

ILLINOIS POLLUTION CONTROL BOARD
September 27, 1990

IN THE MATTER OF:)
)
GROUNDWATER QUALITY STANDARDS) R89-14
(35 ILL. ADM. CODE 620))

Proposed Rule First Notice

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

This matter comes before the Board pursuant to Section 8 of the Illinois Groundwater Protection Act ("IGPA"), Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 7451 et seq. Section 8 mandates inter alia that the Illinois Environmental Protection Agency ("Agency") propose and the Board promulgate "regulations establishing comprehensive water quality standards which are specifically for the protection of groundwater" (IGPA at Section 8(a)).

Today the Board adopts a proposal for First Notice.

PROCEDURAL HISTORY

The Agency filed its proposal, accompanied by a Statement of Reasons, on September 21, 1989. Prior to filing its proposal, the Agency had undertaken an extensive round of discussion sessions and work shops at which it invited comments and suggestions regarding the proposal from other State agencies, public interest groups, and the general public (Statement of Reasons at p. 4-10). Among groups which provided comment and suggestions were the Interagency Coordinating Committee on Groundwater and the Groundwater Advisory Council, pursuant to rules assigned these groups in the IGPA at Section 8(a).

The Economic Impact Statement ("EcIS"), which pursuant to the IGPA was prepared concurrently with development of the Agency's proposal, was filed January 31, 1990 (DENR Exh. 5).

On March 26, 1990 an alternate proposal was filed by the McHenry County Defenders, Citizens for a Better Environment, and the Illinois Chapter of the Sierra Club (collectively as "Defenders"). On June 1, 1990 the Agency filed a revised proposal (Public Comment #16).

In addition to the two complete proposals presented to the Board, various other suggestions regarding the nature and/or specific language have been received both at hearing and within Public Comments ("PC"). Public Comments have been filed by CIBA-GEIGY Corporation (PC #1), Citizens for Controlled Landfills (PC #2), Chemical Industry Council of Illinois ("CICI") (PC #3), Waste Management of Illinois (PC #4, #15), Illinois Department of

Energy and Natural Resources ("DENR") (PC #5), United States Environmental Protection Agency ("USEPA") (PC #6), Illinois Farm Bureau (PC #7), Defenders (PC #8), Illinois Department of Agriculture (PC #9), Illinois Coal Association (PC #10), Illinois Environmental Regulatory Group ("IERG") (PC #11), Illinois Fertilizer & Chemical Association ("IFCA") (PC #12), Illinois Department of Transportation (PC #13), Illinois Steel Group (PC #14, #18), and the Illinois Department of Mines and Minerals (PC #17). Many of these organizations and agencies also participated at hearing.

Six days of hearings have been held to date, including hearings on the Agency's initial proposal, the EcIS, and the Defenders' alternative proposal.

FUTURE HEARING AND REQUEST FOR ADDITIONAL COMMENT

In preparing today's proposal, the Board has considered the broad range of perspectives, insights, and recommendations which have been brought before it. The result is a proposal which amalgamates materials from multiple sources. Because these materials are seen today for the first time in their aggregate form, the Board not only solicits comment on particular provisions (see various following requests), but also on the workability of the proposal as a whole. In addition, the Board today, by separate Hearing Officer Order, schedules an additional hearing as a forum in which interested persons are invited to testify on today's proposal.

OUTSTANDING MOTIONS

Late-Filed Comments and Motions to File

The deadline set by the Hearing Officer for post hearing comments in this proceeding was May 31, 1990. The Hearing Officer did not set a schedule for reply to any comments in this proceeding at this time. The Board notes that three filings were received after the May 31, 1990 deadline. These include the Agency's comments and revised proposal, and comments from the Illinois Department of Mines and Minerals, received June 1, 1990. The Board accepts the Agency's comments and revised proposal and Department of Mines and Minerals' comments, since they were mailed prior to the expiration of the May 31, 1990 deadline (See procedural rule 101.102(d)). The Board also accepts the Steel Group's revised comments filed June 6, 1990 as this filing merely corrects typographical and grammatical errors contained in the earlier comments filed before May 31.

On June 13, 1990, the Defenders filed a Motion for Leave to File Supplemental Post-Hearing Comments and Supplemental Post Hearing Comments. Defenders' counsel states that she did not

receive copies of the Agency's comments and revised proposal until June 7, 1990. Defenders asks the Board to allow this filing as a response to the Agency's revised proposal, claiming that under the current comment deadline, there has been no opportunity to respond to the Agency's revised proposal. For the reasons given below, the Board denies the Defenders' motion. However, the Defenders or anyone else who wishes to respond to the Agency's revised proposal or the Board's proposal for First Notice may do so at hearing or may file comments during the First Notice comment period.

In order to allow for the most expeditious handling of this rulemaking, the Hearing Officer in this proceeding specifically set a schedule which allowed for the filing of comments by a certain date, and did not include time for responses to any other participant's comments. The numbers of participants and nature of this complicated rulemaking require the adherence to comment deadlines as much as possible, in order to continue to handle this matter as expeditiously as possible. It is true that the Agency filed a revised proposal with its comments, and that there has not been opportunity at this time to respond to the revisions. However, the Board emphasizes that there will be further opportunity to comment on this revised proposal or any proposal subsequently adopted by the Board during the First Notice comment period in this proceeding. The Board further notes that the changes made to the Agency's proposal appear to involve issues which were already discussed by participants during hearings on this matter.

EcIS Revision

The Agency, on page 12 of the Statement of Reasons which accompanies its revised proposal (PC #16), "requests that the Board direct DENR to review the Agency's revised proposal and prepare an EcIS that studies the economic impact of the proposal based upon criteria set forth in Ill. Rev. Stat. 1989, ch 96 1/2, par. 7404(a)." The Board construes this request as a motion.

On September 28, 1989, the Board noted that Section 8 of the IGPA specifically exempted these proposed rules from the requirements of Section 27(b) of the Act, and provided for completion of an EcIS concurrent with the development of the proposal. This was done and an EcIS document was filed. Since this EcIS was prepared concurrently with the development of the Agency's proposal, parts of the Agency's revised proposal, the Defender's proposal, and now this Board proposal could not be discussed in that document.

In any event, the Board at this point does not believe an additional formal EcIS is warranted. This does not mean that additional economic information on the Agency's revisions, the Defender's proposal, or the Board's First Notice proposed rules would not be useful or desired. In fact, in today's Opinion, the

Board does not provide the usual detailed analysis of the economic impact of the proposed rules in order to examine the issue more fully as it relates to the proposal presented today. Therefore, the Board requests that DENR and anyone else who desires to do so provide the Board with economic information at hearing.

Designation of Waste Management Testimony as Comment

On May 2, 1990 the DENR filed a Motion requesting that the testimony of witnesses John Baker and John McDonnell of Waste Management of Illinois, Inc. ("WMI"), be designated "comments" rather than "testimony". The motion is denied. The Board fails to see any purpose to DENR's motion. The Board is fully capable of assessing the merits of and weight to be given to materials which enter its record, and will do so with the materials in question. This circumstance notwithstanding, the Board does not believe that DENR has in any way been denied opportunity to present questions to these two witnesses. To the contrary, exceptional effort has been made to accommodate DENR, (See R. at 956).

GENERAL PRINCIPLES UNDERLYING TODAY'S PROPOSAL

Prior to presenting the today's proposal, the Board believes that it is instructive to set out some of the principles which guided the construction of the instant proposal.

Simplicity

Among the most salient of these principles is the desirability of promulgating a system of standards which is not needlessly complicated. A simple rule is particularly desirable in the instant case because the arena of groundwater standards is so new. In this circumstance it is wise to resist the temptation to build an overly elaborate rule where there is no history to warrant the conclusion that the elaborate rule is either necessary or workable.

While the Board notes that the two complete proposals before it, those of the Agency and the Defenders, each evince great thought and ingenuity and much of merit which the Board today adopts as its own, they also both contain elements of what we believe is needless complication. A case in point is the system of defining Class I groundwaters and exceptions thereto, as proposed by the Agency¹. If one accepts, as the Board does (see

¹ The Agency's Class I groundwater, titled Potable Resource Groundwater, is defined more based on geographic and stratigraphic position than on inherent potability. In particular, groundwater would be classified as Class I

below), that all groundwaters should be protected from use degradation, irrespective of whether that use is presently occurring, it follows that much of the Agency's classification edifice is both unnecessary and unjustified.

A second case in point is the permitting system proposed by the Defenders (see R. at 976-8; PC #8 at 5-7, 11-13). Under this system no change in groundwater quality beyond "background" would be allowed absent a permit from the Agency. Aside from the very practical problems associated with determining what constitutes "background" (e.g., PC #7 and #9), the Board is not convinced that the costs associated with a permitting system are commensurate with the amount of environmental protection afforded.

The Board believes that the matter of available resources must also enter into other aspects of construction of the instant regulation. A regulation is only as good as the availability of resources to implement and enforce it.

With these various considerations in mind, the Board does not today propose several regulatory possibilities which it might under other circumstances find attractive. These include additional mandatory data collection and establishment of data bases by DENR and/or the Agency, mandatory monitoring and determination of current groundwater quality by all entities and/or activities which might impact groundwater, and mandatory investigation (as opposed to Agency discretionary investigation) of all possible cases of groundwater contamination.

Emphasis on Potable Waters

The need for a groundwater protection program arises because groundwater constitutes a valued resource. This principle is clearly articulated in the opening sentence of the State's Groundwater Protection Policy:

... it is the policy of the State of Illinois to restore, protect, and enhance the groundwaters of the State, as a natural and public resource. IGPA, Section 2(b).

It is to be recognized, however, that not all groundwaters constitute the same level of resource; some groundwaters have greater resource value by virtue of their higher quality, quantity, accessibility, etc. Moreover, it is generally agreed

depending upon geographic relationships among wellheads, setback distances, lateral areas of influence, proximate aquifers, and uppermost consolidated bedrock aquifers (see PC #16 at proposed Section 620.204).

that the degree of protection required is in some measure a function of the nature of the particular groundwater resource. This concept constitutes one of the bases for groundwater classification, and the application of different water quality standards, monitoring and remedial requirements, etc., to the different classes.

It is to be further recognized that potability², as a rule, constitutes the "highest" use to which groundwaters are put. Potability, as a further rule, requires the highest degree of protection, including the most stringent standards, to maintain the use. Potable-use also is far and away the largest use to which groundwaters in Illinois are put, and will be put in any foreseeable future. Given these circumstances, it is apparent that any successful program of groundwater management must give special focus to potable groundwaters. Emphasis on potable groundwaters is, indeed, not only a feature of the two proposals presented to the Board, it is also a principal feature of today's Board proposal.

Protection of all Potable Waters

A recurrent problem with the resource-protection concept of groundwater protection, however, concerns whether resource value should be associated only with groundwaters currently experiencing use, or whether it should also be associated with potentially usable groundwaters (e.g., R. at 26, 968-9; PC #6 and #8). This issue can be clearly seen in the matter of which groundwaters ought to be classified as potable resource groundwaters.

The Board previously addressed this issue in R86-8³. It there noted:

Resource groundwaters are, at the minimum, those groundwaters which are presently being put to conventional use by reason of being of suitable quality, having local demand, and having been actually developed. Much of the record also indicates that resource groundwaters ought also to include those groundwaters which have the potential for being put to conventional use. This perspective is straightforward, in that it suggests that potential resources should be protected against the eventuality that at least some of

²"Potable" is defined at in the IGPA as meaning "generally fit for human consumption in accordance with accepted water supply principles and practices" (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7453(h)).

³In the Matter of: A Plan for Protecting Illinois Groundwater, R86-8, Report of the Board, August 28, 1986.

them will find use in the future. The Board believes that this is a wholly correct perspective, and accordingly concludes that resource groundwaters should include groundwaters of potential use. (Id. at II-3)

The Board believes that this perspective remains correct today. Moreover, the Board believes that the General Assembly also endorsed this perspective by defining in the IGPA that a "'resource groundwater' means a groundwater that is presently being or in the future capable of being put to beneficial use" (IGPA at Section 3(j), Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7453(j); emphasis added). That is, the Board believes that among the most necessary facets of the State's groundwater protection program is the need to protect all drinkable water at a drinkable level. Similarly, the Board does not believe that current actual use should be the sole control of whether potable groundwater is afforded the protection necessary to maintain potability. We simply can not willfully neglect today a resource which future generations may well need and cherish. Among the proposals before the Board, the Board believes, as do several commentators (e.g., PC #6 and #8), that the Agency's proposal⁴ falls short of providing protection for all those groundwaters which will at some future date be wanted for potable use.

