

STATE OF VERMONT  
Agency of Natural Resources  
Department of Environmental Conservation

Chapter 12

GROUNDWATER PROTECTION RULE  
AND STRATEGY

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Deborah Markowitz, Secretary

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**SUBCHAPTER 1 – AUTHORITY AND PURPOSE**

§ 12-101. AUTHORITY

This rule and strategy is adopted under the authority of 10 V.S.A §§ 1390 and 1392(d).

§ 12-102. POLICY

(a) It is the policy of the State of Vermont to:

- (1) protect its groundwater resources to maintain high quality drinking water;
- (2) manage its groundwater resources to minimize the risks of groundwater quality deterioration by limiting human activities that present unreasonable risks to the use classifications of groundwater in the vicinity of such activities; and
- (3) protect and manage its groundwater resources in accordance with its responsibility as a trustee of those resources ( see Subchapter 3).

(b) The state's groundwater policy shall be balanced with the need to maintain and promote a healthy and prosperous agricultural community.

§ 12-103. PURPOSE AND APPLICABILITY

(a) Purpose. It is the purpose of this rule to establish:

- (1) a system of management for the different classes of groundwater;
- (2) a process for the reclassification of groundwater;
- (3) standards for the protection of groundwater quality; and
- (4) processes that must be incorporated into regulatory programs to ensure that activities that present a potential threat to groundwater are designed, managed, and permitted to protect groundwater resources.

(b) Applicability. The following rules and programs shall incorporate the requirements of this rule:

- (1) Solid Waste Management Rules;
- (2) Hazardous Waste Management Regulations;
- (3) Underground Storage Tank Rules;
- (4) Above Ground Storage Tank Regulations;

- (5) Underground Injection Control Rule;
  - (6) Indirect Discharge Rule;
  - (7) Stormwater Management Rule ;
  - (8) Stormwater Management Rule for Stormwater Impaired Waters;
  - (9) Wastewater System and Potable Water Supply Rule but only for wastewater systems; and
  - (10) Sites and Brownfields remedial programs.
- (c) The Secretary shall consider, prior to filing any proposed rule listed in subsection (b) of this section with the Interagency Committee on Administrative Rules, whether the activities regulated by that Rule:
- (1) may reasonably be anticipated to cause an undue adverse impact on groundwater; and
  - (2) if an undue adverse impact is expected, whether the rule has incorporated the necessary components of this groundwater protection rule.

§ 12-104. CLASSES OF GROUNDWATER

- (a) The following groundwater classifications have been established by statute:
- (1) Class I. Suitable for public water system. Character uniformly excellent. No exposure to activities which pose a risk to its current or potential use as a public water system.
  - (2) Class II. Suitable for public water system. Character uniformly excellent but exposed to activities which may pose a risk to its current or potential use as a public water system.
  - (3) Class III. Suitable as a source of water for a potable water supply, irrigation, agricultural use and general industrial and commercial use.
  - (4) Class IV. Not suitable as a source of potable water but suitable for some agricultural, industrial and commercial use.
- (b) Unless reclassified, all groundwater in the State is Class III.

**SUBCHAPTER 2 – DEFINITIONS**

§ 12-201. DEFINITIONS

As used in this rule, the following terms shall have the specified meaning. If a term is not defined, it shall have its common meaning:

- (1) "Agency" means the agency of natural resources.
- (2) "Aquifer" means a water bearing stratum of permeable rock, sand, gravel or other soils.
- (3) "Groundwater" means water below the land surface in a zone of saturation.
- (4) "High potential risk to groundwater" means the following activities permitted by the Agency:
  - (A) a solid waste landfill except those that are closed in accordance with an enforcement action or a certification under the Solid Waste Management Rules;
  - (B) a hazardous waste treatment or disposal facility;
  - (C) the storage of a regulated substance in a underground storage tank with a capacity greater than 2000 gallons;
  - (D) the storage of a regulated substance in an aboveground storage tank with a capacity greater than 2000 gallons;
  - (E) an automobile graveyard, as defined by 24 V.S.A. § 2441(15);
  - (F) a new indirect discharge system with a capacity greater than 50,000 gallons per day;
  - (G) the land application of sludge or septage;
  - (H) an underground injection well.
- (5) "High probability for use as a public water system source" means:
  - (a) the Secretary has issued a Source permit for a public water system source in accordance with the Water Supply Rule;
  - (b) the Secretary has granted a petition for a Class I designation and, if private lands are affected, is waiting for legislative approval of that designation; or

- (c) the Secretary has granted a petition for a Class II designation.
- (6) “Moderate potential risk to groundwater” means the following permitted activities:
- (A) the storage of heating fuel oil in an underground storage tank with a capacity equal to or less than 2000 gallons;
  - (B) the storage of a regulated substance in an above ground storage tank with a capacity equal to or less than 2000 gallons;
  - (C) a solid waste storage or transfer facility with a leachate collection system;
  - (D) a hazardous waste storage facility;
  - (E) a hazardous waste generator that meets the requirements of § 7-308(a) of the Vermont Hazardous Waste Management Regulations (Large Quantity Generators);
  - (F) a new indirect discharge system with a capacity less than 50,000 gallons per day; and
  - (G) stormwater discharge systems that infiltrate to groundwater.
- (7) “Monitoring well” means a device used to monitor the depth or elevation of the piezometric surface, or groundwater quality.
- (8) “Permit” means a permit, certification, authorization, or approval issued under the rules listed in § 12-103(b) of these Rules.
- (9) "Person" means any individual, partnership, company, corporation, cooperative, association, unincorporated association, joint venture, trust, the state of Vermont or any department, agency, subdivision, or municipality, the United States government or any department, agency, or subdivision, or any other legal or commercial entity.
- (11) “Potable Water Supply” means the source, treatment and conveyance equipment used to provide water used or intended to be used for human consumption, including drinking, washing, bathing, the preparation of food, or laundering. This definition does not include any internal piping or plumbing, except for mechanical systems, such as pump stations and storage tanks or lavatories, that are located inside a building or structure and that are integral to the operation of a potable water system. This definition also does not include a potable water supply that is subject to regulation under 10 V.S.A. Chapter 56.

- (12) “Public water system” means a public water supply as defined in 10 V.S.A. § 1671.
- (13) “Qualified Hydrogeologist” means a person with training or experience in hydrogeology, surficial geology, and bedrock geology sufficient to adequately prepare the hydrogeologic studies and analyses required by these rules.
- (14) “Receptor” means any natural or human-constructed feature that may be adversely affected when contacted by groundwater that exceeds a groundwater enforcement standard. Examples of receptors include public or private water supplies, surface waters, wetlands, soils, sensitive ecological areas, outdoor and indoor air, and enclosed spaces such as basements, sewers, and utility corridors.
- (15) “Secretary” means the secretary of the agency of natural resources or the secretary’s duly authorized representative.
- (16) “Technically Impractical” means a situation where the Secretary determines it is not possible to remediate groundwater contamination to totally eliminate exceedances of the groundwater enforcement standards. This determination shall be based on factors, including:
- (A) the nature of the subsurface geology;
  - (B) the types and physical properties of the contaminants;
  - (C) the source of the contaminants;
  - (D) the amount of the hazardous material released;
  - (E) the date of the original release of the contaminants (age);
  - (F) the fate and transport of the contaminants;
  - (G) whether technology or methods exist that can achieve full remediation;
- and
- (H) whether full remediation of the contamination would result in greater harm to human health or the environment than either lesser remediation or no remediation.
- (17) “Wastewater System” means any piping, pumping, treatment or disposal system used for the conveyance and treatment of sanitary waste or used water, including, but not limited to, carriage water, shower and wash water, and process wastewater. This definition does not include any internal piping or plumbing, except for mechanical systems, such as pump stations and storage tanks or toilets,



that are located inside a building or structure and that are integral to the operation of a wastewater system. This definition also does not include wastewater systems that are used exclusively for the treatment and disposal of animal manure. For the purposes of this Rule, “wastewater system” refers to a soil-based wastewater system of less than 6,500 gallons per day, or a sewerage connection (sanitary sewer service line and/or sanitary sewer collection line) of any size.

**SUBCHAPTER 3 – PUBLIC TRUST**

**§ 12-301 GENERAL**

- (a) It is the policy of the state that the groundwater resources of the state are held in trust for the public. To accomplish this policy, the groundwater resources of the state shall be managed to minimize the risks of groundwater quality deterioration by regulating human activities that present risks to the use of groundwater in the vicinities of such activities while balancing the state's groundwater policy with the need to maintain and promote a healthy and prosperous agricultural community.
- (b) The following are uses that are automatically protected as public trust uses:
- (1) a groundwater withdrawal for fire suppression or other public emergency purposes;
  - (2) domestic, residential use;
  - (3) groundwater withdrawal for farming;
  - (4) groundwater use by dairy processors and milk handlers licensed in accordance with 6 V.S.A. § 2721;
  - (5) potable water supplies, as that term is defined in the Wastewater System and Potable Water Supply Rules;
  - (6) public water systems, as that term is defined in the Water Supply Rules; and
  - (7) closed loop, standing column, or similar non-extractive geothermal heat pumps.
- (c)(1) The Secretary may, on a case by case basis, determine that a use not listed in subsection (b) of this section is a use that requires protection as a public trust use. In making this determination, the Secretary shall consider:
- (A) the nature of the use;
  - (B) whether it serves a public purpose; and
  - (C) whether the use could have an adverse effect on the state's groundwater resources.
- (2) Industrial and commercial uses of groundwater shall not be protected as public trust uses.

§ 12-302 PROHIBITION

The Secretary shall not permit or otherwise approve the discharge of a substance to groundwater that has a concentration of carcinogenic, mutagenic, or teratogenic constituents in excess of the groundwater enforcement standard for those constituents except when the discharge is part of the treatment authorized in an approved corrective action plan.

§ 12-303 PRESUMPTION OF COMPLIANCE

- (a) An activity subject to the rules listed in §12-103(b) of this Rule shall be presumed to be in conformance with the requirements of this Subchapter when:
- (1) The rule that regulates the activity requires compliance with this rule and, prior to the issuance of a permit, certification, or other authorization, requires that the Secretary make an affirmative finding that the regulated activity meets the requirements of this rule;
  - (2) The rule that regulates the activity includes:
    - (A)(i) performance or technical standards that constitute the best treatment and disposal technology. For the purposes of this subdivision, best treatment and control technology means performance or technical standards that are reliable, provide effective groundwater protection, assure protection of public trust uses and cost effective; or
    - (ii) best management practices that constitute the best treatment and disposal practices. For the purposes of this subdivision, best treatment and disposal practices means a combination of operational requirements and design standards that are reliable, provide effective groundwater protection, assure protection of public trust uses, and cost effective.
  - (B) a requirement that an applicant demonstrate as a part of the application process the following:
    - (i) the proposed project is not prohibited by the requirements of a municipal plan that applies to the location where the activity is proposed to be located;
    - (ii) the proposed project is not prohibited by the requirements of a regional plan that applies to the location where the activity is proposed to be located; and
    - (iii) if located within zone one or two of a public drinking water system source protection area, the proposed project is consistent with the requirements of the source protection area; and

- (iv) if located within a municipal groundwater protection overlay established by 24 V.S.A. § 4414(2), the proposed project is not inconsistent with the requirements of that overlay.
    - (C) a requirement that the applicant bear the burden of demonstrating compliance with the requirements to protect groundwater established by the rule. All reasonable doubt about the applicant's demonstration of compliance shall be construed against the applicant.
  - (3) The standards contained in the rule that governs the activity are:
    - (A) reviewed to assure that the rule achieves the standards under subdivision (2) of this subsection within three years of the adoption of this Rule; and
    - (B) if necessary, revised within five years of the adoption of this Rule.
  - (4) The standards contained in the rule that governs the activity are reviewed and, if necessary, revised every seven years after the initial review to assure that the rule continues to meet the standards under subsection (b) of this section.
- (b) An activity shall be presumed to be in conformance with this Subchapter if the substance to be discharged to groundwater as a result of the activity contains constituents in a concentration that does not exceed the groundwater enforcement standards.

