

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

PART 620
GROUNDWATER QUALITY

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AUTHORITY: Implementing and authorized by Section 8 of the Illinois Groundwater Protection Act [415 ILCS 55/8] and authorized by Section 27 of the Illinois Environmental Protection Act [415 ILCS 5/27].

SOURCE: Adopted in R89-14(B) at 15 Ill. Reg. 17614, effective November 25, 1991; amended in R89-14(C) at 16 Ill. Reg. 14667, effective September 11, 1992; amended in R93-27 at 18 Ill. Reg. 14084, effective August 24, 1994; amended in R96-

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18 at 21 Ill. Reg. 6518, effective May 8, 1997; amended in R97-11 at 21 Ill. Reg. 7869, effective July 1, 1997; amended in R01-14 at 26 Ill. Reg. 2662, effective February 5, 2002; amended in R08-18 at 36 Ill. Reg. 15206, effective October 5, 2012; amended in R08-18(B) at 37 Ill. Reg. 16529, effective October 7, 2013; amended in _____ at ____ _ Ill. Reg. _____, effective _____.

SUBPART A: GENERAL

Section 620.110 Definitions

The definitions of the Environmental Protection Act [415 ILCS 5] and the Groundwater Protection Act [415 ILCS 55] apply to this Part. The following definitions also apply to this Part.

"Act" means the Environmental Protection Act [415 ILCS 5].

"Agency" means the Illinois Environmental Protection Agency.

"Aquifer" means saturated (with groundwater) soils and geologic materials which are sufficiently permeable to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients. [415 ILCS 55/3(b)]

"BETX" means the sum of the concentrations of benzene, ethylbenzene, toluene, and xylenes.

"Board" means the Illinois Pollution Control Board.

"Carcinogen" means a contaminant that is classified as a Category A1 or A2 Carcinogen by the American Conference of Governmental Industrial Hygienists; or a Category 1 or 2A/2B carcinogen by the World Health Organization's International Agency for Research on Cancer; or a "Human carcinogen" or "Anticipated Human Carcinogen" by the United States Department of Health and Human Service National Toxicological Program; or a Category A or B1/B2 Carcinogen or as "carcinogenic to humans" or likely to become carcinogenic to humans" by the United States Environmental Protection Agency in Integrated Risk Information System or a Final Rule issued in a Federal Register notice by the USEPA. [415 ILCS 5/58.2]

"Community water supply" means a public supply which serves or is intended to serve at least 15 service connections used by residents or regularly serves at least 25 residents. [415 ILCS 5/3.145]

"Contaminant" means any solid, liquid, or gaseous matter, any odor, or

any form of energy, from whatever source. [415 ILCS 5/3.165]

"Corrective action process" means those procedures and practices that may be imposed by a regulatory agency when a determination has been made that contamination of groundwater has taken place, and are necessary to address a potential or existing violation of the standards set forth in Subpart D.

"Cumulative impact area" means the area, including the coal mine area permitted under the Surface Coal Mining Land Conservation and Reclamation Act [225 ILCS 720] and 62 Ill. Adm. Code 1700 through 1850, within which impacts resulting from the proposed operation may interact with the impacts of all anticipated mining on surface water and groundwater systems.

"Department" means the Illinois Department of Natural Resources.

"Detection" means the identification of a contaminant in a sample at a value equal to or greater than the:

"Method Detection Limit" or "MDL" means the minimum concentration of a substance that can be measured as reported with 99 percent confidence that the true value is greater than zero, pursuant to 40 CFR 136, appendix B (2006), incorporated by reference at Section 620.125; or

"Method Quantitation Limit" or "MQL" means the minimum concentration of a substance that can be measured and reported pursuant to "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", incorporated by reference at Section 620.125.

"Groundwater" means underground water which occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure. [415 ILCS 5/3.210]

"Hydrologic balance" means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, soil zone, lake, or reservoir. It encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground and surface water storage.

"IGPA" means the Illinois Groundwater Protection Act [415 ILCS 55].

"LOAEL" or "Lowest observable adverse effect level" means the lowest tested concentration of a chemical or substance that produces a statistically significant increase in frequency or severity of non-overt adverse effects between the exposed population and its appropriate control. LOAEL may be determined for a human population (LOAEL-H) or an animal population (LOAEL-A).

"Licensed Professional Engineer" or "LPE" means a person, corporation, or partnership licensed under the laws of the State of Illinois to practice professional engineering. [415 ILCS 5/57.2]

"Licensed Professional Geologist" or "LPG" means an individual who is licensed under the Professional Geologist Licensing Act to engage in the practice of professional geology in Illinois. [225 ILCS 745/15]

"NOAEL" or "No observable adverse effect level" means the highest tested concentration of a chemical or substance that does not produce a statistically significant increase in frequency or severity of non-overt adverse effects between the exposed population and its appropriate control. NOAEL may be determined for a human population (NOAEL-H) or an animal population (NOAEL-A).

"Non-community water supply" means a public water supply that is not a community water supply. [415 ILCS 5/3.145]

"Off-site" means not on-site.

"On-site" means on the same or geographically contiguous property that may be divided by public or private right-of-way, provided the entrance and exit between properties is at a crossroads intersection and access is by crossing as opposed to going along the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way that he controls and that the public does not have access to is also considered on-site property.

"Operator" means the person responsible for the operation of a site, facility or unit.

"Owner" means the person who owns a site, facility or unit or part of a site, facility or unit, or who owns the land on which the site, facility or unit is located.

"Potable" means generally fit for human consumption in accordance with accepted water supply principles and practices. [415 ILCS 5/3.340]

"Potential primary source" means any unit at a facility or site not currently subject to a removal or remedial action which:

Is utilized for the treatment, storage, or disposal of any hazardous or special waste not generated at the site; or

Is utilized for the disposal of municipal waste not generated at the site, other than landscape waste and construction and demolition debris; or

Is utilized for the landfilling, land treating, surface impounding or piling of any hazardous or special waste that is generated on the site or at other sites owned, controlled or operated by the same person; or

Stores or accumulates at any time more than 75,000 pounds above ground, or more than 7,500 pounds below ground, of any hazardous substances. [415 ILCS 5/3.345]

"Potential route" means abandoned and improperly plugged wells of all kinds, drainage wells, all injection wells, including closed loop heat pump wells, and any excavation for the discovery, development or production of stone, sand or gravel. This term does not include closed loop heat pump wells using USP (U.S. Pharmacopeia) food grade propylene glycol. [415 ILCS 5/3.350]

"Potential secondary source" means any unit at a facility or a site not currently subject to a removal or remedial action, other than a potential primary source, which:

Is utilized for the landfilling, land treating, or surface impounding of waste that is generated on the site or at other sites owned, controlled or operated by the same person, other than livestock and landscape waste, and construction and demolition debris; or

Stores or accumulates at any time more than 25,000 but not more than 75,000 pounds above ground, or more than 2,500 but not more than 7,500 pounds below ground, of any hazardous substance; or

Stores or accumulates at any time more than 25,000 gallons above ground, or more than 500 gallons below ground, of petroleum, including crude oil or any fraction thereof which is

not otherwise specifically listed or designated as a hazardous substance; or

Stores or accumulates pesticides, fertilizers, or road oils for purposes of commercial application or for distribution to retail sales outlets; or

Stores or accumulates at any time more than 50,000 pounds of any de-icing agent; or

Is utilized for handling livestock waste or for treating domestic wastewaters other than private sewage disposal systems as defined in the Private Sewage Disposal Licensing Act [225 ILCS 225]. [415 ILCS 5/3.355]

"Practical Quantitation Limit" or "PQL" means the lowest concentration or level that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions in accordance with "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846, incorporated by reference at Section 620.125.

"Previously mined area" means land disturbed or affected by coal mining operations prior to February 1, 1983.

BOARD NOTE: February 1, 1983, is the effective date of the Illinois permanent program regulations implementing the Surface Coal Mining Land Conservation and Reclamation Act [225 ILCS 720] as codified in 62 Ill. Adm. Code 1700 through 1850.

"Property class" means the class assigned by a tax assessor to real property for purposes of real estate taxes.

BOARD NOTE: The property class (rural property, residential vacant land, residential with dwelling, commercial residence, commercial business, commercial office, or industrial) is identified on the property record card maintained by the tax assessor in accordance with the Illinois Real Property Appraisal Manual (February 1987), published by the Illinois Department of Revenue, Property Tax Administration Bureau.

"Public water supply" means all mains, pipes and structures through which water is obtained and distributed to the public, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended for use for the purpose of furnishing water for drinking or general domestic use and which serve at least 15 service connections or which regularly serve at least 25 persons at least

60 days per year. A public water supply is either a "community water supply" or a "non-community water supply". [415 ILCS 5/3.365]

"Regulated entity" means a facility or unit regulated for groundwater protection by any State or federal agency.

"Regulatory agency" means the Illinois Environmental Protection Agency, Department of Public Health, Department of Agriculture, the Office of Mines and Minerals in the Department of Natural Resources, and the Office of State Fire Marshal.

