the initial compliance period from 1993 through 1995. This
 5844 statement maintains consistency with the federal regulations.
 5845
- 5846 s) The Agency shall, by a SEP issued pursuant to Section 611.110, increase the
 5847 number of sampling points or the frequency of monitoring if it determines that it
 5848 is necessary to detect variations within the PWS.

- 5849
- 5850 t) Each laboratory certified for the analysis of Phase I, Phase II, or Phase V VOCs
- 5851 pursuant to subsection (q)(1) or (q)(2) of this Section shall do the following:
- 5852
- 5853 1) Determine the method detection limit (MDL), as defined in appendix B to
- 5854 40 CFR 136, incorporated by reference in Section 611.102, at which it is
- 5855 capable of detecting the Phase I, Phase II, and Phase V VOCs; and,
- 5856
- 5857 2) Achieve an MDL for each Phase I, Phase II, and Phase V VOC that is less
- 5858 than or equal to 0.0005 mg/l.
- 5859
- 5860 u) Each supplier must monitor, within each compliance period, at the time
- 5861 designated by the Agency by SEP pursuant to Section 611.110.
- 5862
- 5863 v) A new system supplier or a supplier that uses a new source of water that begins
- 5864 operation after January 22, 2004 must demonstrate compliance with the MCL
- 5865 within a period of time specified by a permit issued by the Agency. The supplier
- 5866 must also comply with the initial sampling frequencies specified by the Agency to
- 5867 ensure the supplier can demonstrate compliance with the MCL. Routine and
- 5868 increased monitoring frequencies must be conducted in accordance with the
- 5869 requirements in this Section.
- 5870

5871 BOARD NOTE: Derived from 40 CFR 141.24(f) (2012)(2005).

5872 (Source: Amended at 37 Ill. Reg. _____, effective _____)

5873 **Section 611.648 Phase II, Phase IIB, and Phase V Synthetic Organic Contaminants**

5874

5875 Analysis of the Phase II, Phase IIB, and Phase V SOCs for the purposes of determining

5876 compliance with the MCL must be conducted as follows:

5877

- 5880 a) Definitions. As used in this Section, the following terms will have the following
- 5881 meanings:
- 5882

5883 "Detect" or "detection" means that the contaminant of interest is present at

5884 a level greater than or equal to the "detection limit."

5885

5886 "Detection limit" means the level of the contaminant of interest that is

5887 specified in subsection (r) of this Section.

5888

5889 BOARD NOTE: This is a "trigger level" for Phase II, Phase IIB, and

5890 Phase V SOCs inasmuch as it prompts further action. The use of the term

5891 "detect" or "detection" in this Section is not intended to include any

5892 analytical capability of quantifying lower levels of any contaminant, or the
5893 "method detection limit."
5894

- 5895 b) Required sampling. Each supplier must take a minimum of one sample at each
5896 sampling point at the times required in subsection (q) of this Section.
5897

5898 BOARD NOTE: See the Board note appended to Section 611.311(c) for
5899 information relating to implementation of requirements relating to aldicarb,
5900 aldicarb sulfone, and aldicarb sulfoxide.
5901

- 5902 c) Sampling points.
5903

5904 1) Sampling points for GWSs. Unless otherwise provided by SEP, a GWS
5905 supplier must take at least one sample from each of the following points:
5906 each entry point that is representative of each well after treatment.
5907

5908 2) Sampling points for an SWS or mixed system supplier. Unless otherwise
5909 provided by SEP, an SWS or mixed system supplier must sample from
5910 each of the following points:
5911

5912 A) Each entry point after treatment; or
5913

5914 B) Points in the distribution system that are representative of each
5915 source.
5916

5917 3) The supplier must take each sample at the same sampling point unless the
5918 Agency has granted a SEP that designates another location as more
5919 representative of each source, treatment plant, or within the distribution
5920 system.
5921

5922 4) If a system draws water from more than one source, and the sources are
5923 combined before distribution, the supplier must sample at an entry point
5924 during periods of normal operating conditions when water is
5925 representative of all sources being used.
5926

5927 BOARD NOTE: Subsections (b) and (c) of this Section derived from 40 CFR
5928 141.24(h)(1) through (h)(3) ~~(2012)~~(2003).
5929

- 5930 d) Monitoring frequency.
5931

5932 1) Each CWS and NTNCWS supplier must take four consecutive quarterly
5933 samples for each of the Phase II, Phase IIB, and Phase V SOCs during
5934 each compliance period, beginning in the three-year compliance period

- 5935 starting in the initial compliance period.
5936
5937 2) Suppliers serving more than 3,300 persons that do not detect a
5938 contaminant in the initial compliance period must take a minimum of two
5939 quarterly samples in one year of each subsequent three-year compliance
5940 period.
5941
5942 3) Suppliers serving fewer than or equal to 3,300 persons that do not detect a
5943 contaminant in the initial compliance period must take a minimum of one
5944 sample during each subsequent three-year compliance period.
5945
5946 e) Reduction to annual monitoring frequency. A CWS or NTNCWS supplier may
5947 apply to the Agency for a SEP that releases it from the requirements of subsection
5948 (d) of this Section. A SEP from the requirement of subsection (d) of this Section
5949 must last for only a single three-year compliance period.
5950
5951 f) Vulnerability assessment. The Agency must grant a SEP from the requirements
5952 of subsection (d) of this Section based on consideration of the factors set forth at
5953 Section 611.110(e).
5954
5955 g) If one of the Phase II, Phase IIB, or Phase V SOCs is detected in any sample, then
5956 the following must occur:
5957
5958 1) The supplier must monitor quarterly for the contaminant at each sampling
5959 point that resulted in a detection.
5960
5961 2) Annual monitoring.
5962
5963 A) A supplier may request that the Agency grant a SEP pursuant to
5964 Section 610.110 that reduces the monitoring frequency to annual.
5965
5966 B) A request for a SEP must include the following minimal
5967 information:
5968
5969 i) For a GWS, two quarterly samples.
5970
5971 ii) For an SWS or mixed system supplier, four quarterly
5972 samples.
5973
5974 C) The Agency must grant a SEP that allows annual monitoring at a
5975 sampling point if it determines that the sampling point is reliably
5976 and consistently below the MCL.
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- D) In issuing the SEP, the Agency must specify the level of the contaminant upon which the "reliably and consistently" determination was based. Any SEP that allows less frequent monitoring based on an Agency "reliably and consistently" determination must include a condition requiring the supplier to resume quarterly monitoring pursuant to subsection (g)(1) of this Section if it detects any Phase II SOC.
 - 3) Suppliers that monitor annually must monitor during the quarters that previously yielded the highest analytical result.
 - 4) Suppliers that have three consecutive annual samples with no detection of a contaminant at a sampling point may apply to the Agency for a SEP with respect to that point, as specified in subsections (e) and (f) of this Section.
 - 5) Monitoring for related contaminants.
 - A) If monitoring results in detection of one or more of the related contaminants listed in subsection (g)(5)(B) of this Section, subsequent monitoring must analyze for all the related compounds in the respective group.
 - B) Related contaminants.
 - i) First group.
 - aldicarb
 - aldicarb sulfone
 - aldicarb sulfoxide

BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.
 - ii) Second group.
 - heptachlor
 - heptachlor epoxide.

- 6021 h) Quarterly monitoring following MCL violations.
6022
6023 1) Suppliers that violate an MCL for one of the Phase II, Phase IIB, or Phase
6024 V SOCs, as determined by subsection (k) of this Section, must monitor
6025 quarterly for that contaminant at the sampling point where the violation
6026 occurred, beginning the next quarter after the violation.
6027
6028 2) Annual monitoring.
6029
6030 A) A supplier may request that the Agency grant a SEP pursuant to
6031 Section 611.110 that reduces the monitoring frequency to annual.
6032
6033 B) A request for a SEP must include, at a minimum, the results from
6034 four quarterly samples.
6035
6036 C) The Agency must grant a SEP that allows annual monitoring at a
6037 sampling point if it determines that the sampling point is reliably
6038 and consistently below the MCL.
6039
6040 D) In issuing the SEP, the Agency must specify the level of the
6041 contaminant upon which the "reliably and consistently"
6042 determination was based. Any SEP that allows less frequent
6043 monitoring based on an Agency "reliably and consistently"
6044 determination must include a condition requiring the supplier to
6045 resume quarterly monitoring pursuant to subsection (h)(1) of this
6046 Section if it detects any Phase II SOC.
6047
6048 E) The supplier must monitor during the quarters that previously
6049 yielded the highest analytical result.
6050
6051 i) Confirmation samples.
6052
6053 1) If any of the Phase II, Phase IIB, or Phase V SOCs are detected in a
6054 sample, the supplier must take a confirmation sample as soon as possible,
6055 but no later than 14 days after the supplier receives notice of the detection.
6056
6057 2) Averaging is as specified in subsection (k) of this Section.
6058
6059 3) The Agency must delete the original or confirmation sample if it
6060 determines that a sampling error occurred, in which case the confirmation
6061 sample will replace the original or confirmation sample.
6062
6063 j) This subsection (j) corresponds with 40 CFR 141.24(h)(10), an optional USEPA

6064 provision relating to compositing of samples that USEPA does not require for
 6065 state programs. This statement maintains structural consistency with USEPA
 6066 rules.

- 6067
- 6068 k) Compliance with the MCLs for the Phase II, Phase IIB, and Phase V SOCs must
 6069 be determined based on the analytical results obtained at each sampling point.
 6070 ~~If Effective January 22, 2004, if one sampling point is in violation of an MCL, the~~
 6071 ~~supplier is in violation of the MCL.~~
- 6072
- 6073 1) ~~For Effective January 22, 2004, for a supplier that monitors more than once~~
 6074 ~~per year, compliance with the MCL is determined by a running annual~~
 6075 ~~average at each sampling point.~~
 - 6076
 - 6077 2) ~~A Effective January 22, 2004, a supplier that monitors annually or less~~
 6078 ~~frequently whose sample result exceeds the regulatory detection level as~~
 6079 ~~defined by subsection (r) of this Section must begin quarterly sampling.~~
 6080 ~~The system will not be considered in violation of the MCL until it has~~
 6081 ~~completed one year of quarterly sampling.~~
 - 6082
 - 6083 3) ~~If Effective January 22, 2004, if any sample result will cause the running~~
 6084 ~~annual average to exceed the MCL at any sampling point, the supplier is~~
 6085 ~~out of compliance with the MCL immediately.~~
 - 6086
 - 6087 4) ~~If Effective January 22, 2004, if a supplier fails to collect the required~~
 6088 ~~number of samples, compliance will be based on the total number of~~
 6089 ~~samples collected.~~
 - 6090
 - 6091 5) ~~If Effective January 22, 2004, if a sample result is less than the detection~~
 6092 ~~limit, zero will be used to calculate the annual average.~~
 - 6093
 - 6094 6) ~~Until January 22, 2004, for a supplier that conducts monitoring at a~~
 6095 ~~frequency greater than annual, compliance is determined by a running~~
 6096 ~~annual average of all samples taken at each sampling point.~~
 - 6097
 - 6098 A) ~~If the annual average of any sampling point is greater than the~~
 6099 ~~MCL, then the supplier is out of compliance.~~
 - 6100
 - 6101 B) ~~If the initial sample or a subsequent sample would cause the annual~~
 6102 ~~average to exceed the MCL, then the supplier is out of compliance~~
 6103 ~~immediately.~~
 - 6104
 - 6105 C) ~~Any samples below the detection limit must be deemed as zero for~~
 6106 ~~purposes of determining the annual average.~~

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- 7) ~~Until January 22, 2004, if the supplier conducts monitoring annually, or less frequently, the supplier is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. Until January 22, 2004, if a confirmation sample is taken, the determination of compliance is based on the average of two samples.~~
 - l) This subsection (l) corresponds with 40 CFR 141.24(h)(12), which USEPA removed and reserved. This statement maintains structural consistency with the federal regulations.
 - m) Analysis for PCBs must be conducted as follows using the methods in Section 611.645:
 - 1) Each supplier that monitors for PCBs must analyze each sample using either USEPA Organic Methods, Method 505 or Method 508.
 - 2) If PCBs are detected in any sample analyzed using USEPA Organic Methods, Method 505 or 508, the supplier must reanalyze the sample using Method 508A to quantitate the individual Aroclors (as decachlorobiphenyl).
 - 3) Compliance with the PCB MCL must be determined based upon the quantitative results of analyses using USEPA Organic Methods, Method 508A.
 - n) This subsection (n) corresponds with 40 CFR 141.24(h)(14), an obsolete provision that relates to the initial compliance period from 1993 through 1995. This statement maintains consistency with the federal regulations.
 - o) The Agency must issue a SEP that increases the number of sampling points or the frequency of monitoring if it determines that this is necessary to detect variations within the PWS due to such factors as fluctuations in contaminant concentration due to seasonal use or changes in the water source.

BOARD NOTE: At 40 CFR 141.24(h)(15), USEPA uses the stated factors as non-limiting examples of circumstances that make additional monitoring necessary.
 - p) This subsection (p) corresponds with 40 CFR 141.24(h)(16), a USEPA provision relating to reserving enforcement authority to the State that would serve no useful function as part of the State's rules. This statement maintains structural consistency with USEPA rules.

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- q) Each supplier must monitor, within each compliance period, at the time designated by the Agency by SEP pursuant to Section 611.110.
- r) "Detection" means greater than or equal to the following concentrations for each contaminant:

- 1) for PCBs (Aroclors), the following:

Aroclor	Detection Limit (mg/ℓ)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

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- 2) for other Phase II, Phase IIB, and Phase V SOCs, the following:

Contaminant	Detection Limit (mg/ℓ)
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008
Atrazine	0.0001
Benzo(a)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
2,4-D	0.0001
Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006

Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (silvex)	0.0002

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BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

- s) Laboratory certification.
 - 1) Analyses under this Section must only be conducted by laboratories that have received approval by USEPA or the Agency according to the conditions of subsection (s)(2) of this Section.
 - 2) To receive certification to conduct analyses for the Phase II, Phase IIB, and Phase V SOCs, the laboratory must do the following:
 - A) Analyze PE samples provided by the Agency pursuant to 35 Ill. Adm. Code 183.125(c) that include these substances; and
 - B) Achieve quantitative results on the analyses performed under subsection (s)(2)(A) of this Section that are within the following acceptance limits:

SOC	Acceptance Limits
Alachlor	± 45%
Aldicarb	2 standard deviations
Aldicarb sulfone	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Atrazine	± 45%

Benzo(a)pyrene	2 standard deviations
Carbofuran	± 45%
Chlordane	± 45%
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	± 30%
Glyphosate	2 standard deviations
Dibromochloropropane (DBCP)	± 40%
Ethylene dibromide (EDB)	± 40%
Heptachlor	± 45%
Heptachlor epoxide	± 45%
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	± 45%
Methoxychlor	± 45%
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200%
Pentachlorophenol	± 50%
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	± 45%
2,4-D	± 50%
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4,5-TP (silvex)	± 50%

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BOARD NOTE: See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.

- t) A new system supplier or a supplier that uses a new source of water that begins operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by a permit issued by the Agency. The supplier must also comply with the initial sampling frequencies specified by the Agency to ensure the supplier can demonstrate compliance with the MCL. Routine and increased monitoring frequencies must be conducted in accordance with the requirements in this Section.

BOARD NOTE: Derived from 40 CFR 141.24(h) (2012)(2003).

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(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART Q: RADIOLOGICAL MONITORING AND ANALYTICAL REQUIREMENTS

Section 611.720 Analytical Methods

a) The methods specified below, or alternative methods approved by the Agency pursuant to Section 611.480, incorporated by reference in Section 611.102, are to be used to determine compliance with Section 611.330, except in cases where alternative methods have been approved in accordance with Section 611.480.

1) Gross Alpha and Beta.

A) Standard Methods.

i) Method 302, 13th ed.; or

ii) Method 7110 B, 17th, 18th, 19th, 20th, or 21st ed.;

B) USEPA Interim Radiochemical Methods: pages 1-3;

C) USEPA Radioactivity Methods, Method 900.0;

D) USEPA Radiochemical Analyses: pages 1-5;

E) USEPA Radiochemistry Procedures, Method 00-01; or

F) USGS Methods, Method R-1120-76.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 B as an approved alternative method for gross alpha and beta in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

2) Gross Alpha.

A) Standard Methods, 18th, 19th, 20th, or 21st ed., Method 7110 C; or

B) USEPA Radiochemistry Procedures, Method 00-02.

BOARD NOTE: USEPA added Standard Methods, 21st ed., Method 7110 C as an approved alternative method for gross alpha in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).

- 6241
- 6242 3) Radium-226.
- 6243
- 6244 A) ASTM Methods.
- 6245
- 6246 i) Method D2460-97 or D2460-07; or
- 6247
- 6248 ii) Method D3454-97 or D3454-05;
- 6249
- 6250 B) New York Radium Method;
- 6251
- 6252 C) Standard Methods.
- 6253
- 6254 i) Method 304, 13th ed.;
- 6255
- 6256 ii) Method 305, 13th ed.;
- 6257
- 6258 iii) Method 7500-Ra B, 17th, 18th, 19th, 20th, or 21st ed.; or
- 6259
- 6260 iv) Method 7500-Ra C, 17th, 18th, 19th, 20th, or 21st ed.;
- 6261
- 6262 D) EML Procedures Manual (27th or 28th ed.), Method Ra-04;
- 6263
- 6264 E) USEPA Interim Radiochemical Methods: pages 13-15 or 16-23;
- 6265
- 6266 F) USEPA Radioactivity Methods, Methods 903.0, 903.1;
- 6267
- 6268 G) USEPA Radiochemical Analyses, pages 19-32;
- 6269
- 6270 H) USEPA Radiochemistry Procedures, Method Ra-03 or Ra-04; or
- 6271
- 6272 I) USGS Methods.
- 6273
- 6274 i) Method R-1140-76; or
- 6275
- 6276 ii) Method R-1141-76.
- 6277
- 6278 J) Georgia Radium Method.
- 6279

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7500-Ra B and C as approved alternative methods for radium-226 in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D2460-07 and D3454-05 as

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6284 approved alternative methods for radium-226 in appendix A to subpart C
6285 of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).
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6287 4) Radium-228.
6288

- 6289 A) Standard Methods, 17th, 18th, 19th, 20th, or 21st ed., Method 7500-
6290 Ra D;
- 6291 B) New York Radium Method;
- 6292 C) USEPA Interim Radiochemical Methods, pages 24-28;
- 6293 D) USEPA Radioactivity Methods, Method 904.0;
- 6294 E) USEPA Radiochemical Analyses, pages 19-32;
- 6295 F) USEPA Radiochemistry Procedures, Method Ra-05;
- 6296 G) USGS Methods, Method R-1142-76;
- 6297 H) New Jersey Radium Method; or
- 6298 I) Georgia Radium Method.

6300 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
6301 7500-Ra D as an approved alternative method for radium-228 in appendix
6302 A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
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6304 5) Uranium.
6305

- 6306 A) Standard Methods, 17th, 18th, 19th, 20th, or 21st ed., Method 7500-U
6307 C;
- 6308 B) Standard Methods, 20th or 21st ed., Method 3125;
- 6309 C) ASTM Methods.
 - 6310 i) Method D2907-97;
 - 6311 ii) Method D3972-97 or D3972-02;
 - 6312 iii) Method D5174-97, D5174-02, D5174-07, or D3972-09; or

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- 6327 iv) Method D5673-03, ~~or~~ Method D5673-05, or Method
- 6328 D5673-10~~5673-05~~; or
- 6329
- 6330 v) Method D6239-09;
- 6331
- 6332 D) USEPA Radioactivity Methods, Methods 908.0, 908.1;
- 6333
- 6334 E) USEPA Environmental Metals Methods, Method 200.8 (rev. 5.3);
- 6335
- 6336 F) USEPA Radiochemical Analyses, pages 33-48;
- 6337
- 6338 G) USEPA Radiochemistry Procedures, Method 00-07;
- 6339
- 6340 H) EML Procedures Manual (27th or 28th ed.), Method U-02 or U-04;
- 6341 or
- 6342
- 6343 I) USGS Methods.
- 6344
- 6345 i) Method R-1180-76;
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- 6347 ii) Method R-1181-76; or
- 6348
- 6349 iii) Method R-1182-76.
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6351 BOARD NOTE: If uranium (U) is determined by mass, a conversion

6352 factor of 0.67 pCi/μg of uranium must be used. This conversion factor is

6353 based on the 1:1 activity ratio of ²³⁴U and ²³⁸U that is characteristic of

6354 naturally occurring uranium.

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6356 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method

6357 7500-U C and ASTM Method D5673-05 as approved alternative methods

6358 for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at

6359 73 Fed. Reg. 31616). USEPA added ASTM Method D5174-07 as an

6360 approved alternative method for uranium in appendix A to subpart C of 40

6361 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295). USEPA added ASTM

6362 Method D3972-09 as an approved alternative method for uranium in

6363 appendix A to subpart C of 40 CFR 141 on June 24, 2011 (at 76 Fed. Reg.

6364 37014). USEPA added Standard Methods, 21st ed., Method 3125 and

6365 ASTM Methods D5673-10 and D6329-09 as approved alternative methods

6366 for uranium in appendix A to subpart C of 40 CFR 141 on June 3, 2012 (at

6367 77 Fed. Reg. 38523).

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- 6) Radioactive Cesium.

- 6370
- 6371 A) ASTM Methods.
- 6372
- 6373 i) Method D2459-72; or
- 6374
- 6375 ii) Method D3649-91, D3649-98a, or D3649-06;
- 6376
- 6377 B) Standard Methods.
- 6378
- 6379 i) Method 7120, 19th, 20th, or 21st ed.; or
- 6380
- 6381 ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, or 21st ed.;
- 6382
- 6383 C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;
- 6384
- 6385 D) USEPA Interim Radiochemical Methods, pages 4-5;
- 6386
- 6387 E) USEPA Radioactivity Methods, Methods 901.0, 901.1;
- 6388
- 6389 F) USEPA Radiochemical Analyses, pages 92-95; or
- 6390
- 6391 G) USGS Methods.
- 6392
- 6393 i) Method R-1110-76; or
- 6394
- 6395 ii) Method R-1111-76.
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BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-Cs B as approved alternative methods for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Method D3649-06 as an approved alternative method for radioactive cesium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- 6400 7) Radioactive Iodine.
- 6401
- 6402 A) ASTM Methods.
- 6403
- 6404 i) D3649-91, D3649-98a, or D3649-06; or
- 6405
- 6406 ii) D4785-93, D4785-98, or D4785-08;
- 6407
- 6408 B) Standard Methods.
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- 6414 i) Method 7120, 19th, 20th, or 21st ed.;
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- 6416 ii) Method 7500-I B, 17th, 18th, 19th, 20th, or 21st ed.;
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- 6418 iii) Method 7500-I C, 17th, 18th, 19th, 20th, or 21st ed.; or
- 6419
- 6420 iv) Method 7500-I D, 17th, 18th, 19th, 20th, or 21st ed.;
- 6421
- 6422 C) EML Procedures Manual (27th or 28th ed.), Method 4.5.2.3;
- 6423
- 6424 D) USEPA Interim Radiochemical Methods, pages 6-8 or 9-12;
- 6425
- 6426 E) USEPA Radiochemical Analyses, pages 92-95; or
- 6427
- 6428 F) USEPA Radioactivity Methods, Methods 901.1 or 902.0.
- 6429

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120 and 7500-I B, C, and D as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-06 and D4785-08 as approved alternative methods for radioactive iodine in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

- 6430
- 6431 8) Radioactive Strontium-89 & 90.
- 6432
- 6433 A) Standard Methods.
- 6434
- 6435 i) Method 303, 13th ed.; or
- 6436
- 6437 ii) Method 7500-Sr B, 17th, 18th, 19th, 20th, or 21st ed.;
- 6438
- 6439 B) EML Procedures Manual (27th or 28th ed.), Method Sr-01 or Sr-02.
- 6440
- 6441 C) USEPA Interim Radiochemical Methods, pages 29-33;
- 6442
- 6443 D) USEPA Radioactivity Methods, Method 905.0;
- 6444
- 6445 E) USEPA Radiochemical Analyses, pages 65-73;
- 6446
- 6447 F) USEPA Radiochemistry Procedures, Method Sr-04; or
- 6448
- 6449 G) USGS Methods, Method R-1160-76.
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6458 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
6459 7500-Sr B as an approved alternative method for radioactive strontium in
6460 appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg.
6461 31616).
6462

- 9) Tritium.
 - A) ASTM Methods: Method D4107-91, D4107-98, or D4107-08;
 - B) Standard Methods.
 - i) Method 306, 13th ed.; or
 - ii) Method 7500-³H B, 17th, 18th, 19th, 20th, or 21st ed.;
 - C) USEPA Interim Radiochemical Methods, pages 34-37;
 - D) USEPA Radioactivity Methods, Method 906.0;
 - E) USEPA Radiochemical Analyses, pages 87-91;
 - F) USEPA Radiochemistry Procedures, Method H-02; or
 - G) USGS Methods, Method R-1171-76.