#### § 12- 304 PERMITTING DETERMINATIONS

- (a) Any activity that requires an individual permit under a rule that does not meet the requirements of § 12-303 shall be reviewed by the Secretary on a case by case basis to ensure that the activity protects public trust uses. In order to make this determination, an applicant must submit sufficient information to the Secretary that demonstrates:
  - (1) The proposed activity will not result in a violation of a groundwater enforcement standard at the point of compliance;
  - (2) The proposed activity will not adversely affect a public trust use; and
  - (3) The proposed activity will not affect the public's future use of groundwater as a drinking water source. To demonstrate this, the applicant must show that after the cessation of the activity there will not be a violation of groundwater enforcement standards at any point on the property.
- (b) Any activity that requires a notice of intent to operate under a general permit under a rule that does not meet the requirements of § 12-303, shall be reviewed by the Secretary on a case by case basis as specified in Subsection (a) of this section unless the general permit has been amended to include conditions that require:

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- (A) the application of performance or technical standards that constitute the best treatment and disposal technology. For the purposes of this subdivision, best treatment and control technology means performance or technical standards that are reliable, provide effective groundwater protection, assure protection of public trust uses and cost effective; or
- (B) the application of best management practices that constitute the best treatment and disposal practices. For the purposes of this subdivision, best treatment and disposal practices means a combination of operational requirements and design standards that are reliable, provide effective groundwater protection, assure protection of public trust uses, and cost effective.
- (C) a person certify, as part of the notice of intent to operate under the general permit, the following:
- (i) the proposed project is not prohibited by the requirements of a municipal plan that applies to the location where the activity is proposed to be located;
  - (ii) the proposed project is not prohibited by the requirements of a regional plan that applies to the location where the activity is proposed to be located; and
  - (iii) if located within zone one or two of a public water system source protection area, the proposed project is consistent with the requirements of the source protection area; and
  - (iv) if located within a municipal groundwater protection overlay established by 24 V.S.A. § 4414(2), the proposed project is not inconsistent with the requirements of that overlay.
- (D) a requirement that the person submitting the notice of intent to operate bear the burden of demonstrating compliance with the requirements to protect groundwater established by the general permit. In the event of reasonable doubt regarding the person's demonstration of compliance, the Secretary shall determine that compliance has not been demonstrated.

§12-305 PRESUMPTION OF COMPLIANCE FOR STORMWATER SYSTEMS;  
PERIODIC REVIEW

- (a) Notwithstanding the provisions of §12-303 of this Rule, the Stormwater Management Rule and the Stormwater Management Rule for Impaired Waters are presumed to comply with this Subchapter and the individual permits, general permits and notices of intent to operate under those general permits do not need to contain affirmative findings for the following reasons:
- (1) those Stormwater Rules contain the best treatment and disposal technology for stormwater management systems, including vertical and horizontal isolation distances to the seasonal high groundwater table, bedrock, public water systems and potable water supplies;
  - (2) It is the Agency's policy to keep stormwater from being discharged to wastewater treatment facilities in order to avoid violations of the Vermont Water Quality Standards in surface waters during storm events as a result of this policy there is no alternative to the construction and use of stormwater management systems
  - (3) It is also the Agency's policy to infiltrate groundwater for the purpose of removing pollutants, recharging groundwater, protecting downstream flow; (4) once the operation of a stormwater management system is discontinued, the contaminants in the stormwater will naturally attenuate and the groundwater will be available for future public trust uses.
- (b) The standards contained in the Stormwater Management Rule and the Stormwater Management Rule for Impaired Waters, including the Stormwater Best Management Practices, shall be reviewed and, if necessary, revised every seven years to assure that the rule continues to apply requirements for the best treatment and control technology.

§12-306 PRESUMPTION OF COMPLIANCE FOR WASTEWATER SYSTEMS;  
PERIODIC REVIEW

- (a) Notwithstanding the provisions of §12-303 of this Rule, the Wastewater System and Potable Water Supply Rules are presumed to comply with this Subchapter and the permits do not need to contain affirmative findings for the following reasons:
- (1) they contain the best treatment and disposal technology for small scale systems disposing of pathogenic waste, including isolation distances, well shields and minimum site conditions;
  - (2) due to the rural nature of the state, in many areas there is no wastewater treatment facility to accept wastewater and therefore no alternative to the construction and use of wastewater systems;

- (3) 10 V.S.A. §1976(b) prohibits municipalities from writing specific requirements regulating wastewater systems, the majority of the municipalities in the state have zoning bylaws that implement town plans and address limitations on development that would be served by wastewater systems; and
- (4) once the operation of a wastewater system is discontinued, the pathogens in groundwater will die off and groundwater will be available for future public trust uses.
- (b) The standards contained in the Wastewater System and Potable Water Supply Rules shall be reviewed and, if necessary, revised every seven years to assure that the rule continues to apply requirements for the best treatment and control technology.

§ 12-307 REMEDIATION OF GROUNDWATER

A remedial action meets the requirements of this Subchapter provided:

- (1) The remediation does not adversely affect an existing use of groundwater; and
- (2) The remediation has resulted in:
  - (A) no violations of groundwater enforcement standards at the point of compliance; or
  - (B) a determination that total remediation of the contamination is technically impractical.

12-308 PUBLIC TRUST RIGHT OF ACTION

Notwithstanding a determination that an activity is in compliance with this Subchapter at the time a permit is issued, and in addition to all other remedies available at law, the Secretary may bring an action pursuant to 10 V.S.A. 1390(5) to assess damages against a person responsible for a discharge of a substance to groundwater that has adversely affected a public trust use or reached or exceeded the groundwater enforcement standards. Such damages may include:

- (1) the loss of any present public use of groundwater, including use for potable water supplies, agricultural uses, and all other non-potable uses of groundwater;
- (2) the loss of any future use of groundwater. When determining the future use of groundwater it shall be presumed that the water will be available for potable use;
- (3) the impact or damage to natural resources, including the impacts to surface water as a result of the discharge of a substance to groundwater; or

- (4) the economic benefit gained by the person responsible for the discharge of a substance.

#### **SUBCHAPTER 4 – MANAGEMENT OF CLASS I GROUNDWATER**

##### **§ 12- 401 CLASS I GROUNDWATER; DESIGNATED USES**

The Secretary shall encourage and promote the reclassification of groundwater to Class I when the groundwater is suitable for a public water system, the character is uniformly excellent and there is no exposure to activities that pose a risk to its current or potential use as a public water system.

##### **§ 12-402 MANAGEMENT**

Class I groundwater shall be managed as follows:

- (1) The Secretary may identify and classify Class I groundwater with legislative approval if privately owned lands are affected.
- (2) Rules listed in §12-103(b) of this Rule shall prohibit activities designated as high potential risk to groundwater and moderate potential risk to groundwater;
- (3) Wastewater systems shall not be located in Class I groundwater areas;
- (4) The Secretary shall participate in Act 250 and Section 248 proceedings when the proposed project may present a risk to groundwater quality in Class I groundwater to ensure that the designated use is protected.
- (5) The district commissions in issuing Act 250 permits and the public service board in issuing certificates of public good shall require that the project conforms to these rules.

#### **SUBCHAPTER 5 – MANAGEMENT OF CLASS II GROUNDWATER**

##### **§ 12-501 CLASS II GROUNDWATER; DESIGNATED USE**

The Secretary shall encourage and promote the reclassification of groundwater to Class II groundwater when it is suitable for a public water system and its character is uniformly excellent but exposed to activities which may pose a risk to its current or potential use as a public water system.

##### **§ 12-502 MANAGEMENT**

Class II groundwater shall be managed as follows:

- (1) The Secretary shall identify and classify Class II groundwater.



- (2) Rules listed in §12-103(b) of this Rule shall;
  - (A) Prohibit activities defined as high potential risk to groundwater.
  - (B) Prohibit activities defined as moderate potential risk to groundwater except when:
    - (i) if permitted, the activity demonstrates compliance with the groundwater enforcement standards at the point of compliance; or
    - (ii) the activity consists of tanks used to hold a regulated substance and the contents of the tank are used for residential heating purposes.
- (3) Wastewater systems may be allowed within a Class II groundwater area if a site specific assessment demonstrates that the drinking water source will not be at risk.
- (4) The Secretary may participate in Act 250 and Section 248 proceedings when the Secretary has determined that the proposed project may present a risk to groundwater quality in Class II groundwater to ensure that the purpose for which the groundwater was reclassified is protected.
- (5) The district commissions in issuing Act 250 permits and the public service board in issuing certificates of public good should require that the project conforms to these rules.

## **SUBCHAPTER 6 –MANAGEMENT OF CLASS III GROUNDWATER**

### **§ 12-601 CLASS III GROUNDWATER; DESIGNATED USES**

Class III groundwater is suitable as a source of water for a potable water supply, irrigation, agricultural use and general industrial and commercial use.

### **§ 12-602 MANAGEMENT**

Class III groundwater shall be managed as follows:

- (1) Rules listed in §12-103(b) of this Rule shall prohibit activities defined as high potential risk to groundwater, unless the permitted activity demonstrates compliance with groundwater enforcement standards at a point of compliance.
- (2) An activity defined as moderate potential risk is presumed to be in compliance with this Rule when:

- (A) The activity is subject to regulation under a rule listed in §12-103(b) of this Rule;
  - (B) Such rule contains standards related to groundwater protection; and
  - (C) The activity is in compliance with the standards for groundwater protection in such rule.
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- (3) Wastewater systems are allowed in a Class III groundwater area.
  - (3) The Secretary may participate in Act 250 and Section 248 proceedings when the Secretary has determined that the proposed project may present a risk to groundwater quality in Class III groundwater.
  - (4) The district commissions in issuing Act 250 permits and the public service board in issuing certificates of public good may require that the project conforms to these rules.

**SUBCHAPTER 7 – GROUNDWATER MANAGEMENT OF CLASS IV GROUNDWATER**

§ 12-701 CLASS IV GROUNDWATER

- (a) It is the purpose of a reclassification of groundwater to Class IV to protect human health by limiting human consumption of the groundwater and, if possible, to return the groundwater to Class III standards as soon as practical in light of the circumstances, the potential harm, and the source of the contaminant.
- (b) The Secretary shall require reclassification of groundwater to Class IV in the following situations:
- (1) when the Secretary determines that groundwater is causing or contributing to a violation of the Vermont Water Quality Standards;
  - (2) when the Secretary determines that remediation is technically impractical;
  - (3) when a groundwater enforcement standard has been exceeded and the exceedance is expected to last for five or more years except when
    - (A) institutional controls have been implemented to address the presence of the contamination, including but not limited to deed restrictions that limit access to groundwater, municipal ordinances that limit the use of contaminated groundwater, and restrictive easements or covenants; or
    - (B) the Secretary determines that the groundwater contamination poses a low risk. For the purposes of this determination, low risk means:
      - (i) groundwater contamination exists on a lot but there is compliance with the groundwater enforcement standards at the property boundary;
      - (ii) all development on the lot is served by a water service line;
      - (iii) a technical assessment of the contamination by the Secretary has determined that natural attenuation will result in compliance with the groundwater enforcement standards on the lot within ten years of the approval of a corrective action plan;
      - (iv) a corrective action plan for the site has been approved by the Secretary;
      - (v) the approved corrective action plan restricts activities on the site that could interfere with the natural attenuation process; and

- (vi) a notice that complies with the requirements of 10 V.S.A. §6608(d) has been recorded and indexed in the land records for the municipality where the lot is located.
- (c) The Secretary may require reclassification of groundwater to Class IV when there is an exceedance of the groundwater enforcement standards.
- (d) The Secretary shall not designate groundwater as Class IV in order for it to be used for industrial discharges.
- (e) The Secretary shall not designate groundwater as Class IV due to the presence of a wastewater system unless non- domestic type wastewater has been disposed of in the wastewater system.