"Regulated recharge area" means a compact geographic area, as determined by the Board pursuant to Section 17.4 of the Act, the geology of which renders a potable resource groundwater particularly susceptible to contamination. [415 ILCS 5/3.390]

"Resource groundwater" means groundwater that is presently being, or in the future is capable of being, put to beneficial use by reason of being of suitable quality. [415 ILCS 5/3.430]

"Saturated zone" means a subsurface zone in which all the interstices or voids are filled with water under pressure greater than that of the atmosphere.

"Setback zone" means a geographic area, designated pursuant to this Act, containing a potable water supply well or a potential source or potential route having a continuous boundary, and within which certain prohibitions or regulations are applicable in order to protect groundwaters. [415 ILCS 5/3.450]

"Site" means any location, place, tract of land and facilities, including but not limited to, buildings and improvements used for the purposes subject to regulation or control by the Act or regulations thereunder. [415 ILCS 5/3.460]

"Spring" means a natural surface discharge of an aquifer from rock or soil.

"Threshold dose" means the lowest dose of a chemical at which a specified measurable effect is observed and below which it is not observed.

"Treatment" means the technology, treatment techniques, or other procedures for compliance with 35 Ill. Adm. Code, Subtitle F.

"Unit" means any device, mechanism, equipment, or area (exclusive of

land utilized only for agricultural production). [415 ILCS 5/3.515]

"USEPA" means the United States Environmental Protection Agency.

"Wellhead protection area" or "WHPA" means the surface and subsurface recharge area surrounding a community water supply well or well field, delineated outside of any applicable setback zones (pursuant to Section 17.1 of the Act [415 ILCS 5/17.1]), and pursuant to Illinois' Wellhead Protection Program, through which contaminants are reasonably likely to move toward such well or well field.

"Wellhead Protection Program" or "WHPP" means the wellhead protection program for the State of Illinois, approved by USEPA under 42 USC 300h-7.

BOARD NOTE: Derived from 40 CFR 141.71(b) (2003). The wellhead protection program includes the "groundwater protection needs assessment" under Section 17.1 of the Act [415 ILCS 5/17.1] and 35 Ill. Adm. Code 615-617.

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

Section 620.125 Incorporations by Reference

- a) The Board incorporates the following material by reference:

ASTM International. 100 Barr Harbor Drive, PO Box C700,
West Conshohocken, PA 19428-2959 (610) 832-9500.

"Standard Practice for Classification of Soils for
Engineering Purposes (Unified Classification System)"
ASTM D2487-06.

CFR (Code of Federal Regulations). Available from the
Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402 (202) 783-3238.

Method Detection Limit Definition, appendix B to Part
136, 40 CFR 136, appendix B – Revision 2 (20192006).

Control of Lead and Copper, general requirements, 40
CFR 141.80 (20192006).

Maximum contaminant levels for organic contaminants,
40 CFR 141.61 (20192006).

Maximum contaminant levels for inorganic contaminants, 40 CFR 141.62 (~~20192006~~).

Maximum contaminant levels for radionuclides, 40 CFR 141.66 (~~20192006~~).

GPO. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20401 (202) 783-3238).

USEPA Guidelines for Carcinogenic Risk Assessment, 51 Fed. Reg. 33992-34003 (September 24, 1986).

Illinois Environmental Protection Agency, 1020 North Grand Avenue East, P.O. Box 19276, Springfield, IL 62794-9276 (217) 785-4787.

"Guidance Document for Groundwater Protection Needs Assessments," Agency, Illinois State Water Survey, and Illinois State Geologic Survey Joint Report, January 1995.

"The Illinois Wellhead Protection Program Pursuant to Section 1428 of the Federal Safe Drinking Water Act," Agency, # 22480, October 1992.

NCRP. National Council on Radiation Protection, 7910 Woodmont Ave., Bethesda, MD (301) 657-2652.

"Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure", NCRP Report Number 22, June 5, 1959.

NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (703) 605-6000.

"Methods for Chemical Analysis of Water and Wastes," March 1983, Doc. No. PB84-128677. EPA 600/4-79-020 (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Inorganic Substances in Environmental Samples," August 1993, PB94-120821 (referred to as "USEPA Environmental Inorganic Methods"). EPA 600/R-93-100 (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Metals in Environmental Samples," June 1991, Doc. No. PB91-231498. EPA 600/4-91-010 (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Metals in Environmental Samples – Supplement I," May 1994, Doc. No. PB95-125472. EPA 600/R-94-111 (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic Compounds in Drinking Water," Doc. No. PB91-231480. EPA/600/4-88/039 (December 1988 (revised July 1991)) (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic Compounds in Drinking Water, Supplement I," Doc. No. PB91-146027. EPA/600/4-90/020 (July 1990) (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic Compounds in Drinking Water, Supplement II," Doc. No. PB92-207703. EPA/600/R-92/129 (August 1992) (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic Compounds in Drinking Water, Supplement III," Doc. No. PB95-261616. EPA/600/R-95/131 (August 1995) (available online at <http://nepis.epa.gov/>).

"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water" Volume I: EPA 815-R-00-014 (August 2000) (available online at <http://nepis.epa.gov/>).

"Prescribed Procedures for Measurement of Radioactivity in Drinking Water," Doc. No. PB80-224744. EPA 600/4-80-032, (August 1980) (available online at <http://nepis.epa.gov/>).

"Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," H.L. Krieger and S. Gold, Doc. No. PB222-154/7BA. EPA-R4-73-014, May 1973.

"Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979, Doc. No. EMSL LV 053917.

"Radiochemistry Procedures Manual," Doc. No. PB-84-215581. EPA-520/5-84-006, December 1987.

"Practical Guide for Ground-Water Sampling", EPA Publication No. EPA/600/2-85/104 (September 1985), Doc. No. PB 86-137304.

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication No. SW-846, as amended by Updates I, II, IIA, IIB, III, IIIA, and IIIB (Doc. No. 955-001-00000-1) (available on line at <http://www.epa.gov/epaoswer/hazwaste/test/main.htm>).

United States Environmental Protection Agency, Office of Resource Conservation and Recovery.

"Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, (March 2009 Unified Guidance)", EPA 530/R-09-007.

USGS. United States Geological Survey, 1961 Stout St., Denver, CO 80294 (303) 844-4169

"Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents", Book I, Chapter D2 (1976).

b) This Section incorporates no later editions or amendments.

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

SUBPART B: GROUNDWATER CLASSIFICATION

Section 620.210 Class I: Potable Resource Groundwater

Except as provided in Sections 620.230, 620.240, or 620.250, Potable Resource Groundwater is:

a) Groundwater located 10 feet or more below the land surface and within:

- 1) The minimum setback zone of a well which serves as a potable water supply and to the bottom of such well;
 - 2) Unconsolidated sand, gravel or sand and gravel which is 5 feet or more in thickness and that contains 12 percent or less of fines (i.e., fines which pass through a No. 200 sieve tested according to ASTM Standard Practice D2487-06, incorporated by reference at Section 620.125);
 - 3) Sandstone which is 10 feet or more in thickness, or fractured carbonate which is 15 feet or more in thickness;~~or~~
 - 4) Any geologic material which is capable of a:
 - A) Sustained groundwater yield, from up to a 12 inch borehole, of 150 gallons per day or more from a thickness of 15 feet or less; or
 - B) Hydraulic conductivity of 1×10^{-4} cm/sec or greater using one of the following test methods or its equivalent:
 - i) ~~Permeameter;~~
 - ii) Slug test; or
 - ii)iii) Pump test.
 - 5) The wellhead protection area of a community water supply well or well field, as defined in Section 620.110 and delineated pursuant to the methods incorporated by reference in Section 620.125. For the purposes of this Subpart, when a maximum setback zone has been adopted pursuant to Section 14.3 of the Act, the WHPA includes the delineated area within the maximum setback zone.
- b) Any groundwater which is determined by the Board pursuant to petition procedures set forth in Section 620.260, to be capable of potable use.

BOARD NOTE: Any portion of the thickness associated with the geologic materials as described in subsections 620.210(a)(2), (a)(3) or (a)(4) should be designated as Class I: Potable Resource Groundwater if located 10 feet or more below the land surface.

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

Section 620.250 Groundwater Management Zone

- a) Within any class of groundwater, a groundwater management zone may be established as a three dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site:
 - 1) That is subject to a corrective action process approved by the Agency; or
 - 2) For which the owner or operator undertakes an adequate corrective action in a timely and appropriate manner and provides a written confirmation to the Agency. Such confirmation must be provided in a form as prescribed by the Agency.
- b) A groundwater management zone is established upon concurrence by the Agency that the conditions as specified in subsection (a) are met and groundwater management continues for a period of time consistent with the action described in that subsection.
- c) A groundwater management zone expires upon the Agency's receipt of appropriate documentation which confirms the completion of the action taken pursuant to subsection (a) and which confirms the attainment of applicable standards as set forth in Subpart D. The Agency shall review the on-going adequacy of controls and continued management at the site if concentrations of chemical constituents, as specified in Section 620.450(a)(4)(B), remain in groundwater at the site following completion of such action. The review must take place no less often than every 5 years and the results shall be presented to the Agency in a written report.
- d) Notwithstanding subsections (a) and (b) above, a groundwater management zone as defined in 35 Ill. Adm. Code 740.120 may be established in accordance with the requirements of 35 Ill. Adm. Code 740.530 for sites undergoing remediation pursuant to the Site Remediation Program. Such a groundwater management zone shall remain in effect until the requirements set forth at 35 Ill. Adm. Code 740.530(c) are met.
- e) While the groundwater management zone established in accordance with 35 Ill. Adm. Code 740.530 is in effect, the otherwise applicable standards as specified in Subpart D of this Part shall not be applicable to the "contaminants of concern," as defined at 35 Ill. Adm. Code 740.120, for which groundwater remediation objectives have been approved in accordance with the procedures of 35 Ill. Adm. Code 740.