6482
6483 BOARD NOTE: USEPA added Standard Methods, 21st ed., Method
6484 7500-³H B as an approved alternative method for tritium in appendix A to
6485 subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616).
6486 USEPA added ASTM Method D4107-08 as an approved alternative
6487 method for tritium in appendix A to subpart C of 40 CFR 141 on June 8,
6488 2010 (at 75 Fed. Reg. 32295).
6489

- 10) Gamma Emitters.
 - A) ASTM Methods.
 - i) Method D3649-91, D3649-98a, or D3649-06; or
 - ii) Method D4785-93, D4785-00a, or D4785-08;
 - B) Standard Methods.

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- 6500 i) Method 7120, 19th, 20th, or 21st ed.;
- 6501
- 6502 ii) Method 7500-Cs B, 17th, 18th, 19th, 20th, or 21st ed.; or
- 6503
- 6504 iii) Method 7500-I B, 17th, 18th, 19th, 20th, or 21st ed.;
- 6505
- 6506 C) EML Procedures Manual (27th or 28th ed.), Method Ga-01-R;
- 6507
- 6508 D) USEPA Radioactivity Methods, Methods 901.0, 901.1, or 902.0;
- 6509
- 6510 E) USEPA Radiochemical Analyses, pages 92-95; or
- 6511
- 6512 F) USGS Methods, Method R-1110-76.
- 6513

BOARD NOTE: USEPA added Standard Methods, 21st ed., Methods 7120, 7500-Cs B, and 7500-I B as approved alternative methods for gamma emitters in appendix A to subpart C of 40 CFR 141 on June 3, 2008 (at 73 Fed. Reg. 31616). USEPA added ASTM Methods D3649-08 and D4785-08 as approved alternative methods for tritium in appendix A to subpart C of 40 CFR 141 on June 8, 2010 (at 75 Fed. Reg. 32295).

b) When the identification and measurement of radionuclides other than those listed in subsection (a) of this Section are required, the following methods, incorporated by reference in Section 611.102, are to be used, except in cases where alternative methods have been approved in accordance with Section 611.480:

- 6526 1) "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous
- 6527 Solutions," available from NTIS.
- 6528
- 6529 2) EML Procedures Manual (27th or 28th ed.), available from USDOE, EML.
- 6530

c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit must be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent confidence level (1.96σ , where σ is the standard deviation of the net counting rate of the sample).

- 6537 1) To determine compliance with Section 611.330(b), (c), and (e), the
- 6538 detection limit must not exceed the concentrations set forth in the
- 6539 following table:
- 6540

Contaminant	Detection Limit
Gross alpha particle	3 pCi/ℓ

activity	
Radium-226	1 pCi/ℓ
Radium-228	1 pCi/ℓ
Uranium	1 µg/ℓ

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BOARD NOTE: Derived from 40 CFR 141.25(c) Table B(2012)(2011).

- 2) To determine compliance with Section 611.330(d), the detection limits must not exceed the concentrations listed in the following table:

Radionuclide	Detection Limit
Tritium	1,000 pCi/ℓ
Strontium-89	10 pCi/ℓ
Strontium-90	2 pCi/ℓ
Iodine-131	1 pCi/ℓ
Cesium-134	10 pCi/ℓ
Gross beta	4 pCi/ℓ
Other radionuclides	1/10 of applicable limit

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BOARD NOTE: Derived from 40 CFR 141.25(c) Table C (2012)(2011).

- d) To judge compliance with the MCLs listed in Section 611.330, averages of data must be used and must be rounded to the same number of significant figures as the MCL for the substance in question.

BOARD NOTE: Derived from 40 CFR 141.25 and appendix A to subpart C of 40 CFR 141 (2012)(2011).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 611.731 Gross Alpha

Monitoring requirements for gross alpha particle activity, radium-226, radium-228, and uranium are as follows:

- a) ~~Effective December 8, 2003,~~ a community water system (CWS) supplier must conduct initial monitoring to determine compliance with Section 611.330(b), (c), and (e) ~~by December 31, 2007.~~ For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined as in Section 611.720(c).

- 1) Applicability and sampling location for an existing CWS supplier. An

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6572 existing CWS supplier using groundwater, surface water, or both
 6573 groundwater and surface water (for the purpose of this Section hereafter
 6574 referred to as a supplier) must sample at every entry point to the
 6575 distribution system that is representative of all sources being used
 6576 (hereafter called a sampling point) under normal operating conditions.
 6577 The supplier must take each sample at the same sampling point, unless
 6578 conditions make another sampling point more representative of each
 6579 source or the Agency has designated a distribution system location, in
 6580 accordance with subsection (b)(2)(C) of this Section.

6581
 6582 2) Applicability and sampling location for a new CWS supplier. A new CWS
 6583 supplier or a CWS supplier that uses a new source of water must begin to
 6584 conduct initial monitoring for the new source within the first quarter after
 6585 initiating use of the source. A CWS supplier must conduct more frequent
 6586 monitoring when ordered by the Agency in the event of possible
 6587 contamination or when changes in the distribution system or treatment
 6588 processes occur that may increase the concentration of radioactivity in
 6589 finished water.

6590
 6591 b) Initial monitoring: ~~Effective December 8, 2003,~~ a CWS supplier must conduct
 6592 initial monitoring for gross alpha particle activity, radium-226, radium-228, and
 6593 uranium as follows:

6594
 6595 1) A CWS supplier without acceptable historical data, as defined in
 6596 subsection (b)(2) of this Section, ~~is required to have collected~~ must collect
 6597 four consecutive quarterly samples at all sampling points before December
 6598 31, 2007.

6599
 6600 2) Grandfathering of data: A CWS supplier may use historical monitoring
 6601 data collected at a sampling point to satisfy the initial monitoring
 6602 requirements for that sampling point, under the following situations.

6603
 6604 A) To satisfy initial monitoring requirements, a CWS supplier having
 6605 only one entry point to the distribution system may use the
 6606 monitoring data from the last compliance monitoring period that
 6607 began between June 2000 and December 8, 2003.

6608
 6609 B) To satisfy initial monitoring requirements, a CWS supplier with
 6610 multiple entry points and having appropriate historical monitoring
 6611 data for each entry point to the distribution system may use the
 6612 monitoring data from the last compliance monitoring period that
 6613 began between June 2000 and December 8, 2003.
 6614

- 6615 C) To satisfy initial monitoring requirements, a CWS supplier with
6616 appropriate historical data for a representative point in the
6617 distribution system may use the monitoring data from the last
6618 compliance monitoring period that began between June 2000 and
6619 December 8, 2003, provided that the Agency finds that the
6620 historical data satisfactorily demonstrate that each entry point to
6621 the distribution system is expected to be in compliance based upon
6622 the historical data and reasonable assumptions about the variability
6623 of contaminant levels between entry points. The Agency must
6624 make its finding in writing, by a SEP issued pursuant to Section
6625 611.110, indicating how the data conforms to the requirements of
6626 this subsection (b)(2).
6627
- 6628 3) For gross alpha particle activity, uranium, radium-226, and radium-228
6629 monitoring, the Agency may, by a SEP issued pursuant to Section
6630 611.110, waive the final two quarters of initial monitoring for a sampling
6631 point if the results of the samples from the previous two quarters are
6632 below the detection limit.
6633
- 6634 4) If the average of the initial monitoring results for a sampling point is
6635 above the MCL, the supplier must collect and analyze quarterly samples at
6636 that sampling point until the system has results from four consecutive
6637 quarters that are at or below the MCL, unless the supplier enters into
6638 another schedule as part of a formal compliance agreement with the
6639 Agency.
6640
- 6641 c) Reduced monitoring: ~~The Effective December 8, 2003,~~ the Agency may allow a
6642 CWS supplier to reduce the future frequency of monitoring from once every three
6643 years to once every six or nine years at each sampling point, based on the
6644 following criteria:
6645
- 6646 1) If the average of the initial monitoring results for each contaminant (i.e.,
6647 gross alpha particle activity, uranium, radium-226, or radium-228) is
6648 below the detection limit specified in the table at Section 611.720(c)(1),
6649 the supplier must collect and analyze for that contaminant using at least
6650 one sample at that sampling point every nine years.
6651
- 6652 2) For gross alpha particle activity and uranium, if the average of the initial
6653 monitoring results for each contaminant is at or above the detection limit
6654 but at or below one-half the MCL, the supplier must collect and analyze
6655 for that contaminant using at least one sample at that sampling point every
6656 six years. For combined radium-226 and radium-228, the analytical
6657 results must be combined. If the average of the combined initial

- 6658 monitoring results for radium-226 and radium-228 is at or above the
 6659 detection limit but at or below one-half the MCL, the supplier must collect
 6660 and analyze for that contaminant using at least one sample at that sampling
 6661 point every six years.
 6662
- 6663 3) For gross alpha particle activity and uranium, if the average of the initial
 6664 monitoring results for each contaminant is above one-half the MCL but at
 6665 or below the MCL, the supplier must collect and analyze at least one
 6666 sample at that sampling point every three years. For combined radium-
 6667 226 and radium-228, the analytical results must be combined. If the
 6668 average of the combined initial monitoring results for radium-226 and
 6669 radium-228 is above one-half the MCL but at or below the MCL, the
 6670 supplier must collect and analyze at least one sample at that sampling
 6671 point every three years.
 6672
- 6673 4) A supplier must use the samples collected during the reduced monitoring
 6674 period to determine the monitoring frequency for subsequent monitoring
 6675 periods (e.g., if a supplier's sampling point is on a nine year monitoring
 6676 period, and the sample result is above one-half the MCL, then the next
 6677 monitoring period for that sampling point is three years).
 6678
- 6679 5) If a supplier has a monitoring result that exceeds the MCL while on
 6680 reduced monitoring, the supplier must collect and analyze quarterly
 6681 samples at that sampling point until the supplier has results from four
 6682 consecutive quarters that are below the MCL, unless the supplier enters
 6683 into another schedule as part of a formal compliance agreement with the
 6684 Agency.
 6685
- 6686 d) Compositing: ~~To Effective December 8, 2003,~~ to fulfill quarterly monitoring
 6687 requirements for gross alpha particle activity, radium-226, radium-228, or
 6688 uranium, a supplier may composite up to four consecutive quarterly samples from
 6689 a single entry point if analysis is done within a year after the first sample. The
 6690 analytical results from the composited sample must be treated as the average
 6691 analytical result to determine compliance with the MCLs and the future
 6692 monitoring frequency. If the analytical result from the composited sample is
 6693 greater than one-half the MCL, the Agency may, by a SEP issued pursuant to
 6694 Section 611.110, direct the supplier to take additional quarterly samples before
 6695 allowing the supplier to sample under a reduced monitoring schedule.
 6696
- 6697 e) ~~Effective December 8, 2003,~~ a gross alpha particle activity measurement may be
 6698 substituted for the required radium-226 measurement, provided that the measured
 6699 gross alpha particle activity does not exceed 5 pCi/l. A gross alpha particle
 6700 activity measurement may be substituted for the required uranium measurement

- 6701 provided that the measured gross alpha particle activity does not exceed 15 pCi/ℓ.
 6702
 6703 1) The gross alpha measurement must have a confidence interval of 95%
 6704 (1.65σ, where σ is the standard deviation of the net counting rate of the
 6705 sample) for radium-226 and uranium.
 6706
 6707 2) When a supplier uses a gross alpha particle activity measurement in lieu of
 6708 a radium-226 or uranium measurement, the gross alpha particle activity
 6709 analytical result will be used to determine the future monitoring frequency
 6710 for radium-226 or uranium.
 6711
 6712 3) If the gross alpha particle activity result is less than detection, one-half the
 6713 detection limit will be used to determine compliance and the future
 6714 monitoring frequency.
 6715
 6716 f) ~~Until December 8, 2003, compliance must be based on the analysis of an annual~~
 6717 ~~composite of four consecutive quarterly samples or the average of the analyses of~~
 6718 ~~four samples obtained at quarterly intervals.~~
 6719
 6720 1) ~~A gross alpha particle activity measurement may be substituted for the~~
 6721 ~~required radium-226 and radium-228 analysis, provided that the measured~~
 6722 ~~gross alpha particle activity does not exceed 5 pCi/ℓ at a confidence level~~
 6723 ~~of 95 percent (1.65σ, where σ is the standard deviation of the net counting~~
 6724 ~~rate of the sample). In localities where radium-228 may be present in~~
 6725 ~~drinking water, the Agency may, by a SEP issued pursuant to Section~~
 6726 ~~611.110, require radium-226 or radium-228 analyses when the gross alpha~~
 6727 ~~particle activity exceeds 2 pCi/ℓ.~~
 6728
 6729 2) ~~When the gross alpha particle activity exceeds 5 pCi/ℓ, the same or an~~
 6730 ~~equivalent sample must be analyzed for radium-226. If the concentration~~
 6731 ~~of radium-226 exceeds 3 pCi/ℓ the same or an equivalent sample must be~~
 6732 ~~analyzed for radium-228.~~
 6733
 6734 g) ~~Until December 8, 2003, CWS suppliers must monitor at least once every four~~
 6735 ~~years following the procedure required by subsection (f) of this Section. When an~~
 6736 ~~annual record taken in conformance with subsection (f) of this Section has~~
 6737 ~~established that the average annual concentration is less than half the MCLs~~
 6738 ~~established by Section 611.330, the Agency shall, by a SEP issued pursuant to~~
 6739 ~~Section 611.110, substitute analysis of a single sample for the quarterly sampling~~
 6740 ~~procedure required by subsection (f) of this Section.~~
 6741
 6742 1) The Agency shall, by a SEP issued pursuant to Section 611.110, require
 6743 more frequent monitoring in the vicinity of mining or other operations that

6744 may contribute alpha particle radioactivity to either surface or
6745 groundwater sources of drinking water.

- 6746
- 6747 2) ~~A CWS supplier must monitor in conformance with subsection (f) of this~~
- 6748 ~~Section for one year after the introduction of a new water source. The~~
- 6749 ~~Agency shall, by a SEP issued pursuant to Section 611.110, require more~~
- 6750 ~~frequent monitoring in the event of possible contamination or when~~
- 6751 ~~changes in the distribution system or treatment process occur that may~~
- 6752 ~~increase the concentration of radioactivity in finished water.~~
- 6753
- 6754 3) ~~The Agency shall, by a SEP issued pursuant to Section 611.110, require a~~
- 6755 ~~CWS supplier using two or more sources having different concentrations~~
- 6756 ~~of radioactivity to monitor source water, in addition to water from a free-~~
- 6757 ~~flowing tap.~~
- 6758
- 6759 4) ~~The Agency must not require monitoring for radium-228 to determine~~
- 6760 ~~compliance with Section 611.330 after the initial period, provided that the~~
- 6761 ~~average annual concentration of radium-228 has been assayed at least once~~
- 6762 ~~using the quarterly sampling procedure required by subsection (f) of this~~
- 6763 ~~Section.~~
- 6764
- 6765 5) ~~The Agency must require the CWS supplier to conduct annual monitoring~~
- 6766 ~~if the radium-226 concentration exceeds 3 pCi/l.~~
- 6767
- 6768 h) ~~Until December 8, 2003, if the average annual MCL for gross alpha particle~~
- 6769 ~~activity or total radium as set forth in Section 611.330 is exceeded, the CWS~~
- 6770 ~~supplier must give notice to the Agency and notify the public as required by~~
- 6771 ~~Subpart V. Monitoring at quarterly intervals must be continued until the annual~~
- 6772 ~~average concentration no longer exceeds the MCL or until a monitoring schedule~~
- 6773 ~~as a condition to a variance, adjusted standard or enforcement action becomes~~
- 6774 ~~effective.~~
- 6775

6776 BOARD NOTE: Subsections (a) through (e) derive from 40 CFR 141.26(a) (2012)(2003).

6777 (Source: Amended at 37 Ill. Reg. _____, effective _____)

6778

6779

6780 **Section 611.732 Beta Particle and Photon Radioactivity**

6781

6782 Monitoring and compliance requirements for manmade radioactivity. To determine compliance

6783 with the maximum contaminant levels in Section 611.330(d) for beta particle and photon

6784 radioactivity, a supplier must monitor at a frequency as follows:

- 6785
- 6786 a) ~~Effective December 8, 2003,~~ a CWS supplier (either a surface water or

6787 groundwater supplier) designated by the Agency, by a SEP issued pursuant to
 6788 Section 611.110, as vulnerable must sample for beta particle and photon
 6789 radioactivity. A supplier must collect quarterly samples for beta emitters and
 6790 annual samples for tritium and strontium-90 at each entry point to the distribution
 6791 system (hereafter called a sampling point), beginning within one quarter after
 6792 being notified by the Agency. A supplier already designated by the Agency must
 6793 continue to sample until the Agency reviews and either reaffirms or removes the
 6794 designation, by a SEP issued pursuant to Section 611.110.

6795
 6796 1) If the gross beta particle activity minus the naturally occurring potassium-
 6797 40 beta particle activity at a sampling point has a running annual average
 6798 (computed quarterly) less than or equal to 50 pCi/l (screening level), the
 6799 Agency may reduce the frequency of monitoring at that sampling point to
 6800 once every three years. A supplier must collect all samples required in
 6801 subsection (a) of this Section during the reduced monitoring period.

6802
 6803 2) For a supplier in the vicinity of a nuclear facility, the Agency may allow
 6804 the CWS supplier to utilize environmental surveillance data collected by
 6805 the nuclear facility in lieu of monitoring at the supplier's entry points,
 6806 where the Agency determines if such data is applicable to a particular
 6807 water system, by a SEP issued pursuant to Section 611.110. In the event
 6808 that there is a release from a nuclear facility, a supplier that is using
 6809 surveillance data must begin monitoring at the community water supplier's
 6810 entry points in accordance with subsection (b)(1) of this Section.

6811
 6812 b) ~~Effective December 8, 2003,~~ a CWS supplier (either a surface water or
 6813 groundwater supplier) designated by the Agency, by a SEP issued pursuant to
 6814 Section 611.110, as utilizing waters contaminated by effluents from nuclear
 6815 facilities must sample for beta particle and photon radioactivity. A supplier must
 6816 collect quarterly samples for beta emitters and iodine-131 and annual samples for
 6817 tritium and strontium-90 at each entry point to the distribution system (hereafter
 6818 called a sampling point), beginning within one quarter after being notified by the
 6819 Agency. A supplier already designated by the Agency as a supplier using waters
 6820 contaminated by effluents from nuclear facilities must continue to sample until
 6821 the Agency reviews and either reaffirms or removes the designation, by a SEP
 6822 issued pursuant to Section 611.110.

6823
 6824 1) Quarterly monitoring for gross beta particle activity must be based on the
 6825 analysis of monthly samples or the analysis of a composite of three
 6826 monthly samples.

6827
 6828 BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(i), USEPA
 6829 recommends the use of a composite of three monthly samples.

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- 2) For iodine-131, a composite of five consecutive daily samples must be analyzed once each quarter. The Agency may, by a SEP issued pursuant to Section 611.110, order more frequent monitoring for iodine-131 where it is identified in the finished water.
- 3) Annual monitoring for strontium-90 and tritium must be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.

BOARD NOTE: In corresponding 40 CFR 141.26(b)(2)(iii), USEPA recommends the analysis of four consecutive quarterly samples.

- 4) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/l, the Agency may, by a SEP issued pursuant to Section 611.110, reduce the frequency of monitoring at that sampling point to once every three years. The supplier must collect the same type of samples required in subsection (b) of this Section during the reduced monitoring period.
- 5) For a supplier in the vicinity of a nuclear facility, the Agency may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry points, where the Agency determines, by a SEP issued pursuant to Section 611.110, that such data is applicable to the particular water system. In the event that there is a release from a nuclear facility, a supplier that uses such surveillance data must begin monitoring at the CWS's entry points in accordance with subsection (b) of this Section.

- c) ~~Effective December 8, 2003,~~ a CWS supplier designated by the Agency to monitor for beta particle and photon radioactivity can not apply to the Agency for a waiver from the monitoring frequencies specified in subsection (a) or (b) of this Section.
- d) ~~Effective December 8, 2003,~~ a CWS supplier may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. A supplier is allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/l) by a factor of 0.82.