§ 12-702 MANAGEMENT

Class IV groundwater shall be managed as follows:

- (1) When potential Class IV groundwater has been identified by the Secretary, the person or persons potentially responsible for contamination are required to map the extent of the contamination.
- (2) Rules listed in §12-103(b) of this Rule shall prohibit new activities that pose a high potential risk to groundwater in a Class IV groundwater area unless the permitted activity demonstrates compliance with groundwater enforcement standards at the point of compliance.
- (3) An activity defined as moderate potential risk in a Class IV groundwater area is presumed to be in compliance with this Rule when:
  - (A) the activity is subject to regulation under a rule listed in §12-103(b) of this Rule;
  - (B) such rule contains standards related to groundwater protection; and
  - (C) the activity is in compliance with the standards for groundwater protection in such rule.
- (4) No new potable water supply sources or public water system sources shall be located in a Class IV groundwater area.
- (5) Wastewater systems may be located in Class IV groundwater areas.
- (6) Violations of groundwater enforcement standards within a Class IV groundwater area shall be addressed in accordance with §11-907 of these Rules.

- (7) The person responsible for a permitted activity that contributes to a violation of a groundwater enforcement standard that was the basis for the reclassification of the groundwater in the area shall implement a corrective action plan that reduces or eliminates the release of that constituent to groundwater in accordance with §11-907 of these Rules.
- (6) The Secretary may participate in Act 250 and Section 248 proceedings when the Secretary has determined that the proposed project may cause or contribute to the deterioration of groundwater quality in Class IV groundwater in order to reduce or eliminate the impacts of the proposed project.
- (7) The district commissions in issuing Act 250 permits and the public service board in issuing certificates of public good may require that the project conforms to these rules.

## **SUBCHAPTER 8 – GROUNDWATER RECLASSIFICATION PROCESS**

### **§12-801 RECLASSIFICATION PETITION**

#### **(a) Petitioners.**

- (1) The following persons may submit a petition to the Secretary to reclassify groundwater:
  - (A) the Secretary;
  - (B) the legislative body of the municipality in the area of the proposed reclassification;
  - (C) 25 or more persons affected by the proposed reclassification;
  - (D) any person affected by contamination in the area that could be reclassified to Class IV groundwater; or
  - (E) for Class I or II groundwater reclassifications, the owner of a public water system located in the area of the proposed reclassification.
- (2) A person who the Secretary determines is causing or contributing to a violation of the groundwater enforcement standards at a point of compliance shall, if directed by the Secretary, submit a petition to the Secretary to reclassify groundwater to Class IV.

#### **(b) Petition. A petition to reclassify groundwater shall, at a minimum, include:**

- (1) A description of the purpose of the proposed reclassification and the designated use to be protected by the proposed reclassification.
- (2) A compilation of all available data (published reports, permits and permit applications, and field reconnaissance) that addresses the following in the area proposed to be reclassified:
  - (A) bedrock and surficial geology (e.g. rock type, depositional environment);
  - (B) geological structure (e.g. fracture pattern, jointing, lineaments);
  - (C) soils (e.g. thickness, stratification, hydraulic properties);
  - (D) aquifer type(s);
  - (E) groundwater flow, including estimated recharge and discharge areas; and
  - (F) high potential risk activities, moderate potential risk activities and other potential sources of contamination.
- (3) The estimated boundaries of the proposed reclassification area. All boundaries shall be delineated on a United States Geological Survey topographic map or maps at a scale of 1:24,000, 1:25,000 or at a scale that gives greater detail. The map shall also be annotated to show the following items within the boundaries of the proposed reclassification area:
  - (A) property lines;
  - (B) roads;
  - (C) surface waters and wetlands;
  - (D) drinking water sources for public water systems and potable water supplies and the well tag, if any, associated with the sources;
  - (E) all other existing uses of groundwater, including activities defined as high potential risk activities and moderate potential risk activities; and
  - (F) monitoring wells and well identification numbers.
- (4) A conceptual model of the aquifer structure and groundwater flow regime;
- (5) A description of the methods used to delineate the boundaries of the area proposed to be reclassified.
- (6) Information that addresses each of the following in the area of the proposed reclassification:

- (A) groundwater use or potential future use as a public water system source;
  - (B) the extent that existing land use and other activities pose a risk to the groundwater;
  - (C) current groundwater quality;
  - (D) the consequences of potential contamination;
  - (E) the availability of alternate sources of water; and
  - (F) the classification of all surface waters within the boundaries and within one mile of the boundaries of the proposed reclassification.
- (7) For petitions to reclassify to Class I groundwater, the following additional information:
- (A) an investigation of the area proposed to be reclassified showing that no high potential risk or moderate potential risk activities take place within the proposed boundaries of the reclassification area;
  - (B) a description of why there are no existing threats to public trust uses in the area of the proposed reclassification including a description of how the petitioner will protect public trust uses through the acquisition of real property, easements, municipal zoning, or other means;
  - (C) a description of who owns the land, including an identification of any easements that restrict land use, and the book and page number for the relevant deed or deeds: and
  - (D) a description of why the area proposed to be reclassified has a high probability for use as a public water system source.
- (8) For petitions to reclassify to Class II groundwater, the following additional information:
- (A) an investigation of the area proposed to be reclassified showing that no high potential risk activities take place within the proposed reclassification boundaries;
  - (B) an identification of potential threats to designated uses in the area of the proposed reclassification including a description of how the petitioner will protect the designated uses from the threat of future harm through the acquisition of real property, easements, municipal zoning, or other means; and

- (C) a description of why the area proposed to be reclassified has a high probability of use as a public water system source.
- (9) For petitions to reclassify to Class IV groundwater, the following additional information:
  - (A) an identification of the source or sources that are causing or contributing to the violation of the groundwater enforcement standards at a point of compliance;
  - (B) a description of the fate and transport of contaminants causing the violation; and
  - (C) a corrective action plan approved by the Secretary or a schedule to submit a corrective action plan approved by the Secretary. .
- (10) For petitions to reclassify groundwater that was previously classified as Class I, II, or IV the petitioner shall also include a description of the reason for the reclassification;
- (11) Any additional information the Secretary may require to make a determination that reclassification of the groundwater is appropriate.

§12-802 PUBLIC PARTICIPATION

(a) Notice.

- (1) Contents of the notice. At a minimum, the notice shall contain the following information:
  - (A) instructions on how to access the petition on the agency website;
  - (B) how to request a copy of the petition;
  - (C) the date the public comment period closes;
  - (D) how to submit comments on the proposed reclassification; and
  - (E) how to request a public informational meeting.
- (2) The Secretary shall post the information required by subsection (a) of this section, the petition to reclassify groundwater, and all supporting documentation on the agency's website.



- (b) Comment period. There shall be a public comment period of, at a minimum, 30 days. The comment period shall begin when the reclassification petition is posted on the Agency website. The comment period shall end no sooner than one week following the public informational meeting.
- (c) Consultation with the groundwater coordinating committee. The Secretary shall solicit comments from the groundwater coordinating committee on any reclassification petition. The Secretary shall give due consideration to the comments and recommendations of the groundwater coordinating committee. The Secretary may consult with the committee prior to the initiation of the public comment period and modify the draft decision to reclassify in response to the comments and recommendations of the committee.
- (d) Public informational meeting.
  - (1) the Secretary shall hold a public informational meeting on a petition to reclassify groundwater; and
  - (2) the Secretary shall provide notice of the public informational meeting in the same manner as required by subsection (a)(2) of this section. The notice shall include the time, date, and location of the public informational meeting. The public informational meeting shall take place during the comment period.

§12-803 RECLASSIFICATION DECISION

- (a) Final reclassification order. A final reclassification order shall contain the following:
  - (1) The Secretary's positive findings on the following:
    - (A) the factual information required under §12-801(b);
    - (B) That the area, when reclassified, will achieve the following public trust policy objectives:
      - (i) support of public trust uses within the boundaries of the new groundwater classification;
      - (ii) for Class I reclassifications, the groundwater resource will be maintained as high quality source for public water supplies;
      - (iii) groundwater quality is maintained to ensure an adequate supply of groundwater for public trust uses;
      - (iv) the area does not present an undue adverse effect on the use or classification of surface water; and

- (v) the area is consistent with any duly adopted municipal or regional plan provisions that address the quality or use of groundwater or the long-range management of groundwater resources.
- (2) A map that clearly delineates the boundaries of the reclassified area.
- (b) Response to comments. A final reclassification order shall be accompanied by a response to all comments received during the public comment period.
- (c) Posting. All final reclassification orders shall be posted to the Agency website and notice of the final order shall be provided to all persons identified under § 12-802(a)(2) and any person who provided comments during the public comment period.
- (d) Legislative approval for Class I groundwater reclassifications. No Class I groundwater reclassification that involves privately owned lands shall take effect until approved by an Act of the Vermont General Assembly pursuant to 10 V.S.A. 1394(f).

**SUBCHAPTER 9 – STANDARDS; BACKGROUND GROUNDWATER QUALITY;  
PREVENTATIVE AND CORRECTIVE ACTIONS**

**§ 12-901 GROUNDWATER ENFORCEMENT STANDARDS**

The groundwater enforcement standards are established in Appendix A.

**§ 12-902 PREVENTIVE ACTION LEVELS**

- (a) For all groundwater enforcement standards, a preventive action level shall be established as follows:
- (1) For all substances that have carcinogenic, mutagenic, or teratogenic properties or interactive effects, the preventive action level shall be 10% of the enforcement standard.
  - (2) The preventive action level for all other listed substances shall be 50% of the enforcement standard.
- (b) When the calculation of a preventive action level results in a preventive action level that is below any detection limit, the preventive action level shall be the detection limit.

**§ 12-903 INTERIM GROUNDWATER ENFORCEMENT STANDARDS**

- (a) The Secretary, in consultation with the Commissioner of Health, may establish an interim groundwater enforcement standard through the adoption of a procedure when:
- (1) the Department of Health issues or revises a Health Advisory and there is no enforcement standard for the substance;
  - (2) the Department of Health issues or revises a Health Advisory and the groundwater enforcement standard was based on the prior version of the advisory;
  - (3) the US EPA issues or revises a Maximum Contaminant Level (MCL) standard for a substance and the groundwater enforcement standard is based on the prior version of the MCL; or
  - (4) the Department of Health issues or revises a Health Advisory and the groundwater enforcement standard was based upon a MCL.
- (b) When there is an existing groundwater enforcement standard for a constituent and the Secretary adopts an interim standard for the same constituent, the interim standard shall supersede the existing standard so long as the interim standard is in effect.
- (c) Interim groundwater enforcement standards shall be effective for a maximum of two years.

- (d) Interim groundwater enforcement standards shall be posted on the agency website in the same location as this rule.
- (e) The groundwater coordinating committee shall be notified of the adoption of all interim groundwater enforcement standards.