- f) Notwithstanding subsection (c) above, the review requirements concerning the on-going adequacy of controls and continued management at the site shall not apply to groundwater within a three-dimensional region formerly encompassed by a groundwater management zone established in accordance with 35 Ill. Adm. Code 740.530 while a No Further Remediation Letter issued in accordance with the procedures of 35 Ill. Adm. Code 740 is in effect.
- g) All groundwater management zone applications submitted pursuant to subsection (a) must contain the following:
 - 1) Facility information, including name, address and county where the site is located.
 - 2) Identification of specific units (operating or closed) present at the facility.
 - 3) Maps and engineering drawings showing the facility, and units at the facility.
 - 4) Statement of the groundwater classification(s) at the facility.
 - 5) Identification of the chemical constituents released to the groundwater.
 - 6) Description of how groundwater will be monitored to determine the rate and extent of the release, and if it has migrated off site.
 - 7) Schedule for investigation of the extent of the release.
 - 8) Results of available soil testing and groundwater monitoring associated with a release, locations and depths of samples, and monitoring well construction details with well logs.
 - 9) Remedy
 - A) Description of selected remedy and why it was chosen;
 - B) Results of groundwater contaminant transport modeling or calculations showing how the selected remedy will achieve compliance with the applicable groundwater standards;
 - C) Description of the fate and transport of contaminants with selected remedy over time; and

D) A statement of how groundwater at the facility will be monitored following implementation of the remedy to ensure that the groundwater standards have been attained.

10) Information requested by the Agency, necessary for its review of the groundwater management zone application.

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

SUBPART C: NONDEGRADATION PROVISIONS FOR APPROPRIATE GROUNDWATERS

Section 620.302 Applicability of Preventive Notification and Preventive Response Activities

- a) Preventive notification and preventive response as specified in Sections 620.305 through 620.310 applies to:
 - 1) Class I groundwater under Section 620.210(a)(1), (a)(2), or (a)(3) that is monitored by the persons listed in subsection (b); or
 - 2) Class III groundwater that is monitored by the persons listed in subsection (b).
- b) For purposes of subsection (a), the persons that conduct groundwater monitoring are:
 - 1) An owner or operator of a regulated entity for which groundwater quality monitoring must be performed pursuant to State or Federal law or regulation (e.g., section 106 and 107 of the Comprehensive Environmental Response, Compensation and Liability Act (42 USC 9601, et seq.); sections 3004 and 3008 of the Resource Conservation and Recovery Act (42 USC 6901, et seq.); sections 4(q), 4(v), 12(g), 21(d), 21(f), 22.2(f), 22.2(m) and 22.18 of the Act; 35 Ill. Adm. Code 616, 724, 725, 730, 731, 750, 807, 811, and 814 and 815, and 62 Ill. Adm. Code 1780);
 - 2) An owner or operator of a public water supply well who conducts groundwater quality monitoring;
 - 3) A State agency that is authorized to conduct, or is the recipient of, groundwater quality monitoring data (e.g., Illinois Environmental Protection Agency, Department of Public Health, Department of Agriculture, Office of State Fire Marshal or

Department of Natural Resources); or

- 4) An owner or operator of a facility that conducts groundwater quality monitoring pursuant to State or federal judicial or administrative order.
- c) If a contaminant exceeds a standard set forth in Section 620.410 or Section 620.430, the appropriate remedy is corrective action and Sections 620.305 and 620.310 do not apply.

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

Section 620.310 Preventive Response Activities

- a) The following preventive assessment must be undertaken:
 - 1) If a preventive notification under Section 620.305(c) is provided by a community water supply:
 - A) The Agency shall notify the owner or operator of any identified potential primary source, potential secondary source, potential route, or community water supply well that is located within 2,500 feet of the wellhead.
 - B) The owner or operator notified under subsection (a)(1)(A) shall, within 30 days after the date of issuance of such notice, sample each water well or monitoring well for the contaminant identified in the notice if the contaminant or material containing such contaminant is or has been stored, disposed of, or otherwise handled at the site. If a contaminant identified under Section 620.305(a) is detected, then the well must be resampled within 30 days of the date on which the first sample analyses are received. If a contaminant identified under Section 620.305(a) is detected by the resampling, preventive notification must be given as set forth in Section 620.305.
 - C) If the Agency receives analytical results under subsection (a)(1)(B) that show a contaminant identified under Section 620.305(a) has been detected, the Agency shall:
 - i) Conduct a well site survey pursuant to 415 ILCS 5/17.1(d), if such a survey has not been previously conducted within the last 5 years; and

- ii) Identify those sites or activities that represent a hazard to the continued availability of groundwaters for public use unless a groundwater protection needs assessment has been prepared pursuant to 415 ILCS 5/17.1(d).
- 2) If a preventive notification is provided under Section 620.305(c) by a non-community water supply or for multiple private water supply wells, the Department of Public Health shall conduct a sanitary survey within 1,000 feet of the wellhead of a non-community water supply or within 500 feet of the wellheads for multiple private water supply wells.
 - 3) If a preventive notification under Section 620.305(b) is provided by the owner or operator of a regulated entity and the applicable standard in Subpart D has not been exceeded:
 - A) The appropriate regulatory agency shall determine if any of the following occurs for Class I: Potable Resource Groundwater:
 - i) The levels set forth below are exceeded or are changed for pH:

<u>CAS No.</u>	<u>Constituent</u>	<u>Criteria (mg/L)</u>
	Para-Dichlorobenzene	0.005
<u>95-50-1</u>	Ortho-Dichlorobenzene	0.01
	Ethylbenzene	0.03
<u>1634-04-4</u>	Methyl Tertiary-Butyl Ether (MTBE)	0.02
<u>108-95-2</u>	Phenols	0.001
<u>100-42-5</u>	Styrene	0.01
<u>108-88-3</u>	Toluene	0.04
<u>1330-20-7</u>	Xylenes	0.02

- ii) A statistically significant increase occurs above background (as determined pursuant to other regulatory procedures (e.g., 35 Ill. Adm. Code 616, 724, 725 or 811) or Unified Guidance incorporated by reference in Section 620.125) for aluminum, ~~arsenic~~, beryllium, boron, cadmium, chromium, cyanide, lead, lithium, mercury, molybdenum, nitrate, perchlorate, thallium, or

vanadium (except due to natural causes); or for acenaphthene, acetone, aldicarb, anthracene, atrazine and metabolites, benzoic acid, 2-butanone (MEK), carbofuran, carbon disulfide, ~~carbofuran~~, chlorobenzene, 2,4-D, dalapon, ~~2-butanone (MEK)~~, dicamba, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethylene, cis-1,2-dichloroethylene, trans-dichloroethylene, diethyl phthalate, di-n-butyl phthalate, dinoseb, endothall, endrin, ~~endothall~~, fluoranthene, fluorine, hexachlorocyclopentadiene, isopropylbenzene (cumene), ~~lindane (gamma-hexachloro-cyclohexane)~~, ~~2,4-D~~, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, MCPP (mecoprop), methoxychlor, 1-methylnaphthalene, 2-methylnaphthalene, ~~methoxychlor~~, 2-methylphenol (o-cresol), ~~monochlorobenzene~~, naphthalene, ~~perchlorate~~, Perfluorobutane Sulfonic Acid (PFBS), Perfluorohexane Sulfonic Acid (PFHxS), Perfluorononanoic Acid (PFNA), Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonic Acid (PFOS), picloram, pyrene, simazine, 2,4,5-TP (silvex), sulfate, total dissolved solids, ~~1,2,4-trichlorobenzene~~, 1,1,1-trichloroethane, 1,1,2-trichloroethane, ~~1,1,1-trichloroethane~~, and trichlorofluoromethane.

- iii) For a chemical constituent of gasoline, diesel fuel, or heating fuel, the constituent exceeds the following:

Constituent	Criterion (mg/L)
BETX	0.095

- iv) For pH, a statistically significant change occurs from background.

BOARD NOTE: Constituents that are carcinogens have not been listed in subsection (a)(3)(A) because the standard is set at the PQL and any exceedence thereof is a violation subject to corrective action.