- 6873 e) ~~If~~ Effective December 8, 2003, if the gross beta particle activity minus the
6874 naturally occurring potassium-40 beta particle activity exceeds the appropriate
6875 screening level, an analysis of the sample must be performed to identify the major
6876 radioactive constituents present in the sample and the appropriate doses must be
6877 calculated and summed to determine compliance with Section 611.330(d)(1),
6878 using the formula in Section 611.330(d)(2). Doses must also be calculated and
6879 combined for measured levels of tritium and strontium to determine compliance.
6880
- 6881 f) ~~A~~ Effective December 8, 2003, a supplier must monitor monthly at the sampling
6882 points that exceeds the maximum contaminant level in Section 611.330(d)
6883 beginning the month after the exceedence occurs. A supplier must continue
6884 monthly monitoring until the supplier has established, by a rolling average of
6885 three monthly samples, that the MCL is being met. A supplier that establishes
6886 that the MCL is being met must return to quarterly monitoring until it meets the
6887 requirements set forth in subsection (a)(1) or (b)(4) of this Section.
6888
- 6889 g) ~~Until December 8, 2003, CWSs using surface water sources and serving more~~
6890 ~~than 100,000 persons and such other CWSs as the Agency, by a SEP issued~~
6891 ~~pursuant to Section 611.110, requires must monitor for compliance with Section~~
6892 ~~611.331 by analysis of a composite of four consecutive quarterly samples or~~
6893 ~~analysis of four quarterly samples. Compliance with Section 611.331 is assumed~~
6894 ~~without further analysis if the average annual concentration of gross beta particle~~
6895 ~~activity is less than 50 pCi/l and if the average annual concentrations of tritium~~
6896 ~~and strontium-90 are less than those listed in Section 611.331, provided that if~~
6897 ~~both radionuclides are present the sum of their annual dose equivalents to bone~~
6898 ~~marrow must not exceed 4 millirem/year.~~
- 6900 1) ~~If the gross beta particle activity exceeds 50 pCi/l, an analysis of the~~
6901 ~~sample must be performed to identify the major radioactive constituents~~
6902 ~~present and the appropriate organ and total body doses must be calculated~~
6903 ~~to determine compliance with Section 611.331.~~
- 6904
- 6905 2) ~~If the MCLs are exceeded, the Agency shall, by a SEP issued pursuant to~~
6906 ~~Section 611.110, require the supplier to conduct additional monitoring to~~
6907 ~~determine the concentration of man-made radioactivity in principal~~
6908 ~~watersheds.~~
- 6909
- 6910 3) ~~The Agency shall, pursuant to subsection (j) of this Section, by a SEP~~
6911 ~~issued pursuant to Section 611.110, require suppliers of water utilizing~~
6912 ~~only groundwater to monitor for man-made radioactivity.~~
- 6913
- 6914 h) ~~Until December 8, 2003, CWS suppliers must monitor at least every four years~~
6915 ~~following the procedure in subsection (g) of this Section.~~

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- i) ~~Until December 8, 2003, the Agency must, by a SEP issued pursuant to Section 611.110, require any CWS supplier utilizing waters contaminated by effluents from nuclear facilities to initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.~~
 - 1) ~~Quarterly monitoring for gross beta particle activity must be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. If the gross beta particle activity in a sample exceeds 15 pCi/l, the same or an equivalent sample must be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses must be calculated to determine compliance with Section 611.331.~~
 - 2) ~~For iodine-131, a composite of five consecutive daily samples must be analyzed once each quarter. The Agency shall, by a SEP issued pursuant to Section 611.110, require more frequent monitoring when iodine-131 is identified in the finished water.~~
 - 3) ~~The Agency shall, by a SEP issued pursuant to Section 611.110, require annual monitoring for strontium-90 and tritium by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.~~
 - 4) ~~The Agency shall, by a SEP issued pursuant to Section 611.110, allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of manmade radioactivity by the supplier where the Agency determines such data is applicable to the CWS.~~
- j) ~~Until December 8, 2003, if the average annual MCL for man-made radioactivity set forth in Section 611.331 is exceeded, the CWS supplier must give notice to the Agency and to the public as required by Subpart T. Monitoring at monthly intervals must be continued until the concentration no longer exceeds the MCL or until a monitoring schedule as a condition to a variance, adjusted standard, or enforcement action becomes effective.~~

BOARD NOTE: Subsections (a) through (f) derive from 40 CFR 141.26(b) (2012)(2003).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART U: CONSUMER CONFIDENCE REPORTS

6959 **Section 611.884 Required Additional Health Information**

- 6960
- 6961 a) All reports must prominently display the following language: "Some people may
- 6962 be more vulnerable to contaminants in drinking water than the general population.
- 6963 Immuno-compromised persons such as persons with cancer undergoing
- 6964 chemotherapy, persons who have undergone organ transplants, people with
- 6965 HIV/AIDS or other immune system disorders, some elderly, and infants can be
- 6966 particularly at risk from infections. These people should seek advice about
- 6967 drinking water from their health care providers. USEPA or Centers for Disease
- 6968 Control and Prevention guidelines on appropriate means to lessen the risk of
- 6969 infection by Cryptosporidium and other microbial contaminants are available
- 6970 from the USEPA Safe Drinking Water Hotline (800-426-4791)."
- 6971
- 6972 b) A supplier that detects arsenic above 0.005 mg/ℓ and up to and including 0.010
- 6973 mg/ℓ must do the following:
- 6974
- 6975 1) The supplier must include in its report a short informational statement
- 6976 about arsenic, using the following language: "While your drinking water
- 6977 meets USEPA's standard for arsenic, it does contain low levels of arsenic.
- 6978 USEPA's standard balances the current understanding of arsenic's possible
- 6979 health effects against the costs of removing arsenic from drinking water.
- 6980 USEPA continues to research the health effects of low levels of arsenic,
- 6981 which is a naturally-occurring mineral known to cause cancer in humans
- 6982 at high concentrations and is linked to other health effects such as skin
- 6983 damage and circulatory problems."; or
- 6984
- 6985 2) The supplier may write its own educational statement, but only in
- 6986 consultation with the Agency.
- 6987
- 6988 c) A supplier that detects nitrate at levels above 5 mg/ℓ, but below the MCL, must
- 6989 do the following:
- 6990
- 6991 1) The supplier must include a short informational statement about the
- 6992 impacts of nitrate on children, using the following language: "Nitrate in
- 6993 drinking water at levels above 10 ppm is a health risk for infants of less
- 6994 than six months of age. High nitrate levels in drinking water can cause
- 6995 blue baby syndrome. Nitrate levels may rise quickly for short periods of
- 6996 time because of rainfall or agricultural activity. If you are caring for an
- 6997 infant you should ask advice from your health care provider"; or
- 6998
- 6999 2) The CWS supplier may write its own educational statement, but only in
- 7000 consultation with the Agency.
- 7001

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- d) Every report must include the following lead-specific information:
 - 1) A short informational statement about lead in drinking water and its effects on children. The statement must include the following information:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF SUPPLIER] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.
 - 2) A supplier may write its own educational statement, but only in consultation with the Agency.
- e) A CWS supplier that detects TTHM above 0.080 mg/ℓ, but below the MCL in Section 611.312, as an annual average, monitored and calculated under the provisions of former Section 611.680, must include the health effects language prescribed by Appendix A of this Part.
- f) ~~Until January 22, 2006, a CWS supplier that detects arsenic above 0.010 mg/ℓ and up to and including 0.05 mg/ℓ must include the arsenic health effects language prescribed by Appendix A to this Part.~~

BOARD NOTE: Derived from 40 CFR 141.154 (2012)(2007), as amended at 72 Fed. Reg. 7782 (October 12, 2007).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART W: INITIAL DISTRIBUTION SYSTEM EVALUATIONS

Section 611.920 General Requirements

- 7044 a) USEPA has designated that the requirements of this Subpart W constitute
7045 National Primary Drinking Water Regulations. The regulations in this Subpart W
7046 establish monitoring and other requirements for identifying Subpart Y compliance
7047 monitoring locations for determining compliance with maximum contaminant
7048 levels for TTHMs and HAA5. The supplier must use an initial distribution
7049 system evaluation (IDSE) to determine the locations in its distribution system that
7050 are representative of high TTHM and HAA5 concentrations throughout the
7051 supplier's distribution system. An IDSE is used in conjunction with, but separate
7052 from, Subpart I compliance monitoring, to identify and select Subpart Y
7053 compliance monitoring locations.
7054
- 7055 b) Applicability. A supplier is subject to the requirements of this Subpart W if it
7056 fulfills any of the following conditions:
7057
- 7058 1) The supplier owns or operates a community water system that uses a
7059 primary or residual disinfectant other than ultraviolet light;
7060
 - 7061 2) The supplier delivers water that has been treated with a primary or residual
7062 disinfectant other than ultraviolet light; or
7063
 - 7064 3) The supplier owns or operates a non-transient non-community water
7065 system that serves at least 10,000 people, and it either uses a primary or
7066 residual disinfectant other than ultraviolet light, or it delivers water that
7067 has been treated with a primary or residual disinfectant other than
7068 ultraviolet light.
7069
- 7070 c) Schedule. A supplier must comply with the requirements of this Subpart W on
7071 the schedule provided in subsection (c)(1) of this Section based on its system
7072 type, as set forth in the applicable of subsections (c)(1)(A) through (c)(1)(E) of
7073 this Section, subject to the conditions of subsections (c)(1)(F) through (c)(1)(H) of
7074 this Section:
7075
- 7076 1) Compliance dates.
7077
 - 7078 A) A supplier that is not part of a combined distribution system, or a
7079 supplier that serves the largest population in a combined
7080 distribution system, and which serves a population of 100,000 or
7081 more persons is ~~required to have~~ must either ~~have~~ submitted its
7082 standard monitoring plan, its system-specific study plan, or its
7083 40/30 certification or ~~must have~~ must have obtained or ~~have~~ been subject to a
7084 very small system waiver before October 1, 2006. The supplier
7085 ~~is~~ must further ~~required to have completed~~ complete its standard
7086 monitoring or system-specific study before September 30, 2008

7087 and ~~submitted~~submit its IDSE report to the Agency before January
 7088 1, 2009.

7089
 7090 B) A supplier that is not part of a combined distribution system, or a
 7091 supplier that serves the largest population in a combined
 7092 distribution system, and which serves a population of 50,000 to
 7093 99,999 persons ~~is required to have~~must either ~~have~~submitted its
 7094 standard monitoring plan, its system-specific study plan, or its
 7095 40/30 certification or ~~must have obtained~~ or ~~have been~~ subject to a
 7096 very small system waiver before April 1, 2007. The supplier
 7097 ~~is~~must further ~~required to have completed~~complete its standard
 7098 monitoring or system-specific study before March 31, 2009 and
 7099 ~~submitted~~submit its IDSE report to the Agency before July 1,
 7100 2009.

7101
 7102 C) A supplier that is not part of a combined distribution system, or a
 7103 supplier that serves the largest population in a combined
 7104 distribution system, and which serves a population of 10,000 to
 7105 49,999 persons ~~is required to have either submitted~~must submit its
 7106 standard monitoring plan, its system-specific study plan, or its
 7107 40/30 certification or ~~obtained~~must obtain or ~~been~~be subject to a
 7108 very small system waiver before October 1, 2007. The supplier
 7109 ~~is~~must further ~~required to have completed~~complete its standard
 7110 monitoring or system-specific study before September 30, 2009
 7111 and ~~submitted~~submit its IDSE report to the Agency before January
 7112 1, 2010.

7113
 7114 D) A supplier that is not part of a combined distribution system, or a
 7115 supplier that serves the largest population in a combined
 7116 distribution system, and which serves a population of fewer than
 7117 10,000 persons (and which is a CWS) ~~is required to have either~~
 7118 ~~submitted~~must submit its standard monitoring plan, its system-
 7119 specific study plan, or its 40/30 certification or ~~obtained~~must
 7120 ~~obtain~~ or ~~been~~be subject to a very small system waiver before
 7121 April 1, 2008. The supplier ~~is~~must further ~~required to have~~
 7122 ~~completed~~complete its standard monitoring or system-specific
 7123 study before March 31, 2010 and ~~submitted~~submit its IDSE report
 7124 to the Agency before July 1, 2010.

7125
 7126 E) A supplier that is part of a combined distribution system which
 7127 does not serve the largest population in the combined system,
 7128 which is a wholesale system supplier or a consecutive system
 7129 supplier, ~~is required to have either submitted~~must submit its

7130 standard monitoring plan, its system-specific study plan, or its
 7131 40/30 certification or ~~obtained~~~~must obtain~~ or ~~been~~~~be~~ subject to a
 7132 very small system waiver; ~~is~~~~must~~ further required to have
 7133 ~~completed~~~~complete~~ its standard monitoring or system-specific
 7134 study; and ~~submitted~~~~submit~~ its IDSE report to the Agency at the
 7135 same time as the supplier in the combined system that has the
 7136 earliest compliance date.

7137
 7138 F) If, within 12 months after the date when submission of the standard
 7139 monitoring plan, the system-specific study plan, or the 40/30
 7140 certification or becoming subject to a very small system waiver
 7141 ~~was~~ due, as identified in the applicable of subsections (a)(1)
 7142 through (a)(4) of this Section, the Agency ~~did~~~~does~~ not approve a
 7143 supplier's plan or notify the supplier that it ~~had~~~~has~~ not yet
 7144 completed its review, the supplier may consider the plan that it
 7145 submitted as approved. The supplier is required to have
 7146 ~~implemented~~~~must implement~~ that plan, and it is required to have
 7147 ~~completed~~~~must complete~~ standard monitoring or a system-specific
 7148 study no later than the date when completion of the standard
 7149 monitoring or system-specific study is due, as identified in the
 7150 applicable of subsections (a)(1) through (a)(4) of this Section.

7151
 7152 G) The supplier is required to have submitted~~must submit~~ its 40/30
 7153 certification pursuant to Section 611.923 before the date indicated
 7154 in the applicable of subsections (a)(1) through (a)(4) of this
 7155 Section.

7156
 7157 H) If, within three months after the due date for submission of the
 7158 IDSE report identified in this subsection (c)(1) (nine months after
 7159 this date if the supplier is required to have complied~~must comply~~
 7160 on the schedule in subsection (c)(1)(C) of this Section), the
 7161 Agency ~~did~~~~does~~ not approve the supplier's IDSE report or notify
 7162 the supplier that it ~~had~~~~has~~ not yet completed its review, the
 7163 supplier ~~could~~~~may~~ consider the report that it submitted to the
 7164 Agency as approved, and the supplier is required to have
 7165 ~~implemented~~~~must implement~~ the recommended Subpart Y
 7166 monitoring as required.

7167
 7168 2) For the purpose of determining the applicable compliance schedule in
 7169 subsection (c)(1) of this Section, the Agency may, by a SEP issued
 7170 pursuant to Section 611.110, determine that a combined distribution
 7171 system does not include certain consecutive systems based on such factors
 7172 as the receipt of water from a wholesale system only on an emergency

7173 basis or the receipt of only a small percentage and small volume of water
7174 from a wholesale system. The Agency may also determine, by a SEP
7175 issued pursuant to Section 611.110, that a combined distribution system
7176 does not include certain wholesale systems based on such factors as the
7177 delivery of water to a consecutive system only on an emergency basis or
7178 the delivery of only a small percentage and small volume of water to a
7179 consecutive system.

7180
7181 d) A supplier must do one of the following: it must conduct standard monitoring
7182 that meets the requirements in Section 611.921; it must conduct a system-specific
7183 study that meets the requirements in Section 611.922; it must certify to the
7184 Agency that it meets the 40/30 certification criteria under Section 611.923; or it
7185 must qualify for a very small system waiver under Section 611.924.

7186
7187 1) The supplier must have taken the full complement of routine TTHM and
7188 HAA5 compliance samples required of a system that serves the
7189 appropriate population and which uses the appropriate source water under
7190 Subpart I of this Part (or the supplier must have taken the full complement
7191 of reduced TTHM and HAA5 compliance samples required of a system
7192 with the supplier's population and source water under Subpart I of this Part
7193 if the supplier meets reduced monitoring criteria under Subpart I of this
7194 Part) during the period specified in Section 611.923(a) to meet the 40/30
7195 certification criteria in Section 611.923. The supplier must have taken
7196 TTHM and HAA5 samples under Sections 611.381 and 611.382 to be
7197 eligible for the very small system waiver in Section 611.924.

7198
7199 2) If the supplier has not taken the required samples, the supplier must
7200 conduct standard monitoring that meets the requirements in Section
7201 611.921, or a system-specific study that meets the requirements in Section
7202 611.922.

7203
7204 e) The supplier must use only the analytical methods specified in Section 611.381,
7205 or otherwise approved by the Agency for monitoring under this Subpart W, to
7206 demonstrate compliance with the requirements of this Subpart W.

7207
7208 f) IDSE results will not be used for the purpose of determining compliance with
7209 MCLs in Section 611.312.

7210
7211 BOARD NOTE: Derived from 40 CFR 141.600 (2012)(2007).

7212
7213 (Source: Amended at 37 Ill. Reg. _____, effective _____)

7214
7215 **Section 611.923 40/30 Certification**

7216

- 7217 a) Eligibility. A supplier is eligible for 40/30 certification if it had no TTHM or
 7218 HAA5 monitoring violations under Subpart I of this Part and no individual sample
 7219 exceeded 0.040 mg/ℓ for TTHM or 0.030 mg/ℓ for HAA5 during an eight
 7220 consecutive calendar quarter period beginning no earlier than the date specified in
 7221 the applicable of subsections (a)(1) through (a)(4) of this Section, subject to the
 7222 limitations of subsection (a)(5) of this Section.
 7223
- 7224 1) If the supplier's 40/30 certification was due no later than October 1,
 7225 2006, then its eligibility for 40/30 certification was based on eight
 7226 consecutive calendar quarters of Subpart I compliance monitoring results
 7227 that began~~beginning~~ no earlier than January 2004.
 7228
 - 7229 2) If the supplier's 40/30 certification was due no later than April 1, 2007,
 7230 then its eligibility for 40/30 certification was based on eight consecutive
 7231 calendar quarters of Subpart I compliance monitoring results that
 7232 began~~beginning~~ no earlier than January 2004.
 7233
 - 7234 3) If the supplier's 40/30 certification was due no later than October 1,
 7235 2007, then its eligibility for 40/30 certification was based on eight
 7236 consecutive calendar quarters of Subpart I compliance monitoring results
 7237 that began~~beginning~~ no earlier than January 2005.
 7238
 - 7239 4) If the supplier's 40/30 certification was due no later than April 1, 2008,
 7240 then its eligibility for 40/30 certification was based on eight consecutive
 7241 calendar quarters of Subpart I compliance monitoring results that
 7242 began~~beginning~~ no earlier than January 2005.
 7243
 - 7244 5) Eligibility for 40/30 certification is based on eight consecutive calendar
 7245 quarters of Subpart I compliance monitoring results beginning no earlier
 7246 than the date set forth in the applicable of subsections (a)(1) through (a)(4)
 7247 of this Section, unless the supplier is on reduced monitoring under Subpart
 7248 I of this Part and was not required to monitor during the specified period.
 7249 If the supplier did not monitor during the specified period, the supplier
 7250 must base its eligibility on compliance samples taken during the 12
 7251 months preceding the specified period.
 7252
- 7253 b) 40/30 certification.
 7254
- 7255 1) A supplier must certify to the Agency that every individual compliance
 7256 sample taken under Subpart I of this Part during the applicable of the
 7257 periods specified in subsection (a) of this Section were no more than 0.040
 7258 mg/ℓ for TTHM and 0.030 mg/ℓ for HAA5, and that the supplier has not

7259 had any TTHM or HAA5 monitoring violations during the period
7260 specified in subsection (a) of this Section.

- 7261
- 7262 2) The Agency may require the supplier to submit compliance monitoring
- 7263 results, distribution system schematics, or recommended Subpart Y
- 7264 compliance monitoring locations in addition to the supplier's certification.
- 7265 If the supplier fails to submit the requested information, the Agency may
- 7266 require standard monitoring under Section 611.921 or a system-specific
- 7267 study under Section 611.922.
- 7268
- 7269 3) The Agency may still require standard monitoring under Section 611.921
- 7270 or a system-specific study under Section 611.922 even if the supplier
- 7271 meets the criteria in subsection (a) of this Section.
- 7272
- 7273 4) The supplier must retain a complete copy of its certification submitted
- 7274 under this Section for 10 years after the date that it submitted the supplier's
- 7275 certification. The supplier must make the certification, all data upon
- 7276 which the certification is based, and any Agency notification available for
- 7277 review by the Agency or the public.
- 7278

7279 BOARD NOTE: Derived from 40 CFR 141.603 (2012)~~(2006)~~.

7280 (Source: Amended at 37 Ill. Reg. _____, effective _____)

7281

7282

7283 **SUBPART Y: STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS**

7284

7285 **Section 611.970 General Requirements**

- 7286
- 7287 a) General. The requirements of this Subpart Y constitute NPDWRs. The
- 7288 regulations in this Subpart Y establish monitoring and other requirements for
- 7289 achieving compliance with MCLs based on LRAAs for TTHM and HAA5, and
- 7290 for achieving compliance with MRDLs for chlorine and chloramine for certain
- 7291 consecutive systems.
- 7292
- 7293 b) Applicability. A supplier is subject to these requirements if its system is a CWS
- 7294 or a NTNCWS that uses a primary or residual disinfectant other than ultraviolet
- 7295 light or which delivers water that has been treated with a primary or residual
- 7296 disinfectant other than ultraviolet light.
- 7297
- 7298 c) Schedule. A supplier must comply with the requirements in this Subpart Y on the
- 7299 applicable schedule set forth in subsections (c)(1) through (c)(6) of this Section
- 7300 based on the supplier's system type, subject to the limitations of subsection (b)(7)
- 7301 of this Section.

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7344
- 1) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 100,000 or more persons is required to have complied~~must comply~~ with the requirements of this Subpart Y before April 1, 2012.
 - 2) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 50,000 to 99,999 persons is required to have complied~~must comply~~ with the requirements of this Subpart Y before October 1, 2012.
 - 3) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves 10,000 to 49,999 persons must comply with the requirements of this Subpart Y before October 1, 2013.
 - 4) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves fewer than 10,000 persons must comply with the requirements of this Subpart Y before October 1, 2013 if no Cryptosporidium monitoring is required pursuant to Section 611.1001(a)(4).
 - 5) A supplier that is not part of a combined distribution system, or a supplier whose system serves the largest population in a combined system, and whose system serves fewer than 10,000 persons must comply with the requirements of this Subpart Y before October 1, 2014 if Cryptosporidium monitoring is required pursuant to Section 611.1001(a)(4) or (a)(6).
 - 6) A supplier whose consecutive system or wholesale system is part of a combined system, other than a supplier that is subject to any of subsections (c)(1) through (c)(4) of this Section, must comply with the requirements of this Subpart Y before the earliest compliance date applicable to any segment of the combined distribution system.
 - 7) The Agency must, by a SEP issued pursuant to Section 611.110, grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if it finds that the additional time is needed because the supplier requires capital improvements to comply with an MCL.
 - 8) The supplier's monitoring frequency is specified in Section 611.971(a)(2).

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- A) If a supplier is required to conduct quarterly monitoring, it must begin monitoring in the first full calendar quarter that includes the applicable compliance date set forth in this subsection (c).

- B) If a supplier is required to conduct monitoring less frequently than quarterly, it must begin monitoring in the calendar month recommended in the IDSE report prepared pursuant to Section 611.921 or Section 611.922 or in the calendar month identified in the Subpart Y monitoring plan developed pursuant to Section 611.972, but in no instance later than 12 months after the applicable compliance date set forth in this subsection (c).

- 9) If a supplier is required to conduct quarterly monitoring, it must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If a supplier is required to conduct monitoring less frequently than quarterly, it must make compliance calculations beginning with the first compliance sample taken after the compliance date.

- 10) For the purpose of the schedule set forth in this subsection (c), the Agency may, by a SEP issued pursuant to Section 611.110, determine that the combined distribution system does not include certain consecutive systems based on factors such as receipt of water from a wholesale system only on an emergency basis or receipt of only a small percentage and small volume of water from a wholesale system. The Agency may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivery of water to a consecutive system only on an emergency basis or delivery of only a small percentage and small volume of water to a consecutive system.

BOARD NOTE: The Board found it necessary to deviate from the structure of 40 CFR 141.620(c) when incorporating this subsection (c). Subsections (c)(1) through (c)(4) of this Section correspond with 40 CFR 141.620(c)(1) through (c)(4). Subsections (c)(5) and (c)(6) of this Section correspond with the two segments of 40 CFR 141.620(c)(5). Subsection (c)(7) of this Section corresponds with the footnote to the table in 40 CFR 141.620(c). Subsections (c)(8) through (c)(10) of this Section correspond with 40 CFR 141.620(c)(6) through (c)(8).

d) Monitoring and compliance.

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- 1) Suppliers required to monitor quarterly. To comply with Subpart Y MCLs in Section 611.312(b)(2), the supplier must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this Subpart Y, and it must determine that each LRAA does not exceed the MCL. If the supplier fails to complete four consecutive quarters of monitoring, it must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If the supplier takes more than one sample per quarter at a monitoring location, it must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.
 - 2) Suppliers required to monitor yearly or less frequently. To determine compliance with Subpart Y MCLs in Section 611.312(b)(2), the supplier must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the supplier must comply with the requirements of Section 611.975. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.
- e) Violation for failure to monitor. A supplier is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the supplier fails to monitor.

BOARD NOTE: Derived from 40 CFR 141.620 (2012)(2006).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 611.974 Additional Requirements for Consecutive Systems

If a supplier has a consecutive system that does not add a disinfectant but which delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, it must comply with the analytical and monitoring requirements for chlorine and chloramines in Sections 611.381(c) and 611.382(c)(1) and with the compliance requirements in Section 611.383(c)(1) beginning April 1, 2009, unless the supplier is required to comply earlier by the Agency, and the supplier must report monitoring results pursuant to Section 611.384(c).