§ 12-904 BACKGROUND GROUNDWATER QUALITY

- (a) Application for determining background water quality. A person may establish naturally occurring background groundwater quality concentration for a constituent by submitting a hydrogeologic model, monitoring plan and background groundwater quality report.
- (b) A person seeking to establish background water quality shall submit to the Secretary a hydrogeological model developed by a qualified hydrogeologist for the impacted area. In preparing the model, the qualified hydrogeologist shall utilize information from current and historic federal, state and town data sources to assess the following: the geologic data; geochemical data; geophysical data; climatological data; land uses; topography; soils; groundwater flow; and surface water systems. On a case by case basis, the Secretary may approve a model that contains less or different information provided that sufficient information is submitted for the Secretary to make a determination regarding background water quality.
- (c) Monitoring plan. A person seeking to establish background water quality shall submit a monitoring plan to the Secretary for review and approval prior to conducting sampling. The plan shall be prepared by a qualified hydrogeologist and shall be designed, in accordance with the hydrogeological model, in a manner that assures that the data will represent the groundwater quality conditions at the site. The plan shall identify, at a minimum, the following:
  - (1) the number of monitoring wells that will be sampled;
  - (2) the location and depth of the monitoring wells;

Note: Well locations should be unaffected by current and historic activities at the site, geologically and geochemically similar, and, if possible, hydrogeologically upgradient of the contaminant sources from the activity.
  - (3) the number and frequency of the samples to be taken from the monitoring wells and any other existing potable or non-potable wells;
  - (4) the sampling methodology;
  - (5) the constituents to be analyzed in the samples that are collected;
  - (6) the analytical methods to be used in conducting the sample analysis;

- (7) whether samples obtained prior to the approval of the monitoring plan will be used as data points and, if so, the sampling date, location, method of analysis for each of the samples to be used; and
- (8) a quality assurance/quality control plan for sample collection, testing and analysis.
- (d) Background Groundwater Quality Report. The person seeking to establish background water quality shall submit a background groundwater quality report to the Secretary. At a minimum the report shall include:
  - (1) an analysis of all data collected pursuant to the approved hydrogeological model and monitoring plan;
  - (2) any adjustments to the hydrogeologic model submitted to the Secretary under subsection (a) of this section.
  - (3) all sampling results; and
  - (4) a proposed background groundwater concentration and a justification for that concentration that may include statistical analysis.
- (e) Approval of background groundwater quality concentration. The Secretary shall review the background groundwater quality report including the proposed background groundwater quality concentration. The Secretary shall approve or deny the background proposal or establish an alternative background groundwater concentration. The Secretary may consult with the groundwater coordinating committee prior to making a final determination regarding background groundwater concentrations.

§ 12-905 COMPLIANCE POINTS

- (a) Rules adopted by the Secretary for the following regulated activities shall regulate activities to ensure the activities do not cause the groundwater enforcement standards to be reached or exceeded at the compliance points identified in subsection (b) of this section:
  - (1) Solid waste landfills certified pursuant to the Solid Waste Management Rules;
  - (2) Solid waste corrective actions pursuant to 10 V.S.A. 6605(i);
  - (3) Land application of sludge and septage certified pursuant to the Solid Waste Management Rules;
  - (4) Hazardous waste treatment or disposal facilities and corrective actions certified pursuant to the Hazardous Waste Management Regulations;
  - (5) Hazardous material corrective actions pursuant to 10 V.S.A § 6615;
  - (6) Underground injection control wells requiring a permit pursuant to the Underground Injection Control Rules;

- (7) Indirect discharges permitted pursuant to the Indirect Discharge Rules; and
  - (8) Underground Storage Tanks permitted pursuant to the Underground Storage Tank Rules.
- (b) For activities identified in subsection (a) of this section, the activity shall use one of the following compliance points:
- (1) any point of present use of groundwater;
  - (2) the boundary of any area classified as Class I or Class II groundwater; or
  - (3) any case specific point of compliance established under subsection (c) and (d) of this section but in no event greater than the down gradient property line.
- (c) The following horizontal distances for the compliance points shall be used for any new facility or expansion of an existing facility permitted after the adoption of these rules:
- (1) For an active certified solid waste landfill: a maximum of 150 feet from the edge of the liner.
  - (2) For certified hazardous waste treatment or disposal facilities, including waste piles, landfills, and surface impoundments: 0 feet from the edge of the regulated activity.
  - (3) For the permitted land application of residuals: no greater than the property line of the lot where the land application occurs
  - (4) For a permitted underground injection well: a case by case determination using the factors listed in subsection (d).
  - (5) For a permitted indirect discharge: no greater than the property line of the lot where the system is located.
  - (6) For releases of hazardous materials that are subject to corrective actions: no greater than the property line of the property where the release took place.
  - (7) For closed solid waste landfills: no greater than the property line of the lot where the landfill is located.
  - (8) For permitted underground storage tanks: outside of the underground tank system.
- (d) A person may petition the Secretary to modify the horizontal distance from the regulated activity to the compliance point identified under subsection (c) of this section. The Secretary may approve an increase or decrease to the horizontal distance if the petitioner demonstrates to the Secretary's satisfaction that the increase or decrease will not present any threat of harm to an existing groundwater use or is necessary in order to protect an existing groundwater use. In no case shall an increase be beyond property owned by the

petitioner. Any petition under this section shall provide the Secretary with information on all of the following and evidence that the proposed change will not result in a threat to any existing use of groundwater:

- (1) site topography;
- (2) nature, thickness and permeability of unconsolidated materials;
- (3) nature and permeability of bedrock;
- (4) groundwater depth, flow direction and velocity;
- (5) volume, type and characteristics of the potential contaminant(s), including waste loading;
- (6) contaminant mobility;
- (7) distances to property boundary and surface waters;
- (8) engineering design of the activity;
- (9) life span of the activity;
- (10) present and anticipated use of land and groundwater; and
- (11) potential abatement options if a groundwater enforcement standard is reached or exceeded.

§ 12-906 PREVENTATIVE ACTIONS

(a) If groundwater monitoring indicates groundwater reaches or exceeds a preventive action level at a compliance point and that the exceedance is not due to naturally occurring background groundwater quality, the person responsible for the permitted activity shall:

- (1) submit a report to the Secretary within 30 days of the detection that includes:
  - (A) a description of the cause of the exceedance;
  - (B) copies of all sampling data;
  - (C) a description of the reliability of the sampling data, including the quality of the sampling data, the sampling procedures, precision and accuracy of the analytical test, size of the data set, and the quality control and quality assurance procedures used; and
  - (D) recommendations regarding whether any action(s) should be taken to prevent a violation of a groundwater enforcement standard.

(b) The Secretary may request additional information.

- (c) The Secretary may require the person responsible for the exceedance to take such action(s) as the Secretary determines to be necessary to prevent exceedance of the groundwater enforcement standards.

§ 12-907 CORRECTIVE ACTIONS

- (a) General. If groundwater monitoring indicates groundwater reaches or exceeds a groundwater enforcement standard at a compliance point the person responsible for the activity shall notify the Secretary, submit an initial and supplemental reports, and take such actions as the Secretary may require to remediate the situation.

Note: 10 V.S.A. § 6617 requires that a release of a hazardous material be immediately reported to the Secretary. Notification to a regulatory program under this section does not satisfy the notification requirements under 10 V.S.A. § 6617. If a release has taken place notification shall be made to the following:

**Waste Management & Prevention Division at (802) 828-1138, Monday through Friday, 7:45 a.m. to 4:30 p.m. or the Department of Public Safety, Emergency Management Division at (800) 641-5005, 24 hours/day.**

- (b) Notification and initial report. The person responsible for the activity shall notify the Secretary of the detection immediately. Within ten days following the detection, that person shall submit an initial written report that provides a summary of the potential cause of the release, the constituents involved, and the known impacts on groundwater.
- (c) Immediate Actions. Based on the nature and degree of the constituents that meet or equal the groundwater enforcement standard and the possible receptors of the contaminated groundwater, the Secretary may require that immediate actions be taken to abate the risk to human health or the environment. These actions may include ceasing the activity involved, providing alternative sources of drinking water, providing treatment for affected sources, conducting a response action to contain the release, installation of monitoring wells, and the collection of additional samples.
- (d) Supplemental report. Within thirty (30) days following the detection, the person responsible for the activity shall prepare and submit to the Secretary a supplemental report that analyzes the following:
- (1) the reliability of the sampling data, including the quality of the sampling data, the sampling procedures, precision and accuracy of the analytical test, size of the data set, and the quality control and quality assurance procedures used.
  - (2) the human health and environmental impact of the detection, including the constituent's mobility in the subsurface, environmental fate, the risk posed by the constituent, whether the constituent is carcinogenic, mutagenic, teratogenic, or whether the constituent has interactive effects with other substances.



- (3) the effectiveness of the regulated activity in preventing groundwater contamination, including whether the regulated activity as designed, constructed, and operated is performing in accordance with the governing law and whether design or operational changes would reduce the concentration of the constituent in the groundwater. The Secretary may require person who is responsible for the activity to retain an independent consultant to perform this evaluation.
- (4) the presence of other sources of contamination in the area, including whether background conditions are causing or contributing to the violation of the groundwater enforcement standards.
- (5) the geologic and hydrogeologic conditions at the site including the nature, thickness and permeability of the unconsolidated materials; the nature and permeability of bedrock; the depth to the water table; groundwater flow gradients, both vertical and horizontal; the position of the activity within the groundwater flow system;
- (6) the current groundwater use in the vicinity of the activity, including a review of permitted uses in the vicinity, and a visual survey of uses in the area and an identification of all receptors in the vicinity of the activity that could potentially be affected.
- (7) any other information that the Secretary deems necessary to ensure the appropriate response to a constituent reaching or exceeding a groundwater enforcement standard.
- (e) Response to initial and supplemental reports. Based on the evaluation of all information available to the Secretary, including the initial and supplemental reports, the Secretary shall determine whether the response to the detection shall be pursuant to subsections (f) or (g) of this section
- (f) No further action. The Secretary may allow the person responsible for the activity to undertake no further action in response to a reaching or exceeding the groundwater enforcement standard at a point of compliance:

  - (1) if that person demonstrates, to the satisfaction of the Secretary, that the detection is solely attributable to naturally occurring background groundwater quality and that person's activity did not cause or contribute to the detected levels; or
  - (2) if that person demonstrates, to the satisfaction of the Secretary, that the detection is solely attributable to a different source not under the control of that person and that that person's activity did not cause or contribute to the detected levels.
- (g) Responses to detection. The range of responses that the Secretary may require the person responsible for the activity to take if a constituent reaches or exceeds the groundwater enforcement standard includes the following:

- (1) the installation of new or increased monitoring wells;
  - (2) require a change in the monitoring program, including increased monitoring;
  - (3) require an investigation of the extent of groundwater contamination;
  - (3) require a change in the operation of the activity;
  - (4) require a modification in the design of the activity and, if a permit is required for the modification, require the submission of a permit application for that design change, and require construction of those modified designs;
  - (5) require an alternate method of waste treatment or disposal;
  - (6) prohibit the activity or require closure and abandonment of the activity;
  - (7) require corrective action to restore groundwater quality;
  - (8) require removal of contaminated soils; or
  - (9) require any other action necessary to abate the groundwater contamination.
- (h) If the Secretary determines that a cause of reaching or exceeding a groundwater enforcement standard is an activity not subject to this rule, the Secretary shall:
- (1) notify the appropriate local, State, or Federal authorities of the activity and submit evidence demonstrating it is causing or contributing to the detection; and
  - (2) cooperate with the appropriate local, State, or Federal Authorities in determining the appropriate response.
- (i) Notwithstanding the timeframes established by this section, the Secretary and the person responsible for the activity may agree on an alternative timeframe for the submittal of a report.

§ 12-908 STATISTICAL ANALYSIS OF GROUNDWATER MONITORING DATA

The Secretary may allow the person responsible for an activity that has resulted in reaching or exceeding a groundwater enforcement standard at a point of compliance to determine if the detection is statistically significant. If statistical analysis for a constituent is required or allowed, the person responsible for the release shall utilize U.S. Environmental Protection Agency methods for determining statistical significance of groundwater samples.