- B) The appropriate agency shall determine if, for Class III: Special Resource Groundwater, the levels as determined by the Board are exceeded.
 - C) The appropriate regulatory agency shall consider whether the owner or operator reasonably demonstrates that:
 - i) The contamination is a result of contaminants remaining in groundwater from a prior release for which appropriate action was taken in accordance with laws and regulations in existence at the time of the release;
 - ii) The source of contamination is not due to the on-site release of contaminants; or
 - iii) The detection resulted from error in sampling, analysis, or evaluation.
 - D) The appropriate regulatory agency shall consider actions necessary to minimize the degree and extent of contamination.
- b) The appropriate regulatory agency shall determine whether a preventive response must be undertaken based on relevant factors including, but not limited to, the considerations in subsection (a)(3).
 - c) After completion of preventive response pursuant to authority of an appropriate regulatory agency, the concentration of a contaminant listed in subsection (a)(3)(A) in groundwater may exceed 50 percent of the applicable numerical standard in Subpart D only if the following conditions are met:
 - 1) The exceedence has been minimized to the extent practicable;
 - 2) Beneficial use, as appropriate for the class of groundwater, has been assured; and
 - 3) Any threat to public health or the environment has been minimized.
 - d) Nothing in this Section shall in any way limit the authority of the State or of the United States to require or perform any corrective action process.

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

SUBPART D: GROUNDWATER QUALITY STANDARDS

Section 620.410 Groundwater Quality Standards for Class I: Potable Resource Groundwater

- a) Inorganic Chemical Constituents
 Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Units</u>	<u>Standard</u>
<u>7429-90-5</u>	<u>Aluminum</u>	<u>mg/L</u>	<u>3.5</u>
<u>7440-36-0</u>	Antimony	mg/L	0.006
<u>7440-38-2</u>	Arsenic*	mg/L	0.010
<u>7440-39-3</u>	Barium	mg/L	2.0
<u>7440-41-7</u>	Beryllium	mg/L	0.004
<u>7440-42-8</u>	Boron	mg/L	<u>1.42-0</u>
<u>7440-43-9</u>	Cadmium	mg/L	0.005
<u>16887-00-6</u>	Chloride	mg/L	200.0
<u>7440-47-3</u>	Chromium	mg/L	0.1
<u>7440-48-4</u>	Cobalt	mg/L	<u>0.00214-0</u>
<u>7440-50-8</u>	Copper	mg/L	<u>0.50-65</u>
<u>57-12-5</u>	Cyanide	mg/L	0.2
<u>16984-48-8</u>	Fluoride	mg/L	<u>2.04-0</u>
<u>7439-89-6</u>	Iron	mg/L	5.0
<u>7439-92-1</u>	Lead	mg/L	0.0075
<u>7439-93-2</u>	<u>Lithium</u>	<u>mg/L</u>	<u>0.014</u>
<u>7439-96-5</u>	Manganese	mg/L	0.15
<u>7487-94-7</u>	Mercury	mg/L	0.002
<u>7439-98-7</u>	<u>Molybdenum</u>	<u>mg/L</u>	<u>0.035</u>
<u>7440-02-0</u>	Nickel	mg/L	0.1
<u>14797-55-8</u>	Nitrate as N	mg/L	10.0
<u>14797-73-0</u>	Perchlorate	mg/L	0.0049
<u>13982-63-3</u>	<u>Radium-226</u>	<u>pCi/</u> <u>L</u>	<u>20-0</u>
<u>15262-20-1</u>	<u>Radium-228</u>	<u>pCi/</u> <u>L</u>	<u>20-0</u>
<u>13982-63-3</u>	<u>Combined</u>	<u>pCi/</u>	<u>5</u>
<u>15262-20-1</u>	<u>Radium (226</u> <u>+ 228)</u>	<u>L</u>	
<u>7782-49-2</u>	Selenium	mg/L	<u>0.020-05</u>
<u>7440-22-4</u>	Silver	mg/L	<u>0.0350-05</u>

<u>CAS No.</u>	<u>Constituent</u>	<u>Units</u>	<u>Standard</u>
<u>14808-79-8</u>	Sulfate	mg/L	400.0
<u>7440-28-0</u>	Thallium	mg/L	0.002
	Total Dissolved Solids (TDS)	mg/L	1,200
<u>7440-62-2</u>	Vanadium	mg/L	0.000490- 049
<u>7440-66-6</u>	Zinc	mg/L	5.0

*Denotes a carcinogen.

- b) Organic Chemical Constituents
 Except due to natural causes or as provided in Section 620.450 or subsection (d), concentrations of the following organic chemical constituents shall not be exceeded in Class I groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>83-32-9</u>	Acenaphthene	0.42
<u>67-64-1</u>	Acetone	6.3
<u>15972-60-8</u>	Alachlor*	0.002
<u>116-06-3</u>	Aldicarb	0.003
<u>120-12-7</u>	Anthracene	2.1
	Atrazine	0.003
<u>71-43-2</u>	Benzene*	0.005
<u>56-55-3</u>	Benzo(a)anthracene*	0.000850.00013
<u>205-99-2</u>	Benzo(b)fluoranthene*	0.000850.00018
<u>207-08-9</u>	Benzo(k)fluoranthene*	0.00850.00017
<u>50-32-8</u>	Benzo(a)pyrene*	0.0002
<u>65-85-0</u>	Benzoic acid	28.0
<u>78-93-3</u>	2-Butanone (methyl ethyl ketone)	4.2
<u>1563-66-2</u>	Carbofuran	0.04
<u>75-15-0</u>	Carbon Disulfide	0.7
<u>56-23-5</u>	Carbon Tetrachloride*	0.005
<u>12789-03-6</u>	Chlordane*	0.002
<u>108-90-7</u>	<u>Chlorobenzene</u>	<u>0.1</u>
<u>67-66-3</u>	Chloroform*	0.07
<u>218-01-9</u>	Chrysene*	0.0850.012
<u>94-75-7</u>	<u>2,4-D</u>	<u>0.07</u>
<u>75-99-0</u>	Dalapon	0.2
<u>53-70-3</u>	Dibenzo(a,h)anthracene*	0.0000850.0003
<u>96-12-8</u>	<u>1,2-Dibromo-3-Chloropropane*</u>	<u>0.0002</u>
<u>1918-00-9</u>	Dicamba	0.21
<u>95-50-1</u>	<u>ortho-Dichlorobenzene</u>	<u>0.6</u>
<u>106-46-7</u>	<u>para-Dichlorobenzene*</u>	<u>0.075</u>

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>75-71-8</u>	Dichlorodifluoromethane	1.4
<u>75-34-3</u>	1,1-Dichloroethane	1.4
<u>107-06-2</u>	<u>1,2-Dichloroethane*</u>	<u>0.005</u>
<u>75-35-4</u>	<u>1,1-Dichloroethylene</u>	<u>0.007</u>
<u>156-59-2</u>	<u>cis-1,2-Dichloroethylene</u>	<u>0.07</u>
<u>156-60-5</u>	<u>trans-1,2-Dichloroethylene</u>	<u>0.1</u>
<u>75-09-2</u>	Dichloromethane (<u>methylene chloride</u>)*	0.005
<u>78-87-5</u>	<u>1,2-Dichloropropane*</u>	<u>0.005</u>
<u>117-81-7</u>	Di(2-ethylhexyl)phthalate*	0.006
<u>84-66-2</u>	Diethyl Phthalate	5.6
<u>84-74-2</u>	Di-n-butyl Phthalate	0.7
<u>99-65-0</u>	<u>1,3-Dinitrobenzene</u>	<u>0.0007</u>
<u>121-14-2</u>	<u>2,4-Dinitrotoluene*</u>	<u>0.00027</u>
<u>606-20-2</u>	<u>2,6-Dinitrotoluene*</u>	<u>0.000057</u>
<u>88-85-7</u>	Dinoseb	0.007
<u>123-91-1</u>	<u>1,4-Dioxane (p-dioxane)*</u>	<u>0.00085</u>
<u>145-73-3</u>	Endothall	0.1
<u>72-20-8</u>	Endrin	0.002
<u>100-41-4</u>	<u>Ethylbenzene*</u>	<u>0.7</u>
<u>106-93-4</u>	Ethylene Dibromide*	0.00005
<u>206-44-0</u>	Fluoranthene	0.28
<u>86-73-7</u>	Fluorene	0.28
<u>76-44-8</u>	Heptachlor*	0.0004
<u>1024-57-3</u>	Heptachlor Epoxide*	0.0002
<u>319-84-6</u>	<u>Hexachlorocyclohexane, alpha-*</u>	<u>0.000014</u>
<u>58-89-9</u>	<u>Hexachlorocyclohexane, gamma-(Lindane)*</u>	<u>0.0002</u>
<u>77-47-4</u>	Hexachlorocyclopentadiene	0.05
<u>2691-41-0</u>	<u>HMX (High Melting Explosive, Octogen)</u>	<u>1.4</u>
<u>193-39-5</u>	Indeno(1,2,3-cd)pyrene*	<u>0.000850.00043</u>
<u>98-82-8</u>	Isopropylbenzene (Cumene)	0.7
	Lindane (Gamma-Hexachlorocyclohexane)	0.0002
	2,4-D	0.07
	ortho-Dichlorobenzene	0.6
	para-Dichlorobenzene	0.075
	1,2-Dibromo-3-Chloropropane*	0.0002
	1,2-Dichloroethane*	0.005
	1,1-Dichloroethylene	0.007
	cis-1,2-Dichloroethylene	0.07
	trans-1,2-Dichloroethylene	0.1
	1,2-Dichloropropane*	0.005