BOARD NOTE: Derived from 40 CFR 141.624 (2012)(2006).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART Z: ENHANCED TREATMENT FOR CRYPTOSPORIDIUM

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7431 **Section 611.1001 Source Water Monitoring Requirements: Source Water Monitoring**
7432

- 7433 a) Initial round of source water monitoring. A supplier must conduct the following
7434 monitoring on the schedule in subsection (c) of this Section, unless it meets the
7435 monitoring exemption criteria in subsection (d) of this Section.
7436
- 7437 1) A filtered system supplier that serves 10,000 or more people must sample
7438 its source water for Cryptosporidium, E. coli, and turbidity at least
7439 monthly for 24 months.
7440
- 7441 2) An unfiltered system supplier that serves 10,000 or more people must
7442 sample its source water for Cryptosporidium at least monthly for 24
7443 months.
7444
- 7445 3) Smaller system suppliers monitoring for E. coli.
7446
- 7447 A) A filtered system supplier that serves fewer than 10,000 people
7448 must sample its source water for E. coli at least once every two
7449 weeks for 12 months.
7450
- 7451 B) A filtered system supplier that serves fewer than 10,000 people
7452 may avoid E. coli monitoring if the system notifies the Agency that
7453 it will monitor for Cryptosporidium as described in subsection
7454 (a)(4) of this Section. The system must notify the Agency no later
7455 than three months prior to the date before which the system is
7456 otherwise required to start E. coli monitoring pursuant to Section
7457 611.1001(c).
7458
- 7459 4) Smaller system suppliers monitoring for Cryptosporidium. A filtered
7460 system supplier that serves fewer than 10,000 people must sample its
7461 source water for Cryptosporidium at least twice per month for 12 months
7462 or at least monthly for 24 months if it meets any of the conditions set forth
7463 in subsections (a)(4)(A) through (a)(4)(C) of this Section, subject to the
7464 limitations of subsection (a)(4)(D) of this Section, based on monitoring
7465 conducted pursuant to subsection (a)(3) of this Section.
7466
- 7467 A) For a supplier that uses lake or reservoir source, the annual mean
7468 E. coli concentration is greater than 10 E. coli/100 mL.
7469
- 7470 B) For a supplier that uses a flowing stream source the annual mean
7471 E. coli concentration is greater than 50 E. coli/100 mL.
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- C) The supplier does not conduct E. coli monitoring as described in subsection (a)(3) of this Section.
 - D) A supplier that uses groundwater under the direct influence of surface water must comply with the requirements of subsection (a)(4) of this Section based on the E. coli level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to a supplier that uses a lake or reservoir source.
- 5) For a filtered system supplier that serves fewer than 10,000 people, the Agency may, by a SEP issued pursuant to Section 611.110, approve monitoring for an indicator other than E. coli pursuant to subsection (a)(3) of this Section. The Agency may also, by a SEP issued pursuant to Section 611.110, approve an alternative to the E. coli concentration in subsection (a)(4)(A), (a)(4)(B) or (a)(4)(D) of this Section to trigger Cryptosporidium monitoring. This approval by the Agency must be provided to the supplier in writing, and it must include the basis for the Agency's determination that the alternative indicator or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 Cryptosporidium level set forth in Section 611.1010.
- 6) An unfiltered system supplier that serves fewer than 10,000 people must sample its source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months.
- 7) A supplier may sample more frequently than required by this Section if the sampling frequency is evenly spaced throughout the monitoring period.
- b) Second round of source water monitoring. A supplier must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in subsection (a) of this Section, unless it meets the monitoring exemption criteria in subsection (d) of this Section. The supplier must conduct this monitoring on the schedule set forth in subsection (c) of this Section.
- c) Monitoring schedule. A supplier must begin the monitoring required in subsections (a) and (b) of this Section no later than the month beginning with the applicable date listed in subsections (c)(1) through (c)(5) of this Section.
- 1) A supplier that serves 100,000 or more persons is required to have begun~~must begin~~ the first round of source water monitoring no later than the month beginning October 1, 2006, and it must begin the second round

- 7516 of source water monitoring no later than the month beginning April 1,
7517 2015.
- 7518
- 7519 2) A supplier that serves 50,000 to 99,999 persons is required to have
7520 begun~~must begin~~ the first round of source water monitoring no later than
7521 the month beginning April 1, 2007, and it must begin the second round of
7522 source water monitoring no later than the month beginning October 1,
7523 2015.
- 7524
- 7525 3) A supplier that serves 10,000 to 49,999 persons is required to have
7526 begun~~must begin~~ the first round of source water monitoring no later than
7527 the month beginning April 1, 2008, and it must begin the second round of
7528 source water monitoring no later than the month beginning October 1,
7529 2016.
- 7530
- 7531 4) A supplier that serves fewer than 10,000 persons, that is a filtered system
7532 supplier, and which monitors for E. coli is required to have begun~~must~~
7533 ~~begin~~ the first round of source water monitoring no later than the month
7534 beginning October 1, 2008, and it must begin the second round of source
7535 water monitoring no later than the month beginning October 1, 2017.
- 7536
- 7537 5) A supplier that serves fewer than 10,000 persons, that is an unfiltered
7538 system supplier, or that is a filtered system supplier which meets the
7539 conditions of subsection (a)(4) of this Section, and which monitors for
7540 Cryptosporidium, is required to have begun~~must begin~~ the first round of
7541 source water monitoring no later than the month beginning April 1, 2010,
7542 and it must begin the second round of source water monitoring no later
7543 than the month beginning April 1, 2019.
- 7544
- 7545 d) Monitoring avoidance.
- 7546
- 7547 1) A filtered system supplier is not required to conduct source water
7548 monitoring pursuant to this Subpart Z if the system will provide a total of
7549 at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting
7550 the treatment requirements of Bin 4 in Section 611.1011.
- 7551
- 7552 2) An unfiltered system supplier is not required to conduct source water
7553 monitoring pursuant to this Subpart Z if the system will provide a total of
7554 at least 3-log Cryptosporidium inactivation, equivalent to meeting the
7555 treatment requirements for an unfiltered system supplier with a mean
7556 Cryptosporidium concentration of greater than 0.01 oocysts/ℓ in Section
7557 611.1012.
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- 3) If a supplier chooses to provide the level of treatment set forth in subsection (d)(1) or (d)(2) of this Section, as applicable, rather than start source water monitoring, it must notify the Agency in writing no later than the date on which the system is otherwise required to submit a sampling schedule for monitoring pursuant to Section 611.1002. Alternatively, a supplier may choose to stop sampling at any point after it has initiated monitoring if it notifies the Agency in writing that it will provide this level of treatment. The supplier must install and operate technologies to provide this level of treatment before the applicable treatment compliance date set forth in Section 611.1013.
- 7570 e) Plants operating only part of the year. A supplier that has a Subpart B plant that
7571 operates for only part of the year must conduct source water monitoring in
7572 accordance with this Subpart Z, but with the following modifications:
7573
- 7574 1) The supplier must sample its source water only during the months that the
7575 plant operates, unless the Agency, by a SEP issued pursuant to Section
7576 611.110, specifies another monitoring period based on plant operating
7577 practices.
7578
- 7579 2) A supplier with plants that operate less than six months per year and
7580 which monitors for *Cryptosporidium* must collect at least six
7581 *Cryptosporidium* samples per year during each of two years of monitoring.
7582 Samples must be evenly spaced throughout the period during which the
7583 plant operates.
7584
- 7585 f) New sources and new systems.
7586
- 7587 1) New sources. A supplier that begins using a new source of surface water
7588 or groundwater under the direct influence of surface water after the
7589 supplier is required to begin monitoring pursuant to subsection (c) of this
7590 Section must monitor the new source on a schedule that the Agency has
7591 approved by a SEP issued pursuant to Section 611.110. Source water
7592 monitoring must meet the requirements of this Subpart Z. The supplier
7593 must also meet the bin classification and *Cryptosporidium* treatment
7594 requirements of Sections 611.1010 and 611.1011 or Section 611.1012, as
7595 applicable, for the new source on a schedule that the Agency has approved
7596 by a SEP issued pursuant to Section 611.110.
7597
- 7598 2) The requirements of Section 611.1001(f) apply to a Subpart B system
7599 supplier that begins operation after the applicable monitoring start date set
7600 forth in subsection (c) of this Section.
7601

- 7602 3) The supplier must begin a second round of source water monitoring no
7603 later than six years following initial bin classification pursuant to Section
7604 611.1010 or determination of the mean Cryptosporidium level pursuant to
7605 Section 611.1012.
7606
- 7607 g) Failure to collect any source water sample required under this Section in
7608 accordance with the sampling schedule, sampling location, analytical method,
7609 approved laboratory, and reporting requirements of Sections 611.1002 through
7610 611.1006 is a monitoring violation.
7611
- 7612 h) Grandfathering monitoring data. A supplier may use (grandfather) monitoring
7613 data collected prior to the applicable monitoring start date in subsection (c) of this
7614 Section to meet the initial source water monitoring requirements in subsection (a)
7615 of this Section. Grandfathered data may substitute for an equivalent number of
7616 months at the end of the monitoring period. All data submitted pursuant to this
7617 subsection must meet the requirements set forth in Section 611.1007.
7618

7619 BOARD NOTE: Derived from 40 CFR 141.701 (2012)~~(2006)~~.

7620 (Source: Amended at 37 Ill. Reg. _____, effective _____)
7621
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7623 **Section 611.1004 Source Water Monitoring Requirements: Analytical Methods**
7624

- 7625 a) Cryptosporidium. A supplier must analyze for Cryptosporidium using USEPA
7626 OGWDW Methods, Method 1623 (05), 1623.1, or ~~USEPA OGWDW Methods,~~
7627 ~~Method 1622 (05)~~, each incorporated by reference in Section 611.102, or
7628 alternative methods approved by the Agency pursuant to Section 611.480.
7629
- 7630 1) The supplier must analyze at least a 10 ℓ sample or a packed pellet volume
7631 of at least 2 mL as generated by the methods listed in subsection (a) of this
7632 Section. A supplier unable to process a 10 ℓ sample must analyze as much
7633 sample volume as can be filtered by two filters approved by USEPA for
7634 the methods listed in subsection (a) of this Section, up to a packed pellet
7635 volume of at least 2 mL.
7636
- 7637 2) Matrix spike (MS) samples.
7638
- 7639 A) MS samples, as required by the methods in subsection (a) of this
7640 Section, must be spiked and filtered by a laboratory approved for
7641 Cryptosporidium analysis pursuant to Section 611.1005.
7642
- 7643 B) If the volume of the MS sample is greater than 10 ℓ, the supplier
7644 may filter all but 10 ℓ of the MS sample in the field, and ship the

7645 filtered sample and the remaining 10 ℓ of source water to the
7646 laboratory. In this case, the laboratory must spike the remaining
7647 10 ℓ of water and filter it through the filter used to collect the
7648 balance of the sample in the field.
7649

7650 3) Flow cytometer-counted spiking suspensions must be used for MS
7651 samples and ongoing precision and recovery samples.
7652

7653 b) E. coli. A supplier must use methods for enumeration of E. coli in source water
7654 approved in 40 CFR 136.3(a), incorporated by reference in Section 611.102, or
7655 alternative methods approved by the Agency pursuant to Section 611.480.
7656

7657 1) The time from sample collection to initiation of analysis may not exceed
7658 30 hours, unless the supplier meets the condition of subsection (b)(2) of
7659 this Section.
7660

7661 2) The Agency may, by a SEP issued pursuant to Section 611.110, approve
7662 on a case-by-case basis the holding of an E. coli sample for up to 48 hours
7663 between sample collection and initiation of analysis if it determines that
7664 analyzing an E. coli sample within 30 hours is not feasible. E. coli
7665 samples held between 30 to 48 hours must be analyzed by the
7666 Autoanalysis Colilert System reagent version of Standard Methods, 18th,
7667 19th, or 20th ed., Method 9223 B, as listed in 40 CFR 136.3(a),
7668 incorporated by reference in Section 611.102.
7669

7670 3) A supplier must maintain the temperature of its samples between 0°C and
7671 10°C during storage and transit to the laboratory.
7672

7673 4) The supplier may use the membrane filtration, two-step procedure
7674 described in Standard Methods, 20th ed., Method 9222 D and G,
7675 incorporated by reference in Section 611.102.
7676

7677 BOARD NOTE: On June 3, 2008 (at 73 Fed. Reg. 31616), USEPA added
7678 appendix A to subpart C of 40 CFR 141, which authorized alternative
7679 methods to those listed for E. coli by multiple-tube technique at
7680 corresponding 40 CFR 141.402(c)(2) to allow the use of Standard
7681 Methods for the Examination of Water and Wastewater, 20th ed., Method
7682 9222 D and G.
7683

7684 c) Turbidity. A supplier must use methods for turbidity measurement approved in
7685 Section 611.531(a).
7686

7687 BOARD NOTE: Derived from 40 CFR 141.704 and appendix A to 40 CFR 141
7688 (2012)~~(2010)~~.

7689
7690 (Source: Amended at 37 Ill. Reg. _____, effective _____)

7691
7692 **Section 611.1012 Treatment Technique Requirements: Unfiltered System**
7693 **Cryptosporidium Treatment Requirements**

- 7694
- 7695 a) Determination of the mean Cryptosporidium level.
 - 7696
 - 7697 1) Following completion of the initial source water monitoring required by
 - 7698 Section 611.1001(a), an unfiltered system supplier is required to have
 - 7699 calculated~~must calculate~~ the arithmetic mean of all Cryptosporidium
 - 7700 sample concentrations reported pursuant to Section 611.1001(a). The
 - 7701 supplier is required to have reported~~must report~~ this value to the Agency
 - 7702 for approval no later than six months after the month the supplier is
 - 7703 required to have completed~~complete~~ initial source water monitoring based
 - 7704 on the applicable schedule set forth in Section 611.1001(c).
 - 7705
 - 7706 2) Following completion of the second round of source water monitoring
 - 7707 required by Section 611.1001(b), an unfiltered system supplier must
 - 7708 calculate the arithmetic mean of all Cryptosporidium sample
 - 7709 concentrations reported pursuant to Section 611.1001(b). The supplier
 - 7710 must report this value to the Agency for approval no later than six months
 - 7711 after the month the supplier is required to complete the second round of
 - 7712 source water monitoring based on the applicable schedule set forth in
 - 7713 Section 611.1001(c).
 - 7714
 - 7715 3) If the monthly Cryptosporidium sampling frequency varies, a supplier
 - 7716 must first calculate a monthly average for each month of monitoring. The
 - 7717 supplier must then use these monthly average concentrations, rather than
 - 7718 individual sample concentrations, in the calculation of the mean
 - 7719 Cryptosporidium level in subsection (a)(1) or (a)(2) of this Section.
 - 7720
 - 7721 4) The report to the Agency of the mean Cryptosporidium levels calculated
 - 7722 pursuant to subsections (a)(1) and (a)(2) of this Section must include a
 - 7723 summary of the source water monitoring data used for the calculation.
 - 7724
 - 7725 5) A failure to comply with the conditions of subsection (a) of this Section is
 - 7726 a violation of the treatment technique requirement.
 - 7727
 - 7728 b) Cryptosporidium inactivation requirements. An unfiltered system supplier must
 - 7729 provide the level of inactivation for Cryptosporidium specified in this subsection,

- 7730 based on its mean Cryptosporidium levels, as determined pursuant to subsection
7731 (a) of this Section and according to the applicable schedule set forth in Section
7732 611.1013.
- 7733
- 7734 1) An unfiltered system supplier with a mean Cryptosporidium level of 0.01
7735 oocysts/ℓ or less must provide at least 2-log Cryptosporidium inactivation.
7736
- 7737 2) An unfiltered system supplier with a mean Cryptosporidium level of
7738 greater than 0.01 oocysts/ℓ must provide at least 3-log Cryptosporidium
7739 inactivation.
7740
- 7741 c) Inactivation treatment technology requirements. An unfiltered system supplier
7742 must use chlorine dioxide, ozone, or UV, as described in Section 611.1020, to
7743 meet the Cryptosporidium inactivation requirements of this Section.
7744
- 7745 1) A supplier that uses chlorine dioxide or ozone and fails to achieve the
7746 Cryptosporidium inactivation required in subsection (b) of this Section on
7747 more than one day in the calendar month is in violation of the treatment
7748 technique requirement.
7749
- 7750 2) A supplier that uses UV light and fails to achieve the Cryptosporidium
7751 inactivation required in subsection (b) of this Section by meeting the
7752 criteria in Section 611.1020(d)(3)(B) is in violation of the treatment
7753 technique requirement.
7754
- 7755 d) Use of two disinfectants. An unfiltered system supplier must meet the combined
7756 Cryptosporidium inactivation requirements of this Section and Giardia lamblia
7757 and virus inactivation requirements of Section 611.241 using a minimum of two
7758 disinfectants, and each of two disinfectants must separately achieve the total
7759 inactivation required for any of Cryptosporidium, Giardia lamblia, or viruses.
7760

7761 BOARD NOTE: Derived from 40 CFR 141.712 (2012)~~(2006)~~.

7762 (Source: Amended at 37 Ill. Reg. _____, effective _____)

7763
7764
7765 **Section 611.1013 Treatment Technique Requirements: Schedule for Compliance with**
7766 **Cryptosporidium Treatment Requirements**
7767

- 7768 a) Following initial bin classification pursuant to Section 611.1010(c), a filtered
7769 system supplier must provide the level of treatment for Cryptosporidium required
7770 by Section 611.1011 according to the applicable schedule set forth in subsection
7771 (c) of this Section.
7772

- 7773 b) Following initial determination of the mean Cryptosporidium level pursuant to
7774 Section 611.1012(a)(1), an unfiltered system supplier must provide the level of
7775 treatment for Cryptosporidium required by Section 611.1012 according to the
7776 applicable schedule set forth in subsection (c) of this Section.
7777
- 7778 c) Cryptosporidium treatment compliance dates.
7779
- 7780 1) A supplier that serves 100,000 or more persons is required to have
7781 complied~~must comply~~ with Cryptosporidium treatment requirements
7782 before April 1, 2012.
7783
- 7784 2) A supplier that serves 50,000 to 99,999 persons is required to have
7785 complied~~must comply~~ with Cryptosporidium treatment requirements
7786 before October 1, 2012.
7787
- 7788 3) A supplier that serves 10,000 to 49,999 persons must comply with
7789 Cryptosporidium treatment requirements before October 1, 2013.
7790
- 7791 4) A supplier that serves fewer than 10,000 persons must comply with
7792 Cryptosporidium treatment requirements before October 1, 2014.
7793
- 7794 5) The Agency may, by a SEP issued pursuant to Section 611.110, allow up
7795 to an additional two years from the applicable date set forth in this
7796 subsection (c) for complying with the treatment requirement if it
7797 determines that the additional time is necessary for the supplier to make
7798 capital improvements to implement the treatment.
7799
- 7800 d) If the bin classification for a filtered system supplier changes following the
7801 second round of source water monitoring, as determined pursuant to Section
7802 611.1010(d), the supplier must provide the level of treatment for Cryptosporidium
7803 required by Section 611.1011 on a schedule approved by the Agency by a SEP
7804 issued pursuant to Section 611.110.
7805
- 7806 e) If the mean Cryptosporidium level for an unfiltered system supplier changes
7807 following the second round of monitoring, as determined pursuant to Section
7808 611.1012(a)(2), and if the supplier must provide a different level of
7809 Cryptosporidium treatment pursuant to Section 611.1012 due to this change, the
7810 supplier must meet this treatment requirement on a schedule approved by the
7811 Agency by a SEP issued pursuant to Section 611.110.
7812

7813 BOARD NOTE: Derived from 40 CFR 141.713 (2012)~~(2006)~~.
7814

7815 (Source: Amended at 37 Ill. Reg. _____, effective _____)

7816
7817 **Section 611.1014 Treatment Technique Requirements: Requirements for Uncovered**
7818 **Finished Water Storage Facilities**
7819

- 7820 a) A supplier that uses uncovered finished water storage facilities must comply with
7821 the conditions of this Section.
7822
- 7823 b) A supplier is required to have notified~~must notify~~ the Agency in writing of the use
7824 of each uncovered finished water storage facility no later than April 1, 2008.
7825
- 7826 c) A supplier is required to have met~~must meet~~ either of the following conditions for
7827 each uncovered finished water storage facility, or it is required to have been~~must~~
7828 ~~be~~ in compliance with an Agency-approved schedule to meet these conditions, no
7829 later than April 1, 2009:
7830
- 7831 1) The supplier must cover any uncovered finished water storage facility; or
7832
- 7833 2) The supplier must treat the discharge from the uncovered finished water
7834 storage facility to the distribution system to achieve inactivation or
7835 removal of at least 4-log virus, 3-log Giardia lamblia, and 2-log
7836 Cryptosporidium using a protocol approved by the Agency.
7837
- 7838 d) A failure to comply with the requirements of this Section is a violation of the
7839 treatment technique requirement.
7840

7841 BOARD NOTE: Derived from 40 CFR 141.714 (2012)~~(2006)~~.

7842 (Source: Amended at 37 Ill. Reg. _____, effective _____)
7843
7844

7845 **Section 611.APPENDIX A Regulated Contaminants**

7846
7847 Microbiological contaminants.

7848
7849 Contaminant (units): Total Coliform Bacteria
7850 Traditional MCL in mg/ℓ: MCL: (a supplier that collects 40 or more samples/month)
7851 five percent or fewer of monthly samples are positive; (systems that collect fewer
7852 than 40 samples/month) one or fewer positive monthly samples.
7853 To convert for CCR, multiply by: –
7854 MCL in CCR units: MCL: (a supplier that collects 40 or more samples/month) five
7855 percent or fewer of monthly samples are positive; (a supplier that collects fewer than
7856 40 samples/month) one or fewer positive monthly samples.
7857 MCLG: 0
7858 Major sources in drinking water: Naturally present in the environment.
7859 Health effects language: Coliforms are bacteria that are naturally present in the
7860 environment and are used as an indicator that other, potentially-harmful, bacteria may
7861 be present. Coliforms were found in more samples than allowed and this was a
7862 warning of potential problems.

7863
7864 Contaminant (units): Fecal coliform and E. coli
7865 Traditional MCL in mg/ℓ: 0
7866 To convert for CCR, multiply by: –
7867 MCL in CCR units: 0
7868 MCLG: 0
7869 Major sources in drinking water: Human and animal fecal waste.
7870 Health effects language: Fecal coliforms and E. coli are bacteria whose presence
7871 indicates that the water may be contaminated with human or animal wastes. Microbes
7872 in these wastes can cause short-term effects, such as diarrhea, cramps, nausea,
7873 headaches, or other symptoms. They may pose a special health risk for infants,
7874 young children, some of the elderly, and people with severely-compromised immune
7875 systems.

7876
7877 Contaminant (units): Fecal Indicators (enterococci or coliphage).
7878 Traditional MCL in mg/ℓ: TT.
7879 To convert for CCR, multiply by: –
7880 MCL in CCR units: TT.
7881 MCLG: N/A
7882 Major sources in drinking water: Human and animal fecal waste.
7883 Health effects language: Fecal indicators are microbes whose presence indicates that the
7884 water may be contaminated with human or animal wastes. Microbes in these wastes
7885 can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or
7886 other symptoms. They may pose a special health risk for infants, young children,
7887 some of the elderly, and people with severely compromised immune systems.