**2015 GROUNDWATER ENFORCEMENT STANDARDS AND PREVENTATIVE ACTION LEVELS**

<u>Chemical Name</u>	<u>CAS No.</u>	<u>ENFORCEMENT STANDARD</u> <u>(µg/L)<sup>(a)</sup></u>	<u>PREVENTATIVE ACTION LEVEL</u> <u>(µg/L)<sup>(a)</sup></u>
-	-	-	-
<u>Acetone</u>	<u>67-64-1</u>	<u>649.8</u>	<u>324.9</u>
<u>Acifluorfen, sodium</u>	<u>62476-59-9</u>	<u>9.9</u>	<u>1</u>
<u>Alachlor</u>	<u>15972-60-8</u>	<u>2</u>	<u>0.2</u>
<u>Aldicarb</u>	<u>116-06-3</u>	<u>3<sup>(b)</sup></u>	<u>1.5<sup>(b)</sup></u>
<u>Aldicarb sulfone</u>	<u>1646-88-4</u>	<u>2<sup>(b)</sup></u>	<u>1<sup>(b)</sup></u>
<u>Aldicarb sulfoxide</u>	<u>1646-87-3</u>	<u>4<sup>(b)</sup></u>	<u>2<sup>(b)</sup></u>
<u>Aldrin</u>	<u>309-00-2</u>	<u>0.1</u>	<u>0.1</u>
<u>Ametryn</u>	<u>834-12-8</u>	<u>246.8</u>	<u>123.4</u>
<u>Aminoethyl ethanolamine (AEEA)</u>	<u>111-41-1</u>	<u>20</u>	<u>2</u>
<u>Ammonium sulfamate</u>	<u>7773-06-0</u>	<u>914.3</u>	<u>457.1</u>
<u>Anthracene</u>	<u>120-12-7</u>	<u>342.9</u>	<u>171.4</u>
<u>Antimony</u>	<u>7740-36-0</u>	<u>6</u>	<u>3</u>
<u>Arsenic</u>	<u>7440-38-2</u>	<u>10</u>	<u>1</u>
<u>Asbestos</u>	<u>1332-21-4</u>	<u>7E+6 fibers/L (longer than 10µm)</u>	<u>7E+5 fibers/L (longer than 10µm)</u>
<u>Atrazine</u>	<u>1912-24-9</u>	<u>3</u>	<u>1.5</u>

<b><u>Azoxystrobin</u></b>	<b><u>131860-33-8</u></b>	<b><u>558.3</u></b>	<b><u>279.2</u></b>
<u>Bacteria total coliform</u>	<u>N/A</u>	<u>absent</u>	<u>absent</u>
<u>Barium</u>	<u>7440-39-3</u>	<u>2000</u>	<u>1000</u>
<b><u>Bendiocarb</u></b>	<b><u>22781-23-3</u></b>	<b><u>1.7</u></b>	<b><u>1</u></b>
<b><u>Benefin (Benfluralin)</u></b>	<b><u>1861-40-1</u></b>	<b><u>5.5</u></b>	<b><u>0.6</u></b>
<b><u>Benomyl</u></b>	<b><u>17804-35-2</u></b>	<b><u>1</u></b>	<b><u>1</u></b>
<b><u>Bensulide</u></b>	<b><u>741-58-2</u></b>	<b><u>15.6</u></b>	<b><u>7.8</u></b>
<b><u>Bentazon</u></b>	<b><u>25057-89-0</u></b>	<b><u>453.1</u></b>	<b><u>226.6</u></b>
<b><u>Benzene*</u></b>	<b><u>71-43-2</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>
<u>Benzo(a)pyrene</u>	<u>50-32-8</u>	<u>0.2</u>	<u>0.1</u>
<u>Beryllium</u>	<u>7440-41-7</u>	<u>4</u>	<u>1</u>
<u>Beta particle and photon radioactivity</u>	<u>N/A</u>	<u>4 millirems/yr</u>	<u>50 pCi/L<sup>(c)</sup></u>
<b><u>Bis(2-chloro-1-methyl ethyl) ether</u></b>	<b><u>108-60-1</u></b>	<b><u>45.7</u></b>	<b><u>4.6</u></b>
<b><u>Bispyribac sodium</u></b>	<b><u>125401-92-5</u></b>	<b><u>300.2</u></b>	<b><u>150.1</u></b>
<b><u>Boron</u></b>	<b><u>7440-42-8</u></b>	<b><u>869.6</u></b>	<b><u>434.8</u></b>
<b><u>Boscalid</u></b>	<b><u>188425-85-6</u></b>	<b><u>145.1</u></b>	<b><u>14.5</u></b>
<b><u>Bromacil</u></b>	<b><u>314-40-9</u></b>	<b><u>110.9</u></b>	<b><u>11.1</u></b>
<u>Bromate</u>	<u>15541-45-4</u>	<u>10</u>	<u>10</u>
<b><u>Bromochloromethane</u></b>	<b><u>74-97-5</u></b>	<b><u>7.7</u></b>	<b><u>0.8</u></b>
<b><u>Bromomethane (Methyl bromide)</u></b>	<b><u>74-83-9</u></b>	<b><u>5.4</u></b>	<b><u>0.5</u></b>
<b><u>Bromoxynil</u></b>	<b><u>1689-84-5</u></b>	<b><u>1</u></b>	<b><u>1</u></b>

FINAL PRE-RULEMAKING DRAFT;  
GROUNDWATER PROTECTION RULE AND STRATEGY  
LAST REVISED ON 8/13/15

<b><u>Butylate</u></b>	<b><u>2008-41-5</u></b>	<b><u>170.4</u></b>	<b><u>85.2</u></b>
<u>Cadmium</u>	<u>7440-43-9</u>	<u>5</u>	<u>1</u>
<b><u>Carbaryl</u></b>	<b><u>63-25-2</u></b>	<b><u>26</u></b>	<b><u>2.6</u></b>
<u>Carbofuran</u>	<u>1563-66-2</u>	<u>40</u>	<u>20</u>
<b><u>Carbon tetrachloride*</u></b>	<b><u>56-23-5</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>
<b><u>Carboxin</u></b>	<b><u>5234-68-4</u></b>	<b><u>22.3</u></b>	<b><u>11.1</u></b>
<b><u>Carfentrazone ethyl</u></b>	<b><u>128639-02-1</u></b>	<b><u>47.9</u></b>	<b><u>23.9</u></b>
<b><u>Chloramben</u></b>	<b><u>133-90-4</u></b>	<b><u>68.6</u></b>	<b><u>34.3</u></b>
<b><u>Chlorantraniliprole</u></b>	<b><u>500008-45-7</u></b>	<b><u>5208.6</u></b>	<b><u>2604.3</u></b>
<u>Chlordane</u>	<u>12789-03-6</u>	<u>2</u>	<u>0.44</u>
<b><u>Chlorflurenol</u></b>	<b><u>2536-31-4</u></b>	<b><u>457.1</u></b>	<b><u>228.6</u></b>
<b><u>Chlorine</u></b>	<b><u>7782-50-5</u></b>	<b><u>4000<sup>(d)</sup></u></b>	<b><u>2000</u></b>
<u>Chlorite</u>	<u>7758-19-2</u>	<u>1000</u>	<u>100</u>
<u>Chlorobenzene</u>	<u>108-90-7</u>	<u>100</u>	<u>50</u>
<u>Chlorothalonil</u>	<u>1897-45-6</u>	<u>1.5</u>	<u>0.15</u>
<u>Chlorotoluene (ortho)</u>	<u>95-49-8</u>	<u>100</u>	<u>50</u>
<u>Chlorotoluene (para)</u>	<u>106-43-4</u>	<u>100</u>	<u>50</u>
<u>Chlorpyrifos</u>	<u>2921-88-2</u>	<u>20</u>	<u>10</u>
<u>Chromium (total)</u>	<u>7440-47-3</u>	<u>100</u>	<u>50</u>
<u>Cimectacarb</u>	<u>95266-40-3</u>	<u>1050</u>	<u>105</u>
<u>Clopyralid</u>	<u>1702-17-6</u>	<u>330</u>	<u>165</u>

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<u>Copper (at tap)</u>	<u>7440-50-8</u>	<u>1300<sup>(e)</sup></u>	<u>650</u>
<u>Cyanazine</u>	<u>21725-46-2</u>	<u>1</u>	<u>0.5</u>
<u>Cyanide</u>	<u>143-33-9</u>	<u>200</u>	<u>100</u>
<u>Dacthal</u>	<u>1861-32-1</u>	<u>7</u>	<u>0.7</u>
<u>Dalapon</u>	<u>75-99-0</u>	<u>200</u>	<u>100</u>
<u>Dazomet</u>	<u>533-74-4</u>	<u>88</u>	<u>44</u>
<u>Di(2-ethylhexyl)adipate</u>	<u>103-23-1</u>	<u>400</u>	<u>200</u>
<u>Di(2-ethylhexyl)phthalate</u>	<u>117-81-7</u>	<u>6</u>	<u>3</u>
<u>Diazinon</u>	<u>333-41-5</u>	<u>0.6</u>	<u>0.3</u>
<b><u>Dibromochloropropane*</u></b>	<b><u>96-12-8</u></b>	<b><u>0.02</u></b>	<b><u>0.02</u></b>
<u>Dicamba</u>	<u>1918-00-9</u>	<u>189</u>	<u>18.9</u>
<u>Dichlorobenzene (meta)</u>	<u>541-73-1</u>	<u>600<sup>(f)</sup></u>	<u>300</u>
<u>Dichlorobenzene (ortho)</u>	<u>95-50-1</u>	<u>600</u>	<u>300</u>
<u>Dichlorobenzene (para)</u>	<u>106-46-7</u>	<u>75</u>	<u>37.5</u>
<u>Dichlorodifluoromethane</u>	<u>75-71-8</u>	<u>1000</u>	<u>500</u>
<u>Dichloroethane (1,1)</u>	<u>75-34-3</u>	<u>70</u>	<u>35</u>
<b><u>Dichloroethane (1,2)*</u></b>	<b><u>107-06-2</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>
<u>Dichloroethene (1,1)</u>	<u>75-35-4</u>	<u>7</u>	<u>0.7</u>
<u>Dichloroethene (cis-1,2)</u>	<u>156-59-2</u>	<u>70</u>	<u>35</u>
<u>Dichloroethene (trans-1,2)</u>	<u>156-60-5</u>	<u>100</u>	<u>50</u>
<u>Dichlorophenoxyacetic acid (2,4)</u>	<u>94-75-7</u>	<u>70</u>	<u>7</u>

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<u>Dichloroprop</u>	<u>120-36-5</u>	<u>140</u>	<u>14</u>
<b><u>Dichloropropane (1,2)*</u></b>	<b><u>78-87-5</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>
<u>Dichloropropene (1,3)</u>	<u>542-75-6</u>	<u>0.5</u>	<u>0.5</u>
<u>Dieldrin</u>	<u>60-57-1</u>	<u>0.02</u>	<u>0.02</u>
<b><u>Diethylenetriamine (DETA)</u></b>	<b><u>111-40-0</u></b>	<b><u>5154</u></b>	<b><u>2577</u></b>
<u>Dimethrin</u>	<u>70-38-2</u>	<u>2000</u>	<u>1000</u>
<u>Dinoseb</u>	<u>88-85-7</u>	<u>7</u>	<u>0.7</u>
<b><u>Dioxane (1,4)</u></b>	<b><u>123-91-1</u></b>	<b><u>0.3</u></b>	<b><u>0.3</u></b>
<u>Diphenamid</u>	<u>957-51-7</u>	<u>200</u>	<u>100</u>
<u>Diquat</u>	<u>85-00-7</u>	<u>20</u>	<u>10</u>
<u>Disulfoton</u>	<u>298-04-4</u>	<u>0.3</u>	<u>0.03</u>
<u>Diuron</u>	<u>330-54-1</u>	<u>10</u>	<u>5</u>
<u>Endothall</u>	<u>145-73-3</u>	<u>100</u>	<u>50</u>
<u>Endrin</u>	<u>72-20-8</u>	<u>2</u>	<u>1</u>
<b><u>Erioglucine</u></b>	<b><u>2650-18-2</u></b>	<b><u>7211.4</u></b>	<b><u>3605.7</u></b>
<u>Ethofumesate</u>	<u>26225-79-6</u>	<u>280</u>	<u>28</u>
<u>Ethoprop</u>	<u>13194-48-4</u>	<u>1</u>	<u>0.1</u>
<u>Ethylbenzene</u>	<u>100-41-4</u>	<u>700</u>	<u>350</u>
<u>Ethylene dibromide</u>	<u>106-93-4</u>	<u>0.05</u>	<u>0.01</u>
<u>Ethylene glycol</u>	<u>107-21-1</u>	<u>7000</u>	<u>700</u>
<u>Ethylene thiourea</u>	<u>96-45-7</u>	<u>5</u>	<u>5</u>