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
	Ethylbenzene	0.7
<u>93-65-2</u>	MCCPP (Mecoprop)	0.007
<u>72-43-5</u>	Methoxychlor	0.04
<u>90-12-0</u>	<u>1-Methylnaphthalene</u>	<u>0.49</u>
<u>91-57-6</u>	2-Methylnaphthalene	0.028
<u>95-48-7</u>	2-Methylphenol (<u>o-cresol</u>)	0.35
<u>1634-04-4</u>	Methyl Tertiary-Butyl Ether (MTBE)	0.07
	Monochlorobenzene	0.1
<u>91-20-3</u>	Naphthalene	0.14
<u>98-95-3</u>	<u>Nitrobenzene</u>	<u>0.014</u>
	P-Dioxane*	0.0077
<u>87-86-5</u>	Pentachlorophenol*	0.001
<u>375-73-5</u>	<u>Perfluorobutane Sulfonic Acid (PFBS)</u>	<u>0.14</u>
<u>335-46-4</u>	<u>Perfluorohexane Sulfonic Acid</u> <u>(PFHxS)</u>	<u>0.00014</u>
<u>375-95-1</u>	<u>Perfluorononanoic Acid (PFNA)</u>	<u>0.000021</u>
<u>108-95-2</u>	Phenols	0.1
<u>1918-02-1</u>	Picloram	0.5
	Pyrene	0.21
<u>1336-36-3</u>	Polychlorinated Biphenyls (PCBs) (as decachloro-biphenyl)*	0.0005
	alpha-BHC (alpha-Benzene- hexachloride)*	0.00011
<u>129-00-0</u>	<u>Pyrene</u>	<u>0.21</u>
<u>121-82-4</u>	RDX (Royal Demolition Explosive, Cyclonite)	<u>0.07</u>
<u>122-34-9</u>	Simazine	0.004
<u>100-42-5</u>	Styrene	0.1
<u>93-72-1</u>	2,4,5-TP (Silvex)	0.05
<u>127-18-4</u>	Tetrachloroethylene*	0.005
<u>108-88-3</u>	Toluene	1.0
<u>8001-35-2</u>	Toxaphene*	0.003
<u>120-82-1</u>	<u>1,2,4-Trichlorobenzene*</u>	<u>0.07</u>
<u>71-55-6</u>	1,1,1-Trichloroethane	0.2
<u>79-00-5</u>	1,1,2-Trichloroethane	0.005
	1,2,4-Trichlorobenzene	0.07
<u>79-01-6</u>	Trichloroethylene*	0.005
<u>75-69-4</u>	Trichlorofluoromethane	2.1
<u>99-35-4</u>	<u>1,3,5-Trinitrobenzene</u>	<u>0.84</u>
<u>118-96-7</u>	<u>2,4,6-Trinitrotoluene (TNT)</u>	<u>0.014</u>
<u>75-01-4</u>	Vinyl Chloride*	0.002
<u>1330-20-7</u>	Xylenes	10.0

*Denotes a carcinogen.

- c) ~~Explosive Constituents~~
~~Concentrations of the following explosive constituents must not exceed the Class I groundwater standard:~~

Constituent	Standard (mg/L)
1,3-Dinitrobenzene	0.0007
2,4-Dinitrotoluene*	0.0001
2,6-Dinitrotoluene*	0.00031
HMX (High Melting Explosive, Octogen)	1.4
Nitrobenzene	0.014
RDX (Royal Demolition Explosive, Cyclonite)	0.084
1,3,5-Trinitrobenzene	0.84
2,4,6-Trinitrotoluene (TNT)	0.014

*Denotes a carcinogen.

- d) Complex Organic Chemical Mixtures

- 1) ~~Concentrations of the following chemical constituents of gasoline, diesel fuel, or heating fuel must not be exceeded in Class I groundwater:~~

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>71-43-2</u>	Benzene*	0.005
	BETX	11.705

*Denotes a carcinogen.

- 2) Atrazine and Metabolites

In addition to atrazine, the following atrazine metabolites shall be analyzed, and the total concentration of atrazine and metabolites shall be compared to the atrazine Class I groundwater standard of 0.003 mg/l.

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
	<u>Total Atrazine and metabolites:</u>	<u>0.003</u>

1912-24-9 Atrazine
Desethyl-atrazine (DEA)
Desisopropyl-atrazine (DIA)
Diaminochlorotriazine (DACT)

- 3) The concentrations of the following constituents must not be exceeded in Class I groundwater at both the individual standards and a combined standard of 0.000021 mg/L.

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>335-67-1</u>	<u>Perfluorooctanoic Acid (PFOA)</u>	<u>0.000021</u>
<u>1763-23-1</u>	<u>Perfluorooctane Sulfonic Acid (PFOS)</u>	<u>0.000014</u>

- d)e) pH
 Except due to natural causes, a pH range of 6.5 - 9.0 units must not be exceeded in Class I groundwater.

e)f) Beta Particle and Photon Radioactivity

- 1) Except due to natural causes, the average annual concentration of beta particle and photon radioactivity from man-made radionuclides shall not exceed a dose equivalent to the total body organ greater than 4 mrem/year in Class I groundwater. If two or more radionuclides are present, the sum of their dose equivalent to the total body, or to any internal organ shall not exceed 4 mrem/year in Class I groundwater except due to natural causes.
- 2) Except for the radionuclides listed in subsection (f)(3), the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalent must be calculated on the basis of a 2 liter per day drinking water intake using the 168-hour data in accordance with the procedure set forth in NCRP Report Number 22, incorporated by reference at Section 620.125(a).
- 3) Except due to natural causes, the average annual concentration assumed to produce a total body or organ dose of 4 mrem/year of the following chemical constituents shall not be exceeded in Class I groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Critical Organ</u>	<u>Standard (pCi/L)</u>
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<u>10028-17-8</u>	Tritium	Total body	20,000.0
<u>7440-24-6</u>	Strontium- 90	Bone marrow	8.0

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

Section 620.420 Groundwater Quality Standards for Class II: General Resource Groundwater

a) Inorganic Chemical Constituents

- 1) Except due to natural causes or as provided in Section 620.450 or subsection (a)(3) or (e) of this Section, concentrations of the following chemical constituents must not be exceeded in Class II groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>7440-36-0</u>	Antimony	0.024
<u>7440-38-2</u>	Arsenic*	0.2
<u>7440-39-3</u>	Barium	2.0
<u>7440-41-7</u>	Beryllium	0.5
<u>7440-43-9</u>	Cadmium	0.05
<u>7440-47-3</u>	Chromium	1.0
<u>7440-48-4</u>	Cobalt	1.0
<u>57-12-5</u>	Cyanide	0.6
<u>16984-48-8</u>	Fluoride	2.0 4.0
<u>7439-92-1</u>	Lead	0.1
<u>7439-93-2</u>	<u>Lithium</u>	<u>2.5</u>
<u>7487-94-7</u>	Mercury	0.01
<u>7439-98-7</u>	<u>Molybdenum</u>	<u>0.05</u>
<u>14797-55-8</u>	Nitrate as N	100.0
<u>14797-73-0</u>	Perchlorate	0.0049
<u>7440-28-0</u>	Thallium	0.02
<u>7440-62-2</u>	Vanadium	0.1

*Denotes a
carcinogen.

- 2) Except due to natural causes or as provided in Section 620.450 or subsection (a)(3) or (e) of this Section, concentrations of the following chemical constituents must not be exceeded in Class II

groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Units</u>	<u>Standard (mg/L)</u>
<u>7429-90-5</u>	<u>Aluminum</u>	<u>mg/L</u>	<u>5.0</u>
<u>7440-42-8</u>	Boron	<u>mg/L</u>	2.0
<u>16887-00-6</u>	Chloride	<u>mg/L</u>	200.0
<u>7440-50-8</u>	Copper	<u>mg/L</u>	<u>0.5-65</u>
<u>7439-89-6</u>	Iron	<u>mg/L</u>	5.0
<u>7439-96-5</u>	Manganese	<u>mg/L</u>	10.0
<u>7440-02-0</u>	Nickel	<u>mg/L</u>	2.0
<u>13982-63-3</u>	<u>Combined Radium</u>	<u>pCi/L</u>	<u>5</u>
<u>15262-20-1</u>	<u>(226 + 228)</u>		
<u>7782-49-2</u>	Selenium	<u>mg/L</u>	<u>0.020-05</u>
<u>7440-22-4</u>	<u>Silver</u>	<u>mg/L</u>	<u>0.035</u>
	<u>Total Dissolved Solids (TDS)</u>		<u>1,200.0</u>
<u>14808-79-8</u>	Sulfate	<u>mg/L</u>	400.0
	<u>Total Dissolved Solids (TDS)</u>	<u>mg/L</u>	<u>1,200.0</u>
<u>7440-66-6</u>	Zinc	<u>mg/L</u>	10.0

- 3) The standard for any inorganic chemical constituent listed in subsection (a)(2) of this Section, for barium, or for pH does not apply to groundwater within fill material or within the upper 10 feet of parent material under such fill material on a site not within the rural property class for which:
- A) Prior to November 25, 1991, surficial characteristics have been altered by the placement of such fill material so as to impact the concentration of the parameters listed in subsection (a)(3) of this Section, and any on-site groundwater monitoring of such parameters is available for review by the Agency.
 - B) On November 25, 1991, surficial characteristics are in the process of being altered by the placement of such fill material, that proceeds in a reasonably continuous manner to completion, so as to impact the concentration of the parameters listed in subsection (a)(3) of this Section, and any on-site groundwater monitoring of such parameters is

available for review by the Agency.