7888
 7889 Contaminant (units): Total organic carbon (ppm)
 7890 Traditional MCL in mg/ℓ: TT
 7891 To convert for CCR, multiply by: –
 7892 MCL in CCR units: TT
 7893 MCLG: N/A
 7894 Major sources in drinking water: Naturally present in the environment.
 7895 Health effects language: Total organic carbon (TOC) has no health
 7896 effects. However, total organic carbon provides a medium for the formation of
 7897 disinfection byproducts. These byproducts include trihalomethanes (THMs) and
 7898 haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the
 7899 MCL may lead to adverse health effects, liver or kidney problems, or nervous system
 7900 effects, and may lead to an increased risk of getting cancer.
 7901
 7902 Contaminant (units): Turbidity (NTU)
 7903 Traditional MCL in mg/ℓ: TT
 7904 To convert for CCR, multiply by: –
 7905 MCL in CCR units: TT
 7906 MCLG: N/A
 7907 Major sources in drinking water: Soil runoff.
 7908 Health effects language: Turbidity has no health effects. However, turbidity can interfere
 7909 with disinfection and provide a medium for microbial growth. Turbidity may indicate
 7910 the presence of disease-causing organisms. These organisms include bacteria, viruses,
 7911 and parasites that can cause symptoms such as nausea, cramps, diarrhea, and
 7912 associated headaches.
 7913
 7914 Radioactive contaminants.
 7915
 7916 Contaminant (units): Beta/photon emitters (mrem/yr)
 7917 Traditional MCL in mg/ℓ: 4 mrem/yr
 7918 To convert for CCR, multiply by: –
 7919 MCL in CCR units: 4
 7920 MCLG: 0
 7921 Major sources in drinking water: Decay of natural and man-made deposits.
 7922 Health effects language: Certain minerals are radioactive and may emit forms of
 7923 radiation known as photons and beta radiation. Some people who drink water
 7924 containing beta particle and photon radioactivity in excess of the MCL over many
 7925 years may have an increased risk of getting cancer.
 7926
 7927 Contaminant (units): Alpha emitters (pCi/ℓ)
 7928 Traditional MCL in mg/ℓ: 15 pCi/ℓ
 7929 To convert for CCR, multiply by: –
 7930 MCL in CCR units: 15

- 7931 MCLG: 0
7932 Major sources in drinking water: Erosion of natural deposits.
7933 Health effects language: Certain minerals are radioactive and may emit a form of
7934 radiation known as alpha radiation. Some people who drink water containing alpha
7935 emitters in excess of the MCL over many years may have an increased risk of getting
7936 cancer.
7937
7938 Contaminant (units): Combined radium (pCi/ℓ)
7939 Traditional MCL in mg/ℓ: 5 pCi/ℓ
7940 To convert for CCR, multiply by: –
7941 MCL in CCR units: 5
7942 MCLG: 0
7943 Major sources in drinking water: Erosion of natural deposits.
7944 Health effects language: Some people who drink water containing radium-226 or -228 in
7945 excess of the MCL over many years may have an increased risk of getting cancer.
7946
7947 Contaminant (units): Uranium (µg/ℓ)
7948 Traditional MCL in mg/ℓ: 30 µg/ℓ
7949 To convert for CCR, multiply by: –
7950 MCL in CCR units: 30
7951 MCLG: 0
7952 Major sources in drinking water: Erosion of natural deposits.
7953 Health effects language: Some people who drink water containing uranium in excess of
7954 the MCL over many years may have an increased risk of getting cancer and kidney
7955 toxicity.
7956
7957 Inorganic contaminants.
7958
7959 Contaminant (units): Antimony (ppb)
7960 Traditional MCL in mg/ℓ: 0.006
7961 To convert for CCR, multiply by: 1000
7962 MCL in CCR units: 6
7963 MCLG: 6
7964 Major sources in drinking water: Discharge from petroleum refineries; fire retardants;
7965 ceramics; electronics; solder.
7966 Health effects language: Some people who drink water containing antimony well in
7967 excess of the MCL over many years could experience increases in blood cholesterol
7968 and decreases in blood sugar.
7969
7970 Contaminant (units): Arsenic (ppb)
7971 Traditional MCL in mg/ℓ: ~~0.05 until January 23, 2006~~ or 0.010
7972 ~~effective January 23, 2006~~
7973 To convert for CCR, multiply by: 1000

- 7974 MCL in CCR units: 50
7975 MCLG: 0 (effective January 26, 2006)
7976 Major sources in drinking water: Erosion of natural deposits; runoff from orchards;
7977 runoff from glass and electronics production wastes.
7978 Health effects language: Some people who drink water containing arsenic in excess of
7979 the MCL over many years could experience skin damage or problems with their
7980 circulatory system, and may have an increased risk of getting cancer.
7981
7982 Contaminant (units): Asbestos (MFL)
7983 Traditional MCL in mg/l: 7 MFL
7984 To convert for CCR, multiply by: –
7985 MCL in CCR units: 7
7986 MCLG: 7
7987 Major sources in drinking water: Decay of asbestos cement water mains; erosion of
7988 natural deposits.
7989 Health effects language: Some people who drink water containing asbestos in excess of
7990 the MCL over many years may have an increased risk of developing benign intestinal
7991 polyps.
7992
7993 Contaminant (units): Barium (ppm)
7994 Traditional MCL in mg/l: 2
7995 To convert for CCR, multiply by: –
7996 MCL in CCR units: 2
7997 MCLG: 2
7998 Major sources in drinking water: Discharge of drilling wastes; discharge from metal
7999 refineries; erosion of natural deposits.
8000 Health effects language: Some people who drink water containing barium in excess of
8001 the MCL over many years could experience an increase in their blood pressure.
8002
8003 Contaminant (units): Beryllium (ppb)
8004 Traditional MCL in mg/l: 0.004
8005 To convert for CCR, multiply by: 1000
8006 MCL in CCR units: 4
8007 MCLG: 4
8008 Major sources in drinking water: Discharge from metal refineries and coal-burning
8009 factories; discharge from electrical, aerospace, and defense industries.
8010 Health effects language: Some people who drink water containing beryllium well in
8011 excess of the MCL over many years could develop intestinal lesions.
8012
8013 Contaminant (units): Bromate (ppb)
8014 Traditional MCL in mg/l: 0.010
8015 To convert for CCR, multiply by: 1000
8016 MCL in CCR units: 10

- 8017 MCLG: 0
8018 Major sources in drinking water: By-product of drinking water disinfection.
8019 Health effects language: Some people who drink water containing bromate in excess of
8020 the MCL over many years may have an increased risk of getting cancer.
8021
8022 Contaminant (units): Cadmium (ppb)
8023 Traditional MCL in mg/l: 0.005
8024 To convert for CCR, multiply by: 1000
8025 MCL in CCR units: 5
8026 MCLG: 5
8027 Major sources in drinking water: Corrosion of galvanized pipes; erosion of natural
8028 deposits; discharge from metal refineries; runoff from waste batteries and paints.
8029 Health effects language: Some people who drink water containing cadmium in excess of
8030 the MCL over many years could experience kidney damage.
8031
8032 Contaminant (units): Chloramines (ppm)
8033 Traditional MCL in mg/l: MRDL=4
8034 To convert for CCR, multiply by: -
8035 MCL in CCR units: MRDL=4
8036 MCLG: MRDLG=4
8037 Major sources in drinking water: Water additive used to control microbes.
8038 Health effects language: Some people who drink water containing chloramines well in
8039 excess of the MRDL could experience irritating effects to their eyes and nose. Some
8040 people who drink water containing chloramines well in excess of the MRDL could
8041 experience stomach discomfort or anemia.
8042
8043 Contaminant (units): Chlorine (ppm)
8044 Traditional MCL in mg/l: MRDL=4
8045 To convert for CCR, multiply by: -
8046 MCL in CCR units: MRDL=4
8047 MCLG: MRDLG=4
8048 Major sources in drinking water: Water additive used to control microbes.
8049 Health effects language: Some people who drink water containing chlorine well in
8050 excess of the MRDL could experience irritating effects to their eyes and nose. Some
8051 people who drink water containing chlorine well in excess of the MRDL could
8052 experience stomach discomfort.
8053
8054 Contaminant (units): Chlorine dioxide (ppb)
8055 Traditional MCL in mg/l: MRDL=800
8056 To convert for CCR, multiply by: 1000
8057 MCL in CCR units: MRDL=800
8058 MCLG: MRDLG=800
8059 Major sources in drinking water: Water additive used to control microbes.

8060 Health effects language: Some infants and young children who drink water containing
8061 chlorine dioxide well in excess of the MRDL could experience nervous system
8062 effects. Similar effects may occur in fetuses of pregnant women who drink water
8063 containing chlorine dioxide in excess of the MRDL. Some people may experience
8064 anemia.

8065
8066 Contaminant (units): Chlorite (ppm)
8067 Traditional MCL in mg/l: MRDL=1
8068 To convert for CCR, multiply by: –
8069 MCL in CCR units: MRDL=1
8070 MCLG: MRDLG=0.8

8071 Major sources in drinking water: By-product of drinking water disinfection.
8072 Health effects language: Some infants and young children who drink water containing
8073 chlorite well in excess of the MCL could experience nervous system effects. Similar
8074 effects may occur in fetuses of pregnant women who drink water containing chlorite
8075 in excess of the MCL. Some people may experience anemia.

8076
8077 Contaminant (units): Chromium (ppb)
8078 Traditional MCL in mg/l: 0.1
8079 To convert for CCR, multiply by: 1000
8080 MCL in CCR units: 100
8081 MCLG: 100

8082 Major sources in drinking water: Discharge from steel and pulp mills; erosion of natural
8083 deposits.
8084 Health effects language: Some people who use water containing chromium well in
8085 excess of the MCL over many years could experience allergic dermatitis.

8086
8087 Contaminant (units): Copper (ppm)
8088 Traditional MCL in mg/l: AL=1.3
8089 To convert for CCR, multiply by: –
8090 MCL in CCR units: AL=1.3
8091 MCLG: 1.3

8092 Major sources in drinking water: Corrosion of household plumbing systems; erosion of
8093 natural deposits.
8094 Health effects language: Copper is an essential nutrient, but some people who drink
8095 water containing copper in excess of the action level over a relatively short amount of
8096 time could experience gastrointestinal distress. Some people who drink water
8097 containing copper in excess of the action level over many years could suffer liver or
8098 kidney damage. People with Wilson's Disease should consult their personal doctor.

8099
8100 Contaminant (units): Cyanide (ppb)
8101 Traditional MCL in mg/l: 0.2
8102 To convert for CCR, multiply by: 1000

8103 MCL in CCR units: 200
8104 MCLG: 200
8105 Major sources in drinking water: Discharge from steel/metal factories; discharge from
8106 plastic and fertilizer factories.
8107 Health effects language: Some people who drink water containing cyanide well in excess
8108 of the MCL over many years could experience nerve damage or problems with their
8109 thyroid.
8110
8111 Contaminant (units): Fluoride (ppm)
8112 Traditional MCL in mg/l: 4
8113 To convert for CCR, multiply by: –
8114 MCL in CCR units: 4
8115 MCLG: 4
8116 Major sources in drinking water: Erosion of natural deposits; water additive that
8117 promotes strong teeth; discharge from fertilizer and aluminum factories.
8118 Health effects language: Some people who drink water containing fluoride in excess of
8119 the MCL over many years could get bone disease, including pain and tenderness of
8120 the bones. Fluoride in drinking water at half the MCL or more may cause mottling of
8121 children's teeth, usually in children less than nine years old. Mottling, also known as
8122 dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in
8123 developing teeth before they erupt from the gums.
8124
8125 Contaminant (units): Lead (ppb)
8126 Traditional MCL in mg/l: AL=0.015
8127 To convert for CCR, multiply by: 1000
8128 MCL in CCR units: AL=15
8129 MCLG: 0
8130 Major sources in drinking water: Corrosion of household plumbing systems; erosion of
8131 natural deposits.
8132 Health effects language: Infants and children who drink water containing lead in excess
8133 of the action level could experience delays in their physical or mental development.
8134 Children could show slight deficits in attention span and learning abilities. Adults
8135 who drink this water over many years could develop kidney problems or high blood
8136 pressure.
8137
8138 Contaminant (units): Mercury (inorganic) (ppb)
8139 Traditional MCL in mg/l: 0.002
8140 To convert for CCR, multiply by: 1000
8141 MCL in CCR units: 2
8142 MCLG: 2
8143 Major sources in drinking water: Erosion of natural deposits; discharge from refineries
8144 and factories; runoff from landfills; runoff from cropland.
8145 Health effects language: Some people who drink water containing inorganic mercury

8146 well in excess of the MCL over many years could experience kidney damage.
8147
8148 Contaminant (units): Nitrate (ppm)
8149 Traditional MCL in mg/ℓ: 10
8150 To convert for CCR, multiply by: –
8151 MCL in CCR units: 10
8152 MCLG: 10
8153 Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks,
8154 sewage; erosion of natural deposits.
8155 Health effects language: Infants below the age of six months who drink water containing
8156 nitrate in excess of the MCL could become seriously ill and, if untreated, may die.
8157 Symptoms include shortness of breath and blue baby syndrome.
8158
8159 Contaminant (units): Nitrite (ppm)
8160 Traditional MCL in mg/ℓ: 1
8161 To convert for CCR, multiply by: –
8162 MCL in CCR units: 1
8163 MCLG: 1
8164 Major sources in drinking water: Runoff from fertilizer use; leaching from septic tanks,
8165 sewage; erosion of natural deposits.
8166 Health effects language: Infants below the age of six months who drink water containing
8167 nitrite in excess of the MCL could become seriously ill and, if untreated, may die.
8168 Symptoms include shortness of breath and blue baby syndrome.
8169
8170 Contaminant (units): Selenium (ppb)
8171 Traditional MCL in mg/ℓ: 0.05
8172 To convert for CCR, multiply by: 1000
8173 MCL in CCR units: 50
8174 MCLG: 50
8175 Major sources in drinking water: Discharge from petroleum and metal refineries; erosion
8176 of natural deposits; discharge from mines.
8177 Health effects language: Selenium is an essential nutrient. However, some people who
8178 drink water containing selenium in excess of the MCL over many years could
8179 experience hair or fingernail losses, numbness in fingers or toes, or problems with
8180 their circulation.
8181
8182 Contaminant (units): Thallium (ppb)
8183 Traditional MCL in mg/ℓ: 0.002
8184 To convert for CCR, multiply by: 1000
8185 MCL in CCR units: 2
8186 MCLG: 0.5
8187 Major sources in drinking water: Leaching from ore-processing sites; discharge from
8188 electronics, glass, and drug factories.

8189 Health effects language: Some people who drink water containing thallium in excess of
8190 the MCL over many years could experience hair loss, changes in their blood, or
8191 problems with their kidneys, intestines, or liver.
8192

8193 Synthetic organic contaminants including pesticides and herbicides.
8194

8195 Contaminant (units): 2,4-D (ppb)
8196 Traditional MCL in mg/ℓ: 0.07
8197 To convert for CCR, multiply by: 1000
8198 MCL in CCR units: 70
8199 MCLG: 70
8200 Major sources in drinking water: Runoff from herbicide used on row crops.

8201 Health effects language: Some people who drink water containing the weed killer 2,4-D
8202 well in excess of the MCL over many years could experience problems with their
8203 kidneys, liver, or adrenal glands.
8204

8205 Contaminant (units): 2,4,5-TP (silvex) (ppb)
8206 Traditional MCL in mg/ℓ: 0.05
8207 To convert for CCR, multiply by: 1000
8208 MCL in CCR units: 50
8209 MCLG: 50
8210 Major sources in drinking water: Residue of banned herbicide.

8211 Health effects language: Some people who drink water containing silvex in excess of the
8212 MCL over many years could experience liver problems.
8213

8214 Contaminant (units): Acrylamide
8215 Traditional MCL in mg/ℓ: TT
8216 To convert for CCR, multiply by: –
8217 MCL in CCR units: TT
8218 MCLG: 0
8219 Major sources in drinking water: Added to water during sewage/wastewater treatment.

8220 Health effects language: Some people who drink water containing high levels of
8221 acrylamide over a long period of time could have problems with their nervous system
8222 or blood, and may have an increased risk of getting cancer.
8223

8224 Contaminant (units): Alachlor (ppb)
8225 Traditional MCL in mg/ℓ: 0.002
8226 To convert for CCR, multiply by: 1000
8227 MCL in CCR units: 2
8228 MCLG: 0
8229 Major sources in drinking water: Runoff from herbicide used on row crops.

8230 Health effects language: Some people who drink water containing alachlor in excess of
8231 the MCL over many years could have problems with their eyes, liver, kidneys, or

8232 spleen, or experience anemia, and may have an increased risk of getting cancer.
8233
8234 Contaminant (units): Atrazine (ppb)
8235 Traditional MCL in mg/ℓ: 0.003
8236 To convert for CCR, multiply by: 1000
8237 MCL in CCR units: 3
8238 MCLG: 3
8239 Major sources in drinking water: Runoff from herbicide used on row crops.
8240 Health effects language: Some people who drink water containing atrazine well in excess
8241 of the MCL over many years could experience problems with their cardiovascular
8242 system or reproductive difficulties.
8243
8244 Contaminant (units): Benzo(a)pyrene (PAH) (nanograms/ℓ)
8245 Traditional MCL in mg/ℓ: 0.0002
8246 To convert for CCR, multiply by: 1,000,000
8247 MCL in CCR units: 200
8248 MCLG: 0
8249 Major sources in drinking water: Leaching from linings of water storage tanks and
8250 distribution lines.
8251 Health effects language: Some people who drink water containing benzo(a)pyrene in
8252 excess of the MCL over many years may experience reproductive difficulties and
8253 may have an increased risk of getting cancer.
8254
8255 Contaminant (units): Carbofuran (ppb)
8256 Traditional MCL in mg/ℓ: 0.04
8257 To convert for CCR, multiply by: 1000
8258 MCL in CCR units: 40
8259 MCLG: 40
8260 Major sources in drinking water: Leaching of soil fumigant used on rice and alfalfa.
8261 Health effects language: Some people who drink water containing carbofuran in excess
8262 of the MCL over many years could experience problems with their blood, or nervous
8263 or reproductive systems.
8264
8265 Contaminant (units): Chlordane (ppb)
8266 Traditional MCL in mg/ℓ: 0.002
8267 To convert for CCR, multiply by: 1000
8268 MCL in CCR units: 2
8269 MCLG: 0
8270 Major sources in drinking water: Residue of banned termiticide.
8271 Health effects language: Some people who drink water containing chlordane in excess of
8272 the MCL over many years could experience problems with their liver or nervous
8273 system, and may have an increased risk of getting cancer.
8274

8275 Contaminant (units): Dalapon (ppb)
 8276 Traditional MCL in mg/ℓ: 0.2
 8277 To convert for CCR, multiply by: 1000
 8278 MCL in CCR units: 200
 8279 MCLG: 200
 8280 Major sources in drinking water: Runoff from herbicide used on rights of way.
 8281 Health effects language: Some people who drink water containing dalapon well in excess
 8282 of the MCL over many years could experience minor kidney changes.
 8283
 8284 Contaminant (units): Di(2-ethylhexyl)adipate (ppb)
 8285 Traditional MCL in mg/ℓ: 0.4
 8286 To convert for CCR, multiply by: 1000
 8287 MCL in CCR units: 400
 8288 MCLG: 400
 8289 Major sources in drinking water: Discharge from chemical factories.
 8290 Health effects language: Some people who drink water containing di(2-
 8291 ethylhexyl)adipate well in excess of the MCL over many years could experience toxic
 8292 effects, such as weight loss, liver enlargement, or possible reproductive difficulties.
 8293
 8294 Contaminant (units): Di(2-ethylhexyl)phthalate (ppb)
 8295 Traditional MCL in mg/ℓ: 0.006
 8296 To convert for CCR, multiply by: 1000
 8297 MCL in CCR units: 6
 8298 MCLG: 0
 8299 Major sources in drinking water: Discharge from rubber and chemical factories.
 8300 Health effects language: Some people who drink water containing di(2-
 8301 ethylhexyl)phthalate well in excess of the MCL over many years may have problems
 8302 with their liver or experience reproductive difficulties, and they may have an
 8303 increased risk of getting cancer.
 8304
 8305 Contaminant (units): Dibromochloropropane (DBCP) (ppt)
 8306 Traditional MCL in mg/ℓ: 0.0002
 8307 To convert for CCR, multiply by: 1,000,000
 8308 MCL in CCR units: 200
 8309 MCLG: 0
 8310 Major sources in drinking water: Runoff/leaching from soil fumigant used on soybeans,
 8311 cotton, pineapples, and orchards.
 8312 Health effects language: Some people who drink water containing DBCP in excess of the
 8313 MCL over many years could experience reproductive problems and may have an
 8314 increased risk of getting cancer.
 8315
 8316 Contaminant (units): Dinoseb (ppb)
 8317 Traditional MCL in mg/ℓ: 0.007

8318 To convert for CCR, multiply by: 1000
8319 MCL in CCR units: 7
8320 MCLG: 7
8321 Major sources in drinking water: Runoff from herbicide used on soybeans and
8322 vegetables.
8323 Health effects language: Some people who drink water containing dinoseb well in excess
8324 of the MCL over many years could experience reproductive difficulties.
8325
8326 Contaminant (units): Diquat (ppb)
8327 Traditional MCL in mg/l: 0.02
8328 To convert for CCR, multiply by: 1000
8329 MCL in CCR units: 20
8330 MCLG: 20
8331 Major sources in drinking water: Runoff from herbicide use.
8332 Health effects language: Some people who drink water containing diquat in excess of the
8333 MCL over many years could get cataracts.
8334
8335 Contaminant (units): Dioxin (2,3,7,8-TCDD) (ppq)
8336 Traditional MCL in mg/l: 0.00000003
8337 To convert for CCR, multiply by: 1,000,000,000
8338 MCL in CCR units: 30
8339 MCLG: 0
8340 Major sources in drinking water: Emissions from waste incineration and other
8341 combustion; discharge from chemical factories.
8342 Health effects language: Some people who drink water containing dioxin in excess of the
8343 MCL over many years could experience reproductive difficulties and may have an
8344 increased risk of getting cancer.
8345
8346 Contaminant (units): Endothall (ppb)
8347 Traditional MCL in mg/l: 0.1
8348 To convert for CCR, multiply by: 1000
8349 MCL in CCR units: 100
8350 MCLG: 100
8351 Major sources in drinking water: Runoff from herbicide use.
8352 Health effects language: Some people who drink water containing endothall in excess of
8353 the MCL over many years could experience problems with their stomach or
8354 intestines.
8355
8356 Contaminant (units): Endrin (ppb)
8357 Traditional MCL in mg/l: 0.002
8358 To convert for CCR, multiply by: 1000
8359 MCL in CCR units: 2
8360 MCLG: 2

- 8361 Major sources in drinking water: Residue of banned insecticide.
8362 Health effects language: Some people who drink water containing endrin in excess of the
8363 MCL over many years could experience liver problems.
8364
8365 Contaminant (units): Epichlorohydrin
8366 Traditional MCL in mg/l: TT
8367 To convert for CCR, multiply by: –
8368 MCL in CCR units: TT
8369 MCLG: 0
8370 Major sources in drinking water: Discharge from industrial chemical factories; an
8371 impurity of some water treatment chemicals.
8372 Health effects language: Some people who drink water containing high levels of
8373 epichlorohydrin over a long period of time could experience stomach problems, and
8374 may have an increased risk of getting cancer.
8375
8376 Contaminant (units): Ethylene dibromide (ppt)
8377 Traditional MCL in mg/l: 0.00005
8378 To convert for CCR, multiply by: 1,000,000
8379 MCL in CCR units: 50
8380 MCLG: 0
8381 Major sources in drinking water: Discharge from petroleum refineries.
8382 Health effects language: Some people who drink water containing ethylene dibromide in
8383 excess of the MCL over many years could experience problems with their liver,
8384 stomach, reproductive system, or kidneys, and may have an increased risk of getting
8385 cancer.
8386
8387 Contaminant (units): Glyphosate (ppb)
8388 Traditional MCL in mg/l: 0.7
8389 To convert for CCR, multiply by: 1000
8390 MCL in CCR units: 700
8391 MCLG: 700
8392 Major sources in drinking water: Runoff from herbicide use.
8393 Health effects language: Some people who drink water containing glyphosate in excess
8394 of the MCL over many years could experience problems with their kidneys or
8395 reproductive difficulties.
8396
8397 Contaminant (units): Heptachlor (ppt)
8398 Traditional MCL in mg/l: 0.0004
8399 To convert for CCR, multiply by: 1,000,000
8400 MCL in CCR units: 400
8401 MCLG: 0
8402 Major sources in drinking water: Residue of banned pesticide.
8403 Health effects language: Some people who drink water containing heptachlor in excess

8404 of the MCL over many years could experience liver damage and may have an
8405 increased risk of getting cancer.

8406
8407 Contaminant (units): Heptachlor epoxide (ppt)
8408 Traditional MCL in mg/l: 0.0002
8409 To convert for CCR, multiply by: 1,000,000
8410 MCL in CCR units: 200
8411 MCLG: 0

8412 Major sources in drinking water: Breakdown of heptachlor.
8413 Health effects language: Some people who drink water containing heptachlor epoxide in
8414 excess of the MCL over many years could experience liver damage, and may have an
8415 increased risk of getting cancer.

8416
8417 Contaminant (units): Hexachlorobenzene (ppb)
8418 Traditional MCL in mg/l: 0.001
8419 To convert for CCR, multiply by: 1000
8420 MCL in CCR units: 1
8421 MCLG: 0

8422 Major sources in drinking water: Discharge from metal refineries and agricultural
8423 chemical factories.
8424 Health effects language: Some people who drink water containing
8425 hexachlorobenzene in excess of the MCL over many years could experience problems
8426 with their liver or kidneys, or adverse reproductive effects, and may have an
8427 increased risk of getting cancer.

8428
8429 Contaminant (units): Hexachlorocyclopentadiene (ppb)
8430 Traditional MCL in mg/l: 0.05
8431 To convert for CCR, multiply by: 1000
8432 MCL in CCR units: 50
8433 MCLG: 50

8434 Major sources in drinking water: Discharge from chemical factories.
8435 Health effects language: Some people who drink water containing
8436 hexachlorocyclopentadiene well in excess of the MCL over many years could
8437 experience problems with their kidneys or stomach.