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<u>Etridiazole</u>	<u>2593-15-9</u>	<u>1</u>	<u>0.1</u>
<u>Fenamiphos</u>	<u>22224-92-6</u>	<u>2</u>	<u>1</u>
<u>Fenarimol</u>	<u>60168-88-9</u>	<u>630.5</u>	<u>315.25</u>
<u>Fluometuron</u>	<u>2164-17-2</u>	<u>90</u>	<u>45</u>
<u>Fluoranthene</u>	<u>206-44-0</u>	<u>280</u>	<u>140</u>
<u>Fluorene</u>	<u>86-73-7</u>	<u>280</u>	<u>140</u>
<u>Fluoride</u>	<u>7681-49-4</u>	<u>4000</u>	<u>2000</u>
<u>Flurprimidol</u>	<u>56425-91-3</u>	<u>700</u>	<u>350</u>
<u>Flutolanil</u>	<u>66332-96-5</u>	<u>1400</u>	<u>140</u>
<u>Fluvalinate</u>	<u>69409-94-5</u>	<u>70</u>	<u>35</u>
<u>Fonofos</u>	<u>944-22-9</u>	<u>10</u>	<u>5</u>
<u>Formaldehyde</u>	<u>50-00-0</u>	<u>1000</u>	<u>100</u>
<u>Fosetyl-al</u>	<u>39148-24-8</u>	<u>2343</u>	<u>234.3</u>
<u>Glufosinate-ammonium</u>	<u>77182-82-2</u>	<u>20</u>	<u>10</u>
<u>Glyphosate</u>	<u>1071-83-6</u>	<u>700</u>	<u>350</u>
<u>Gross Alpha (adjusted)</u>	<u>NA</u>	<u>15 pCi/L<sup>(g)</sup></u>	<u>5 pCi/L<sup>(g)</sup></u>
<u>Haloacetic acids (total)</u>	<u>NA</u>	<u>60</u>	<u>6</u>
<u>Halofenozide</u>	<u>112226-61-6</u>	<u>46</u>	<u>23</u>
<u>Halosulfuron-methyl</u>	<u>100784-20-1</u>	<u>990</u>	<u>495</u>
<u>Hepatchlor</u>	<u>76-44-8</u>	<u>0.4</u>	<u>0.088</u>
<u>Hepatchlor epoxide</u>	<u>1024-57-3</u>	<u>0.2</u>	<u>0.06</u>



<b><u>Hexachlorobenzene*</u></b>	<b><u>118-74-1</u></b>	<b><u>0.1</u></b>	<b><u>0.1</u></b>
<u>Hexachlorobutadiene</u>	<u>87-68-3</u>	<u>1</u>	<u>0.5</u>
<u>Hexachlorocyclopentadiene</u>	<u>77-47-4</u>	<u>50</u>	<u>25</u>
<b><u>Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)</u></b>	<b><u>121-82-4</u></b>	<b><u>0.3</u></b>	<b><u>0.3</u></b>
<u>Hexane (n)</u>	<u>110-54-3</u>	<u>420</u>	<u>210</u>
<u>Hexazinone</u>	<u>51235-04-2</u>	<u>200</u>	<u>100</u>
<u>Imidicloprid</u>	<u>138261-41-3</u>	<u>93</u>	<u>9.3</u>
<u>Iprodione</u>	<u>36734-19-7</u>	<u>280</u>	<u>140</u>
<u>Isophorone</u>	<u>78-59-1</u>	<u>100</u>	<u>50</u>
<u>Isoxaben</u>	<u>82558-50-7</u>	<u>175</u>	<u>17.5</u>
<u>Lead (at tap)</u>	<u>7439-92-1</u>	<u>15<sup>(e)</sup></u>	<u>1.5</u>
<u>Lindane</u>	<u>58-89-9</u>	<u>0.2</u>	<u>0.1</u>
<u>Maleic hydrazide</u>	<u>123-33-1</u>	<u>4000</u>	<u>400</u>
<u>Maneb</u>	<u>12427-38-2</u>	<u>35</u>	<u>17.5</u>
<b><u>Manganese</u></b>	<b><u>7439-96-5</u></b>	<b><u>300</u></b>	<b><u>150</u></b>
<u>MCPA [4(chloro-2-methoxyphenoxy) acetic acid]</u>	<u>94-74-6</u>	<u>10</u>	<u>1</u>
<u>Mecoprop</u>	<u>93-65-2</u>	<u>35</u>	<u>3.5</u>
<u>Mercury (inorganic)</u>	<u>7487-94-7</u>	<u>2</u>	<u>0.5</u>
<u>Metalaxyl</u>	<u>57837-19-1</u>	<u>350</u>	<u>35</u>
<u>Methomyl</u>	<u>16752-77-5</u>	<u>200</u>	<u>100</u>

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<u>Methoxychlor</u>	<u>72-43-5</u>	<u>40</u>	<u>4</u>
<u>Methyl ethyl ketone</u>	<u>78-93-3</u>	<u>4200</u>	<u>2100</u>
<u>Methyl isobutyl ketone</u>	<u>108-10-1</u>	<u>560</u>	<u>280</u>
<u>Methyl parathion</u>	<u>298-00-0</u>	<u>2</u>	<u>1</u>
<b><u>Methyl tert butyl ether (MTBE)</u></b>	<b><u>1634-04-4</u></b>	<b><u>11.3</u></b>	<b><u>5</u></b>
<u>Methylene chloride</u>	<u>75-09-2</u>	<u>5</u>	<u>0.5</u>
<u>Metolachlor</u>	<u>51218-45-2</u>	<u>70</u>	<u>35</u>
<u>Metribuzin</u>	<u>21087-64-9</u>	<u>32.5</u>	<u>16.25</u>
<u>Molybdenum</u>	<u>7439-98-7</u>	<u>40</u>	<u>20</u>
<b><u>Monochloramine</u></b>	<b><u>10599-90-3</u></b>	<b><u>4000<sup>(d)</sup></u></b>	<b><u>2000</u></b>
<u>Myclobutanil</u>	<u>88671-89-0</u>	<u>120</u>	<u>12</u>
<u>Naphthalene</u>	<u>91-20-3</u>	<u>20</u>	<u>10</u>
<u>Napropamide</u>	<u>15299-99-7</u>	<u>70</u>	<u>35</u>
<u>Nickel</u>	<u>7440-02-0</u>	<u>100</u>	<u>50</u>
<u>Nitrate (as N)</u>	<u>14797-55-8</u>	<u>10000</u>	<u>5000</u>
<u>Nitrates/Nitrites (total)</u>	<u>NA</u>	<u>10000</u>	<u>5000</u>
<u>Nitrite (as N)</u>	<u>14797-65-0</u>	<u>1000</u>	<u>500</u>
<b><u>O-Phenylphenol</u></b>	<b><u>90-43-7</u></b>	<b><u>697.8</u></b>	<b><u>69.8</u></b>
<b><u>Octahydro-1,3,5,7-tetranitro-1,2,3,5,7-tetrazocine (HMX)</u></b>	<b><u>2691-41-0</u></b>	<b><u>57.1</u></b>	<b><u>28.6</u></b>
<u>Oxamyl</u>	<u>23135-22-0</u>	<u>200</u>	<u>100</u>
<u>Paclobutrazol</u>	<u>76738-62-0</u>	<u>455</u>	<u>45.5</u>

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<u>Paraquat</u>	<u>1910-42-5</u>	<u>30</u>	<u>3</u>
<u>Pendimethalin</u>	<u>40487-42-1</u>	<u>280</u>	<u>140</u>
<u>Pentachloronitrobenzene</u>	<u>82-68-8</u>	<u>6</u>	<u>3</u>
<b><u>Pentachlorophenol*</u></b>	<b><u>87-86-5</u></b>	<b><u>0.1</u></b>	<b><u>0.1</u></b>
<b><u>Pentaerythriol tetranitrate (PETN)</u></b>	<b><u>78-11-5</u></b>	<b><u>2.3</u></b>	<b><u>1.1</u></b>
<b><u>Perchlorate</u></b>	<b><u>1479-73-0</u></b>	<b><u>2.2</u></b>	<b><u>1.1</u></b>
<u>Phenol</u>	<u>108-95-2</u>	<u>2100</u>	<u>210</u>
<u>Picloram</u>	<u>1918-02-1</u>	<u>500</u>	<u>250</u>
<u>Polychlorinated Biphenyls</u>	<u>1336-36-3</u>	<u>0.5</u>	<u>0.25</u>
<u>Prometon</u>	<u>1610-18-0</u>	<u>100</u>	<u>50</u>
<u>Pronamide</u>	<u>23950-58-5</u>	<u>50</u>	<u>25</u>
<u>Propachlor</u>	<u>1918-16-7</u>	<u>90</u>	<u>45</u>
<u>Propamocarb hydrochloride</u>	<u>25606-41-1</u>	<u>924</u>	<u>92.4</u>
<u>Propazine</u>	<u>139-40-2</u>	<u>10</u>	<u>5</u>
<u>Propham</u>	<u>122-42-9</u>	<u>100</u>	<u>50</u>
<u>Propiconazole</u>	<u>60207-90-1</u>	<u>104</u>	<u>10.4</u>
<b><u>Propoxur (Baygon)</u></b>	<b><u>114-26-1</u></b>	<b><u>6.2</u></b>	<b><u>1</u></b>
<u>Quinlorac</u>	<u>84087-01-4</u>	<u>369</u>	<u>184.5</u>
<u>Radium<sup>226 &amp; 228</sup></u>	<u>7440-14-4</u>	<u>5 pCi/L</u>	<u>0.5 pCi/L</u>
<u>Selenium</u>	<u>7782-49-2</u>	<u>50</u>	<u>25</u>
<u>Simazine</u>	<u>122-34-9</u>	<u>4</u>	<u>2</u>

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<u>Styrene</u>	<u>100-42-5</u>	<u>100</u>	<u>50</u>
<b><u>Tall oil hydroxyethyl imidazoline</u></b>	<b><u>61791-39-7</u></b>	<b><u>118</u></b>	<b><u>59</u></b>
<b><u>Tartrazine</u></b>	<b><u>1934-21-0</u></b>	<b><u>3809.5</u></b>	<b><u>1904.8</u></b>
<u>Tebuthiuron</u>	<u>34014-18-1</u>	<u>500</u>	<u>250</u>
<u>Terbacil</u>	<u>5902-51-2</u>	<u>90</u>	<u>45</u>
<u>Terbufos</u>	<u>13071-79-9</u>	<u>0.9</u>	<u>0.45</u>
<u>Tetrachlorodibenzo-p-dioxin (2,3,7,8)</u>	<u>1746-01-6</u>	<u>3.00E-05</u>	<u>1.10E-05</u>
<u>Tetrachloroethane (1,1,1,2)</u>	<u>630-20-6</u>	<u>70</u>	<u>35</u>
<b><u>Tetrachloroethylene*</u></b>	<b><u>127-18-4</u></b>	<b><u>1</u></b>	<b><u>0.5</u></b>
<u>Thallium</u>	<u>7440-28-0</u>	<u>2</u>	<u>1</u>
<u>Thiophanate methyl</u>	<u>23564-05-8</u>	<u>560</u>	<u>280</u>
<u>Thiram</u>	<u>137-26-8</u>	<u>35</u>	<u>3.5</u>
<u>Toluene</u>	<u>108-88-3</u>	<u>1000</u>	<u>500</u>
<u>Toxaphene</u>	<u>8001-35-2</u>	<u>3</u>	<u>2.2</u>
<u>Triadimefon</u>	<u>43121-43-3</u>	<u>10</u>	<u>1</u>
<u>Trichlorfon</u>	<u>52-68-6</u>	<u>1.5</u>	<u>0.15</u>
<u>Trichlorobenzene (1,2,4)</u>	<u>120-82-1</u>	<u>70</u>	<u>35</u>
<u>Trichlorobenzene (1,3, 5)</u>	<u>108-70-3</u>	<u>40</u>	<u>20</u>
<u>Trichloroethane (1,1,1)</u>	<u>71-55-6</u>	<u>200</u>	<u>100</u>
<u>Trichloroethane (1,1,2)</u>	<u>79-00-5</u>	<u>5</u>	<u>2.5</u>
<b><u>Trichloroethylene*</u></b>	<b><u>79-01-6</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>