- 4) For purposes of subsection (a)(3) of this Section, the term "fill material" means clean earthen materials, slag, ash, clean demolition debris, or other similar materials.
- b) Organic Chemical Constituents
- 1) Except due to natural causes or as provided in Section 620.450 or subsection (b)(2) or (e) of this Section, concentrations of the following organic chemical constituents must not be exceeded in Class II groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>83-32-9</u>	Acenaphthene	2.1
<u>67-64-1</u>	Acetone	6.3
<u>15972-60-8</u>	Alachlor*	0.0020 0.010
<u>116-06-3</u>	Aldicarb	0.0030 0.015
<u>120-12-7</u>	Anthracene	10.5
	Atrazine	0.015
<u>71-43-2</u>	Benzene*	0.025
<u>56-55-3</u>	Benzo(a)anthracene*	0.00430 0.00065
<u>205-99-2</u>	Benzo(b)fluoranthene*	0.00430 0.0009
<u>207-08-9</u>	Benzo(k)fluoranthene*	0.0430 0.006
<u>50-32-8</u>	Benzo(a)pyrene*	0.002
<u>65-85-0</u>	Benzoic acid	28.0
<u>78-93-3</u>	2-Butanone (<u>methyl ethyl ketone</u> MEK)	4.2
	Carbon Disulfide	3.5
<u>1563-66-2</u>	Carbofuran	0.040 2
<u>75-15-0</u>	<u>Carbon Disulfide</u>	<u>3.5</u>
<u>56-23-5</u>	Carbon Tetrachloride*	0.025
<u>12789-03-6</u>	Chlordane*	0.01
<u>108-90-7</u>	<u>Chlorobenzene</u>	<u>0.10</u> 5
<u>67-66-3</u>	Chloroform*	0.35
<u>218-01-9</u>	Chrysene*	0.430 0.06
<u>94-75-7</u>	<u>2,4-D</u>	<u>0.070</u> 35
<u>75-99-0</u>	Dalapon	0.22 0
<u>53-70-3</u>	Dibenzo(a,h)anthracene*	0.000430 0.0015
<u>96-12-8</u>	<u>1,2-Dibromo-3-Chloropropane*</u>	<u>0.0002</u>
<u>1918-00-9</u>	Dicamba	0.21
<u>95-50-1</u>	<u>ortho-Dichlorobenzene</u>	<u>0.61</u> 5
<u>106-46-7</u>	<u>para-Dichlorobenzene*</u>	<u>0.0750</u> 375

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>75-71-8</u>	Dichlorodifluoromethane	7.0
<u>75-34-3</u>	1,1-Dichloroethane	7.0
<u>107-06-2</u>	<u>1,2-Dichloroethane*</u>	<u>0.0050.025</u>
<u>75-35-4</u>	<u>1,1-Dichloroethylene</u>	<u>0.035</u>
<u>156-59-2</u>	<u>cis-1,2-Dichloroethylene</u>	<u>0.350.2</u>
<u>156-60-5</u>	<u>trans-1,2-Dichloroethylene</u>	<u>0.5</u>
<u>75-09-2</u>	Dichloromethane (<u>methylene chloride</u>)*	<u>0.0050.05</u>
<u>78-87-5</u>	<u>1,2-Dichloropropane*</u>	<u>0.0050.025</u>
<u>117-81-7</u>	Di(2-ethylhexyl)phthalate*	0.06
<u>84-66-2</u>	Diethyl Phthalate	5.6
<u>84-74-2</u>	Di-n-butyl Phthalate	3.5
<u>99-65-0</u>	<u>1,3-Dinitrobenzene</u>	<u>0.0007</u>
<u>121-14-2</u>	<u>2,4-Dinitrotoluene*</u>	<u>0.0014</u>
<u>606-20-2</u>	<u>2,6-Dinitrotoluene*</u>	<u>0.000290.0002 8</u>
<u>88-85-7</u>	Dinoseb	0.07
<u>123-91-1</u>	<u>1,4-Dioxane (p-)*</u>	<u>0.00085</u>
<u>145-73-3</u>	Endothall	0.1
<u>72-20-8</u>	Endrin	0.01
<u>100-41-4</u>	<u>Ethylbenzene*</u>	<u>3.51.0</u>
<u>106-93-4</u>	Ethylene Dibromide*	<u>0.000050.0005</u>
<u>206-44-0</u>	Fluoranthene	1.4
<u>86-73-7</u>	Fluorene	1.4
<u>76-44-8</u>	Heptachlor*	0.002
<u>1024-57-3</u>	Heptachlor Epoxide*	0.001
<u>319-84-6</u>	<u>Hexachlorocyclohexane, alpha-*</u>	<u>0.00007</u>
<u>58-89-9</u>	<u>Hexachlorocyclohexane, gamma- (Lindane)*</u>	<u>0.001</u>
<u>77-47-4</u>	Hexachlorocyclopentadiene	0.5
<u>2691-41-0</u>	<u>HMX (High Melting Explosive, Octogen)</u>	<u>7.0</u>
<u>193-39-5</u>	Indeno(1,2,3-cd)pyrene*	<u>0.00430.0022</u>
<u>98-82-8</u>	Isopropylbenzene (Cumene)	3.5
	Lindane (Gamma Hexachloro- cyclohexane)	0.001
	2,4-D	0.35
	Ortho-Dichlorobenze	1.5
	Para-Dichlorobenzene	0.375
	1,2-Dibromo-3-Chloropropane*	0.002
	1,2-Dichloroethane*	0.025
	1,1-Dichloroethylene	0.035
	cis-1,2-Dichloroethylene	0.2

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
	Trans 1,2-Dichloroethylene	0.5
	1,2-Dichloropropane*	0.025
	Ethylbenzene	1.0
<u>93-65-2</u>	MCCP (Mecoprop)	0.007
<u>72-43-5</u>	Methoxychlor	0.2
<u>90-12-0</u>	<u>1-Methylnaphthalene</u>	<u>2.52.4</u>
<u>91-57-6</u>	2-Methylnaphthalene	0.14
<u>95-48-7</u>	2-Methylphenol (o-cresol)	0.35
<u>1634-04-4</u>	Methyl Tertiary-Butyl Ether (MTBE)	0.07
	Monochlorobenzene	0.5
<u>91-20-3</u>	Naphthalene	0.22
<u>98-95-3</u>	<u>Nitrobenzene</u>	<u>0.014</u>
	P-Dioxane*	0.0077
<u>87-86-5</u>	Pentachlorophenol*	0.005
<u>375-73-5</u>	<u>Perfluorobutane Sulfonic Acid (PFBS)</u>	<u>0.14</u>
<u>335-46-4</u>	<u>Perfluorohexane Sulfonic Acid (PFHxS)</u>	<u>0.00014</u>
<u>375-95-1</u>	<u>Perfluorononanoic Acid (PFNA)</u>	<u>0.000021</u>
<u>108-95-2</u>	Phenols	0.1
<u>1918-02-1</u>	Picloram	<u>0.55.0</u>
	Pyrene	1.05
<u>1336-36-3</u>	Polychlorinated Biphenyls (PCBs) (as decachloro-biphenyl)*	0.0025
	alpha-BHC (alpha-Benzene hexachloride)*	0.00055
<u>129-00-0</u>	<u>Pyrene</u>	<u>1.05</u>
<u>121-82-4</u>	<u>RDX (Royal Demolition Explosive, Cyclonite)</u>	<u>0.07</u>
<u>122-34-9</u>	Simazine	<u>0.0040.04</u>
<u>100-42-5</u>	Styrene	<u>0.10.5</u>
<u>93-72-1</u>	2,4,5-TP (Silvex)	<u>0.050.25</u>
<u>127-18-4</u>	Tetrachloroethylene*	0.025
<u>108-88-3</u>	Toluene	<u>5.02.5</u>
<u>8001-35-2</u>	Toxaphene*	0.015
<u>120-82-1</u>	<u>1,2,4-Trichlorobenzene*</u>	<u>0.7</u>
<u>71-55-6</u>	1,1,1-Trichloroethane	1.0
	1,2,4-Trichlorobenzene	0.7
<u>79-00-5</u>	1,1,2-Trichloroethane	<u>0.0050.05</u>
<u>79-01-6</u>	Trichloroethylene*	0.025
<u>75-69-4</u>	<u>Trichlorofluoromethane</u>	<u>10.5</u>
<u>99-35-4</u>	<u>1,3,5-Trinitrobenzene</u>	<u>4.2</u>

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>118-96-7</u>	<u>2,4,6-Trinitrotoluene (TNT)</u>	<u>0.07</u>
<u>75-01-4</u>	Vinyl Chloride*	0.01
<u>1330-20-7</u>	Xylenes	10.0

* Denotes a carcinogen.