AMENDMENT TO 35 ILL. ADM. CODE: SUBTITLE C: WATER POLLUTION

Although the principal regulations proposed today consist of new Part 620, the promulgation of Part 620 requires a conforming amendment to Subtitle C. The groundwater standards proposed today are intended to supersede the standards currently applicable to groundwater, which are found in Subtitle C. These currently applicable standards are the General Use and Public and Food Processing Water Supply Standards of 35 Ill. Adm. Code: Subtitle C, which are applicable to groundwaters pursuant to Section 303.203 of Subtitle C. The amendment today proposed for Section 303.203 deletes the applicability of the General Use and Public and Food Processing Water Supply Standards to groundwater. The language is as recommended by the Agency (PC #16, p. 9).

PART 620
SUBPART A: GENERAL PROVISIONS

⁴ The Agency's initial proposal placed in the potable resource category only those groundwaters located within a limited distance of an existing water supply well (Agency Proposal p. 7). Although the Agency's revised proposal expanded this definition by adding all waters located with the uppermost bedrock aquifer (PC #16 at 5), much potable groundwater would still escape classification as a potable resource due to its distance from an existing well or its stratigraphic location.

Subpart A sets out the general provisions applicable to the entire Part 620. In general, this Subpart closely follows the similar Subpart in both the Defenders' Proposal and the Agency's Revised Proposal. The more substantive changes are noted here.

Purpose -- Section 620.105

Section 620.105 sets forth the purpose of the Part. The construction of the Section is the Board's own, based on the Board's view of the purpose of the Part and the intent expressed for the Part in the IGPA.

The Defenders suggest insertion within this Section of the phrase "to assure that the groundwater resources of the State be utilized for beneficial and legitimate purposes, that waste and degradation of the resources be prevented, and that the underground water resource be managed to allow for maximum benefit of the people of the State of Illinois" (Def. Exh. 7 at proposed Section 620.101). This language comes from the policy statement found at Section 2(b) of the IGPA. While the Board fully recognizes this policy statement, the Board believes that the proposed language more closely tracks the actual purpose of these rules proposed pursuant to Section 8 of the IGPA, and therefore opts to use the more narrow version. The Board believes that this narrow purpose statement will more clearly alert the public to what is actually being regulated.

Definitions -- Section 620.110

Section 620.110 contains definitions applicable to Part 620. The definitions chosen for inclusion have been derived from both the Agency's and Defender's proposals. The Board has also added several definitions, such as the definitions for "adverse effect", "facility", "LOAEL", "NOAEL", "owner", "operator", and "setback zone". These definitions are derived from the Act or Board regulations.

In some cases, as for example in the definitions of "new site" and "major reconstruction", the definitions have been placed in Section 620.110, rather than within the body of the Part, as proposed by the Agency or the Defenders. As regards the definition of "new site", the Agency is specifically requested to address how it intends that such terms as "commercial business class" be defined.

General Prohibitions -- Section 620.115

Section 620.115 contains a general prohibition against threatening, causing or allowing a violation of the Act, IGPA, or Board regulations including this Part.

Incorporations by Reference -- Section 620.125

Section 620.125 sets forth incorporations by reference. Changes have been made to these incorporations to conform the list to the actual documents received from the Agency, and the format has been changed to better conform to Illinois Register publication requirements.

Exemptions from Subtitle C Standards -- Section 620.130

Section 620.130 exempts groundwaters from the General Use Standards or Public and Food Processing Standards of Subparts B and C of 35 Ill. Adm. Code 302. This change, in combination with amendment to Section 303.203 (see above), clarifies the relationship between 35 Ill. Adm. Code Subtitle C and the instant proposal.

Exclusion for Underground Water in Certain Man-Made Conduits -- Section 620.135

Section 620.135 explicitly excludes any underground waters which occur in certain man-made conduits from the application of the rules proposed today. The man-made conduits included are subsurface drains, tunnels, reservoirs, storm sewers, tiles, and sewers⁵. Waters in such conduits do not have the conventional characteristics and properties of groundwater, and it is therefore inappropriate to apply to them water quality standards which are based upon groundwater characteristics and properties.

It is perhaps arguable that Section 620.135 is not necessary since the definition of groundwater itself would seemingly exclude water in most, if not all, of the man-made conduits listed. Thus, if these waters are not groundwaters, groundwater standards would not apply to them. However, the record attests that there is sufficient confusion on this matter (see Agency Statement of Reasons, p. 11; PC #9; PC #10; PC #13) to warrant a definitive exclusion for water in man-made conduits.

It should be recognized that water in man-made conduits is not excused from all water quality standards. To the extent that such waters are "Waters of the State", they would be subject to the water quality standards of Subtitle C. As well, if and when such waters are discharged to the surface, they would be subject to water quality standards applicable to surface waters. The Illinois Department of Agriculture notes this conclusion with respect to drainage from agricultural field tiles:

It is inappropriate to apply any numbers or standards to water in a drainage tile except surface water

⁵It is to be noted that specifically not included are waters within wells, well casings, or other structures designed to tap groundwater.

standards at the point of discharge to a surface water, at which point one must also consider the effects of mixing. PC #9 at p. 1.

The Agency's revised proposal contains additional exclusionary language which is today not being proposed because it is unnecessary. In particular, the Agency proposes that Section 620.135 be in the form:

Section 620.135 Exclusions

[This Part does] not apply to groundwaters discharged to surface waters as a result of:

- a) Subsurface drains, tunnels, storm sewers, tiles, sewers, and other man-made conduits.
- b) Dewatering operations associated with construction or excavation:
 - 1) For the discovery, development, or production of stone, sand, gravel, or coal; or
 - 2) For other structures (except for structures associated with the discovery, development, or production of oil or gas) where dewatering is necessary (e.g., installation of tanks, foundations, piers, or pilings).
- c) Dewatering operations designed to protect publicly-owned permanent structures or facilities from the adverse effects of high groundwater levels.

This provision is unnecessary since a "groundwater discharged to surface water" ceases to be a groundwater since it not longer meets the definition of a groundwater (i.e., the water is no longer underground, it is no longer within the saturated zone, etc.). It is thus unnecessary to list the Agency's specific examples of "excluded discharged groundwater", since by definition all discharged groundwaters are excluded from the operation of Part 620.

SUBPART B: GROUNDWATER CLASSIFICATION:

Subpart B sets out the general groundwater classification system, criteria for classifying specific groundwaters, and procedures for amending the classification of any specific groundwater. Subpart B follows the Agency's Amended Proposal in

general form. However, it differs in specifics as noted following.

List of Groundwater Classes -- Section 620.201

Section 620.201 establishes that there are five classes of groundwater. Four of these classes are drawn in concept, although not necessarily in specifics, from the Agency's proposals. The fifth, Special Resource Groundwater, is drawn from the Defenders' proposal. It is intended that every groundwater in the State belong to one of the five classes.

Potable Groundwaters Class -- Section 620.210

Section 620.210 establishes the definition of a Class I: Potable Resource Groundwater. Included are all groundwaters which are naturally potable and which are available at a yield of at least 150 gallons per day. A groundwater is identified as being naturally potable if Safe Drinking Act water quality standards are met without treatment.

The 150 gallons per day limit is that limit which the USEPA defines as a yield sufficient for a groundwater to serve as water source for a household unit (Defender's Exh. 6, p. 39, 45; PC #16 at p. 12-16). The Board notes that the IGPA defines an aquifer as a saturated soil or geological material which is sufficiently permeable "to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients" (Ill. Rev. Stat., ch. 111 1/2, par. 7453(b); emphasis added). To the extent therefore that 150 gal/day constitutes the "economically useful quantity", the number serves to quantify the meaning of an aquifer and Section 620.210(a)(2) serves to limit Class I groundwaters to waters in aquifers so defined.

The Board notes that there is no attempt to further limit the definition of potability by qualifiers relating to distance from existing wells, time of travel to existing wells, or stratigraphic position, as occurs in the Agency's proposal. This is in keeping with the Board position that all naturally potable groundwaters should be recognized as such, irrespective of whether they are currently experiencing use as a potable water supply (see above). For the same reason the term "Potable Resource Groundwater", rather than "Potable Use Groundwater", is employed in the title of this class.

Some groundwater contaminants, such as iron, manganese, and radium, are sometimes naturally found in Illinois groundwaters at concentrations which exceed MCLs. Section 620.210(b) allows groundwater containing these specific contaminants to still be classified as Class I groundwaters. The Board specifically requests comment on the appropriateness and completeness of the proposed contaminant list at Section 620.210(b).

The General Resource (Default) Class -- Section 620.220

Class II: General Resource Groundwaters are, by definition at Section 620.220, the default groundwaters. That is, Class II consists of those groundwaters which are not Class I, III, IV, or V. For example, a groundwater which otherwise has chemistry suitable for potable use without treatment, but which is unavailable in volumes greater than 150 gal/day, would fall into Class II. In general, a groundwater could fall into Class II if it is not potable by virtue of quantity or quality limitations, if it is not in a remedial posture pursuant to qualifications for a Class III groundwater, if it is not otherwise naturally limited pursuant to Class IV qualifications, or if it has not been otherwise specially classified according to Class V procedures.

The Board anticipates that groundwaters in "tight" hydrogeologic units will constitute one of the most common occurrences of Class II groundwaters. These are groundwaters which, irrespective of their chemistry, are unavailable in quantities sufficient for use. Another common occurrence is likely to be groundwaters which are not so saline as to warrant classification as Limited Resource Groundwaters, but which nevertheless are too saline to be potable without treatment.

It is possible that a third major category of Class II groundwaters will be groundwaters which would otherwise be Class I: Potable Resource Groundwaters, except that they naturally fail to meet Drinking Water Act standards for a parameter or two. Data are presently insufficient to other than speculate on the possible occurrences of this type of Class II groundwater.

Given the multiplicity of ways that a groundwater may be classified as a Class II groundwater, in the long term it may be advisable to either subdivide Class II or split out additional classes from Class II. However, the Board believes that this endeavor, should it be undertaken, best awaits some experience with the more general classification proposed here.

Remedial Groundwaters -- Section 620.230

Section 620.230 establishes criteria by which a groundwater is placed within Class III: Remedial Groundwaters. The listed criteria are essentially those proposed by the Agency, with only minor word changes intended to improve clarity.

Class III Groundwaters are groundwaters that, due to contamination, temporarily cannot meet the water quality standards which would otherwise apply to them. Included within the class are contaminated groundwaters at sites on the National Priorities List and State Remedial Action Priorities List, at sites with leaking underground storage tanks, sites subject to corrective action approved by the Agency pursuant 35 Ill. Adm. Code: Subtitle G, sites undergoing corrective action pursuant to

35 Ill. Adm. Code 615 or 616⁶ permitted coal mining sites, or coal mining sites that were mined prior to current State Land reclamation regulations. Under subsection (g) a groundwater may also be placed in Class III or reclassified pursuant to an adjusted standard proceeding before the Board.

A characteristic of a Remedial Groundwater is that placement within this class is inherently temporary. When remediation is complete, the groundwater should revert to its natural ("pre-remediation") class.

The IFCA has recommended that the Board add an interim compliance status to Class III groundwaters to include groundwaters which are undergoing voluntary remedial action (PC #10 at p. 3). The IFCA believes that, at least under the Agency's proposal, an interim status is needed to allow for a transition period for facilities which were in compliance with prior regulations to come into compliance with the instant regulations (Id.). The Board requests that the IFCA and other interested persons review the regulation as proposed today (compared to the Agency's version) and re-express their concern should the concern still remain.