8438
8439 Contaminant (units): Lindane (ppt)
8440 Traditional MCL in mg/l: 0.0002
8441 To convert for CCR, multiply by: 1,000,000
8442 MCL in CCR units: 200
8443 MCLG: 200

8444 Major sources in drinking water: Runoff/leaching from insecticide used on cattle,
8445 lumber, gardens.
8446 Health effects language: Some people who drink water containing lindane in excess of

8447 the MCL over many years could experience problems with their kidneys or liver.
8448
8449 Contaminant (units): Methoxychlor (ppb)
8450 Traditional MCL in mg/l: 0.04
8451 To convert for CCR, multiply by: 1000
8452 MCL in CCR units: 40
8453 MCLG: 40
8454 Major sources in drinking water: Runoff/leaching from insecticide used on fruits,
8455 vegetables, alfalfa, livestock.
8456 Health effects language: Some people who drink water containing methoxychlor in
8457 excess of the MCL over many years could experience reproductive difficulties.
8458
8459 Contaminant (units): Oxamyl (vydate) (ppb)
8460 Traditional MCL in mg/l: 0.2
8461 To convert for CCR, multiply by: 1000
8462 MCL in CCR units: 200
8463 MCLG: 200
8464 Major sources in drinking water: Runoff/leaching from insecticide used on apples,
8465 potatoes and tomatoes.
8466 Health effects language: Some people who drink water containing oxamyl in excess of
8467 the MCL over many years could experience slight nervous system effects.
8468
8469 Contaminant (units): PCBs (polychlorinated biphenyls) (ppt)
8470 Traditional MCL in mg/l: 0.0005
8471 To convert for CCR, multiply by: 1,000,000
8472 MCL in CCR units: 500
8473 MCLG: 0
8474 Major sources in drinking water: Runoff from landfills; discharge of waste chemicals.
8475 Health effects language: Some people who drink water containing PCBs in excess of the
8476 MCL over many years could experience changes in their skin, problems with their
8477 thymus gland, immune deficiencies, or reproductive or nervous system difficulties,
8478 and may have an increased risk of getting cancer.
8479
8480 Contaminant (units): Pentachlorophenol (ppb)
8481 Traditional MCL in mg/l: 0.001
8482 To convert for CCR, multiply by: 1000
8483 MCL in CCR units: 1
8484 MCLG: 0
8485 Major sources in drinking water: Discharge from wood preserving factories.
8486 Health effects language: Some people who drink water containing pentachlorophenol in
8487 excess of the MCL over many years could experience problems with their liver or
8488 kidneys, and may have an increased risk of getting cancer.
8489

- 8490 Contaminant (units): Picloram (ppb)
8491 Traditional MCL in mg/ℓ: 0.5
8492 To convert for CCR, multiply by: 1000
8493 MCL in CCR units: 500
8494 MCLG: 500
8495 Major sources in drinking water: Herbicide runoff.
8496 Health effects language: Some people who drink water containing picloram in excess of
8497 the MCL over many years could experience problems with their liver.
8498
8499 Contaminant (units): Simazine (ppb)
8500 Traditional MCL in mg/ℓ: 0.004
8501 To convert for CCR, multiply by: 1000
8502 MCL in CCR units: 4
8503 MCLG: 4
8504 Major sources in drinking water: Herbicide runoff.
8505 Health effects language: Some people who drink water containing simazine in excess of
8506 the MCL over many years could experience problems with their blood.
8507
8508 Contaminant (units): Toxaphene (ppb)
8509 Traditional MCL in mg/ℓ: 0.003
8510 To convert for CCR, multiply by: 1000
8511 MCL in CCR units: 3
8512 MCLG: 0
8513 Major sources in drinking water: Runoff/leaching from insecticide used on cotton and
8514 cattle.
8515 Health effects language: Some people who drink water containing toxaphene in excess
8516 of the MCL over many years could have problems with their kidneys, liver, or thyroid,
8517 and may have an increased risk of getting cancer.
8518
8519 Volatile organic contaminants.
8520
8521 Contaminant (units): Benzene (ppb)
8522 Traditional MCL in mg/ℓ: 0.005
8523 To convert for CCR, multiply by: 1000
8524 MCL in CCR units: 5
8525 MCLG: 0
8526 Major sources in drinking water: Discharge from factories; leaching from gas storage
8527 tanks and landfills.
8528 Health effects language: Some people who drink water containing benzene in excess of
8529 the MCL over many years could experience anemia or a decrease in blood platelets,
8530 and may have an increased risk of getting cancer.
8531
8532 Contaminant (units): Carbon tetrachloride (ppb)

8533 Traditional MCL in mg/ℓ: 0.005
8534 To convert for CCR, multiply by: 1000
8535 MCL in CCR units: 5
8536 MCLG: 0
8537 Major sources in drinking water: Discharge from chemical plants and other industrial
8538 activities.
8539 Health effects language: Some people who drink water containing carbon tetrachloride in
8540 excess of the MCL over many years could experience problems with their liver and
8541 may have an increased risk of getting cancer.
8542
8543 Contaminant (units): Chlorobenzene (ppb)
8544 Traditional MCL in mg/ℓ: 0.1
8545 To convert for CCR, multiply by: 1000
8546 MCL in CCR units: 100
8547 MCLG: 100
8548 Major sources in drinking water: Discharge from chemical and agricultural chemical
8549 factories.
8550 Health effects language: Some people who drink water containing chlorobenzene in
8551 excess of the MCL over many years could experience problems with their liver or
8552 kidneys.
8553
8554 Contaminant (units): o-Dichlorobenzene (ppb)
8555 Traditional MCL in mg/ℓ: 0.6
8556 To convert for CCR, multiply by: 1000
8557 MCL in CCR units: 600
8558 MCLG: 600
8559 Major sources in drinking water: Discharge from industrial chemical factories.
8560 Health effects language: Some people who drink water containing o-dichlorobenzene
8561 well in excess of the MCL over many years could experience problems with their
8562 liver, kidneys, or circulatory systems.
8563
8564 Contaminant (units): p-Dichlorobenzene (ppb)
8565 Traditional MCL in mg/ℓ: 0.075
8566 To convert for CCR, multiply by: 1000
8567 MCL in CCR units: 75
8568 MCLG: 75
8569 Major sources in drinking water: Discharge from industrial chemical factories.
8570 Health effects language: Some people who drink water containing p-dichlorobenzene in
8571 excess of the MCL over many years could experience anemia; damage to their liver,
8572 kidneys, or spleen; or changes in their blood.
8573
8574 Contaminant (units): 1,2-Dichloroethane (ppb)
8575 Traditional MCL in mg/ℓ: 0.005

8576 To convert for CCR, multiply by: 1000
 8577 MCL in CCR units: 5
 8578 MCLG: 0
 8579 Major sources in drinking water: Discharge from industrial chemical factories.
 8580 Health effects language: Some people who drink water containing 1,2-dichloroethane in
 8581 excess of the MCL over many years may have an increased risk of getting cancer.
 8582
 8583 Contaminant (units): 1,1-Dichloroethylene (ppb)
 8584 Traditional MCL in mg/ℓ: 0.007
 8585 To convert for CCR, multiply by: 1000
 8586 MCL in CCR units: 7
 8587 MCLG: 7
 8588 Major sources in drinking water: Discharge from industrial chemical factories.
 8589 Health effects language: Some people who drink water containing 1,1-dichloroethylene
 8590 in excess of the MCL over many years could experience problems with their liver.
 8591
 8592 Contaminant (units): cis-1,2-Dichloroethylene (ppb)
 8593 Traditional MCL in mg/ℓ: 0.07
 8594 To convert for CCR, multiply by: 1000
 8595 MCL in CCR units: 70
 8596 MCLG: 70
 8597 Major sources in drinking water: Discharge from industrial chemical factories.
 8598 Health effects language: Some people who drink water containing cis-1,2-
 8599 dichloroethylene in excess of the MCL over many years could experience problems
 8600 with their liver.
 8601
 8602 Contaminant (units): trans-1,2-Dichloroethylene (ppb)
 8603 Traditional MCL in mg/ℓ: 0.1
 8604 To convert for CCR, multiply by: 1000
 8605 MCL in CCR units: 100
 8606 MCLG: 100
 8607 Major sources in drinking water: Discharge from industrial chemical factories.
 8608 Health effects language: Some people who drink water containing trans-1,2-
 8609 dichloroethylene well in excess of the MCL over many years could experience
 8610 problems with their liver.
 8611
 8612 Contaminant (units): Dichloromethane (ppb)
 8613 Traditional MCL in mg/ℓ: 0.005
 8614 To convert for CCR, multiply by: 1000
 8615 MCL in CCR units: 5
 8616 MCLG: 0
 8617 Major sources in drinking water: Discharge from pharmaceutical and chemical factories.
 8618 Health effects language: Some people who drink water containing dichloromethane in

8619 excess of the MCL over many years could have liver problems and may have an
8620 increased risk of getting cancer.

8621
8622 Contaminant (units): 1,2-Dichloropropane (ppb)
8623 Traditional MCL in mg/ℓ: 0.005
8624 To convert for CCR, multiply by: 1000
8625 MCL in CCR units: 5
8626 MCLG: 0
8627 Major sources in drinking water: Discharge from industrial chemical factories.
8628 Health effects language: Some people who drink water containing 1,2-dichloropropane
8629 in excess of the MCL over many years may have an increased risk of getting cancer.

8630
8631 Contaminant (units): Ethylbenzene (ppb)
8632 Traditional MCL in mg/ℓ: 0.7
8633 To convert for CCR, multiply by: 1000
8634 MCL in CCR units: 700
8635 MCLG: 700
8636 Major sources in drinking water: Discharge from petroleum refineries.
8637 Health effects language: Some people who drink water containing ethylbenzene well in
8638 excess of the MCL over many years could experience problems with their liver or
8639 kidneys.

8640
8641 Contaminant (units): Haloacetic acids (HAA5) (ppb)
8642 Traditional MCL in mg/ℓ: 0.060
8643 To convert for CCR, multiply by: 1000
8644 MCL in CCR units: 60
8645 MCLG: N/A
8646 Major sources in drinking water: Byproduct of drinking water disinfection.
8647 Health effects language: Some people who drink water containing haloacetic acids in
8648 excess of the MCL over many years may have an increased risk of getting cancer.

8649
8650 Contaminant (units): Styrene (ppb)
8651 Traditional MCL in mg/ℓ: 0.1
8652 To convert for CCR, multiply by: 1000
8653 MCL in CCR units: 100
8654 MCLG: 100
8655 Major sources in drinking water: Discharge from rubber and plastic factories; leaching
8656 from landfills.
8657 Health effects language: Some people who drink water containing styrene well in excess
8658 of the MCL over many years could have problems with their liver, kidneys, or
8659 circulatory system.

8660
8661 Contaminant (units): Tetrachloroethylene (ppb)

8662 Traditional MCL in mg/ℓ: 0.005
8663 To convert for CCR, multiply by: 1000
8664 MCL in CCR units: 5
8665 MCLG: 0
8666 Major sources in drinking water: Discharge from factories and dry cleaners.
8667 Health effects language: Some people who drink water containing tetrachloroethylene in
8668 excess of the MCL over many years could have problems with their liver, and may
8669 have an increased risk of getting cancer.
8670
8671 Contaminant (units): 1,2,4-Trichlorobenzene (ppb)
8672 Traditional MCL in mg/ℓ: 0.07
8673 To convert for CCR, multiply by: 1000
8674 MCL in CCR units: 70
8675 MCLG: 70
8676 Major sources in drinking water: Discharge from textile-finishing factories.
8677 Health effects language: Some people who drink water containing 1,2,4-trichlorobenzene
8678 well in excess of the MCL over many years could experience changes in their adrenal
8679 glands.
8680
8681 Contaminant (units): 1,1,1-Trichloroethane (ppb)
8682 Traditional MCL in mg/ℓ: 0.2
8683 To convert for CCR, multiply by: 1000
8684 MCL in CCR units: 200
8685 MCLG: 200
8686 Major sources in drinking water: Discharge from metal degreasing sites and other
8687 factories.
8688 Health effects language: Some people who drink water containing 1,1,1-trichloroethane
8689 in excess of the MCL over many years could experience problems with their liver,
8690 nervous system, or circulatory system.
8691
8692 Contaminant (units): 1,1,2-Trichloroethane (ppb)
8693 Traditional MCL in mg/ℓ: 0.005
8694 To convert for CCR, multiply by: 1000
8695 MCL in CCR units: 5
8696 MCLG: 3
8697 Major sources in drinking water: Discharge from industrial chemical factories.
8698 Health effects language: Some people who drink water containing 1,1,2-trichloroethane
8699 well in excess of the MCL over many years could have problems with their liver,
8700 kidneys, or immune systems.
8701
8702 Contaminant (units): Trichloroethylene (ppb)
8703 Traditional MCL in mg/ℓ: 0.005
8704 To convert for CCR, multiply by: 1000

8705 MCL in CCR units: 5
8706 MCLG: 0
8707 Major sources in drinking water: Discharge from metal degreasing sites and other
8708 factories.
8709 Health effects language: Some people who drink water containing trichloroethylene in
8710 excess of the MCL over many years could experience problems with their liver and
8711 may have an increased risk of getting cancer.
8712
8713 Contaminant (units): TTHMs (total trihalomethanes) (ppb)
8714 Traditional MCL in mg/ℓ: 0.10/0.080
8715 To convert for CCR, multiply by: 1000
8716 MCL in CCR units: 100/80
8717 MCLG: N/A
8718 Major sources in drinking water: Byproduct of drinking water disinfection.
8719 Health effects language: Some people who drink water containing trihalomethanes in
8720 excess of the MCL over many years may experience problems with their liver,
8721 kidneys, or central nervous system, and may have an increased risk of getting cancer.
8722
8723 Contaminant (units): Toluene (ppm)
8724 Traditional MCL in mg/ℓ: 1
8725 To convert for CCR, multiply by: –
8726 MCL in CCR units: 1
8727 MCLG: 1
8728 Major sources in drinking water: Discharge from petroleum factories.
8729 Health effects language: Some people who drink water containing toluene well in excess
8730 of the MCL over many years could have problems with their nervous system,
8731 kidneys, or liver.
8732
8733 Contaminant (units): Vinyl Chloride (ppb)
8734 Traditional MCL in mg/ℓ: 0.002
8735 To convert for CCR, multiply by: 1000
8736 MCL in CCR units: 2
8737 MCLG: 0
8738 Major sources in drinking water: Leaching from PVC piping; discharge from plastics
8739 factories.
8740 Health effects language: Some people who drink water containing vinyl chloride in
8741 excess of the MCL over many years may have an increased risk of getting cancer.
8742
8743 Contaminant (units): Xylenes (ppm)
8744 Traditional MCL in mg/ℓ: 10
8745 To convert for CCR, multiply by: –
8746 MCL in CCR units: 10
8747 MCLG: 10

8748 Major sources in drinking water: Discharge from petroleum factories; discharge from
 8749 chemical factories.

8750 Health effects language: Some people who drink water containing xylenes in excess of
 8751 the MCL over many years could experience damage to their nervous system.

8752

8753 Key.

8754

Abbreviation	Meaning
AL	action level
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MFL	million fibers per liter
MRDL	maximum residual disinfectant level
MRDLG	maximum residual disinfectant level goal
mrem/year	millirems per year (a measure of radiation absorbed by the body)
N/A	not applicable
NTU	nephelometric turbidity units (a measure of water clarity)
pCi/ℓ	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/ℓ)
ppb	parts per billion, or micrograms per liter (μg/ℓ)
ppt	parts per trillion, or nanograms per liter
ppq	parts per quadrillion, or picograms per liter
TT	treatment technique

8755

8756 BOARD NOTE: Derived from appendix A to subpart O to 40 CFR 141 (2012)(2006), as
 8757 amended at 71 Fed. Reg. 65574 (Nov. 8, 2006).

8758

8759 (Source: Amended at 37 Ill. Reg. _____, effective _____)

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8761

8762 **Section 611.APPENDIX B Percent Inactivation of G. Lamblia Cysts**

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Table 1.1
 CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia
 Cysts by Free Chlorine at 0.5° or Lower

8768 These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between
 8769 the indicated pH values may be determined by linear interpolation. CT values between the
 8770 indicated temperatures of different tables may be determined by linear interpolation. If no
 8771 interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.
 8772

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.40-41	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

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Table 1.2

CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 5.0° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291

0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	369

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Table 1.3

CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 10.0° C

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218
0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

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Table 1.4

CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 15.0° C

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 8798 These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between
 8799 the indicated pH values may be determined by linear interpolation. CT values between the
 8800 indicated temperatures of different tables may be determined by linear interpolation. If no
 8801 interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.
 8802

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

8803
 8804
 8805 Table 1.5
 8806 CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 20° C
 8807

8808 These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between
 8809 the indicated pH values may be determined by linear interpolation. CT values between the
 8810 indicated temperatures of different tables may be determined by linear interpolation. If no
 8811 interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.
 8812

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126

1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

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Table 1.6
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts
by Free Chlorine at 25° C and Higher

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the CT 99.9 value at the lower temperature and at the higher pH.

Free Residual (mg/ℓ)	pH						
	≤ 6.0	6.5	7.0	7.5	8.0	8.5	≥ 9.0
≤ 0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

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Table 2.1
CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Chlorine Dioxide and Ozone

These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. If no interpolation is used, use the CT_{99.9} value at the lower temperature for determining CT_{99.9} values between indicated

8832 temperatures.

8833

	$\leq 1^\circ \text{C}$	5°C	10°C	15°C	20°C	$\geq 25^\circ \text{C}$
Chlorine dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

8834

8835

8836

Table 3.1

8837 CT-99.9 for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Chloramines

8838

8839 These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater
 8840 than a 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior
 8841 to the addition of ammonia. If this condition is not met, the system must demonstrate, based on
 8842 on-site studies or other information, as approved by the Agency, that the system is achieving at
 8843 least a 99.99 percent inactivation of viruses. CT values between the indicated temperatures may
 8844 be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the
 8845 lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

8846

	$\leq 1^\circ \text{C}$	5°C	10°C	15°C	20°C	$\geq 25^\circ \text{C}$
Chloramines	3800	2200	1850	1500	1100	750

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8848 BOARD NOTE: Derived from 40 CFR 141.74(b) Tables 1.1 through 3.1 ~~(20012)~~(2002).

8849

8850 (Source: Added at 37 Ill. Reg. _____, effective _____)

8851

8852 **Section 611.APPENDIX C Common Names of Organic Chemicals**

8853

8854 The following common names are used for certain organic chemicals:

8855

Common Name	CAS No.	CAS Name
Aldrin	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5alpha, 8alpha, 8abeta)-
Bromoform	75-25-2	Methane, tribromo-
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
Chloroform	67-66-3	Methane, trichloro-
2,4-D	94-75-7	Acetic acid, 2,4-dichlorophenoxy-
DDT	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis(4-chloro-
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth(2,3-b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2aalpha, 3beta, 6beta, 6aalpha, 7beta, 7aalpha)-
Endrin	72-20-8	2,7:3,6-Dimethanonaphth(2,3-b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2abeta, 3alpha, 6alpha, 6abeta, 7beta, 7aalpha)-,
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7, 8,8-heptachloro-3a,4,7,7a-tetrahydro-
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno(1,2b) oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1a alpha, 1b beta, 2 alpha, 5 alpha, 5a beta, 6 beta, 6a alpha)-
Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha, 2alpha, 3beta, 4alpha, 5alpha, 6beta)-

Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis(4-methoxy-
Silvex (2,4,5-TP)	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
Toxaphene	8001-35-2	Toxaphene
TTHM	Total trihalomethanes (See Section 611.101)	

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BOARD NOTE: Derived from 40 CFR 141.30 and 261, appendix VIII (2012)(~~2006~~).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

8861 **Section 611.APPENDIX D Defined Substrate Method for the Simultaneous Detection of**
8862 **Total Coliforms and Escherichia Coli from Drinking Water**

8863

8864 Autoanalysis Colilert Presence-Absence (AC P-A) Method.

8865

8866 The AC P-A test format must be either a 100 ml 10-tube most probable number test (one tube
8867 positive denoting the presence of total coliforms in that sample) or a single vessel containing
8868 sufficient reagent to receive 100 ml of sample. The reagent is available from Access Medical
8869 Systems, Branford Connecticut.

8870

8871 The AC P-A method must be performed as follows:

8872

8873 1. For the 10-tube method, add 10 ml of water sample to each test tube. For the
8874 single-vessel method, add 100 ml of water sample to the vessel.

8875

8876 2. Dissolve the reagent powder by agitation. (This should produce a colorless
8877 solution.)

8878

8879 3. Incubate the test tubes or vessel at 35° C for 24 hours.

8880

8881 4. Development of yellow during incubation denotes the presence of total coliforms
8882 in either the test tube or the vessel.

8883

8884 5. Expose each positive (yellow) test tube or vessel to a fluorescent (366 nm) light
8885 source. Fluorescence specifically demonstrates the presence of Escherichia coli.

8886

8887 BOARD NOTE: Derived from S. Edberg, M. Allen & D. Smith, "National Field Evaluation of a
8888 Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia
8889 coli from Drinking Water: Comparison with Presence-Absence Techniques," Applied and
8890 Environmental Microbiology, vol. 55, pp. 1003-1008, as incorporated by reference in Section
8891 611.102(b) (2012)(2004). This method is for use in conjunction with the requirements of
8892 Section 611.526.

8893

8894 (Source: Amended at 37 Ill. Reg. _____, effective _____)

8895

8896 **Section 611.APPENDIX E Mandatory Lead Public Education Information for**
8897 **Community Water Systems**

8898
8899 1) INTRODUCTION

8900
8901 The United States Environmental Protection Agency (USEPA) and (insert name of water
8902 supplier) are concerned about lead in your drinking water. Although most homes have very low
8903 levels of lead in their drinking water, some homes in the community have lead levels above the
8904 USEPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water
8905 (mg/l). Under Federal law we are required to have a program in place to minimize lead in your
8906 drinking water by (insert date when corrosion control will be completed for your system). This
8907 program includes corrosion control treatment, source water treatment, and public education. We
8908 are also required to replace the portion of each lead service line that we own if the line
8909 contributes lead concentrations of more than 15 ppb after we have completed the comprehensive
8910 treatment program. If you have any questions about how we are carrying out the requirements of
8911 the lead regulation please give us a call at (insert water system's phone number). This brochure
8912 explains the simple steps you can take to protect you and your family by reducing your exposure
8913 to lead in drinking water.

8914
8915 2) HEALTH EFFECTS OF LEAD

8916
8917 Lead is a common metal found throughout the environment in lead-based paint; air; soil;
8918 household dust; food; certain types of pottery, porcelain, and pewter; and water. Lead can pose a
8919 significant risk to your health if too much of it enters your body. Lead builds up in the body over
8920 many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is
8921 to young children and pregnant women. Amounts of lead that won't hurt adults can slow down
8922 normal mental and physical development of growing bodies. In addition, a child at play often
8923 comes into contact with sources of lead contamination – like dirt and dust – that rarely affect an
8924 adult. It is important to wash children's hands and toys often, and to try to make sure they only
8925 put food in their mouths.

8926
8927 3) LEAD IN DRINKING WATER

8928
8929 A) Lead in drinking water, although rarely the sole cause of lead poisoning, can
8930 significantly increase a person's total lead exposure, particularly the exposure of
8931 infants who drink baby formulas and concentrated juices that are mixed with
8932 water. The EPA estimates that drinking water can make up 20 percent or more of
8933 a person's total exposure to lead.

8934
8935 B) Lead is unusual among drinking water contaminants in that it seldom occurs
8936 naturally in water supplies like rivers and lakes. Lead enters drinking water
8937 primarily as a result of the corrosion, or wearing away, of materials containing
8938 lead in the water distribution system and household plumbing. These materials

8939 include lead-based solder used to join copper pipe, brass and chrome plated brass
8940 faucets, and in some cases, pipes made of lead that connect your house to the
8941 water main (service lines). In 1986, Congress banned the use of lead solder
8942 containing greater than 0.2% lead, and restricted the lead content of faucets, pipes
8943 and other plumbing materials to 8.0%.

8944
8945 C) When water stands in lead pipes or plumbing systems containing lead for several
8946 hours or more, the lead may dissolve into your drinking water. This means the
8947 first water drawn from the tap in the morning, or later in the afternoon after
8948 returning from work or school, can contain fairly high levels of lead.

8949
8950 4) STEPS YOU CAN TAKE IN THE HOME TO REDUCE EXPOSURE TO LEAD IN
8951 DRINKING WATER

8952
8953 A) Despite our best efforts mentioned earlier to control water corrosivity and remove
8954 lead from the water supply, lead levels in some homes or buildings can be high.
8955 To find out whether you need to take action in your own home, have your
8956 drinking water tested to determine if it contains excessive concentrations of lead.
8957 Testing the water is essential because you cannot see, taste, or smell lead in
8958 drinking water. Some local laboratories that can provide this service are listed at
8959 the end of this booklet. For more information on having your water tested, please
8960 call (insert phone number of water system).