2) The standards for pesticide chemical constituents listed in subsection (b)(1) of this Section do not apply to groundwater within 10 feet of the land surface, provided that the concentrations of such constituents result from the application of pesticides in a manner consistent with the requirements of the Federal Insecticide, Fungicide and Rodenticide Act (7 USC 136 et seq.) and the Illinois Pesticide Act [415 ILCS 60].

c) ~~Explosive Constituents~~
~~Concentrations of the following explosive constituents must not exceed the Class II groundwater standard:~~

<u>Constituent</u>	<u>Standard (mg/L)</u>
1,3-Dinitrobenzene	0.0007
2,4-Dinitrotoluene*	0.0001
2,6-Dinitrotoluene*	0.00031
HMX (High Melting Explosive, Octogen)	1.4
Nitrobenzene	0.014
RDX (Royal Demolition Explosive, Cyclonite)	0.084
1,3,5-Trinitrobenzene	0.84
2,4,6-Trinitrotoluene (TNT)	0.014

~~*Denotes a carcinogen.~~

d) 1) Complex Organic Chemical Mixtures
 Concentrations of the following organic chemical constituents of gasoline, diesel fuel, or heating fuel must not be exceeded in Class II groundwater:

<u>CAS No.</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
<u>71-43-2</u>	Benzene*	0.025

BETX

18.52513.525

*Denotes a carcinogen

- 2) In addition to atrazine, the following atrazine metabolites shall be analyzed, and the total concentration of atrazine and metabolites shall be compared to the atrazine Class II groundwater standard of 0.003 mg/l.

<u>CAS. No</u>	<u>Constituent</u>	<u>Standard (mg/L)</u>
	<u>Total Atrazine and metabolites:</u>	<u>0.003</u>
<u>1912-24-9</u>	<u>Atrazine</u>	
	<u>Desethyl-atrazine (DEA)</u>	
	<u>Desisopropyl-atrazine (DIA)</u>	
	<u>Diaminochlorotriazine (DACT)</u>	

- 3) The concentrations of the following constituents must not be exceeded in Class II groundwater at both the individual standards and a combined standard of 0.000021 mg/L:

<u>CAS No.</u>	<u>Constituent</u>	<u>Individual Standard (mg/L)</u>
<u>335-67-1</u>	<u>Perfluorooctanoic Acid (PFOA)</u>	<u>0.000021</u>
<u>1763-23-1</u>	<u>Perfluorooctane Sulfonic Acid (PFOS)</u>	<u>0.000014</u>

- d)e) pH
 Except due to natural causes, a pH range of 6.5 - 9.0 units must not be exceeded in Class II groundwater that is within 5 feet of the land surface.

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

Section 620.430 Groundwater Quality Standards for Class III: Special Resource Groundwater

Except due to natural causes, concentrations of inorganic and organic chemical constituents must not exceed the standards set forth in Section 620.410, except for these:

- a) The chemical constituents for which the Board has adopted a standard pursuant to Section 620.260; and
- b) The following standards set forth below for Class III Special Resource Groundwater established in accordance with Section 620.230(b) and depicted in 620.Appendix E:
 - 1) The following standards are applicable for Pautler Cave Nature Preserve, Stemler Cave Nature Preserve, Fogelpole Cave Nature Preserve and Armin Krueger Speleological Nature Preserve:

<u>Chloride</u>	<u>20 mg/L</u>
<u>pH</u>	<u>range of 7.0-9.0 Standard Units</u>

- 2) The following standard is applicable for Cotton Creek Marsh Nature Preserve and Spring Grove Fen Nature Preserve:

<u>Chloride</u>	<u>45 mg/L</u>
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(Source: Amended at __ Ill. Reg. _____, effective _____)

SUBPART E: GROUNDWATER MONITORING AND ANALYTICAL PROCEDURES

Section 620.510 Monitoring and Analytical Requirements

- a) Representative Samples
A representative sample shall be taken from locations as specified in Section 620.505.
- b) Sampling and Analytical Procedures
 - 1) Samples must be collected in accordance with the procedures set forth in the documents pertaining to groundwater monitoring and analysis "Methods for Chemical Analysis of Water and Wastes," "Methods for the Determination of Inorganic Substances in Environmental Samples," "Methods for the Determination of Metals in Environmental Samples," "Methods for the Determination of Organic Compounds in Drinking Water," "Methods for the Determination or Organic Compounds in

Drinking Water, Supplement I," "Methods for the Determination of Organic Compounds in Drinking Water, Supplement II," "Methods for the Determination of Organic Compounds in Drinking Water, Supplement III," "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," "Radiochemical Analytical Procedures for Analysis of Environmental Samples," "Radiochemistry Procedures Manual," "Practical Guide for Ground Water Sampling," "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (SW-846), 40 CFR 136, appendix B, 40 CFR 141.80, 40 CFR 141.61, and 40 CFR 141.62, "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground Water Samples for Selected Unstable Constituents," "Practical Guide for Ground-Water Sampling," "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents," incorporated by reference at Section 620.125 or other procedures adopted by the appropriate regulatory agency.

- 2) Groundwater elevation in a groundwater monitoring well must be determined and recorded when necessary to determine the gradient.
- 3) Statistical methods used to determine naturally occurring groundwater quality background concentrations of contaminants must be conducted in accordance with “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, (March 2009 Unified Guidance)”, as incorporated by reference in Section 620.125 for use with prediction limits and all other statistical tests including, but not limited to, confidence limits and control charts.
- 4) The analytical methodology used for the analysis of constituents in Subparts C and D must be consistent with both of the following:
 - A) The methodology must have a PQL at or below the preventive response levels of Subpart C or groundwater standard set forth in Subpart D, whichever is applicable; and

B) "Methods for Chemical Analysis of Water and Wastes," "Methods for the Determination of Inorganic Substances in Environmental Samples," "Methods for the Determination of Metals in Environmental Samples," "Methods for the Determination of Organic Compounds in Drinking Water," "Methods for the Determination of Organic Compounds in Drinking Water, Supplement I," "Methods for the Determination of Organic Compounds in Drinking Water, Supplement II," "Methods for the Determination of Organic Compounds in Drinking Water, Supplement III," "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," "Radiochemical Analytical Procedures for Analysis of Environmental Samples," "Radiochemistry Procedures Manual," "Practical Guide for Ground Water Sampling," "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (SW-846), 40 CFR 136, appendix B, 40 CFR 141.80, 40 CFR 141.61, and 40 CFR 141.62, "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground Water Samples for Selected Unstable Constituents," "Practical Guide for Ground-Water Sampling", "Techniques of Water Resources Investigations of the United States Geological Survey, Guidelines for Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents", incorporated by reference at Section 620.125.

c) Reporting Requirements

At a minimum, groundwater monitoring analytical results must include information, procedures and techniques for:

- 1) Sample collection (including but not limited to name of sample collector, time and date of the sample, method of collection, and identification of the monitoring location);
- 2) Sample preservation and shipment (including but not limited to field quality control);
- 3) Analytical procedures (including but not limited to the method

detection limits and the PQLs); and

- 4) Chain of custody control.

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

SUBPART F: HEALTH ADVISORIES

Section 620.605 Issuance of a Health Advisory

- a) The Agency shall issue a Health Advisory for a chemical substance if all of the following conditions are met:
 - 1) A community water supply well is sampled and a substance is detected and confirmed by resampling;
 - 2) There is no standard under Section 620.410 for such chemical substance; and
 - 3) The chemical substance is toxic or harmful to human health according to the procedures of Appendix A, B, or C.
- b) The Health Advisory must contain a general description of the characteristics of the chemical substance, the potential adverse health effects, and a guidance level to be determined as follows:
 - 1) If disease or functional impairment is caused due to a physiological mechanism for where there is a threshold dose below which no damage occurs, the guidance level for any such substance shall be the Maximum Contaminant Level Goal (MCLG), adopted by USEPA for such substance, 40 CFR 136, appendix B, 40 CFR 141.80, 40 CFR 141.61, and 40 CFR 141.62, incorporated by reference at Section 620.125. If there is no MCLG for the substance, the guidance level is the Human Threshold Toxicant Advisory Concentration for such substance as determined in accordance with Appendix A, ~~unless the concentration for such substance is less than the lowest appropriate PQL specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846 (SW-846), incorporated by reference at Section 620.125 for the substance. If the concentration for such substance is less than the lowest appropriate PQL for the substance specified in SW-846, incorporated by reference at Section 620.125, the guidance level is the lowest appropriate PQL.~~

- 2) If the chemical substance is a carcinogen, the guidance level for any such chemical substance is the one-in-one-million cancer risk concentration, ~~unless the concentration for such substance is less than the lowest appropriate PQL specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW 846 (SW 846), incorporated by reference at Section 620.125 for such substance. If the concentration for such substance is less than the lowest appropriate PQL for the substance specified in SW 846, the guidance level is the lowest appropriate PQL.~~ The one-in-one-million cancer risk concentration, the Human Nonthreshold Toxicant Advisory Concentration (HNTAC), shall be determined according to the following equation:

$$\frac{HNTAC}{(mg/L)} = \frac{TR \times BW \times AT \times 365 \text{ days/year}}{SFo \times IR \times EF \times ED}$$

Where:

- TR = Target Risk = 1.0E-06
BW = Body Weight = 70 kg
AT = Averaging Time = 70 years
SFo = Oral Slope Factor = Chemical-specific
IR = Daily Water Ingestion Rate = 2 liters/day
EF = Exposure Frequency = 350 days/year
ED = Exposure Duration = 30 years

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

Section 620.Appendix B Procedures for Determining Hazard Indices for Class I:

Potable Resource Groundwater for Mixtures of Similar-Acting Substances

- a) This appendix describes procedures for evaluating mixtures of similar- acting substances which may be present in Class I: Potable Resource Groundwaters. Except as provided otherwise in subsection (c), subsections (d) through (h) describe the procedure for determining the Hazard Index for mixtures of similar-acting substances.