Limited Resource Groundwaters -- Section 620.240

Section 620.240 sets out criteria for classifying Class IV: Limited Resource Groundwaters. There are two such criteria: total dissolved solids concentration greater than 10,000 mg/l, or designation by the Board as an exempt aquifer pursuant to 35 Ill. Adm. Code 730.104. A groundwater may also be placed in Class IV pursuant to an adjusted standard (or site-specific) proceeding before the Board. Section 620.240 is adopted directly from the Agency's proposal.

Special Resource Groundwaters -- Section 620.250

Section 620.250, Class V: Special Resource Groundwaters, is derived in concept from the Defenders' proposal, which in turn is based on the USEPA groundwater classification strategies⁷. The Defenders' contend that in certain circumstances a groundwater may take on an ecologically vital role, as for example when its

⁶35 Ill. Adm. Code 615 and 616 consist of regulations currently in proposal-form before the Board in Docket R89-5. Their purpose is to implement the setback zone and regulated recharge area provisions of Sections 14.4(b) and 14.4(d) of the Act. It is currently anticipated that promulgation of these regulations will follow promulgation of the instant regulations.

⁷See Guidelines for Ground-Water Classification under the EPA Ground-Water Protection Strategy, USEPA Office of Ground-Water Protection, November 1986: Defender's Exh. 6.

discharge supports a vital wetland (R. at 969-971). Other examples might include caves, lakes, ponds, streams, and perhaps even the more moist varieties of prairies and forests. The Defenders' propose a special class of groundwaters (their Class II) to encompass these circumstances.

The Board believes that the concept of ecologically vital groundwaters warrants further consideration, and accordingly includes this concept in today's proposal to facilitate additional discussion. However, in terms of a classification system, the Board believes that ecological vitality is but one possible reason why a groundwater might be considered to be a Special Resource. Accordingly, Class V is set up to include any groundwater, which by virtue of some special characteristic, should not be placed in one of the other classes.

As presently constructed, placement of a groundwater within Class V requires a formal action by either the Board, through a site-specific or adjusted standard proceeding, or by the Agency. The Agency's ability to classify a groundwater as Class V is restricted to the circumstance of an Ecologically Vital Groundwater, according to Section 620.250(a)(2). This latter provision tracks the Defenders' proposal.

The Board invites comment on these provisions in general. In addition, the Board particularly requests the Agency to comment on the roles assigned to it in proposed Section 620.250(a)(2) and (b). The Board also invites other groups or agencies to advise the Board of their desire and ability to participate in the effort to establish criteria for Ecologically Vital Groundwaters identified at Section 620.250(b).

Adjusted Standards -- Section 620.260

Section 620.260 specifies that reclassification of any groundwater can occur as a result of an adjusted standard proceeding before the Board. The Section also specifies the level of justification required of a petitioner and other information to allow the Board to determine the adjusted standard, pursuant to Section 28.1 of the Act. The Board has used the information requirements as proposed by the Agency, with some changes to clarify the terms "beneficial or necessary."

The Board notes that, in addition to an adjusted standard, recourse to reclassification of a particular groundwater would also be available via the site-specific rulemaking process.

The IFCA requests that the Board include a provision that "will allow a like class of facilities as a group to seek relief through an adjusted standard" (PC #12 at p. 6; emphasis added). The Board does not see anything in the adjusted standard procedures of the Illinois Environmental Protection Act or the instant rule which would preclude an adjusted standard action

being brought on behalf of a group of named individuals or named facilities. Addition of such provision in the instant proposal would therefore appear to be unnecessary. The Board notes that a group could alternatively pursue the desired relief through a rulemaking proceeding. Since, there are differences in proofs, conduct of hearings, etc., between adjusted standards proceedings and rulemaking proceedings, any interested groups would be advised to consider both before electing a course of action.

SUBPART C: GROUNDWATER QUALITY STANDARDS

Subpart C sets out the groundwater quality standards applicable to various classes of groundwater. In general form, the Subpart follows Subpart C of the Agency's revised proposal (PC #16). However, numerous alterations have been made reflecting the general guiding principles discussed above, as well as other considerations as noted in the following.

Among general alterations, the Board notes that the Agency's use of the term "criteria" has everywhere been altered to "standard" so as to be consistent with the use of these terms in the Act and in 35 Ill. Adm. Code. Subtitle C (see particularly definition of "criterion" at Section 3.80 of the Act and at 35 Ill. Adm. Code 302.100).

Applicability and the "Natural Causes Exclusion" -- Section 620.301

Subpart C begins with a scope and applicability statement which contains two principal concepts. These concepts are that (1) the standards must be met (else there exist a violation of the regulations), except that (2) the standards need not be met if due to natural causes. Both concepts are found generally in the two proposals before the Board, but are here presented as a single preface to Subpart C.

The second concept, which is the "natural causes exclusion", is a powerful and important provision of the entire groundwater regulatory package. It is not the Board's intention to require compliance with standards which are exceeded due to natural causes.

Nondegradation -- Section 620.305

Section 620.305 contains the groundwater nondegradation provision. The provision is basically the same provision which currently applies to groundwaters through the operation of 35 Ill. Adm. Code 302.105. However, since an intent of the instant proposal is to divorce groundwater from regulation under Part 302 (and associated Parts of Subtitle C), it is necessary to repeat the provision here.

No Penalty for Prior Degradation -- Section 620.307

Today's proposal retains at Section 620.307 a provision recommended by the Defenders. A similar concept is advocated by IERG (PC #11), the IFCA (PC #12), and the ISG (PC #18), although only the Defenders' propose actual language. The thought behind the provision is explained by the Defenders:

No penalties are to be imposed under the Defenders' proposal for contamination caused by lawful activities occurring before the effective date of the regulations. ... this provision would in essence "grandfather" preexisting contamination for the purpose of penalties under this Part. ... Dangerous contamination cannot, however, be left in place, nor is it intended that this Section impede other regulatory programs. Therefore, [this Section] ensures that the "grandfathering" will not preclude any corrective action required under other regulatory programs. Defenders Exh. 7 at p. 5.

While the Board believes that some grandfathering may be warranted, it not yet convinced that a broad rule of general applicability-type of grandfathering has been justified. Moreover, the Board notes that the Defenders' offer their grandfathering provision within the context of their larger proposal. The Board is thereby uncertain whether proposed Section 620.307 can be taken out of context. Interested persons are particularly requested to comment on this matter.

Additionally, the Board notes that the phrase "lawful activity", if used, may be required to be defined. Interested persons are requested to comment on this matter, including alternatives to use of the term.

Potable Resource Groundwater Standards -- Section 620.310

Section 620.310 sets out the groundwater standards applicable to Potable Resource Groundwaters. Since potable groundwaters should be available for drinking water supply without treatment, it is the Board's belief that standards applicable to potable groundwaters must be, in substantial part, the same standards which apply "at-the-tap" pursuant to the Safe Drinking Water Act ("SDWA"). That is, the standards should be, again in substantial part, the maximum contaminant levels ("MCLs") promulgated pursuant to the SDWA⁸. Accordingly, this

⁸The Board notes that the Agency's proposal is also premised on promulgation of only "health-based criteria ... which are identical to the final enforceable federal criteria of the SDWA ... MCLs" (R. at 51-2).

concept is employed in the instant proposal at Section 620.310(a).

The manner in which the standards/MCLs are presented at Section 620.310(a) is intended to address one of the historical difficulties with incorporation of numeric standards within regulations, which is the need to constantly revise the numbers as new information is developed. This difficulty is particularly apparent as regards the current MCL situation because the USEPA, the originator of MCL values, is in the process of a major MCL promulgation effort. Thus, it is to be expected that the current MCL list will be experiencing relatively large changes within the coming years.

Ordinarily this circumstance would imply that Part 620 regulations would have to be regularly reopened and updated to accommodate new MCLs. However, the Board today proposes a stratagem which both forestalls the need to constantly update the MCL list at Section 620.310 and also assures that the MCLs of Section 620.310 remain current. The stratagem consists of identifying the groundwater standards which apply to Potable Resource Groundwaters as being identical to the MCLs found at 35 Ill. Adm. Code 611.Subpart F. 35 Ill. Adm. Code 611.Subpart F contains the "identical in substance" MCLs promulgated pursuant to the SDWA and the Act. As such, 611.Subpart F is subject to updates every six months, pursuant to the Board's SDWA "identical in substance" update program.

A few of the MCLs of 35 Ill. Adm. Code 611.Subpart F may have uncertain applicability to groundwaters. The Board views turbidity as being among these, since turbidity is not normally associated with groundwaters. Where significant groundwater turbidity does occur, as perhaps in some karst groundwaters⁹, the turbidity would likely be related to natural causes and hence the MCL would not control as the standard anyway (through the operation of the natural causes exclusion of Section 620.301). The Board has therefore contemplated excepting the turbidity MCL from service as a groundwater quality standard. The Board requests advice on this strategy.

The standards proposed today for Potable Resource Groundwaters depart from one-to-one conformity with the MCLs of the SDWA as regards carcinogens, in keeping with the special emphasis on carcinogens found at Section 8(a) of the IGPA. In particular, today's proposal specifies at Section 620.310(b) that

⁹The Board notes that the very special character of groundwater in karst regions is generally not recognized in the instant proposed regulations. The Board therefore believes that at some future date it would be advisable to incorporate special provisions pertinent to karst groundwater into the Board's groundwater regulations.

no substance which is a carcinogen shall occur at a concentration above its level of detection. For the purposes of Part 620 and today's proposal, a substance is defined at Section 620.125 as a carcinogen if it is a group A, B1, B2, or C carcinogen pursuant to USEPA Carcinogenic Risk Assessment guidelines, 51 Fed. Reg. 33992-34003 (September 21, 1986). Groups A and B include known and probable human carcinogens, respectively. Group C includes substances which are possible human carcinogens. The Board requests comment on the advisability of including Group C carcinogens.

The special standards at Section 620.310(c) for chloride, sulfate, and total dissolved solids ("TDS") are proposed in concert with the Agency's recommendation. As the Agency notes, the standards as proposed "are based on the 95 percent confidence concentration level from all of the groundwater monitoring conducted by the Agency from community water supply wells" (Statement of Reasons at p. 16). Accordingly, the numbers for these standards may depart from one-to-one conformity with current or future MCLs.

In its revised proposal, the Agency recommends that the standards for the four parameters, chloride, iron, sulfate, and TDS, apply only to aquifers. The Agency's rationale is:

... there has been considerable discussion about the merits of clean-up criteria for non-aquifers to levels which were based on aquifer data. The Agency has revised its proposal so that the inorganic criteria which were based upon statistically derived aquifer data ... shall apply only to aquifers. (PC #16 at p. 19).

The Board notes that, as proposed today, all of the standards which apply to Potable Resource Groundwaters apply only to water within aquifers, to the extent that Potable Resource Groundwaters include only groundwaters which can be withdrawn at rates of at least 150 gallons per day (see proposed Section 620.210(a)(2) and discussion of this Section, above).

Section 620.310(d) establishes a pH standard for Potable Resource Groundwaters, consistent with the recommendation of both the Defenders (Def. Exh. 7) and the Agency (PC #16 at p. 20).

Section 620.310(e) contains a general narrative prohibition against the occurrence of any contaminant in concentrations that cause adverse effects. This provision has been added to assure full compliance with the IGPA's mandate for the regulations to address contaminants which have an "adverse effect on human health" (IGPA at Section 8(a)). Language for this provision was provided by the Defenders' via Defenders' proposed Section 620.401(e) (Defenders' Proposal at p. 5). However, this proposed section contained language such as "hazardous to human health"

and "endanger public health, safety or welfare". This terminology has been problematic in proposed rules when reviewed by the Joint Committee on Administrative Rules ("JCAR"). Therefore the Board has opted to use the term "adverse effects". This term had been previously defined in other Board rules.

The Board has also considered the possibility of making the Human Threshold Toxicant Concentration ("HTTC"), as calculated pursuant to proposed Appendix A, an enforceable standard under Section 620.310. For the present the Board rejects this possibility due to: (1) uncertainty that it would be a useful standard either as an addition to or in place of the standards currently proposed, and (2) question concerning how a standard of this type could be implemented under the division of powers which exists between the Agency and the Board.