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<u>Trichlorofluoromethane</u>	<u>75-69-4</u>	<u>2100</u>	<u>1050</u>
<u>Trichlorophenoxyacetic acid (2,4,5)</u>	<u>93-76-5</u>	<u>70</u>	<u>7</u>
<u>Trichlorophenoxypropionic acid (2,4,5)</u>	<u>93-72-1</u>	<u>50</u>	<u>25</u>
<b><u>Trichloropropane (1,2,3)</u></b>	<b><u>96-18-4</u></b>	<b><u>0.02</u></b>	<b><u>0.01</u></b>
<u>Triclopyr</u>	<u>55335-06-3</u>	<u>487</u>	<u>243.5</u>
<u>Trifloxystrobin</u>	<u>141517-21-7</u>	<u>410</u>	<u>205</u>
<u>Trifluralin</u>	<u>1582-09-8</u>	<u>5</u>	<u>2.5</u>
<u>Trihalomethanes (total)</u>	<u>NA</u>	<u>80</u>	<u>8</u>
<b><u>Trimethyl benzene (1,2,3)</u></b>	<b><u>526-73-8</u></b>	<b><u>5.1<sup>(h)</sup></u></b>	<b><u>1<sup>(i)</sup></u></b>
<b><u>Trimethyl benzene (1,2,4)</u></b>	<b><u>95-63-6</u></b>	<b><u>5.1<sup>(h)</sup></u></b>	<b><u>1<sup>(i)</sup></u></b>
<b><u>Trimethyl benzene (1,3,5)</u></b>	<b><u>108-67-8</u></b>	<b><u>5.1<sup>(h)</sup></u></b>	<b><u>1<sup>(i)</sup></u></b>
<b><u>Trinitrotoluene (2,4,6) (TNT)</u></b>	<b><u>118-96-7</u></b>	<b><u>0.8</u></b>	<b><u>0.3</u></b>
<u>Uranium</u>	<u>7440-61-1</u>	<u>20<sup>(j)</sup></u>	<u>2</u>
<b><u>Vinyl chloride*</u></b>	<b><u>75-01-4</u></b>	<b><u>0.5</u></b>	<b><u>0.5</u></b>
<u>Xylenes</u>	<u>1330-20-7</u>	<u>10000</u>	<u>5000</u>
<u>Zineb</u>	<u>142-14-3</u>	<u>350</u>	<u>175</u>

**Notes:**

**BOLD** - new value for 2015

Value adjusted to reflect analytical laboratory reporting limit

NA - Not Applicable

\* -Per 2014 MOA, Vermont Department of Health derived Vermont Action Level is used as the Enforcement Standard

(a) - All units are micrograms per Liter ( $\mu\text{g/L}$ ) [parts per billion (ppb)] unless otherwise noted

(b) - MCL of 7  $\mu\text{g/L}$  for any combination of Aldicarb, Aldicarb sulfone and Aldicarb sulfoxide; PAL of 3.5  $\mu\text{g/L}$  for any combination

(c) - The PAL is established based on the Safe Drinking Water Act monitoring requirements, not as a percentage of the Enforcement Standard. See CFR 40 Sections 141.16 and 141.26

(d) - EPA 1998 Final Rule for Disinfectants and Disinfection By-products Maximum Residual Disinfection (MRDL)

(e) - Copper and Lead are regulated using "Action Levels" (40CFR141.8)

(f) - Value for meta based on data for ortho dichlorobenzene

(g) - Adjusted includes  $\text{Ra}^{226}$ ; excludes Uranium and Radon

(h) - Sum of 1,2,3-TMB, 1,2,4-TMB and 1,3,5-TMB isomers not to equal or exceed 5.1  $\mu\text{g/L}$

(i) - PAL applicable to sum of 1,2,3-TMB, 1,2,4-TMB and 1,3,5-TMB isomers and to individual isomers.

(j) - Uranium MCL is the Vermont MCL. Federal MCL is 30  $\mu\text{g/L}$ .

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## ~~SUBCHAPTER ONE—AUTHORITY, POLICY, PURPOSE, AND APPLICABILITY~~

### ~~12-101—Authority~~

~~This rule and strategy is adopted under the authority of 10 Vermont Statutes Annotated (V.S.A.) 1390-1394.~~

### ~~12-102—Policy~~

~~It is the policy of the State of Vermont that it shall protect its groundwater resources to maintain high quality drinking water. It shall manage its groundwater resources to minimize the risks of groundwater quality deterioration by limiting human activities that present unreasonable risks to the use classifications of groundwater in the vicinities of such activities. The state's groundwater policy shall be balanced with the need to maintain and promote a healthy and prosperous agricultural community.~~

### ~~12-103—Purpose and Applicability~~

~~10 V.S.A. 1390-1394 does not create any new permit programs for groundwater protection. The statute directs the Secretary to protect groundwater through existing regulatory programs and by the adoption of a strategy to assist in coordinating groundwater management statewide. This rule provides restrictions, prohibitions, standards, and criteria for groundwater protection that will be adopted, as appropriate, in Agency permit and regulatory programs that control activities which may affect groundwater. The Secretary shall amend all appropriate rules to conform to 10 V.S.A. 1390-1394 and this rule. These restrictions, prohibitions, standards, and criteria may be adopted by other state agencies or local governments with authority to manage activities that may affect groundwater.~~

### ~~12-104—Coordination~~

~~This Rule is not enforceable over activities outside the jurisdiction of the Agency of Natural Resources. State, federal and local agencies with the authority to manage activities that may affect groundwater are encouraged to adopt the restrictions, prohibitions, standards and criteria contained in this Rule as part of their own groundwater management programs. This Rule also provides a procedure for other agencies to request the Secretary's concurrence with their findings (see 12-505).~~

## SUBCHAPTER TWO - DEFINITIONS

### 12-201 — Definitions

Unless otherwise stated the following definitions apply throughout this rule.

- (1) — “Acceptable Activity” means an activity that the Secretary determines is not likely to cause substantial harm, or a loss of beneficial uses, to a particular class of groundwater. In determining if an activity is acceptable, the Secretary will consider:
  - (a) — the groundwater quality standards;
  - (b) — the nature and quantity of groundwater at risk;
  - (c) — the availability, cost and effectiveness of measures to mitigate risks;
  - (d) — the nature and quantity of risks that the activity may generate;
  - (e) — the expense and effectiveness of correcting the damage the risks may cause;
  - (f) — the consequences to the public interest should damage occur and be irreparable;
  - (g) — the economic, social and environmental value of existing activities;
  - (h) — the Vermont Water Quality Standards including the classification of surface waters; and
  - (i) — other factors relevant to designating appropriate groundwater classes or managing risks to groundwater quality.
  
- (2) — “Activity” means any source or potential source of a waste that is detected in or has a reasonable probability of entering groundwater.
  
- (3) — “Agency” means the Vermont Agency of Natural Resources.
  
- (4) — “Acceptable laboratory” means a laboratory that:
  - (a) — is certified, accredited or otherwise recognized by either the state in which it resides or by the Federal government for drinking water or environmental analysis in areas closely related to the kinds of monitoring required or permitted, or is acceptable to the Secretary;
  - (b) — has a field procedures plan; and
  - (c) — has a quality assurance/quality control program that may be reviewed by the Secretary.
  
- (5) — “Background groundwater quality” means the groundwater quality at or near a property that has not been affected by any activity on that property.

~~(6) — "Beneficial uses" means those uses of groundwater included in each groundwater class.~~

~~(7) — "Class I groundwater" means groundwater that has been classified by the Secretary and approved by the General Assembly, if required by 10 V.S.A. 1394(f), and that:~~

- (a) ~~is suitable for public water supply use;~~
  - (b) ~~has uniformly excellent character;~~
  - (c) ~~has no exposure to activities which pose a risk to its current or potential use as a public water supply source; and~~
  - (d) ~~is in use as a public water supply source, or is determined by the Secretary to have a high probability for such use.~~
- (8) ~~"Class II groundwater" means groundwater that has been classified by the Secretary and that:~~
- (a) ~~is suitable for public water supply use;~~
  - (b) ~~has uniformly excellent character;~~
  - (c) ~~is exposed to activities which may pose a risk to its current or potential use as a public water supply source; and~~
  - (d) ~~is in use as a public water supply source, or is determined by the Secretary to have a high probability for such use.~~
- (9) ~~"Class III groundwater" means groundwater that has been classified by the statute or reclassified by the Secretary and that is suitable as a source of water for individual domestic water supply, irrigation, agricultural use and general industrial and commercial use.~~
- (10) ~~"Class IV groundwater" means groundwater that has been classified by the Secretary and that is not suitable as a source of potable water but suitable for some agricultural, industrial and commercial use.~~
- (11) ~~"Design Management Zone" means a three dimensional subsurface zone that the Secretary may utilize to manage regulated activities which may affect groundwater quality (see Figure 1 and 12-802).~~
- (12) ~~"Discharge" means the placing, depositing, emitting or release of any waste onto or beneath the land surface such that the waste, substance, or material reaches or is likely to reach groundwater.~~
- (13) ~~"Enforcement standard" means a numerical value expressing the detectable concentration of a substance in groundwater, the reaching or exceeding of which requires a response under Section 12-804 of this Rule.~~
- (14) ~~"Generally accepted methods" means methods for mapping groundwater areas and aquifers and for determining aquifer characteristics that are recognized by the U.S. Geological Survey, the U.S. Environmental Protection Agency or the~~

~~National Groundwater Association.~~

- (15) ~~"Generally accepted statistical methods" means published statistical procedures that have been used by the scientific community to evaluate statistical trends in groundwater quality data.~~
- (16) ~~"Groundwater" means water below the land surface in a zone of saturation, but does not include surface waters within the meaning of 10 V.S.A. 1251 (13).~~
- (17) ~~"Groundwater quality standards" means those water quality standards and criteria listed in Appendix One of this Rule.~~
- (18) ~~"Groundwater Coordinating Committee" means the committee established by the Secretary which advises the Secretary on matters concerning groundwater.~~
- (19) ~~"High probability for use as a public water supply source" means:~~
- (a) ~~the Secretary has issued a Source Approval for a public water supply source in accordance with Chapter 21, Water Supply Rule, of the Environmental Protection Regulation and that the groundwater meets Class I or Class II criteria; or~~
  - (b) ~~the Secretary finds on the basis of information available to him or her, that the need for a new municipal water supply source will be necessary and the Secretary has received a written petition from a Vermont municipal government requesting Class I or Class II designation to protect one or more groundwater areas and the petition contains:~~
    - (i) ~~a copy of a duly adopted plan, bylaw, or ordinance providing local protection for the designated Class I or Class II area;~~
    - (ii) ~~a map showing the general area or areas under the control of the municipal government in which that government proposes to develop a future public water supply source;~~
    - (iii) ~~a projected maximum demand figure from a future public water supply source;~~
    - (iv) ~~an estimated date for the construction of a new public water supply source and necessary appurtenances;~~
    - (v) ~~a hydrogeologic study indicating that the area under consideration could reasonably meet the projected public water supply demand;~~
    - (vi) ~~such other provisions as the Secretary deems necessary; or~~
  - (c) ~~the Secretary finds on the basis of information available to him or her, that the need for a new municipal public water supply source will be~~

necessary.