8961
8962 B) If a water test indicates that the drinking water drawn from a tap in your home
8963 contains lead above 15 ppb, then you should take the following precautions:

8964
8965 i) Let the water run from the tap before using it for drinking or cooking any
8966 time the water in a faucet has gone unused for more than six hours. The
8967 longer water resides in your home's plumbing the more lead it may
8968 contain. Flushing the tap means running the cold water faucet until the
8969 water gets noticeably colder, usually about 15-30 seconds. If your house
8970 has a lead service line to the water main, you may have to flush the water
8971 for a longer time, perhaps one minute, before drinking. Although toilet
8972 flushing or showering flushes water through a portion of your home's
8973 plumbing system, you still need to flush the water in each faucet before
8974 using it for drinking or cooking. Flushing tap water is a simple and
8975 inexpensive measure you can take to protect your family's health. It
8976 usually uses less than one or two gallons of water and costs less than
8977 (insert a cost estimate based on flushing two times a day for 30 days) per
8978 month. To conserve water, fill a couple of bottles for drinking water after
8979 flushing the tap, and whenever possible use the first flush water to wash
8980 the dishes or water the plants. If you live in a high-rise building, letting
8981 the water flow before using it may not work to lessen your risk from lead.

- 8982 The plumbing systems have more, and sometimes larger pipes than
 8983 smaller buildings. Ask your landlord for help in locating the source of the
 8984 lead and for advice on reducing the lead level.
 8985
- 8986 ii) Try not to cook with or drink water from the hot water tap. Hot water can
 8987 dissolve more lead more quickly than cold water. If you need hot water,
 8988 draw water from the cold tap and heat it on the stove.
 8989
- 8990 iii) Remove loose lead solder and debris from the plumbing materials installed
 8991 in newly constructed homes, or homes in which the plumbing has recently
 8992 been replaced, by removing the faucet strainers from all taps and running
 8993 the water from 3 to 5 minutes. Thereafter, periodically remove the
 8994 strainers and flush out any debris that has accumulated over time.
 8995
- 8996 iv) If your copper pipes are joined with lead solder that has been installed
 8997 illegally since it was banned in 1986, notify the plumber who did the work
 8998 and request that he or she replace the lead solder with lead-free solder.
 8999 Lead solder looks dull gray, and when scratched with a key looks shiny.
 9000 In addition, notify the Illinois Environmental Protection Agency about the
 9001 violation.
 9002
- 9003 v) Determine whether or not the service line that connects your home or
 9004 apartment to the water main is made of lead. The best way to determine if
 9005 your service line is made of lead is by either hiring a licensed plumber to
 9006 inspect the line or by contacting the plumbing contractor who installed the
 9007 line. You can identify the plumbing contractor by checking the city's
 9008 record of building permits which should be maintained in the files of the
 9009 (insert name of department that issues building permits). A licensed
 9010 plumber can at the same time check to see if your home's plumbing
 9011 contains lead solder, lead pipes, or pipe fittings that contain lead. The
 9012 public water system that delivers water to your home should also maintain
 9013 records of the materials located in the distribution system. If the service
 9014 line that connects your dwelling to the water main contributes more than
 9015 15 ppb to drinking water, after our comprehensive treatment program is in
 9016 place, we are required to replace the portion of the line that we own. If the
 9017 line is only partially owned by the (insert name of the city, county, or
 9018 water system that controls the line), we are required to provide the owner
 9019 of the privately-owned portion of the line with information on how to
 9020 replace the privately-owned portion of the service line, and offer to replace
 9021 that portion of the line at the owner's expense. If we replace only the
 9022 portion of the line that we own, we also are required to notify you in
 9023 advance and provide you with information on the steps that you can take
 9024 to minimize exposure to any temporary increase in lead levels which may

- 9025 result from the partial replacement, to take a follow-up sample at our
9026 expense from the line within 72 hours after the partial replacement, and to
9027 mail or otherwise provide you with the results of that sample within three
9028 business days after receiving the results. Acceptable replacement
9029 alternatives include copper, steel, iron, and plastic pipes.
9030
- 9031 vi) Have an electrician check your wiring. If grounding wires from the
9032 electrical system are attached to your pipes, corrosion may be greater.
9033 Check with a licensed electrician or your local electrical code to determine
9034 if your wiring can be grounded elsewhere. DO NOT attempt to change the
9035 wiring yourself because improper grounding can cause electrical shock
9036 and fire hazards.
9037
- 9038 C) The steps described above will reduce the lead concentrations in your drinking
9039 water. However, if a water test indicates that the drinking water coming from
9040 your tap contains lead concentrations in excess of 15 ppb after flushing, or after
9041 we have completed our actions to minimize lead levels, then you may want to
9042 take the following additional measures:
9043
- 9044 i) Purchase or lease a home treatment device. Home treatment devices are
9045 limited in that each unit treats only the water that flows from the faucet to
9046 which it is connected, and all of the devices require periodic maintenance
9047 and replacement. Devices such as reverse osmosis systems or distillers
9048 can effectively remove lead from your drinking water. Some activated
9049 carbon filters may reduce lead levels at the tap, however all lead reduction
9050 claims should be investigated. Be sure to check the actual performance of
9051 a specific home treatment device before and after installing the unit.
9052
- 9053 ii) Purchase bottled water for drinking and cooking.
9054
- 9055 D) You can consult a variety of sources for additional information. Your family
9056 doctor or pediatrician can perform a blood test for lead and provide you with
9057 information about the health effects of lead. State and local government agencies
9058 that can be contacted include the following:
9059
- 9060 i) (Insert the name of city or county department of public utilities) at (insert
9061 phone number) can provide you with information about your community's
9062 water supply, and a list of local laboratories that have been certified by
9063 EPA for testing water quality;
9064
- 9065 ii) (Insert the name of city or county department that issues building permits)
9066 at (insert phone number) can provide you with information about building
9067 permit records that should contain the names of plumbing contractors that

- 9068 plumbed your home; and
- 9069
- 9070 iii) The Illinois Department of Public Health at 217-782-4977 or 312-814-
- 9071 2608 or the (insert the name of the city or county health department) at
- 9072 (insert phone number) can provide you with information about the health
- 9073 effects of lead and how you can have your child's blood tested.
- 9074
- 9075 E) The following is a list of some State-approved laboratories in your area that you
- 9076 can call to have your water tested for lead. (Insert names and phone numbers of
- 9077 at least two laboratories.)
- 9078
- 9079 BOARD NOTE: Derived from 40 CFR 141.85(a)(1) (2012)~~(2002)~~.
- 9080
- 9081 (Source: Amended at 37 Ill. Reg. _____, effective _____)
- 9082

9083 **Section 611.APPENDIX G NPDWR Violations and Situations Requiring Public Notice**

9084
9085 See note 1 at the end of this Appendix G for an explanation of the Agency's authority to alter the
9086 magnitude of a violation from that set forth in the following table.
9087

Contaminant	MCL/MRDL/TT violations ²		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation

9088
9089 I. Violations of National Primary Drinking Water Regulations (NPDWR):³

9090
9091 A. Microbiological Contaminants

1. Total coliform	2	611.325(a)	3	611.521-611.525
2. Fecal coliform/E. coli	1	611.325(b)	⁴ 1, 3	611.525
3. Turbidity MCL	2	611.320(a)	3	611.560
4. Turbidity MCL (average of two days' samples greater than 5 NTU)	⁵ 2, 1	611.320(b)	3	611.560
5. Turbidity (for TT violations resulting from a single exceedence of maximum allowable turbidity level)	⁶ 2, 1	611.231(b), 611.233(b)(1), 611.250(a)(2), 611.250(b)(2), 611.250(c)(2), 611.250(d), 611.743(a)(2), 611.743(b), 611.955(b)(2)	3	611.531(a), 611.532(b), 611.533(a), 611.744, 611.956(a)(1)-(a)(3), 611.956(b)
6. Surface Water Treatment Rule violations, other than violations resulting from single exceedence of max. allowable turbidity level (TT)	2	611.211, 611.213, 611.220, 611.230- 611.233, 611.240- 611.242, 611.250	3	611.531-611.533

7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedence of max. turbidity level (TT)	2	⁷ 611.740-611.743, 611.950-611.955	3	611.742, 611.744, 611.953, 611.954, 611.956
8. Filter Backwash Recycling Rule violations	2	611.276(c)	3	611.276(b), (d)
9. Long Term 1 Enhanced Surface Water Treatment Rule violations	2	611.950-611.955	3	611.953, 611.954, 611.956
10. LT2ESWTR violations	2	611.1010-611.1020	¹⁹²² 2, 3	611.1001-611.1005 and 611.1008-611.1009
11. Groundwater Rule violations	2	611.804	3	611.802(h)

9092
9093

B. Inorganic Chemicals (IOCs)

1. Antimony	2	611.301(b)	3	611.600, 611.601, 611.603
2. Arsenic	2	⁸ 611.301(b)	3	^H 611.601, 611.603, 611.612(a), 611.612(b)
3. Asbestos (fibers greater than 10 µm)	2	611.301(b)	3	611.600, 611.601, 611.602
4. Barium	2	611.301(b)	3	611.600, 611.601, 611.603
5. Beryllium	2	611.301(b)	3	611.600, 611.601, 611.603
6. Cadmium	2	611.301(b)	3	611.600, 611.601, 611.603
7. Chromium (total)	2	611.301(b)	3	611.600, 611.601, 611.603
8. Cyanide	2	611.301(b)	3	611.600, 611.601, 611.603

9. Fluoride	2	611.301(b)	3	611.600, 611.601, 611.603
10. Mercury (inorganic)	2	611.301(b)	3	611.600, 611.601, 611.603
11. Nitrate	1	611.301(b)	⁸⁺² 1, 3	611.600, 611.601, 611.604, 611.606
12. Nitrite	1	611.301(b)	⁸⁺² 1, 3	611.600, 611.601, 611.605, 611.606
13. Total Nitrate and Nitrite	1	611.301(b)	3	611.600, 611.601
14. Selenium	2	611.301(b)	3	611.600, 611.601, 611.603
15. Thallium	2	611.301(b)	3	611.600, 611.601, 611.603

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C. Lead and Copper Rule (Action Level for lead is 0.015 mg/ℓ, for copper is 1.3 mg/ℓ)

1. Lead and Copper Rule (TT)	2	611.350- 611.355	3	611.356- 611.359
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D. Synthetic Organic Chemicals (SOCs)

1. 2,4-D	2	611.310(c)	3	611.648
2. 2,4,5-TP (silvex)	2	611.310(c)	3	611.648
3. Alachlor	2	611.310(c)	3	611.648
4. Atrazine	2	611.310(c)	3	611.648
5. Benzo(a)pyrene (PAHs)	2	611.310(c)	3	611.648
6. Carbofuran	2	611.310(c)	3	611.648
7. Chlordane	2	611.310(c)	3	611.648
8. Dalapon	2	611.310(c)	3	611.648
9. Di(2-ethylhexyl)adipate	2	611.310(c)	3	611.648
10. Di(2-ethylhexyl)phthalate	2	611.310(c)	3	611.648
11. Dibromochloropropane (DBCP)	2	611.310(c)	3	611.648
12. Dinoseb	2	611.310(c)	3	611.648
13. Dioxin (2,3,7,8-TCDD)	2	611.310(c)	3	611.648

14. Diquat	2	611.310(c)	3	611.648
15. Endothall	2	611.310(c)	3	611.648
16. Endrin	2	611.310(c)	3	611.648
17. Ethylene dibromide	2	611.310(c)	3	611.648
18. Glyphosate	2	611.310(c)	3	611.648
19. Heptachlor	2	611.310(c)	3	611.648
20. Heptachlor epoxide	2	611.310(c)	3	611.648
21. Hexachlorobenzene	2	611.310(c)	3	611.648
22. Hexachlorocyclopentadiene	2	611.310(c)	3	611.648
23. Lindane	2	611.310(c)	3	611.648
24. Methoxychlor	2	611.310(c)	3	611.648
25. Oxamyl (Vydate)	2	611.310(c)	3	611.648
26. Pentachlorophenol	2	611.310(c)	3	611.648
27. Picloram	2	611.310(c)	3	611.648
28. Polychlorinated biphenyls (PCBs)	2	611.310(c)	3	611.648
29. Simazine	2	611.310(c)	3	611.648
30. Toxaphene	2	611.310(c)	3	611.648

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E. Volatile Organic Chemicals (VOCs)

1. Benzene	2	611.310(a)	3	611.646
2. Carbon tetrachloride	2	611.310(a)	3	611.646
3. Chlorobenzene (monochlorobenzene)	2	611.310(a)	3	611.646
4. o-Dichlorobenzene	2	611.310(a)	3	611.646
5. p-Dichlorobenzene	2	611.310(a)	3	611.646
6. 1,2-Dichloroethane	2	611.310(a)	3	611.646
7. 1,1-Dichloroethylene	2	611.310(a)	3	611.646
8. cis-1,2-Dichloroethylene	2	611.310(a)	3	611.646
9. trans-1,2-Dichloroethylene	2	611.310(a)	3	611.646
10. Dichloromethane	2	611.310(a)	3	611.646
11. 1,2-Dichloropropane	2	611.310(a)	3	611.646
12. Ethylbenzene	2	611.310(a)	3	611.646
13. Styrene	2	611.310(a)	3	611.646
14. Tetrachloroethylene	2	611.310(a)	3	611.646
15. Toluene	2	611.310(a)	3	611.646
16. 1,2,4-Trichlorobenzene	2	611.310(a)	3	611.646
17. 1,1,1-Trichloroethane	2	611.310(a)	3	611.646
18. 1,1,2-Trichloroethane	2	611.310(a)	3	611.646
19. Trichloroethylene	2	611.310(a)	3	611.646
20. Vinyl chloride	2	611.310(a)	3	611.646

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21. Xylenes (total)	2	611.310(a)	3	611.646
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F. Radioactive Contaminants

1. Beta/photon emitters	2	611.330(d)	3	611.720(a), 611.732
2. Alpha emitters	2	611.330(c)	3	611.720(a), 611.731
3. Combined radium (226 & 228)	2	611.330(b)	3	611.720(a), 611.731
4. Uranium	2	611.330(e)	3	611.720(a), 611.731

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G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs).¹³

1. Total trihalomethanes (TTHMs)	2	¹¹¹⁴ 611.312(b)	3	Subparts W and Y of this Part
2. Haloacetic Acids (HAA5)	2	611.312(b)	3	Subpart Y of this Part
3. Bromate	2	611.312(a)	3	611.382(a)-(b)
4. Chlorite	2	611.312(a)	3	611.382(a)-(b)
5. Chlorine (MRDL)	2	611.313(a)	3	611.382(a), (c)
6. Chloramine (MRDL)	2	611.313(a)	3	611.382(a), (c)
7. Chlorine dioxide (MRDL), where any two consecutive daily samples at entrance to distribution system only are above MRDL	2	611.313(a), 611.383(c)(3)	2 ¹²¹⁵ , 3	611.382(a), (c), 611.383(c)(2)
8. Chlorine dioxide (MRDL), where samples in distribution system the next day are also above MRDL	¹³¹⁶ 1	611.313(a), 611.383(c)(3)	1	611.382(a), (c), 611.383(c)(2)
9. Control of DBP precursors – TOC (TT)	2	611.385(a)-(b)	3	611.382(a), (d)
10. Benchmarking and disinfection profiling	N/A	N/A	3	611.742, 611.953, 611.954
11. Development of monitoring plan	N/A	N/A	3	611.382(f)

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H. Other Treatment Techniques

1. Acrylamide (TT)	2	611.296	N/A	N/A
2. Epichlorohydrin (TT)	2	611.296	N/A	N/A

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II. Unregulated Contaminant Monitoring: ¹⁴⁴⁷

A. Unregulated contaminants	N/A	N/A	3	611.510
B. Nickel	N/A	N/A	3	611.603, 611.611

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III. Public Notification for Relief Equivalent to a SDWA section 1415 Variance or a section 1416 Exemption.

A. Operation under relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	3	¹⁵¹⁸ 1415, 1416	N/A	N/A
B. Violation of conditions of relief equivalent to a SDWA section 1415 variance or a section 1416 exemption	2	1415, 1416, ¹⁶⁴⁹ 611.111, 611.112	N/A	N/A

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IV. Other Situations Requiring Public Notification.

A. Fluoride secondary maximum contaminant level (SMCL) exceedence	3	611.858	N/A	N/A
B. Exceedence of nitrate MCL for a non-CWS supplier, as allowed by the Agency	1	611.300(d)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	611.510	N/A	N/A
D. Waterborne disease outbreak	1	611.101, 611.233(b)(2)	N/A	N/A
E. Other waterborne emergency ¹⁷²⁰	1	N/A	N/A	N/A
F. Source water sample positive for Groundwater Rule fecal indicators: E. coli, enterococci, or coliphage	1	611.802(g)	N/A	N/A
G. Other situations as determined by the Agency by a SEP issued pursuant to Section 611.110	¹⁸²⁴ 1, 2, 3	N/A	N/A	N/A

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9118 Appendix G – Endnotes
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- 9120 1. Violations and other situations not listed in this table (e.g., failure to prepare Consumer
 9121 Confidence Reports) do not require notice, unless otherwise determined by the Agency
 9122 by a SEP issued pursuant to Section 611.110. The Agency may, by a SEP issued
 9123 pursuant to Section 611.110, further require a more stringent public notice tier (e.g., Tier
 9124 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed
 9125 in this Appendix, as authorized under Sections 611.902(a) and 611.903(a).
 9126
- 9127 2. Definition of the abbreviations used: "MCL" means maximum contaminant level,
 9128 "MRDL" means maximum residual disinfectant level, and "TT" means treatment
 9129 technique.
 9130
- 9131 3. The term "violations of National Primary Drinking Water Regulations (NPDWR)" is
 9132 used here to include violations of MCL, MRDL, treatment technique, monitoring, and
 9133 testing procedure requirements.
 9134
- 9135 4. Failure to test for fecal coliform or E. coli is a Tier 1 violation if testing is not done after
 9136 any repeat sample tests positive for coliform. All other total coliform monitoring and
 9137 testing procedure violations are Tier 3 violations.
 9138
- 9139 5. A supplier that violates the turbidity MCL of 5 NTU based on an average of
 9140 measurements over two consecutive days must consult with the Agency within 24 hours
 9141 after learning of the violation. Based on this consultation, the Agency may subsequently
 9142 decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1
 9143 violation. If a supplier is unable to make contact with the Agency in the 24-hour period,
 9144 the violation is automatically elevated to a Tier 1 violation.
 9145
- 9146 6. A supplier with a treatment technique violation involving a single exceedence of a
 9147 maximum turbidity limit under the Surface Water Treatment Rule (SWTR), the Interim
 9148 Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced
 9149 Surface Water Treatment Rule are required to consult with the Agency within 24 hours
 9150 after learning of the violation. Based on this consultation, the Agency may subsequently
 9151 decide to issue a SEP pursuant to Section 611.110 that elevates the violation to a Tier 1
 9152 violation. If a supplier is unable to make contact with the Agency in the 24-hour period,
 9153 the violation is automatically elevated to a Tier 1 violation.
 9154
- 9155 7. The Surface Water Treatment Rule (SWTR) remains in effect for a supplier that serves at
 9156 least 10,000 persons ; the Interim Enhanced Surface Water Treatment Rule adds
 9157 additional requirements and does not in many cases supercede the SWTR.
 9158

- 9159 8. ~~This endnote 8 corresponds with the endnote to the table in appendix A to subpart Q of~~
 9160 ~~40 CFR 141 (2006), which stated a past effective date. This statement maintains~~
 9161 ~~structural consistency with the federal regulations.~~
 9162
- 9163 9. ~~This endnote 8 corresponds with the endnote to the table in appendix A to subpart Q of~~
 9164 ~~40 CFR 141 (2006), which stated a past effective date. This statement maintains~~
 9165 ~~structural consistency with the federal regulations.~~
 9166
- 9167 8.10. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial
 9168 sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are
 9169 Tier 3.
 9170
- 9171 ~~11.~~ ~~This endnote 11 corresponds with the endnote to the table in appendix A to subpart Q of~~
 9172 ~~40 CFR 141 (2006), which stated a past effective date. This statement maintains~~
 9173 ~~structural consistency with the federal regulations.~~
 9174
- 9175 9.12. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial
 9176 sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are
 9177 Tier 3.
 9178
- 9179 10.13. A Subpart B community or non-transient non-community system supplier must comply
 9180 with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements. A
 9181 Subpart B transient non-community system supplier that serves 10,000 or more persons
 9182 that uses chlorine dioxide as a disinfectant or oxidant or a Subpart B transient non-
 9183 community system supplier that serves fewer than 10,000 persons, which uses only
 9184 groundwater not under the direct influence of surface water, and which uses chlorine
 9185 dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL.
 9186
- 9187 11.14. Sections 611.312(b)(1) and 611.382(a) and (b) apply until Subpart Y of this Part takes
 9188 effect under the schedule set forth in Section 611.970(c).
 9189
- 9190 12.15. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day
 9191 after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.
 9192
- 9193 13.16. If any daily sample taken at the entrance to the distribution system exceeds the MRDL
 9194 for chlorine dioxide and one or more samples taken in the distribution system the next
 9195 day exceed the MRDL, Tier 1 notification is required. A failure to take the required
 9196 samples in the distribution system after the MRDL is exceeded at the entry point also
 9197 triggers Tier 1 notification.
 9198
- 9199 14.17. Some water suppliers must monitor for certain unregulated contaminants listed in Section
 9200 611.510.
 9201

9202 ~~15.18.~~ This citation refers to sections 1415 and 1416 of the federal Safe Drinking Water Act.
9203 sections 1415 and 1416 require that "a schedule prescribed...for a public water system
9204 granted relief equivalent to a SDWA section 1415 variance or a section 1416 exemption
9205 must require compliance by the system...."
9206

9207 ~~16.19.~~ In addition to sections 1415 and 1416 of the federal Safe Drinking Water Act, 40 CFR
9208 142.307 specifies the items and schedule milestones that must be included in relief
9209 equivalent to a SDWA section 1415 small system variance. In granting any form of relief
9210 from an NPDWR, the Board will consider all applicable federal requirements for and
9211 limitations on the State's ability to grant relief consistent with federal law.
9212

9213 ~~17.20.~~ Other waterborne emergencies require a Tier 1 public notice under Section 611.902(a) for
9214 situations that do not meet the definition of a waterborne disease outbreak given in
9215 Section 611.101, but which still have the potential to have serious adverse effects on
9216 health as a result of short-term exposure. These could include outbreaks not related to
9217 treatment deficiencies, as well as situations that have the potential to cause outbreaks,
9218 such as failures or significant interruption in water treatment processes, natural disasters
9219 that disrupt the water supply or distribution system, chemical spills, or unexpected
9220 loading of possible pathogens into the source water.
9221

9222 ~~18.21.~~ The Agency may place any other situation in any tier it deems appropriate in writing,
9223 based on the prospective threat which it determines that the situation poses to public
9224 health, and subject to Board review pursuant to Section 40 of the Act [415 ILCS 5/40].
9225

9226 ~~19.22.~~ A failure to collect three or more samples for Cryptosporidium analysis is a Tier 2
9227 violation requiring special notice, as specified in Section 611.911. All other monitoring
9228 and testing procedure violations are Tier 3.
9229

9230 BOARD NOTE: Derived from Appendix A to Subpart Q to 40 CFR 141 (~~20122006~~).

9231
9232 (Source: Amended at 37 Ill. Reg. _____, effective _____)
9233

9234 **Section 611.APPENDIX H Standard Health Effects Language for Public Notification**

9235

Contaminant	MCLG ¹ mg/ℓ	MCL ² mg/ℓ	Standard health effects language for public notification
National Primary Drinking Water Regulations (NPDWR):			
A. Microbiological Contaminants			
1a. Total coliform	Zero	See footnote 3	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
1b. Fecal coliform/E. coli	Zero	Zero	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1c. Fecal indicators (GWR): i. E. coli ii. enterococci iii. coliphage	Zero None None	TT TT TT	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

1d. Groundwater Rule TT violations	None	TT	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.
2a. Turbidity (MCL) ⁴	None	1 NTU ⁵ /5 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
2b. Turbidity (SWTR TT)	None	TT ⁷	Turbidity has no health effects. However, ⁶ turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
2c. Turbidity (IESWTR TT and LT1ESWTR TT)	None	TT	Turbidity has no health effects. However, ⁸ turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

B. Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), and Filter Backwash Recycling Rule (FBRR) violations:			
3. Giardia lamblia (SWTR/IESWTR/LT1ESWTR)	Zero	TT ¹⁰	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
5. Heterotrophic plate count (HPC) bacteria ⁹ (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
6. Legionella (SWTR/IESWTR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
7. Cryptosporidium (IESWTR/FBRR/LT1ESWTR)			Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
C. Inorganic Chemicals (IOCs)			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

9. Arsenic ¹¹	0	0.010	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
10. Asbestos (10 µm)	7 MFL ¹¹⁺²	7 MFL	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
19. Nitrite	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
20. Total Nitrate and Nitrite	10	10	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
D. Lead and Copper Rule			
23. Lead	Zero	TT ¹²¹³	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
24. Copper	1.3	TT ¹³¹⁴	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

E. Synthetic Organic Chemicals (SOCs)			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5-TP (silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs).	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.