Today's proposal does not contain many of the on-site, off-site distinctions present particularly in the Agency's proposal. For example, today's proposal does not allow an exemption to compliance with Class I standards to otherwise potable water if that water is located "on-site"¹⁰. The premise here would appear to be that it is all right to contaminate groundwater as long as the groundwater is located beneath one's own facility. However, the Board cannot accept this premise. Without attempting to address validity of the assumption that one has full rights to mess one's own nest or that the groundwaters beneath one's facility constitutes one's own nest, the premise fails to recognize that groundwater moves and will not stay on-site, and that on-site contamination may persist long after the facility and its owner/operator are gone. Thus, causing groundwater contamination is not simply a matter of whether it is permissible to mess ones' own nest.

The Board notes that its reluctance to make on-site, off-site distinctions relates to broad, general applicability rules. The Board does believe that some such distinctions may be warranted under special circumstances, as perhaps in the Part 615 and 616 regulations currently under consideration by the Board.

General Resource Groundwater Standards -- Section 620.320

Section 620.320 establishes standards for Class II: General Resource Groundwaters. Because groundwaters are placed in Class II because they are quality-limited, quantity-limited, or both

¹⁰The Agency's proposal at proposed Section 620.310(b) and (d) would allow groundwater beneath a facility ("on-site" groundwater), except for groundwater on-site of a community water supply well, to meet standards less stringent than potable water supply standards even when the on-site groundwater would otherwise be potable.

(see discussion, p. 11), it is necessary that the standards which apply to these waters reflect this range of possible attributes.

The standards proposed for non-carcinogenic organic chemical constituents at Section 620.320(a) are based on the MCL-standards proposed for potable waters (see discussion, p. 16), except that the MCLs are increased by a factor of five. The theory here is that a conventional treatment process, such as granular activated carbon, would, with a treatment efficiency of 80% (Agency Exhibit 1, p. 41), bring these constituents within the scope of potability.

The standard proposed for each carcinogen, except as otherwise provided in the Section, is its level of detectability. The "natural causes exclusion" of Section 620.301 applies here, of course, as it does elsewhere. The combined effect is therefore to establish a prohibition against anthropogenic carcinogens.

Subsection (c) sets forth various specific quantitative standards applicable to Class II groundwaters. The list is based in part on maximum levels for livestock enterprises or humid area irrigation (Agency Exh. 1, p. 36), as representative general uses which require quality somewhat less than that of potable use. The list is also based in part on removal efficiency for organic constituents.

Standards Applicable to Remedial Groundwaters -- Section 620.330

Standards applicable to Class III: Remedial Groundwaters are set out at Section 620.330. A principal intent is to assure that groundwaters which have been so degraded as to require classification as Remedial Groundwaters are not degraded still further. Accordingly, the prior-to-remediation standards are established as the level of contaminants which existed at the time of groundwater was classified as a Remedial Groundwater.

In keeping with the temporary status of groundwaters within the remedial class, Section 620.330 also specifies the post-remediation standards to be the standards applicable to the class to which the groundwater belonged prior to degradation. Thus, a Potable Resource Groundwater which was degraded and thereby classified as Remedial Groundwater would have to be returned to Potable Resource Groundwater status.

Standards Applicable to Limited Use Groundwaters -- Section 620.340

The standard proposed to be applicable to Limited Use Groundwaters is the basic nondegradation provision as proposed at Section 620.302. In today's proposal this nexus is made through a special section, Section 620.340. However, the Board is not sure that this device is necessary, since 620.302 would apply to

Limited Use Groundwaters even if 620.340 did not exist. Interested persons are requested to comment on this matter.

Standards Applicable to Special Resource Groundwaters -- Section 620.350

Since a groundwater is placed in Class V: Special Resource Groundwaters only as the result of an affirmative action on the part of the Board or the Agency (see discussion, p. 12), it is intended that action also be the action which sets the standards applicable to the groundwater in question. The default values are proposed to be those applicable to Class I: Potable Resource Groundwaters.

Alternate Coal Mine TDS Standard -- Section 620.360

Section 620.360 proposes an alternative total dissolved solids standard applicable to certain coal mining conditions. Other than for an alternative placement, the Section is today proposed substantially unaltered from the version proposed by the Agency (see Agency's proposed Section 620.304(f) in PC #16). The rationale for this Section is that in the ground-redistribution associated with coal mining, groundwaters can be markedly altered. The Agency explains the operation of the Section as follows:

The alternate total dissolved solids ("TDS") criteria is based upon the maximum concentration of the ambient TDS concentration level resulting from past surface coal mining, but not to exceed 3000 mg/l. Such a TDS level will still allow the water to be used for irrigation, livestock watering, and other beneficial general uses. In addition, this level also corresponds to the lower limit established by USEPA as an exempt aquifer pursuant to 35 Ill. Adm. Code 730.104. Also, where coal mining activity creates groundwater where no significant resource groundwater existed prior to mining, the TDS criteria for such groundwater is based upon the maximum concentration of the ambient TDS concentration level resulting from past surface coal mining, but not to exceed 5000 mg/l.

SUBPART D: MISCELLANEOUS PROCEDURES AND PROTOCOLS

Subpart D contains various miscellaneous procedures and protocols dealing with environmental protection of groundwater. Most of these provisions are included in both the Defenders' proposal (as Sections 620.501 and 620.502) and the Agency's revised proposal (PC #16 at Sections 620.310 and 620.315). As proposed today, these provisions are organized into a separate Subpart.

Among modifications proposed by the Board are elimination of those portions of the Agency proposed rule which become unnecessary under the classification system proposed today, and division of the subject matter into a more-easily handled four Sections.

One substantial departure from the existing proposals is elimination of the distinction between on-site and off-site standards found at the Agency's proposed Section 620.310(b) and (d). The Board is not convinced that the distinction is justified, at least as a rule of general applicability. The Board notes that it continues to entertain a similar proposed distinction for the special circumstances encountered in proposed Parts 615 and 616¹¹.

Section 620.405 is an attempt to clarify the location of the point of compliance for the groundwater standards of Subpart C. ~~Groundwater standards are intended to be by in situ.~~ However, sampling of groundwater is most often done after the water has left the ground, as at a well head or at a spring. The question then arises as to whether a sample so collected can be used to determine in situ compliance. Section 620.405 is intended to answer this question in the affirmative, under the theory that such a sample, properly collected, is indicative of in situ conditions. The technical requirements proposed for wells are intended to assure representative samples, as has been noted by the Agency (Statement of Reasons, p. 21).

SUBPART E: PREVENTIVE MANAGEMENT PROCEDURES AND CORRECTIVE ACTION

Subpart E sets out preventive management procedures applicable as rules of general applicability. It should be noted that more extensive preventive management procedures already exist for specific types of land use activities, such as landfilling and underground storage of certain liquids, and that the instant regulations are intended to compliment rather than to replace these regulations. It should further be noted that more extensive preventive management programs applicable to facilities located within setback zones and regulated recharge areas are under current, independent review by the Board¹².

Applicability -- Section 620.501

Section 620.501 establishes that preventive management under Subpart E (although not necessarily under other law) is limited to new facilities and to existing facilities located with a

¹¹See footnote number 6.

¹²Ibid.

setback zone. This provision is as recommended by the Agency. As the Agency notes, it is consistent with Section 14.4 of the Act, which prescribes more stringent provisions for those activities or sources that are not already in existence. As the Agency further notes, distinguishing between new and existing sites "results in a gradual and manageable phase-in of these more rigorous requirements" (Agency Statement of Reasons, p. 23).

The CICI recommends that there be no distinction made between new and existing sites in proposed Section 620.501 (R. at 486; PC #3). The CICI believes that, among other matters, uniform application of triggers would minimize potential expansion conflicts (R. at 487-8). While the Board appreciates the CICI's concern, it is not at this time convinced that the problem warrants the CICI's solution.

It should be noted, however, that the grandfathering and "phasing-in" of existing sites may be comparatively limited, since existing sites in setback zones are not grandfathered. Setback zones are defined pursuant to the Act to include areas surrounding all potable water supply wells, with the actual distance dependent on the type of well and the local physical conditions (see Sections 14.1, 14.2, and 14.3 of the Act). Individual setbacks may be from 75 feet to 1000 feet. Moreover, the number of potable water supply wells in Illinois is over 400,000. Thus, a significant portion of existing facilities will be located within a setback zone as a simple function of the density of potable water supply wells.

The Board notes a particular difficulty it has with a construction in this Section. It is use of the word "within" in proposed 620.501(a)(1). Strictly speaking, no site is likely to be located "within" any body of groundwater, unless that site is itself located underground. The Board has been tempted to substitute the word "above" or "over" for the word "within", as conceptually more appropriate. However, the Board believes that this substitution may impart a substantially different meaning. The Board requests comment on this matter.

Preventive Management Triggers -- Section 620.505

Section 620.505 establishes that the detection of certain constituents in groundwater triggers a preventive management response. For Class I: Potable Resource Groundwaters, a preventive management response is triggered by the detection of any of the constituents for which a Class I groundwater standard exists, except where the constituent is present due to natural background. Included are constituents with MCLs, those with significant evidence of carcinogenicity, and sulfate, chloride, and total dissolved solids (TDS). Thus, the compounds of greatest concern for a potable water resource are used as triggers for preventive management response.

The preventive management triggers for Class II: General Resource Groundwater are a subset of those for Class I. Inorganic triggers are limited to highly toxic compounds such as arsenic, chromium, cyanide, lead, and mercury, while the organic triggers are those compounds of concern in drinking water (compounds with current or proposed MCLs in the Safe Drinking Water Act). Because data is insufficient to accurately identify the average constituency and usage of Class II groundwater, the Board must consider these triggers adequate. However, given the multiplicity of ways that a groundwater may be classified as a Class II groundwater, the Board requests comment on the appropriateness of these Class II triggers.

Preventive Management Response Procedures -- Section 620.510

Section 620.510 sets out preventive management response procedures. The Section generally follows similar language in the Agency's proposal.

Among differences is that today's proposal at Section 620.510(a) allows for any person making a detection to confirm the detection and to notify the appropriate agency. In the Agency's version a detection may be determined only by a State regulatory agency or department, or the owner or operator of a regulated entity (Section 620.402 of the Agency's original proposal or Section 620.405 of the Agency's Revised Proposal; Agency Statement of Reasons, p. 24-5). The Board believes that there may be others who make valid detections and who would be excluded from triggering preventive management by the language of the proposed subsection. The reason for defining those who detect so narrowly is not apparent from the record. Although it is possible that such limitation was an effort to guard against possibly frivolous detection claims, the Board believes that it is best that such limitation should be through the method employed to detect and the confirmation of detection, rather than limiting the persons who may detect. Thus, the Board has established this "check" by use of the definition of detection, which limits detection by the method used rather than the person using it.

The preventive management responsibilities of the appropriate agencies and those sources or potential sources notified follows in subsections 620.510(b), (c), (d), and (e), in essentially the same form as proposed by the Agency.

Corrective Action Triggers for Potable Resource Groundwaters -- Section 620.515

Section 620.515 specifies the conditions and criteria which trigger corrective action for Class I: Potable Resource Groundwaters. As the Agency explains this Section:

This section is a specific response to Section 8(b)(4) of the IGPA (Ill. Rev. Stat. 1987, ch. 111 1/2, par. 7458(b)(4)). The applicable corrective action is that which is required by other law or regulations governing the regulated entity that is a source of the contamination. In other words, this section establishes a groundwater "trigger" for corrective action under other State or Federal programs. (Agency Statement of Reasons, p. 25-6).

The Agency notes that corrective action triggers are designed to be levels for the initiation of action, rather than a cleanup goal to be achieved (R. 173, 180). The Agency further notes that it is the Agency's intent that the Subpart C standards would become the applicable relevant and appropriate regulations ("ARARs") which would be applied under RCRA- and CERCLA-type programs (R. at 188). However, it is the Agency's intent for cleanup to be carried out under other programs (such as RCRA and CERCLA), but that a facility would be cleaned-up as close to the levels indicated in Subpart E as possible (R. at 190). The Board specifically requests comment on the appropriateness of these Agency's perspectives.