- b) For the purposes of this appendix, a "mixture" means two or more substances which are present in Class I: Potable Resource Groundwater which may or may not be related either chemically or commercially, but which are not complex mixtures of related isomers and congeners which are produced as commercial products (for example, PCBs or technical grade chlordane).
- c) The following substances listed in Section 620.410 are mixtures of similar acting substances:

- 1) Mixtures of ortho-Dichlorobenzene and para-Dichlorobenzene. The Hazard Index ("HI") for such mixtures is determined as follows:

$$\text{HI} = [\text{ortho-Dichlorobenzene}] \backslash 0.6 + [\text{para-Dichlorobenzene}] \backslash 0.075$$

- 2) Mixtures of 1,1-Dichloroethylene and 1,1,1-trichloroethane. The Hazard Index ("HI") for such mixtures is determined as follows:

$$\text{HI} = [1,1\text{-Dichloroethylene}] \backslash 0.007 + [1,1,1\text{-trichloroethane}] \backslash 0.2$$

- d) When two or more substances occur together in a mixture, the additivity of the toxicities of some or all of the substances will be considered when determining health-based standards for Class I: Potable Resource Groundwater. This is done by the use of a dose addition model with the development of a Hazard Index for the mixture of substances with similar-acting toxicities. This method does not address synergism or antagonism. Guidelines for determining when the dose addition of similar-acting substances is appropriate are presented in Appendix C.

The Hazard Index is calculated as follows:

$$HI = [A]/ALA + [BJ]/ALB + \dots [I]/ALI$$

Where:

HI = Hazard Index, unitless.

[A], [BJ], [I]= Concentration of each similar-acting substance in groundwater in milligrams per liter (mg/L).

ALA, ALB, ALI = The acceptable level of each similar-acting substance in the mixture in milligrams per liter (mg/L).

- e) For substances which are considered to have a threshold mechanism of toxicity, the acceptable level is:
 - 1) The standards listed in Section 620.410; or
 - 2) For those substances for which standards have not been established in Section 620.410, the Human Threshold Toxicant Advisory Concentration (HTTAC) as determined in Appendix A.

- f) For substances which are carcinogens, the acceptable level is:
 - 1) The standards listed in Section 620.410; or
 - 2) For those substances for which standards have not been established under Section 620.410, the one-in-one-million cancer risk concentration, ~~unless the concentration for such substance is less than the lowest appropriate POL specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846, incorporated by reference at Section 620.125, for the substance, in which case the lowest appropriate POL shall be the acceptable level.~~

- g) Since the assumption of dose addition is most properly applied to substances that induce the same effect by similar modes of

action, a separate HI must be generated for each toxicity endpoint of concern.

- h) In addition to meeting the individual substance objectives, a Hazard Index must be less than or equal to 1 for a mixture of similar-acting substances.

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

Section 620.Appendix C Guidelines for Determining When Dose Addition of Similar-Acting Substances in Class I: Potable Resource Groundwaters is Appropriate

- a) Substances must be considered similar-acting if:
 - 1) The substances have the same target in an organism (for example, the same organ, organ system, receptor, or enzyme).
 - 2) The substances have the same mode of toxic action. These actions may include, for example, central nervous system depression, liver toxicity, or cholinesterase inhibition.
- b) Substances that have fundamentally different mechanisms of toxicity (threshold toxicants vs. carcinogens) must not be considered similar-acting. However, carcinogens which also cause a threshold toxic effect should be considered in a mixture with other similar-acting substances having the same threshold toxic effect. In such a case, an Acceptable Level for the carcinogen must be derived for its threshold effect, using the procedures described in Appendix A.
- c) Substances which are components of a complex mixture of related compounds which are produced as commercial products (for example, PCBs or technical grade chlordane) are not mixtures, as defined in Appendix B. Such complex mixtures are equivalent to a single substance. In such a case, the Human Threshold Toxicant Advisory Concentration may be derived for threshold effects of the complex mixture, using the procedures described in Appendix A, if valid toxicological or epidemiological data are available for the complex mixture. If the complex mixture is a carcinogen, the Health Advisory Concentration is the one-in-one-million cancer risk

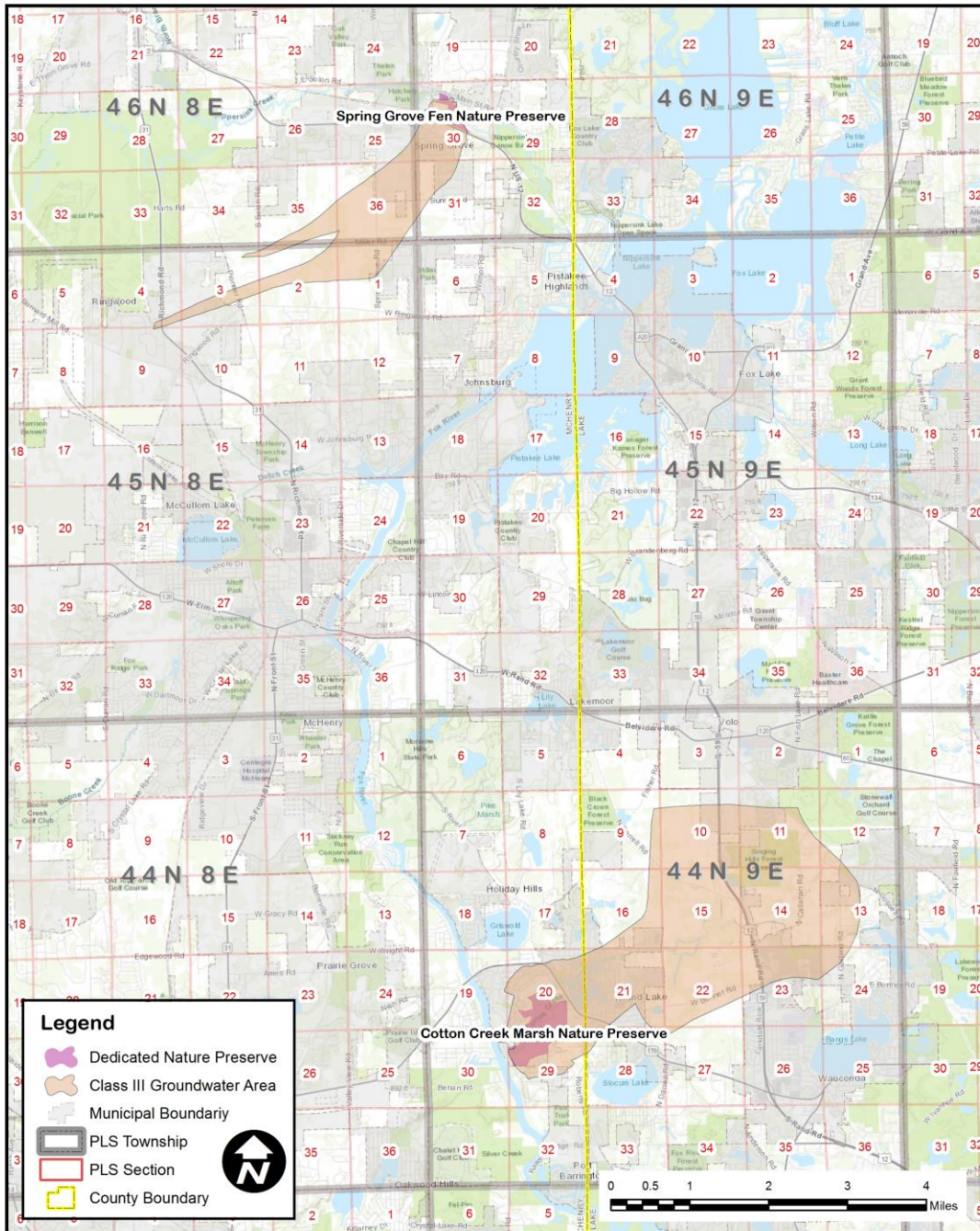
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~~concentration, unless the concentration for such substance is less than the lowest appropriate POL specified in “Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods,” EPA Publication No. SW-846, incorporated by reference at Section 620.125, for the substance, in which case the lowest appropriate POL shall be the Health Advisory Concentration.~~

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

Section 620.APPENDIX E Maps of Class III Special Resource Groundwater

SPRING GROVE FEN AND COTTON CREEK MARSH CLASS III GROUNDWATER AREAS



PAUTLER, STEMLER, ARMIN KRUEGER AND FOGELPOLE CAVES CLASS III GROUNDWATER AREAS