32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di(2-ethylhexyl)adipate	0.4	0.4	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects, such as weight loss, liver enlargement, or possible reproductive difficulties.
34. Di(2-ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di(2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver or experience reproductive difficulties, and they may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP)	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. Dioxin (2,3,7,8-TCDD)	Zero	3×10^{-8}	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

46. Hexachlorocyclopentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Chemicals (VOCs)			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. o-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
59. p-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.

60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. cis-1,2-Dichloroethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloroethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2-Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants			
76. Beta/photon emitters	Zero	4 mrem/yr ¹⁴⁺⁵	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
77. Alpha emitters	Zero	15 pCi/ℓ ¹⁵⁺⁷	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
78. Combined radium (226 & 228)	Zero	5 pCi/ℓ	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
79. Uranium	Zero	30 µg/ℓ	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
<p>H. Disinfection Byproducts (DBPs), Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). USEPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAA5) ¹⁶⁺⁸</p>			

80. Total trihalomethanes (TTHMs)	N/A	0.080 ^{17,18,19,20}	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
81. Haloacetic Acids (HAA5)	N/A	0.060 ^{19,21}	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
82. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
83. Chlorite	0.08	1.0	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
84. Chlorine	4 (MRDLG) ^{20,22}	4.0 (MRDL) ^{21,23}	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

<p>85. Chloramines</p>	<p>4 (MRDLG)</p>	<p>4.0 (MRDL)</p>	<p>Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.</p>
<p>85a. Chlorine dioxide, where any two consecutive daily samples taken at the entrance to the distribution system are above the MRDL</p>	<p>0.8 (MRDLG)</p>	<p>0.8 (MRDL)</p>	<p>Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today are the result of exceedences at the treatment facility only, not within the distribution system that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.</p>

<p>86a. Chlorine dioxide, where one or more distribution system samples are above the MRDL</p>	<p>0.8 (MRDLG)</p>	<p>0.8 (MRDL)</p>	<p>Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today include exceedences of the USEPA standard within the distribution system that delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.</p>
<p>87. Control of DBP precursors (TOC)</p>	<p>None</p>	<p>TT</p>	<p>Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.</p>

I. Other Treatment Techniques:			
88. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
89. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

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Appendix H – Endnotes

1. "MCLG" means maximum contaminant level goal.
2. "MCL" means maximum contaminant level.
3. For a water supplier analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For a supplier analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.
4. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 Surface Water Treatment Rule (SWTR), the 1998 Interim Enhanced Surface Water Treatment Rule (IESWTR), and the 2002 Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2-day average is 5 NTU for a supplier that is required to filter but has not yet installed filtration (Section 611.320).
5. "NTU" means nephelometric turbidity unit.
6. There are various regulations that set turbidity standards for different types of systems, including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR. A supplier subject to the SWTR (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month must not exceed 0.5 NTU in systems using conventional or direct filtration and must not exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the Agency.
7. "TT" means treatment technique.

- 9265
- 9266 8. There are various regulations that set turbidity standards for different types of systems,
- 9267 including Section 611.320, the 1989 SWTR, the 1998 IESWTR, and the 2002 LT1ESWTR.
- 9268 For a supplier subject to the IESWTR (a supplier that serves at least 10,000 people, using
- 9269 surface water or groundwater under the direct influence of surface water), that use
- 9270 conventional filtration or direct filtration, the turbidity level of a system's combined filter
- 9271 effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the
- 9272 turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. A
- 9273 supplier subject to the IESWTR using technologies other than conventional, direct, slow
- 9274 sand, or diatomaceous earth filtration must meet turbidity limits set by the Agency. For a
- 9275 supplier subject to the LT1ESWTR (a supplier that serves fewer than 10,000 people, using
- 9276 surface water or groundwater under the direct influence of surface water) that uses
- 9277 conventional filtration or direct filtration, after January 1, 2005, the turbidity level of the
- 9278 supplier's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly
- 9279 measurements, and the turbidity level of the supplier's combined filter effluent must not
- 9280 exceed 1 NTU at any time. A supplier subject to the LT1ESWTR using technologies other
- 9281 than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity
- 9282 limits set by the Agency.
- 9283
- 9284 9. The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful. HPC is
- 9285 simply an alternative method of determining disinfectant residual levels. The number of such
- 9286 bacteria is an indicator of whether there is enough disinfectant in the distribution system.
- 9287
- 9288 10. SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity
- 9289 exceedences may use the health effects language for turbidity instead.
- 9290
- 9291 ~~11. These arsenic values are effective January 23, 2006. Until then, the MCL is 0.05 mg/l and~~
- 9292 ~~there is no MCLG.~~
- 9293
- 9294 ~~11.12.~~ Millions of fibers per liter.
- 9295
- 9296 ~~12.13.~~ Action Level = 0.015 mg/l.
- 9297
- 9298 ~~13.14.~~ Action Level = 1.3 mg/l.
- 9299
- 9300 ~~14.15.~~ Millirems per year.
- 9301
- 9302 ~~15.16.~~ Picocuries per liter.
- 9303
- 9304 ~~17. This endnote 17 corresponds with the endnote to the table in appendix B to subpart Q of 40~~
- 9305 ~~CFR 141 (2006), which stated a past effective date. This statement maintains structural~~
- 9306 ~~consistency with the federal regulations.~~
- 9307

9308 16.18. A surface water system supplier or a groundwater system supplier under the direct
9309 influence of surface water is regulated under Subpart B of this Part. A Subpart B community
9310 water system supplier or a non-transient non-community system supplier must comply with
9311 Subpart I DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs). A
9312 Subpart B transient non-community system supplier that uses chlorine dioxide as a
9313 disinfectant or oxidant must comply with the chlorine dioxide MRDL.
9314

9315 17.19. Community and non-transient non-community systems must comply with Subpart Y
9316 TTHM and HAA5 MCLs of 0.080 mg/l and 0.060 mg/l, respectively (with compliance
9317 calculated as a locational running annual average) on the schedule in Section 611.970.
9318

9319 18.20. The MCL for total trihalomethanes is the sum of the concentrations of the individual
9320 trihalomethanes.
9321

9322 19.21. The MCL for haloacetic acids is the sum of the concentrations of the individual
9323 haloacetic acids.
9324

9325 20.22. "MRDLG" means maximum residual disinfectant level goal.
9326

9327 21.23. "MRDL" means maximum residual disinfectant level.
9328

9329 BOARD NOTE: Derived from appendix B to subpart Q to 40 CFR 141 (2012)(2006), as amended
9330 at 71 Fed. Reg. 65574 (Nov. 8, 2006).

9331
9332 (Source: Amended at 37 Ill. Reg. _____, effective _____)
9333

9334 **Section 611.APPENDIX I Acronyms Used in Public Notification Regulation**
 9335

CCR	Consumer Confidence Report
CWS	Community Water System
DBP	Disinfection Byproduct
GWR	Groundwater Rule
HPC	Heterotrophic Plate Count
IESWTR	Interim Enhanced Surface Water Treatment Rule
IOC	Inorganic Chemical
LCR	Lead and Copper Rule
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
NCWS	Non-Community Water System
NPDWR	National Primary Drinking Water Regulation
NTNCWS	Non-Transient Non-Community Water System
NTU	Nephelometric Turbidity Unit
OGWDW	USEPA, Office of Ground Water and Drinking Water
OW	USEPA, Office of Water
PN	Public Notification
PWS	Public Water System
SDWA	Safe Drinking Water Act
SMCL	Secondary Maximum Contaminant Level
SOC	Synthetic Organic Chemical
SWTR	Surface Water Treatment Rule
TCR	Total Coliform Rule
TT	Treatment Technique
TWS	Transient Non-Community Water System
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Chemical

9336
 9337 BOARD NOTE: Derived from Appendix C to Subpart Q to 40 CFR 141 ~~(2012)~~(2006), as
 9338 amended at 71 Fed. Reg. 65574 (Nov. 8, 2006).

9339
 9340 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 9341

9342 **Section 611.TABLE A Total Coliform Monitoring Frequency**

9343

9344 TOTAL COLIFORM MONITORING FREQUENCY FOR CWSs

9345

Population Served			Minimum Number of Samples per Month
25	to	1000	1
1001	to	2500	2
2501	to	3300	3
3301	to	4100	4
4101	to	4900	5
4901	to	5800	6
5801	to	6700	7
6701	to	7600	8
7601	to	8500	9
8501	to	12,900	10
12,901	to	17,200	15
17,201	to	21,500	20
21,501	to	25,000	25
25,001	to	33,000	30
33,001	to	41,000	40
41,001	to	50,000	50
50,001	to	59,000	60
59,001	to	70,000	70
70,001	to	83,000	80
83,001	to	96,000	90
96,001	to	130,000	100
130,001	to	220,000	120
220,001	to	320,000	150
320,001	to	450,000	180
450,001	to	600,000	210
600,001	to	780,000	240
780,001	to	970,000	270
970,001	to	1,230,000	300
1,230,001	to	1,520,000	330
1,520,001	to	1,850,000	360
1,850,001	to	2,270,000	390
2,270,001	to	3,020,000	420
3,020,001	to	3,960,000	450
3,960,001	or more		480

9346

9347 PWSs that have at least 15 service connections, but serve fewer than 25 persons are included in
9348 the entry for 25 to 1000 persons served.

9349 BOARD NOTE: Derived from 40 CFR 141.21(a)(2) (2012)~~(2002)~~.

9350

9351 (Source: Amended at 37 Ill. Reg. _____, effective _____)

9352

9353 **Section 611.TABLE B Fecal or Total Coliform Density Measurements**

9354

System Size (Persons Served)		Samples per Week
500	or fewer	1
501	to 3300	2
3301	to 10,000	3
10,001	to 25,000	4
More than	25,000	5

9355

9356 Samples must be taken on separate days.

9357

9358 BOARD NOTE: Derived from 40 CFR 141.74(b)(1) (2012)~~(1991)~~.

9359

9360

(Source: Amended at 37 Ill. Reg. _____, effective _____)

9361

9362 **Section 611.TABLE C Frequency of RDC Measurement**

9363

System Size (Persons Served)		Samples per Day
500	or fewer	1
501	to 1,000	2
1001	to 2,500	3
2501	to 3,300	4

9364

9365 The day's samples cannot be taken at the same time. The sampling intervals are subject to
9366 Agency review and approval by a SEP issued pursuant to Section 611.110 .

9367

9368 BOARD NOTE: Derived from 40 CFR 141.74(b)(5) and (c)(2) (2012)~~(2002)~~.

9369

9370 (Source: Amended at 37 Ill. Reg. _____, effective _____)

9371

9372 **Section 611.TABLE D Number of Lead and Copper Monitoring Sites**

9373

System Size (Persons Served)	Number of Sites (Standard Monitoring)	Number of Sites (Reduced Monitoring)
More than 100,000	100	50
10,001-100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
100 or fewer	5	5

9374
9375 BOARD NOTE: Derived from 40 CFR 141.86(c) (2012)~~(1992)~~.

9376
9377 (Source: Amended at 37 Ill. Reg. _____, effective _____)

9378

9379 **Section 611.TABLE E Lead and Copper Monitoring Start Dates**

9380

System Size (Persons served)	First Six-month Monitoring Period Begins
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more than 50,000	January 1, 1992
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3,301 to 50,000	July 1, 1992
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3,300 or fewer	July 1, 1993
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9382 BOARD NOTE: Derived from 40 CFR 141.86(d)(1) (2012)~~(2002)~~.

9383

9384 (Source: Amended at 37 Ill. Reg. _____, effective _____)

9385

9386 **Section 611.TABLE F Number of Water Quality Parameter Sampling Sites**

9387

System Size (Persons Served)	Number of Sites	
	(Standard Monitoring)	(Reduced Monitoring)
more than 100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3
501 to 3,300	2	2
101 to 500	1	1
100 or fewer	1	1

9388

9389 BOARD NOTE: Derived from 40 CFR 141.87(a)(2) and (e) ~~(2012)~~(1992).

9390

9391 (Source: Amended at 37 Ill. Reg. _____, effective _____)

9392

9393 **Section 611.TABLE G Summary of Section 611.357 Monitoring Requirements for Water**
 9394 **Quality Parameters**

9395
 9396 See end note 1 below.
 9397

Monitoring Period	Parameters ²	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature	Taps and at entry points to the distribution system	Every six months
After installation of corrosion control	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴	Taps	Every six months
	pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵	Entry points to the distribution system ⁶	No less frequently than every two weeks
After the Agency specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴	Taps	Every six months
	pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵	Entry points to the distribution system ⁶	No less frequently than every two weeks
Reduced monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴	Taps	Every six months, annually ⁷ or every three years ⁸ ; reduced number of sites

<p>pH, alkalinity dosage rate and concentration (if alkalinity is adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual⁵</p>	<p>Entry points to the distribution system⁶</p>	<p>No less frequently than every two weeks</p>
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- ¹ This Table G is for illustrative purposes; consult the text of Section 611.357 for precise regulatory requirements.
- ² Small- and medium-sized systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.
- ³ Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.
- ⁴ Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.
- ⁵ Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.
- ⁶ A groundwater system supplier may limit monitoring to representative locations throughout the system.
- ⁷ A water supplier may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of monitoring.
- ⁸ A water supplier may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three years if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of annual monitoring. A water supplier may accelerate to triennial monitoring for water quality parameters at the tap if it has maintained 90th percentile lead levels less than or equal to 0.005 mg/l, 90th percentile copper levels less than or equal to 0.65 mg/l, and the range of water quality parameters designated by the Agency under Section 611.352(f) as representing optimal corrosion control during two consecutive six-month monitoring periods.

BOARD NOTE: Derived from the table to 40 CFR 141.87 ~~(2012)~~(2002).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

9435 **Section 611.TABLE H CT Values (mg-min/l) for Cryptosporidium Inactivation by**
 9436 **Chlorine Dioxide**
 9437

Log Credit	Water Temperature (°C)										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

9438
 9439 A supplier may use the following equation to determine log credit between the indicated values:
 9440

$$\text{Log credit} = (0.001506 \times (1.09116)^{\text{Temp(in } ^\circ\text{C)}}) \times \text{CT}$$

9441
 9442
 9443 BOARD NOTE: Derived from the table at 40 CFR 141.720(b)(1) (2012)(2006), which
 9444 corresponds with Section 611.1020(b)(1).
 9445

9446 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 9447

9448 **Section 611.TABLE I CT Values (mg·min/l) for Cryptosporidium Inactivation by Ozone**
 9449

Log Credit	Water Temperature (°C)										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

9450
 9451 A supplier may use the following equation to determine log credit between the indicated values:
 9452

$$\text{Log credit} = (0.0397 \times (1.09757)^{\text{Temp(in } ^\circ\text{C)}}) \times \text{CT}$$

9453
 9454
 9455 BOARD NOTE: Derived from the table at 40 CFR 141.720(b)(2) (2012)(2006), which
 9456 corresponds with Section 611.1020(b)(2).
 9457

9458 (Source: Amended at 37 Ill. Reg. _____, effective _____)
 9459

9460 **Section 611.TABLE J UV Dose Table for Cryptosporidium, Giardia lamblia, and Virus**
 9461 **Inactivation Credit**
 9462

UV dose (mJ/cm ²)			
Log credit	Cryptosporidium	Giardia lamblia	Virus
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

9463
 9464 BOARD NOTE: Derived from the table at 40 CFR 141.720(d)(1) ~~(2012)~~(2006), which
 9465 corresponds with Section 611.1020(d)(1).
 9466

(Source: Amended at 37 Ill. Reg. _____, effective _____)

9467
 9468

9469 **Section 611.TABLE Z Federal Effective Dates**

9470

9471 The following are the effective dates of the various federal NPDWRs:

9472

Fluoride (40 CFR ~~141.62(b)(1)~~~~141.60(b)(1)~~) October 2, 1987
(corresponding with Section 611.301(b))

Phase I VOCs (40 CFR ~~141.61(a) through (a)(8)~~~~141.60(a)(1)~~) JanuaryJuly 9, 1989
(corresponding with Section 611.311(a))
(benzene, carbon tetrachloride, p-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and vinyl chloride)

Lead and Copper (40 CFR141, subpart I) July 7, 1991
(corresponding with Subpart G of this Part)
(lead and copper monitoring, reporting, and recordkeeping requirements of 40 CFR 141.86 through 141.91)

Phase II IOCs (40 CFR ~~141.62(b)(2) and (b)(4) through (b)(10)~~~~141.60(b)(2)~~) July 30, 1992
(corresponding with Section 611.301(b))
(asbestos, cadmium, chromium, mercury, nitrate, nitrite, and selenium)

Phase II VOCs (40 CFR ~~141.61(a)(9) through (a)(18)~~~~141.60(a)(2)~~) July 30, 1992
(~~corresponding with Section 611.311(a)~~)
(o-dichlorobenzene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, ethylbenzene, monochlorobenzene, styrene, tetrachloroethylene, toluene, and xylenes (total))

Phase II SOCs (40 CFR ~~141.61(c)(1) through (c)(18)~~~~141.60(a)(2)~~) July 30, 1992
(~~corresponding with Section 611.311(e)~~)
(alachlor, atrazine, carbofuran, chlordane, dibromochloropropane, ethylene dibromide, heptachlor, heptachlor epoxide, lindane, methoxychlor, polychlorinated biphenyls, toxaphene, 2,4-D, and 2,4,5-TP (silvex))

Phase V SOC (40 CFR 141.61(c)(3)) August 17, 1992
(corresponding with Section 611.311(c)) (endrin)

- Lead and Copper (40 CFR 141, subpart I)
 (corresponding with Subpart G of this Part)
 (lead and copper corrosion control, water treatment, public education, and lead service line replacement requirements of 40 CFR 141.81 through 141.85) December 7, 1992
- Phase IIB IOC (40 CFR ~~141.62(b)(3)~~141.60(b)(2))
 (corresponding with Section 611.301(b))
 (barium) January 1, 1993
- Phase IIB SOCs (40 CFR 141.61(a)(9) through ~~(a)(18)~~141.60(a)(2))
 (corresponding with Section 611.311(c))
 (aldicarb, aldicarb sulfone, aldicarb sulfoxide, and pentachlorophenol. See the Board note appended to Section 611.311(c) for information relating to implementation of requirements relating to aldicarb, aldicarb sulfone, and aldicarb sulfoxide.) January 1, 1993
- Phase V IOCs (40 CFR 141.62(b)(11) through ~~(b)(15)~~141.60(b)(3))
 (corresponding with Section 611.301(b))
 (antimony, beryllium, cyanide, nickel, and thallium) January 17, 1994
- Phase V VOCs (40 CFR 141.61(b)(19) through ~~(b)(21)~~141.60(a)(3))
 (corresponding with Section 611.311(a))
 (dichloromethane, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane) January 17, 1994
- Phase V SOCs (40 CFR 141.61(c)(19) through ~~(c)(25)~~141.60(a)(3))
 (corresponding with Section 611.311(c))
 (benzo(a)pyrene, dalapon, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate dinoseb, diquat, endothall, endrin, glyphosate, hexachlorobenzene, hexachlorocyclopentadiene, oxamyl, picloram, simazine, and 2,3,7,8-TCDD) January 17, 1994
- Consumer Confidence Report Rule (40 CFR 141, subpart Q)
 (corresponding with Subpart O of this Part)
 (notification to public of drinking water quality) September 18, 1998

<p>Interim Enhanced Surface Water Treatment Rule (40 CFR 141, subpart P) (corresponding with Subpart R of this Part) (applicable to suppliers providing water to fewer than 10,000 persons) (Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)</p>	<p>February 16, 1999</p>
<p>Public Notification Rule (40 CFR 141, subpart Q) (corresponding with Subpart V of this Part) (notification to public of NPDWR violations, variances or exemptions, or other situations that could bear on public health)</p>	<p>June 5, 2000</p>
<p>Filter Backwash Rule (40 CFR 141.76) (corresponding with Section 611.276) (reuse of spent filter backwash water, thickener supernatant, or liquids from dewatering processes)</p>	<p>August 7, 2001</p>
<p>Disinfection/Disinfectant Byproducts Rule (40 CFR 141.64, 141.65 & 141, subpart L) Smaller Systems (serving 10,000 or fewer persons) Larger Systems (serving more than 10,000 persons) (corresponding with Sections 611.312 & 611.313) (total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide)</p>	<p>December 16, 2001 December 16, 2003</p>
<p>Long Term 1 Enhanced Surface Water Treatment Rule (40 CFR 141, Subpart T) (corresponding with Subpart X of this Part) (applicable to suppliers providing water to 10,000 or more persons) (Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity)</p>	<p>February 13, 2002</p>
<p>Radionuclides (40 CFR 141.66) (corresponding with Section 611.330) (combined radium (Ra-226 + Ra-228), gross alpha particle activity, beta particle and photon activity, and uranium)</p>	<p>December 8, 2003</p>
<p>Arsenic (40 CFR 141.62(b)(16)) (corresponding with Section 611.301(b)) (arsenic)</p>	<p>January 23, 2006</p>

Stage 2 Disinfection/Disinfectant Byproducts Rule (40 CFR 141, subparts U & V)

Systems that serve fewer than 10,000 persons	
Submit plan	April 1, 2008
Complete monitoring or study	March 31, 2010
Submit IDSE report	July 1, 2010
Compliance with monitoring requirements	
If no Cryptosporidium monitoring is required	October 1, 2013
If Cryptosporidium monitoring is required	October 1, 2014
Systems that serve 10,000 to 49,999 persons	
Submit plan	October 1, 2007
Complete monitoring or study	September 30, 2009
Submit IDSE report	January 1, 2010
Compliance with monitoring requirements	October 1, 2013
Systems that serve 50,000 to 99,999 persons	
Submit plan	April 1, 2007
Complete monitoring or study	March 31, 2009
Submit IDSE report	July 1, 2009
Compliance with monitoring requirements	October 1, 2012
Systems that serve 100,000 or more persons	
Submit plan	October 1, 2006
Complete monitoring or study	September 30, 2008
Submit IDSE report	January 1, 2009
Compliance with monitoring requirements	April 1, 2012
(corresponding with Subparts W & Y of this Part)	
(total trihalomethanes and haloacetic acids (five))	

Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR 141, subpart W)

Systems that serve fewer than 10,000 persons	
And which monitor for E. coli	
Begin first round of monitoring	October 1, 2008
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	October 1, 2017
And which monitor for cryptosporidium	
Begin first round of monitoring	April 1, 2010
Begin treatment for Cryptosporidium	October 1, 2014
Begin second round of monitoring	April 1, 2019
Systems that serve 10,000 to 49,999 persons	
Begin first round of monitoring	April 1, 2008
Begin treatment for Cryptosporidium	October 1, 2013
Begin second round of monitoring	October 1, 2016
Systems that serve 50,000 to 99,999 persons	
Begin first round of monitoring	April 1, 2007
Begin treatment for Cryptosporidium	October 1, 2012

Begin second round of monitoring Systems that serve 100,000 or more persons	October 1, 2015
Begin first round of monitoring	October 1, 2006
Begin treatment for Cryptosporidium	April 1, 2012
Begin second round of monitoring (corresponding with Subpart Z of this Part) (E. coli, Cryptosporidium, Giardia lamblia, viruses, and turbidity)	April 1, 2015
Groundwater Rule (40 CFR 141, subpart S) (corresponding with Subpart S of this Part) (E. coli, enterococci, and coliphage)	December 1, 2009

9474

9475 (Source: Amended at 37 Ill. Reg. _____, effective _____)