Four triggers for corrective action are specified. The nature of the trigger depends on the nature of the contaminant. The first category is based upon Secondary Maximum Contaminant Levels ("SMCLs") for seven listed constituents which have organoleptic thresholds less than the health-based threshold of the Class I groundwater standards; these are found in proposed 620.515(a). The second category consists of carcinogens identified pursuant to proposed Section 620.310(b). The third category consists of the components of gasoline, benzene and BETX, which are, for organizational sake, included within the table of 620.515(a). The fourth category includes any contaminant for which a statistically significant increase above background for any other constituent listed in the Class I groundwater standards (i.e., Section 620.310).

The criteria listed at Section 620.515(a) are, with the exception of benzene and BETX, USEPA Secondary Maximum Contaminant levels ("SMCLs"). The Agency originally recommended that a Board Note follow the listing of criteria, in the following form:

Board Note: The criteria set forth in this subsection are USEPA's Secondary Maximum Contaminant Levels ("SMCLs") for the listed constituents. These SMCLs are based upon taste and odor thresholds. The SMCLs are less than USEPA's Maximum Contaminant Levels ("MCLs"). USEPA's MCLs are health-based and are the criteria set forth in Section 620.310. The SMCLs listed in subsection (a) are less than the corresponding MCLs for

such constituents because the taste and odor threshold is less than the health-based threshold of the MCLs.

While the Board accepts the Agency's rationale for use of the SMCLs in the context of Section 620.515(a), it does not believe that use of the Board Note is in accord with other constructions used in this proposed Part.

Corrective Action Triggers for General Resource Groundwaters -- Section 620.517

Corrective action triggers for Class II: General Resource Groundwaters are specified at Section 620.517. These triggers are those groundwater standards applicable to Class I: Potable Resource Groundwater which derive either from MCL determinations (Section 620.310(a)) or from carcinogenicity determinations (Section 620.310(b)). In proposing Class I standards as triggers for ~~Class II~~ corrective action, the Board follows the general perspective of the Agency, which notes:

[Using Class I triggers] for Class II: General Resource Groundwater is intended to help assure that groundwaters of this class which already comply with Class I: Potable Resource Groundwater criteria are maintained at this better water quality level. Detection of constituents exceeding this criteria would cause preventative management procedures and corrective action to be initiated. (Agency Statement of Reasons, p. 27).

Exceptions -- Section 620.520

Section 620.520 sets forth a procedure for exception to required corrective action. For the exception to apply, the Agency must determine that the owner or operator of an effected facility has demonstrated one or more of four conditions. These conditions include demonstration that the source of the contamination is due to background or that the sampling result is due to error in sampling, analysis, or evaluation. An exception may also be granted if it is demonstrated to the Agency's satisfaction that: (1) the contamination will not exceed any applicable groundwater standards as set forth in Subpart C; (2) the residual environmental and health risks posed by the contaminants do not cause adverse effects; and (3) all reasonable actions have been undertaken to minimize the degree and extent of contamination. Lastly, an exception may be granted if it is demonstrated that the contamination is residual from a completed corrective action in accordance with instructions from the appropriate agency. This grandfathering provision is intended to assure that final determinations that were previously made regarding prior closure actions will be recognized.

The general content of Section 620.520 as proposed today follows the Agency's proposed subsection 620.415(c). Among differences are an explicit statement that an owner or operator may apply to the Agency to request a corrective action exception and that the terms "significant hazard" have been replaced with "adverse effects".. The Board believes that this provision is in keeping with the Agency's intent of have the demonstration made to the Agency.

Appeal Rights -- Section 620.525

Section 620.525 specifies that the Agency's exception determination of Section 620.520 is appealable to the Board via the procedures for appeal of permits found at Section 40 of the Act. This section is new today. The Board believes that an appeals procedure is inherently necessary, and that the permit appeal procedures already in place are appropriate for the instant need.

SUBPART F and APPENDICES: HEALTH ADVISORIES

Subpart F establishes procedures for developing and issuing a Health Advisory. This Subpart, and its supportive appendices, are today proposed without intended substantive change from that proposed by both the Agency and the Defenders. As the Agency explains:

A Health Advisory is a means for the Agency to establish a guidance level for a chemical substance or a mixture of chemical substances for which criteria have not yet been set under Section [620.310]. This advisory process is intended to mirror the procedure used by USEPA to account for substances detected in groundwater that do not have promulgated criteria. Also, it should be noted that this Subpart codifies existing practice by the Agency.

Because the Health Advisory provision, and its attendant Appendices, have been presented to the Board without apparent controversy, and because the Board today does not itself propose substantive amendment to the Agency/Defender version, the Board will not here discuss these matters further. The interested person is particularly directed to the Agency's Statement of Reasons, p. 28-36, for discussion and explanation.

The Board does, however, pose a question of its own. That question is: Are Subparts F and its Appendices necessary in light of today's proposed Section 620.310? The Board notes that at least some of the purpose behind the Health Advisory concept is to allow the Agency to make recognition of contaminants which do not otherwise have numeric standards. However, given the broad and automatic equation of MCLs with groundwater standards

pursuant to 620.310(a), plus the detectability standard for all carcinogens of 620.310(b), is there sufficient utility remaining in the Health Advisory Concept to warrant its promulgation? The Board is inclined to delete Subpart F and the Appendices from further consideration unless an affirmative case is made for their continued inclusion.

The Board further notes that proposed Section 620.601(b) contained a reference to 35 Ill. Adm. Code 604.501 which the Board updated to 35 Ill. Adm. Code 611.231 due to the recent final action implementing the SDWA in Safe Drinking Water Act Regulations, R88-26 (August 9, 1990). The Board requests the Agency, in its review of Subpart F or any other portions of rules, discuss whether any additional changes should be made in light of these recent amendments.

ORDER

The Board hereby proposes for First Notice the following additions to 35 Ill. Adm. Code, Subtitles C and F. The Clerk of the Board is directed to file these proposed amendments and rules with the Secretary of State.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 303
WATER USE DESIGNATIONS AND SITE SPECIFIC
WATER QUALITY STANDARDS

SUBPART A: GENERAL PROVISIONS

Section
303.100 Scope and Applicability
303.101 Multiple Designations
303.102 Rulemaking Required

SUBPART B: NONSPECIFIC WATER USED DESIGNATIONS

Section
303.200 Scope and Applicability
303.201 General Use Waters
303.202 Public and Food Processing Water Supplies
303.303 Underground Waters
303.204 Secondary Contact and Indigenous Aquatic Life Waters

SUBPART C: SPECIFIC USE DESIGNATIONS AND SITE SPECIFIC
WATER QUALITY STANDARDS

Section
303.300 Scope and Applicability
303.301 Organization
303.311 Ohio River Temperature
303.312 Waters Receiving Fluorspar Mine Drainage
303.321 Wabash River Temperature
303.322 Unnamed Tributary of the Vermilion River
303.323 Sugar Creek and Its Unnamed Tributary
303.331 Mississippi River North Temperature
303.341 Mississippi River North Central Temperature
303.351 Mississippi River South Central Temperature
303.352 Unnamed Tributary of Wood River Creek
303.353 Shoenberger Creek; Unnamed Tributary of Cahokia Canal
303.361 Mississippi River South Temperature
303.430 Unnamed Tributary to Dutch Creek
303.441 Secondary Contact Waters
303.442 Waters Not Designated for Public Water Supply
303.443 Lake Michigan

SUBPART D: THERMAL DISCHARGES

Section
303.500 Scope and Applicability
303.502 Lake Sangchris Thermal Discharges

Appendix A References to Previous Rules
Appendix B Sources of Codified Sections

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1987, ch. 111 1/2, pars. 1013 and 1027).

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 27, p. 221, effective July 5, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 5 Ill. Reg. 11592, effective October 19, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended in R87-27 at 12 Ill. Reg. 9917, effective May 27, 1988; amended in R87-2 at 13 Ill. Reg. 15609, effective September 22, 1989; amended in R87-36 at 14 Ill. Reg. 9460, effective May 31, 1990.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 303
WATER USE DESIGNATIONS AND SITE
SPECIFIC WATER QUALITY STANDARDS

Section 303.203 Underground Waters

~~The underground waters of Illinois which are a present or a potential source of water for public or food processing supply shall meet the general use and public and food processing water supply standards of Subparts B and C, Part 302, except due to natural causes.~~ The underground waters of Illinois which are groundwater shall meet the standards set forth in 35 Ill. Adm. Code 620.

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

PART 620
GROUNDWATER QUALITY

SUBPART A: GENERAL

Section	
620.105	Purpose
620.110	Definitions
620.115	Prohibitions
620.125	Incorporations by Reference
620.130	Exemption from General Use Standards and Public and Food Processing Water Supply Standards
620.135	Exclusion for Underground Water in Certain Man-Made Conduits

SUBPART B: GROUNDWATER CLASSIFICATION

Section	
620.201	Groundwater Classes
620.210	Class I: Potable Resource Groundwater
620.220	Class II: General Resource Groundwater
620.230	Class III: Remedial Groundwater
620.240	Class IV: Limited Use Groundwater
620.250	Class V: Special Resource Groundwater
620.260	Reclassification of Groundwater by Adjusted Standard

SUBPART C: GROUNDWATER QUALITY STANDARDS

Section	
620.301	Applicability
620.305	Nondegradation
620.307	No Penalty for Prior Degradation
620.310	Standards Applicable to Class I: Potable Resource Groundwater
620.320	Standards Applicable to Class II: General Resource Groundwater
620.330	Standards Applicable to Class III: Remedial Groundwater
620.340	Standards Applicable to Class IV: Limited Use Groundwater
620.350	Standards Applicable to Class V: Special Resource Groundwater
620.360	Alternate Coal Mine TDS Standard

SUBPART D: MISCELLANEOUS PROCEDURES AND PROTOCOLS

620.405	Compliance Point
620.410	Sampling Procedures
620.415	Special Requirements for the Analysis of Carcinogens
620.420	Reporting Requirements

SUBPART E: PREVENTIVE MANAGEMENT PROCEDURES AND
CORRECTIVE ACTION

Section	
620.501	Applicability
620.505	Preventive Management Triggers
620.510	Preventive Management Response Procedures
620.515	Corrective Action Triggers for Class I: Potable Resource Groundwater
620.517	Corrective Action Triggers for Class II: General Resource Groundwater
620.520	Corrective Action Exceptions
620.525	Appeal of Agency Exception Determination

SUBPART F: HEALTH ADVISORIES

Section	
620.601	Purpose of a Health Advisory
620.605	Issuance of a Health Advisory
620.610	Publishing Health Advisories
Appendix A	Procedures for Determining Human Threshold Toxicant Advisory Concentration for Class I: Potable Resource Groundwater
Appendix B	Procedures for Determining Hazard Indices for Class I: Potable Resource Groundwater for Mixtures of Similar-Acting Substances
Appendix C	Guidelines for Determining When Dose Addition of Similar-Acting Substances in Class I: Potable Resource Groundwaters is Appropriate

AUTHORITY: Implementing and authorized by Section 8 of the Illinois Groundwater Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7458).

SOURCE: Adopted at ____ Ill. Reg., _____, effective _____.

NOTE: Capitalization denotes statutory language.

SUBPART A: GENERAL

Section 620.105 Purpose

This Part prescribes various aspects of groundwater quality, including method of classification of groundwaters, standards for quality of groundwaters, and various procedures and protocols for the management and protection of groundwaters.

Section 620.110 Definitions

The definitions of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1001 et seq.) and the Groundwater Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7451 et seq.) apply to this Part unless otherwise provided. The following definitions also apply to this Part.

"Act" means the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1001 et seq.).

"Adverse Effect" means any gross or overt effect on an organism, including but not limited to reversible histopathological damage, severe convulsions, irreversible functional impairment and lethality, as well as any non-overt effect on an organism resulting in functional impairment or pathological lesions which may affect the performance of the whole organism, or which reduces the organism's ability to respond to an additional challenge.

"Agency" means the Illinois Environmental Protection Agency.

"Appropriate agency" means the agency responsible for regulating a facility with respect to groundwater, including the Environmental Protection Agency, Illinois Department of Public Health, Illinois Department of Mines and Minerals, pursuant to 35 Ill. Adm. Code 704.193; 724.Subpart F; 730.107; 731.Subpart F; 750; 807.313; 807.318; 811; Ill. Rev. Stat 1989, ch. 111 1/2, par. 1022.3; Ill. Rev. Stat. 1989, ch. 96 1/2, pars. 7901.01 et seq.; and 62 Ill. Adm. Code 1700 - 1850. For facilities that are not regulated with respect to groundwater by any other state agency, the appropriate agency is 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. (Ill. Rev. Stat. 1989, ch. 111 1/2, par.

7453(b)). For the purposes of this Part, "economically useful" means 150 gallons-per-day or more of water.

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

"Board" means the Illinois Pollution Control Board.

"Carcinogen" means a chemical, or complex mixture of closely related chemicals, which has been determined in accordance with USEPA Guidelines for Carcinogenic Risk Assessment, incorporated by reference at Section 620.125, to be a group A, B1, B2 or C carcinogen.

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2 par. 1003.05).

"CONTAMINANT" MEANS ANY SOLID, LIQUID, OR GASEOUS MATTER, ANY ODOR, OR ANY FORM OF ENERGY, FROM WHATEVER SOURCE. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.06).

"Corrective action" means those actions, such as monitoring and clean up actions, that may be imposed by an appropriate agency when a determination has been made pursuant to Subpart E that contamination of groundwater has taken place and are necessary to prevent a violation of the standards set forth in Subpart C.

"Detect" , "detectable" or "detection" means found at:

USEPA's Method Detection Limit as described in 54 Fed. Reg. 22100, incorporated by reference in Section 620.125; or

USEPA's Method Quantification Limit as described in "Test Methods for Evaluating Solid Wastes", incorporated by reference in Section 620.125.

"Ecologically Vital Groundwater" means a groundwater classified according to the criteria specified at Section 620.205.

"Existing site" means a site that is not a new site.

"Facility" means all contiguous land and structures, other appurtenances and improvements on the land used for the treating, storing, handling, or disposal of any material which causes that unit to be regulated under

this Part. A facility may consist of one or more operational units.

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.64).

"Groundwater standard" means any of the water quality standards for groundwater set forth in Subpart C.

"Groundwater Protection Act" means the Illinois Groundwater Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 7451 et seq.).

"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.

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

"MAJOR RECONSTRUCTION" MEANS THE FIXED CAPITAL COST OF NEW COMPONENTS CONSTRUCTED WITHIN A 2-YEAR PERIOD EXCEED 50% OF THE FIXED CAPITAL COST OF A COMPARABLE ENTIRELY NEW FACILITY. New components do not include any components necessary for pollution control. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.59).

"Natural background" means the level of constituents in groundwater not caused by human activity.

"New site" means a site that, after the effective date of this Subpart:

Has changed zones from property class to commercial business, commercial office, or industrial; or

Is not a site for agricultural production and:

Undergoes major reconstruction; or

Contains a new potential primary or secondary source.

"NOAEL" or "No observable adverse effect level" means the highest tested concentration of a chemical or substance which does not produce a statistically significant increase in frequency or severity of non-overt adverse effects between the exposed population and its appropriate control. A 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. (Ill. Rev. Stat. 1989, ch. 111 1/2 par. 1003.05).

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

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

"POTABLE" MEANS GENERALLY FIT FOR HUMAN CONSUMPTION IN ACCORDANCE WITH ACCEPTED WATER SUPPLY PRINCIPLES AND PRACTICES. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7453(h)).

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.59).

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.58).

"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 SUBSTANCES; 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". (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.60).

"Practical Quantitation Limit" or "PQL" means the lowest concentration or level that can be measured within specified limits of precision and accuracy during routine laboratory operating conditions as set forth in "Test Methods for Evaluating Solids Wastes, Physical/Chemical Methods", incorporated by reference in Section 620.125, or "Methods Manual for Organics in Drinking Water", incorporated by reference in Section 620.125.

"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". (Ill. Rev. Stat. 1989, ch. 111 1/2 par. 1003.28).

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

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2 par. 1003.67).

"RESOURCE GROUNDWATER" MEANS GROUNDWATER THAT IS PRESENTLY BEING OR IN THE FUTURE CAPABLE OF BEING PUT TO BENEFICIAL USE BY REASON OF BEING OF SUITABLE QUALITY. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 7453(j)).

"Return flow" means ~~groundwater~~ water that returns to the ground's surface or to a depth of biologic activity.

"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. (Ill. Rev. Stat. 1989, ch. 111 1/2 par. 1003.61).

"SITE" MEANS ANY LOCATION, PLACE, TRACT OF LAND, AND FACILITIES, INCLUDING BUT NOT LIMITED TO BUILDINGS, AND IMPROVEMENTS USED FOR PURPOSES SUBJECT TO REGULATION OR CONTROL BY THIS ACT OR REGULATIONS THEREUNDER, and the Groundwater Protection Act or regulations thereunder. (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.61).

"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.----NOTE: DIFFERENT FROM 615 DEFINITION

"Unit" means ANY DEVICE, MECHANISM, EQUIPMENT, OR AREA (EXCLUSIVE OF LAND UTILIZED ONLY FOR AGRICULTURAL PRODUCTION). (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1003.62).

"USEPA" or "U.S. EPA" means the United States Environmental Protection Agency.

Section 620.115 Prohibition

No person shall cause, threaten or allow a violation of the Act, the Groundwater Protection Act or 35 Ill. Adm. Code: Subtitle F regulations adopted by the Board thereunder, including but not limited to this Part.

Section 620.125 Incorporations by Reference

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

EMSL. Available from Environmental Monitoring Systems Laboratory, Office of Research and Development, USEPA, Cincinnati, Ohio 45268, (513-569-7562):

"Methods for Chemical Analysis of Water and Wastes," EPA Publication No. EPA-600/4-79-020, (March 1983).

"Methods for the Determination of Organic Compounds in Drinking Water," EPA, EMSL, EPA-600/4-88/039 (Dec. 1988).

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

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

"RCRA Groundwater Monitoring Technical Enforcement Guidance Document," EPA Publication No. OSWER-9950.1 (September 1986).

"Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846 (Third Edition, 1986, as amended by Revision I (December 1987)).

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

40 CFR 141 (1989)

40 CFR 300 (1989)

54 Fed. Reg. 22100 (May 22, 1989).

USGS. Available from: Distribution Branch, United States Geological Survey, 604 South Pickett Street, Alexandria, VA 22304, (703-648-7411):

"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 (1981).

- b) This Section incorporates no later editions or amendments.

Section 620.130 Exemption from General Use Standards and Public and Food Processing Water Supply Standards

Groundwater is not required to meet the general use standards and public and food processing water supply standards of 35 Ill. Adm. Code 302.Subparts B and C.

Section 620.135 Exclusion for Underground Water in Certain Man-Made Conduits

This Part does not apply to underground waters contained in subsurface drains, tunnels, reservoirs, storm sewers, tiles or sewers.

SUBPART B: GROUNDWATER CLASSIFICATION

Section 620.201 Groundwater Classes

All groundwaters of the State belong to one of the following five classes of groundwater in accordance with criteria specified in Sections 620.210 through 620.250:

- a) Class I: Potable Resource Groundwater;
- b) Class II: General Resource Groundwater;
- c) Class III: Remedial Groundwater;
- d) Class IV: Limited Use Groundwater; or
- e) Class V: Special Resource Groundwater.

Section 620.210 Class I: Potable Resource Groundwater

- a) A groundwater is a Potable Resource Groundwater if:
 - 1) Its natural background is less than or equal to the maximum contaminant levels (MCLs) found at 35 Ill. Adm.Code 611.Subpart F.
 - 2) It can be withdrawn at a rate greater than 563 liters per day (150 gallons per day).
- b) If a groundwater meets the criteria of subsection (a) except that the concentrations of one or more of the following naturally occurring constituents exceed the standards of subsection (a)(1), but can be treated to meet the standards of subsection (a)(1), then such groundwaters shall also belong to Class I:
 - 1) Iron;
 - 2) Manganese;
 - 3) Radioactive constituents.

Section 620.220 Class II: General Resource Groundwater

A groundwater is a General Resource Groundwater if it is not a Class I, III, IV, or V groundwater in accordance with criteria specified in Section 620.210, Section 620.230, Section 620.240 or Section 620.250.

Section 620.230 Class III: Remedial Groundwater

A groundwater is a Remedial Groundwater if it is:

- a) Contaminated groundwater from a site listed on the:
 - 1) National Priorities List (40 CFR 300), as incorporated by reference in Section 620.125; or
 - 2) State Remedial Action Priorities List (35 Ill. Adm. Code 860.210), except those sites that are listed in the Remediated Releases Group.
- b) Contaminated groundwater from leaking underground storage tank sites that are the subject of corrective action approved by the Agency under Section 22.18(b) of the Act, until corrective action at such sites is completed.
- c) Groundwater within an area which is the subject of corrective action approved by the Agency under 35 Ill. Adm. Code 724.Subpart F, until corrective action is completed.
- d) Groundwater that is undergoing corrective action under 35 Ill. Adm. Code: Subtitle F, until corrective action is completed.
- e) Groundwater at a coal mining site permitted by the Illinois Department of Mines and Minerals under the Surface Coal Mining Land Conservation and Reclamation Act (Ill. Rev. Stat. 1989, ch. 96 1/2, pars. 7901.01 et seq., as amended) and 62 Ill. Adm. Code 1700 - 1850 for which the hydrologic balance is disturbed, groundwater within an underground coal mine, or within the area from which overburden has been removed at a coal mining site, until reclamation and related groundwater monitoring have been completed.
- f) Groundwater within a previously mined area, until groundwater monitoring pursuant to 62 Ill. Adm. Code 1700 - 1850 demonstrates that the groundwater is capable of beneficial use. For purposes of this subsection (d)(6), the term "previously mined area" means land disturbed or affected by earlier coal mining operations that was not reclaimed in accordance with 62 Ill. Adm. Code 1700 - 1850.
- g) Groundwater found by the Board to require remedial action in any proceeding conducted in accordance with Section 620.260.

Section 620.240 Class IV: Limited Use Groundwater

Limited Use Groundwater is:

- a) Groundwater that naturally contains more than 10,000 mg/L of total dissolved solids;
- b) Groundwater which has been designated by the Board as an exempt aquifer pursuant to 35 Ill. Adm. Code 730.104; or
- c) Groundwater found by the Board, pursuant to the procedures set forth in Section 620.260, to have a concentration or one or more contaminants which renders the groundwater unsuitable for potable or general use.

Section 620.250 Class V: Special Resource Groundwater

- a) A groundwater is a Special Resource Groundwater if it is:
 - 1) ~~Found by the Board, pursuant to procedures set forth in Section 620.260, to warrant the application of a water quality standard different from the otherwise applicable water quality standard specified in Subpart C; or~~
 - 2) Designated by the Agency based on the criteria developed pursuant to subsection (b) as ecologically vital, in that the groundwater provides the return flow for a particularly sensitive ecological system.
- b) The Agency, in cooperation with the Department of Conservation and the Department of Energy and Natural Resources, shall develop a regulatory proposal for the designation of Ecologically Vital Groundwaters based on available information, including, but not limited to, information concerning wetlands, endangered species, threatened species, natural areas and aquatic systems. The Agency shall present such proposal for classifying Ecologically Vital Groundwaters to the Board for adoption.

Section 620.260 Reclassification of Groundwater by Adjusted Standard

Any person may petition the Board to reclassify a groundwater in accordance with the procedures for adjusted standards specified in Section 28.1 of the Act and 35 Ill. Adm. Code 106.Subpart G. In any proceeding to reclassify specific groundwater by adjusted standard, in addition to the requirements of 35 Ill. Adm. Code 106.Subpart G, and Section 28.1(c) of the Act, the petition shall, at a minimum, contain information to allow the Board to determine:

- a) The specific groundwater for which reclassification is requested, including but not limited to geographical extent of any aquifers, depth of groundwater, and rate and direction of groundwater flow;
- b) Whether the proposed change or use restriction is necessary for economic or social development, by providing information including, but not limited to, the impacts of the standards on the regional economy, social disbenefits such as loss of jobs or closing of facilities, and economic analysis contrasting the health and environmental benefits with costs likely to be incurred in meeting the standards would be beneficial or necessary;
- c) Existing and anticipated uses of the specific groundwater;
- d) Existing and anticipated quality of the specific groundwater;
- e) Existing and anticipated contamination, if any, of the specific groundwater;
- f) Technical feasibility and economic reasonableness of eliminating or reducing contamination of the specific groundwater or of maintaining existing water quality;
- g) All technically feasible and economically reasonable methods are being used to prevent the degradation of groundwater quality
- h) The anticipated time period over which contaminants will continue to affect the specific groundwater;
- i) Existing and anticipated impact on any potable water supplies due to either contamination or interruption;
- j) Availability and cost of alternate water sources or of treatment for those users adversely affected;
- k) Negative or positive effect on property values; and
- l) For return flow groundwater, negative or positive effect on:
 - 1) The quality of surface waters; and
 - 2) Wetlands, natural areas, and the life contained therein, including endangered or threatened species of plant, fish or wildlife listed pursuant to the Endangered Species Act 16 U.S.C. §531 et seq., or the Illinois Endangered Species

Protection Act (Ill. Rev. Stat. 1989, ch. 8, par.
331 et seq.).

SUBPART C: GROUNDWATER QUALITY STANDARDS

Section 620.301 Applicability

Groundwaters shall meet the standards appropriate to the groundwaters' class, as specified in this Subpart, except where due to natural background.

Section 620.305 Nondegradation

Groundwaters whose existing quality is better than the water quality standards of this Subpart at the effective date of this Part shall be maintained at their existing high quality. Such waters shall not be lowered in quality unless and until it is affirmatively demonstrated that such change will not interfere with or become injurious to any appropriate beneficial uses made of, or presently possible in, such waters and that such change is justifiable as a result of necessary economic or social development.

Section 620.307 No Penalty for Prior Degradation

- a) No person shall be liable for penalties assessed by the State under this Part for degradation of groundwater caused by lawful activities that took place prior to the effective date of this Part.
- b) Nothing in this Section shall limit the authority of the Board, the Agency or any other appropriate agency to require corrective action.

Section 620.310 Standards Applicable to Class I: Potable Resource Groundwater

- a) Groundwater standards are the same as the maximum contaminant levels (MCLs) specified in 35 Ill. Adm. Code 611.Subpart F, except as otherwise specified in this Section. In the event that 35 Ill. Adm. Code 611.Subpart F specifies more than one MCL for any given contaminant, the Class I groundwater standard is the more restrictive MCL.
- b) The groundwater standard for a constituent identified as a carcinogen, as defined at Section 620.110, shall be at the concentration at which the constituent is detected as defined at Section 620.110.

c) Miscellaneous constituents:

Constituent	Standard (mc/L)
Chloride	200
Sulfate	400

Total Dissolved Solids (TDS) 1200

- d) pH shall not be less than 6.5 nor more than 9.0.
- e) Contaminants must not be present in concentrations which, alone or in combination with other substances, cause adverse effects.

Section 620.320 Standards Applicable to Class II: General Resource Groundwater

- a) The groundwater standard for any organic chemical constituent shall be five times the standard applicable to a Class I groundwater, determined pursuant to Section 620.310(a), ~~except as otherwise provided in~~ this Section.
- ~~b) Except as otherwise provided in subsection (c), the~~ groundwater standard for a constituent identified as a carcinogen, as defined at Section 620.110, shall be at the concentration at which the constituent is detected as defined at Section 620.110.
- c) Miscellaneous constituents:

Constituent	Standard (mg/L)
Barium	5
Boron	2
Cadmium	0.5
Chloride	200
Chromium	1.0
Cobalt	1
Copper	1.3
Cyanide	0.6
ortho-Dichlorobenzene	1.5
Ethylbenzene	1.0
Fluoride	0.2
Lead	0.1
Mercury	0.1
Nickel	2.0
Selenium	0.02
Sulfate	400
Toluene	5.0
Total Dissolved Solids (TDS)	1200
Zinc	10

- d) pH shall not be less than 6.5 nor more than 9.0.

Section 620.330 Standards Applicable to Class III: Remedial Groundwater

- a) Prior to the completion of remediation or reclamation, groundwater standards shall be equal to the existing concentrations of contaminants in the groundwater underlying the site, as determined by groundwater monitoring.
- b) Except as provided in subsection (c), standards to be achieved for remediation or reclamation of Class III: Remedial Groundwater shall be the groundwater standards appropriate to that groundwater's class, as set forth in this Subpart.
- c) In a proceeding conducted pursuant to the procedures of Section 620.260, the Board may specify standards for remediation and reclamation different from those of subsection (b). Such standards shall apply only to the groundwaters specifically identified in the proceeding.

Section 620.340 Standard Applicable to Class IV: Limited Use Groundwater

The groundwater standard applicable to Limited Use Groundwaters is the nondegradation standard of Section 620.305, except as determined in a proceeding pursuant to Section 620.260.

Section 620.350 Standards Applicable to Class V: Special Resource Groundwater

Unless determined otherwise in the proceeding, pursuant to Section 620.260, in which the groundwater was classified as Class V, the standard for any substance is the standard applicable to a Class I: Potable Resource Groundwater pursuant to Section 620.310.

Section 620.360 Alternate Coal Mine TDS Standard

- a) This section shall apply only if the coal mine has been permitted by the Illinois Department of Mines and Minerals, pursuant to 62 Ill. Adm. Code 1700 - 1850, and applicable groundwater quality monitoring has been performed and reported to such Department.
- b) Sections 620.310, 620.320, 620.330, 620.340 and 620.350 notwithstanding, after reclamation at a coal mine has been completed, the concentration of total dissolved solids (TDS) shall not exceed:
 - 1) The post-mining ambient level or 3000 mg/L, whichever is less, for groundwater within an area:
 - A) Bounded by a perimeter located 200 feet around the area from which overburden has been removed; or

- B) From which coal has been extracted from an underground coal mine; or
- 2) The post-mining ambient level or 5000 mg/L, whichever is less, for groundwater in underground coal mines and in areas reclaimed after surface coal mining if the Illinois Department of Mines and Minerals and the Agency pursuant to 62 Ill. Adm. Code 1700 -1850 have determined that no resource groundwater existed prior to mining.

SUBPART D: MISCELLANEOUS PROCEDURES AND PROTOCOLS

Section 620.405 Compliance Point

Compliance with the standards of Subpart C shall be determined at any spring at the point of discharge from the spring or at any well that meets one or more of the following criteria:

- a) The well has been permitted by the Department of Public Health or the Department of Mines and Minerals, pursuant to 62 Ill. Adm. Code 1700 - 1850, or has been located and constructed (or reconstructed) to meet the Illinois Water Well Construction Code (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 116.111 et seq., as amended) and 35 Ill. Adm. Code 920.
- b) The well has been permitted by the Agency pursuant to 35 Ill. Adm. Code 602.101 or 602.102, or has been constructed in accordance with standards adopted by the Agency pursuant to 35 Ill. Adm. Code 602.115.
- c) The well is a monitoring well which meets the following minimum criteria:
 - 1) Well casings and screens are made from material resistant to expected chemical or physical degradation, and are made of materials that do not interfere with the quality of groundwater samples being collected. Well casings and screens are made from fluorocarbon resins, stainless steel, or other similarly inert material in the saturated zone if the well casings or screens may interfere with the sampling results.
 - 2) The annular space opposite the screened section of the well (i.e., the space between the bore hole and well screen) are filled with gravel or sand in order to collect groundwater samples. The annular space above and below the well screen are to be sealed to prevent migration of water from adjacent formations and the surface to the sampled depth.

Section 620.410 Sampling Procedures

Any sample taken to make a demonstration pursuant to this Subtitle shall be collected in accordance with the procedures set forth in the documents listed in Section 620.125(a)(4) through (a)(9), except that:

- a) For a potable well other than a community water supply well, the sample shall be taken at a sample tap located prior to any treatment or at the nearest tap to the potable water well.

quality assurance/quality control methodology);
and

- 4) Chain of custody control.

SUBPART E: PREVENTIVE MANAGEMENT PROCEDURES AND CORRECTIVE ACTION

Section 620.501 Applicability

- a) This Subpart applies to:
 - 1) New sites located within Class I: Potable Resource Groundwater, Class II: General Resource Groundwater or Class V: Special Resource Groundwater.
 - 2) Existing sites located within a setback zone.
- b) Nothing in this Subpart shall in any way limit the authority of the Board, of the State or of the United States to require or perform any corrective action, reclamation, or clean-up, including but not limited to removal or remedial action, under any State or Federal law or regulation.

Section 620.505 Preventive Management Triggers

A preventive management response under Section 620.510 shall be undertaken:

- a) Whenever there is a detection in a Class I: Potable Resource Groundwater of any contaminant for which a groundwater standard exists pursuant to Section 620.310(a), (b) or (c), except where the contaminant is present due to natural background.
- b) Whenever there is a detection in a Class II: General Resource Groundwater of:
 - 1) Arsenic, cadmium, chromium, cyanide, lead or mercury, except due to natural background; or
 - 2) Any of the following constituents is detected:
 - Alachlor
 - Aldicarb
 - Atrazine
 - Benzene
 - Carbofuran
 - Carbon tetrachloride
 - Chlordane
 - Chlorobenzene
 - 2,4-D
 - ortho-Dichlorobenzene
 - para-Dichlorobenzene
 - 1,2-Dichloroethane
 - 1,1-Dichloroethylene

cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
Endrin
Ethylbenzene
Heptachlor
Heptachlor epoxide
Lindane
Methoxychlor
Pentachlorophenol
Phenols
Polychlorinated biphenyls
Styrene
2,4,5-TP
Tetrachloroethylene
Toluene
Toxaphene
1,1,1-Trichloroethane
Trichloroethylene
Vinyl chloride
Xylenes

Section 620.510 Preventive Management Response Procedures

- a) Any person making a detection of a contaminant pursuant to Section 640.405 shall:
 - 1) Confirm the detection by resampling and reanalysis. Resampling shall be made within 30 days of the date upon which the results of the original sample analyses were received.
 - 2) If the resample analysis confirms the detection, notify the appropriate agency within 30 days of the date on which the results of the sample analyses are received, but no later than 90 days after the results of the original sample were received.
- b) If the sampling location is a community water supply well and the Agency receives notice under subsection (a) that a detection has been confirmed, the Agency shall notify the owner or operator of any potential primary source, potential secondary source, potential route, or community water supply well known to the Agency that is located within 3,000 feet of the sampling location indicating the detection.
- c) If the sampling location is a non-community water supply well or if multiple private water supply wells may be adversely affected, and the Department of Public Health receives notice under subsection (a) that a detection has occurred, the Department of Public Health

shall conduct a sanitary survey within 500 feet of the sampling location.

- d) The owner or operator notified under subsection (b) shall, within 30 days of the date of issuance of such notice, sample each of its own water wells or monitoring wells for the parameter identified in the notice if the parameter or material containing such parameter is or has been stored, disposed, or otherwise handled at the site. If a constituent identified under Section 620.505 is detected, then the water well shall be resampled within 30 days of the date on which the first sample analyses are received. The results of each analysis shall be reported to the Agency within 90 days of the date of issuance of the notice.
- e) If the Agency receives notice under subsection (a) that a contaminant identified under Section 620.505(a) has been detected, the Agency shall:
 - 1) Conduct a well site survey pursuant to Section 17.1(d) of the Act, if such a survey has not been previously conducted within the last 3 years; and
 - 2) Identify those sites or activities which represent a hazard to the continued availability of groundwaters for public use, unless a groundwater protection needs assessment has been prepared pursuant to Section 17.1 of the Act.

Section 620.515 Corrective Action Triggers for Class I:
 Potable Resource Groundwater

Corrective action shall take place if a constituent is detected pursuant to Section 620.505(a) and one or more of the following exist:

- a) Any of the following concentrations is exceeded:

Constituent	Concentration (mg/L)
BETX	0.095
Pentachlorophenol	0.03
para-Dichlorobenzene	0.005
ortho-Dichlorobenzene	0.01
Ethylbenzene	0.03
Styrene	0.01
Toluene	0.04
Xylenes	0.02; or

- b) For a constituent other than those identified in subsection (a), the constituent is a carcinogen and the

SUBPART F: HEALTH ADVISORIES

Section 620.601 Purpose of a Health Advisory

This Subpart establishes procedures for the issuance of a Health Advisory that sets forth guidance levels that, in the absence of groundwater standards under Section 620.310, must be considered by the Agency in:

- a) Establishing groundwater cleanup or action levels whenever there is a release or substantial threat of a release of:
 - 1) A hazardous substance or pesticide; or
 - 2) Other contaminant that creates or may create an immediate danger to public health or the environment.
- b) Determining whether the community water supply is taking its raw water from the "best available source which is economically reasonable and technologically possible" as required under 35 Ill. Adm. Code 611.231
- c) Developing rulemaking proposals for new or revised numerical groundwater standards.
- d) Evaluating mixtures of chemical substances, including but not limited to those substances for which numerical standards have been set under Section 620.310.

Section 620.605 Issuance of a Health Advisory

- a) The Agency shall issue a Health Advisory for a chemical substance or mixture of chemical substances if all of the following conditions are met:
 - 1) A community water supply well is sampled and a substance or mixture of chemical substances is detected and confirmed by resampling;
 - 2) There is no groundwater standard under Section 620.310 for such chemical substance or there is no standard for one or more substances contained in a mixture of chemical substances; and
 - 3) The chemical substance or mixture of chemical substances is toxic or harmful to human health in accordance with the procedures of Appendix A, B or C.
- b) The Health Advisory shall 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 which 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. If there is no MCLG for the substance, the guidance level shall be 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 PQL for the substance. If the concentration for such substance is less than the lowest PQL for the substance, the guidance level is the lowest PQL.
- 2) If the chemical substance is a carcinogen, the guidance level for any such chemical substance shall be the lowest PQL for such substance.
- 3) If mixtures of similar-acting chemical substances are present, the level for such substances shall be determined in accordance with Appendices A, B, and C.

Section 620.610 Publishing Health Advisories

- a) The Agency shall publish the full text of each Health Advisory upon issuance and make the document available to the public.
- b) The Agency shall publish and make available to the public, at intervals of not more than 6 months, a comprehensive and up-to-date summary list of all Health Advisories.

Section 620. Appendix A Procedures for Determining Human
Threshold Toxicant Advisory
Concentration for Class I: Potable
Resource Groundwater

- a) For those substances for which USEPA has not adopted a Maximum Contaminant Level Goal (MCLG), the Human Threshold Toxicant Advisory Concentration shall be calculated as follows:

$$\text{HTTAC} = \text{RSC} \times \text{ADE}/\text{W}$$

Where:

HTTAC = Human Threshold Toxicant Advisory Concentration in milligrams per liter (mg/L);

RSC = Relative contribution of the amount of the exposure to a chemical via drinking water when compared to the total exposure to that chemical from all sources. Valid chemical-specific data shall be used if available. If valid chemical-specific data are not available, a value of 20% (=0.20) shall be used;

ADE = Acceptable Daily Exposure of substance in milligrams per day (mg/d) as determined pursuant to subsection (b); and

W = Per capita daily water consumption equal to 2 liters per day (L/d).

- b) Procedures for Determining Acceptable Daily Exposures for Class I: Potable Resource Groundwater
- 1) The Acceptable Daily Exposure (ADE) represents the maximum amount of a threshold toxicant in milligrams per day (mg/d) which if ingested daily for a lifetime results in no adverse effects to humans. Subsections (b)(2) through (b)(6) list, in prescribed order, methods for determining the ADE in Class I: Potable Resource Groundwater.
 - 2) For those substances for which the USEPA has derived a Verified Oral Reference Dose for humans, USEPA's Reference Dose given in milligrams per kilogram per day (mg/kg/d) shall be used. The ADE equals the product of multiplying the Reference Dose by 70 kilograms (kg), which is the assumed average weight of an adult human.

- 3) For those substances for which no observed adverse effect level for humans (NOAEL-H) exposed to the substance has been derived, the ADE equals the product of multiplying one-tenth of the NOAEL-H given in milligrams of toxicant per kilogram of body weight per day (mg/kg/d) by the average weight of an adult human of 70 kilograms (kg). If two or more studies are available, the lowest NOAEL-H shall be used in the calculation of the ADE.
- 4) For those substances for which only a lowest observed adverse effect level for humans (LOAEL-H) exposed to the substance has been derived, one-tenth the LOAEL-H shall be substituted for the NOAEL-H in subsection (b)(3).
- 5) For those substances for which no observed adverse effect level has been derived from studies of mammalian test species (NOAEL-A) exposed to the substance, the ADE equals the product of multiplying 1/100 of the NOAEL-A given in milligrams toxicant per kilogram of test species weight per day (mg/kg/d) by the average weight of an adult human of 70 kilograms (kg). Preference will be given to animal studies having High Validity, as defined in subsection (c), in the order listed in that subsection. Studies having a Medium Validity, as defined in subsection (c) shall be considered if no studies having High Validity are available. If studies of Low Validity, as defined in subsection (c) must be used, the ADE shall be calculated using 1/1000 of the NOAEL-A having Low Validity instead of 1/100 of the NOAEL-A of High or Medium Validity, except as described in subsection (b)(6). If two or more studies among different animal species are equally valid, the lowest NOAEL-A among animal species shall be used in the calculation of the ADE. Additional considerations in selecting the NOAEL-A include:
 - A) If the NOAEL-A is given in milligrams of toxicant per liter of water consumed (mg/L), prior to calculating the ADE the NOAEL-A must be multiplied by the average daily volume of water consumed by the mammalian test species in liters per day (L/d) and divided by the average weight of the mammalian test species in kilograms (kg).
 - B) If the NOAEL-A is given in milligrams of toxicant per kilogram of food consumed

(mg/kg), prior to calculating the ADE, the NOAEL-A must be multiplied by the average amount in kilograms of food consumed daily by the mammalian test species (kg/d) and divided by the average weight of the mammalian test species in kilograms (kg).

- C) If the mammalian test species was not exposed to the toxicant each day of the test period, the NOAEL-A must be multiplied by the ratio of days of exposure to the total days of the test period.
- D) If more than one equally valid NOAEL-A is available for the same mammalian test species, the best available data shall be used.

- 6) For those substances for which a NOAEL-A is not available but the lowest observed adverse effect level (LOAEL-A) has been derived from studies of mammalian test species exposed to the substance, one-tenth of the LOAEL-A may be substituted for the NOAEL-A in subsection (b)(5). The LOAEL-A shall be selected in the same manner as that specified in subsection (b)(5). One-tenth the LOAEL-A from a study determined to have Medium Validity may be substituted for a NOAEL-A in subsection (b)(5) if the NOAEL-A is from a study determined to have Low Validity, or if the toxicity endpoint measured in the study having the LOAEL-A of Medium Validity is determined to be more biologically relevant than the toxicity endpoint measured in the study having the NOAEL-A of Low Validity.

c) Procedures for Establishing Validity of Data from Animal Studies

1) High Validity Studies

- A) High validity studies use a route of exposure by ingestion or gavage, and are based upon:
 - i) Data from animal carcinogenicity studies with a minimum of 2 dose levels and a control group, 2 species, both sexes, with 50 animals per dose per sex, and at least 50 percent survival at 15 months in mice and 18 months in rats and at least 25 percent survival at 18 months in mice and 24 months in rats;

- ii) Data from animal chronic studies with a minimum of 3 dose levels and a control group, 2 species, both sexes, with 40 animals per dose per sex, and at least 50 percent survival at 15 months in mice and 18 months in rats and at least 25 percent survival at 18 months in mice and 24 months in rats, and a well-defined NOAEL; or
- iii) Data from animal subchronic studies with a minimum of 3 dose levels and control, 2 species, both sexes, 4 animals per dose per sex for non-rodent species or 10 animals per dose per sex for rodent species, a duration of approximately 10 percent of the test species' lifespan, and a well-defined NOAEL.

Supporting studies which reinforce the conclusions of a study of Medium Validity may be considered to raise such a study to High Validity.

2) Medium Validity Studies

Medium validity studies are based upon:

- A) Data from animal carcinogenicity, chronic, or subchronic studies in which minor deviations from the study design elements required for a High Validity Study are found, but which otherwise satisfy the criteria for a High Validity Study;
- B) Data from animal carcinogenicity and chronic studies in which at least 25 percent survival is reported at 15 months in mice and 18 months in rats (a lesser survival is permitted at the conclusion of a longer duration study, but the number of surviving animals should not fall below 20 percent per dose per sex at 18 months for mice and 24 months for rats), but which otherwise satisfy the criteria for a High Validity Study;
- C) Data from animal subchronic or chronic studies in which a Lowest Observable Adverse Effect Level (LOAEL) is determined, but which otherwise satisfy the criteria for a High Validity Study; or

D) Data from animal subchronic or chronic studies which have an inappropriate route of exposure (for example, intraperitoneal injection or inhalation) but which otherwise satisfy the criteria for a High Validity Study , with correction factors for conversion to the oral route.

3) Low Validity Studies

Low Validity Studies are studies not meeting the criteria set forth in subsection (c)(1) or (c)(2).

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 determining the maximum amount of similar-acting substances, determined pursuant to Appendix C, which may be present as a mixture in Class I: Potable Resource Groundwaters for the protection of human health. 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 are mixtures of similar acting substances:
- 1) Mixtures of ortho-Dichlorobenzene and para-Dichlorobenzene. The Hazard Index ("HI") for such mixtures shall be determined as follows:
$$HI = [\text{ortho-Dichlorobenzene}] \backslash 0.6 + [\text{para-Dichlorobenzene}] \backslash 0.075$$
 - 2) Mixtures of 1,1-Dichloroethylene and 1,1,1-trichloroethane. The Hazard Index ("HI") for such mixtures shall be determined as follows:
$$HI = [1,1\text{-Dichloroethylene}] \backslash 0.007 + [1,1,1\text{-trichloroethane}] \backslash 0.2$$
- 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 criteria 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 shall be calculated as follows:

$$HI = [A] \backslash AL-A + [B] \backslash AL-B + . . . [I] \backslash AL-I$$

Where:

HI = Hazard Index, unitless.

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

AL-A, AL-B, AL-I = 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 groundwater standard listed in Section 620.310; or
 - 2) For those substances for which groundwater standards have not been established in Section 620.310, the Human Threshold Toxicant Advisory Concentration (HTTAC) as determined in Appendix A.
- f) For substances which are carcinogens, the acceptable level is:
 - 1) The groundwater standards listed in Section 620.310; or
 - 2) For those substances for which groundwater standards have not been established under Section 620.310, the lowest PQL of USEPA-approved analytical methods for each substance.
- 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 shall be generated for each toxicity endpoint of concern.
- h) In addition to meeting the individual substance objectives, a Hazard Index shall be less than or equal to 1 for a mixture of similar-acting substances.

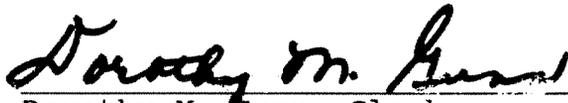
Section 620. Appendix C Guidelines for Determining When Dose Addition of Similar-Acting Substances in Class I: Potable Resource Groundwaters is Appropriate

- a) Substances shall 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) shall 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) shall not be considered mixtures, as defined in Appendix B. Such complex mixtures shall be considered to be 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 shall be the lowest PQL of USEPA-approved analytical methods.

IT IS SO ORDERED.

Board Members J. Anderson, J.D. Dumelle and B. Forcade concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 27th day of September, 1990, by a vote of 7-0.


Dorothy M. Gunn, Clerk
Illinois Pollution Control Board