- (20) — ~~"Indicator Parameter" means a groundwater quality characteristic which the Secretary may use to determine groundwater quality deterioration or improvement.~~
- (21) — ~~"Non-potable groundwater" means groundwater which is not "potable groundwater" or which will not be "potable groundwater" for at least five years, or is scientifically predicted to become unsuitable as a source of "potable groundwater" within five years.~~
- (22) — ~~"Potable groundwater" means groundwater free from impurities in amounts sufficient to cause disease or harmful physiological effects, and having biological, chemical, physical and radiological quality conforming to applicable standards of the Agency.~~
- (23) — ~~"Preventive action level" means a numerical value expressing the detectable concentration of a substance in groundwater, the reaching or exceeding of which requires a response under Section 12-803 of this Rule.~~
- (24) — ~~"Public Water Source Protection Area" or "SPA" means a surface or subsurface area from or through which contaminants are reasonably likely to reach a public water system source. A "SPA" is also known as a Wellhead Protection Area.~~
- (25) — ~~"Public water supply" means a water supply system with fifteen or more connections or that serves an average of at least 25 individuals for at least sixty days per year.~~
- (26) — ~~"Risk Advisory" means notification to the public by the Secretary pursuant to Subchapter Six of this Rule.~~
- (27) — ~~"Secretary" means the Secretary of the Agency of Natural Resources or the Secretary's designee.~~
- (28) — ~~"Substantial harm" means a deterioration of groundwater quality to a level that requires treatment to restore or maintain groundwater quality enforcement standards.~~
- (29) — ~~"Unacceptable Activity" means an activity that the Secretary determines is likely to~~

~~cause or causes substantial harm or a loss of beneficial uses to a particular class of groundwater. In determining if an activity is unacceptable, the Secretary will consider:~~

- ~~(a) — the groundwater quality standards;~~
- ~~(b) — the nature and quantity of groundwater at risk;~~
- ~~(c) — the availability, cost and effectiveness of measures to mitigate risks;~~
- ~~(d) — the nature and quantity of risks that the activity may generate;~~
- ~~(e) — the expense and effectiveness of correcting the damage the risks may cause;~~
- ~~(f) — the consequences to the public interest should damage occur and be irreparable;~~
- ~~(g) — the economic, social and environmental value of existing activities;~~
- ~~(h) — the Vermont Water Quality Standards including the classification of surface waters; and~~
- ~~(i) — other factors relevant to designating appropriate groundwater classes or managing risks to groundwater quality.~~

~~(30) — "Unacceptable risk" means an activity which is likely to cause or causes a groundwater quality condition that reaches or exceeds one or more of the groundwater quality enforcement standards.~~

~~(31) — "US EPA" means the United States Environmental Protection Agency.~~

~~(32) — "Waste" means effluent, sewage or any substance or material, liquid, gaseous, solid or radioactive, including heated liquids, whether or not harmful or deleterious to groundwater.~~

## ~~SUBCHAPTER THREE—A GROUNDWATER PROTECTION STRATEGY FOR VERMONT~~

### ~~12-301—Foreword~~

~~This Rule is the groundwater management and protection strategy for the State of Vermont and is adopted pursuant to the provisions of 10 V.S.A. 1390-1394. It replaces the Ground Water Protection Rule and Strategy which was effective on September 29, 1988.~~

~~The strategy rests on the principles and directives hereinafter stated, and sets forth the goals necessary to implement the policy established by the legislature in 10 V.S.A. 1390-1394. This strategy directs the activities of the Agency of Natural Resources in managing and protecting groundwater and serves as guidance to other state and local agencies in the development of groundwater protection programs. The Secretary may adopt joint policies with other agencies to expand groundwater protection efforts to cover activities by all state agencies which manage activities affecting groundwater.~~

### ~~12-302—Principles and Directives~~

~~The following principles and directives support and direct the Secretary's actions relating to groundwater.~~

#### ~~(1)—Principles~~

- ~~(a)—Groundwater is of critical importance to the State of Vermont and must be actively protected and managed in order to protect public health and welfare.~~
- ~~(b)—Each Class of groundwater has its appropriate, beneficial uses that must be protected. Protection should be accomplished by both limiting new activities based on potential risks to groundwater and by adherence to technical standards and criteria. Whenever and wherever possible, appropriate management practices rather than specific regulations will be utilized to protect the designated uses.~~
- ~~(c)—The Secretary will identify and classify the geographical boundaries of Classes I, II, and IV groundwater areas.~~



~~(2) Directives~~

- ~~(a) The Secretary's groundwater classifications shall be presumed correct if, in establishing the geographical boundaries of each class of groundwater, he or she uses generally accepted methods of determining groundwater areas based on existing knowledge of surficial and bedrock geology and available hydrological and hydrogeological data. The Secretary will also consider soils, topography, and past, present, and proposed uses of the land and groundwater resources in determining the appropriate boundaries of groundwater classification areas.~~
- ~~(b) Groundwater protection will be integrated within regulatory programs administered by the Secretary by amending appropriate rules to comply with 10 V.S.A. 1390-1394 and this Rule. When the Secretary revises a rule with respect to standards and criteria relating to groundwater protection, the standards and criteria revision will take into consideration the following items:~~
- ~~(i) the groundwater quality standards;~~
  - ~~(ii) the nature and quantity of groundwater at risk;~~
  - ~~(iii) the availability, cost and effectiveness of measures to mitigate risks;~~
  - ~~(iv) the nature and quantity of risks that the activity may generate;~~
  - ~~(v) the expense and effectiveness of correcting the damage the risks may cause;~~
  - ~~(vi) the consequences to the public interest should damage occur and be irreparable;~~
  - ~~(vii) the economic, social and environmental value of existing activities;~~
  - ~~(viii) the Vermont Water Quality Standards including the classification of surface waters; and~~
  - ~~(ix) other factors relevant to designating appropriate groundwater classes or managing risks to groundwater quality.~~
- ~~(c) This Rule will serve as guidance for federal, state, and local agencies that have authority over activities that may affect groundwater but are not regulated by the Secretary. Any of these agencies may propose a finding that an activity is an Acceptable or Unacceptable Activity to groundwater in accordance with 12-505.~~
- ~~(d) The Secretary may take any actions within the context of regulatory programs established in statutes or rules outside of this Rule, if those actions are necessary to protect public health and welfare or prevent a significant damaging effect on groundwater or surface water quality for present or future potable or non-potable uses, whether or not an enforcement standard and preventive action level for the waste has been adopted under this Rule.~~

- ~~(e) — Nothing in this Rule authorizes a violation of the Vermont Water Quality Standards or the objectives of the Vermont Water Pollution Control Act.~~
  
- ~~(f) — The Secretary shall develop a comprehensive groundwater management program to protect the quality of groundwater resources by:
  - ~~(i) — developing a strategy for the management and protection of the state's groundwater resources;~~
  - ~~(ii) — continuing studies and investigations of groundwater in the state;~~
  - ~~(iii) — cooperating with other government agencies in collecting and compiling data on the quantity and quality of groundwater and location of aquifers;~~
  - ~~(iv) — identifying and mapping groundwater currently used as public water supply sources and groundwater determined by the Secretary as potential public water supply sources;~~
  - ~~(v) — providing technical assistance to municipal officials and other public bodies in the development of regional or municipal plans or bylaws, the purpose of which is the protection of groundwater resources;~~
  - ~~(vi) — classifying groundwater resources according to the provisions of 10 V.S.A., Chapter 48, and adopting technical criteria and standards for the management of activities that may pose a risk to their beneficial uses;~~
  - ~~(vii) — integrating the groundwater management strategy with other regulatory programs administered by the Secretary;~~
  - ~~(viii) — developing public information and education materials; and~~
  - ~~(ix) — cooperating with federal agencies in the development of programs for protecting the quality and quantity of the groundwater resources.~~~~

### ~~12-303 — Goals~~

~~The goals of the Secretary's actions relating to groundwater are:~~

- ~~(1) — To implement the duties of the Secretary as defined in 10 V.S.A. 1390-1394;~~
  
- ~~(2) — to continually update this Rule consistent with changing conditions in the state and emerging technology;~~
  
- ~~(3) — to protect and manage groundwater resources to maintain high quality drinking water by minimizing the risks of groundwater quality deterioration consistent with the beneficial uses designated for each class and limiting or managing human activities which present unacceptable risks to these beneficial uses;~~

- ~~(4) — to revise existing Agency rules and criteria governing activity design, location, and management practices as necessary to prevent groundwater quality from reaching or exceeding enforcement standards at compliance points;~~
- ~~(5) — to develop and implement a program with adequate resources and flexibility to respond to rapidly expanding groundwater science and technology;~~
- ~~(6) — to monitor groundwater resources as appropriate to detect risk to beneficial uses;~~
- ~~(7) — to advise and warn the public of potentially non-potable groundwater and harmful conditions (a public risk advisory program);~~
- ~~(8) — to develop criteria and standards for groundwater mapping ;~~
- ~~(9) —~~
- ~~(10) — to develop a statewide, comprehensive coordinated groundwater data management program for the use of local, regional, state, and federal agencies and any interested party;~~
- ~~(11) — to promote the use of global positioning systems (GPS) in conjunction with managing and utilizing groundwater information for inclusion in a statewide Geographical Information System (GIS); and~~
- ~~(12) — to manage activities that may pose a risk to groundwater.~~

**12-304 — Class I Goals:**

- ~~(1) — To identify and classify Class I groundwater.~~
- ~~(2) — To implement a coordinated protection program including the inventorying and assessment of potentially contaminating activities.~~
- ~~(3) — To prohibit all human activities that presents a risk to groundwater quality.~~

**12-305 — Class II Goals:**

- ~~(1) — To identify and classify Class II groundwater.~~
- ~~(2) — To maintain minimum risk for Class II groundwater.~~
- ~~(3) — To manage Class II groundwater by issuing permits for activities regulated under existing authorities, monitoring groundwater quality and human activities, and taking appropriate actions as authorized by law to reduce or stabilize the risk when required.~~

### ~~12-306 — Class III Goals:~~

- ~~(1) — To maintain potable water quality for Class III groundwater by:
  - ~~(a) — issuing permits for activities regulated under existing authorities;~~
  - ~~(b) — monitoring groundwater quality as appropriate; and~~
  - ~~(c) — issuing Risk Advisories when appropriate.~~~~

### ~~12-307 — Class IV Goals:~~

- ~~(1) — To identify and classify Class IV groundwater.~~
- ~~(2) — To manage activities for Class IV groundwater to insure Class III standards or better at the borders of Class IV area, and to improve of groundwater quality within Class IV areas.~~
- ~~(3) — To require that all new activities show that the activity shall not cause the groundwater quality to reach or exceed the groundwater quality standards listed in Appendix One of this Rule within the Class IV area and that the activity shall not cause an increase in existing contaminant levels at the Class IV boundary.~~

### ~~12-308 — Groundwater Risk Advisory Goals:~~

~~To issue Groundwater Risk Advisories for those situations in which the Secretary finds or expects to find potentially non-potable conditions in the state's groundwater resources.~~

## ~~SUBCHAPTER FOUR—PROCEDURES FOR CLASSIFICATION~~

### ~~12-401—Groundwater Classification~~

- ~~(1) — As provided for in 10 VSA 1394(b), all groundwater of the state is classified as Class III, unless reclassified by the Secretary.~~
- ~~(2) — The Secretary may on his or her own motion, or upon the submittal of a written petition from a state agency, a municipality, or twenty five or more potentially affected persons classify or reclassify any groundwater of the state. Reclassification to a Class I or II may be done in conjunction with the Secretary's Source Approval of a Public Water System.~~
- ~~(3) — The Secretary, upon the advice of the Groundwater Coordinating Committee, may adopt technical and other procedures necessary to implement these reclassifications. These may include procedures detailing the scientific processes required to delineate the physical boundaries of Class I, II, III, or IV groundwater areas.~~
- ~~(4) — The Director of the Water Supply Division in coordination with the Groundwater Coordinating Committee is responsible for recommending groundwater classifications or reclassifications to the Secretary.~~
- ~~(5) — Petitions for classification or reclassification of groundwater shall be submitted to the Director of the Water Supply Division for review.~~
- ~~(6) — Any classification or reclassification decision issued by the Secretary may include conditions for the management of the classified groundwater area that shall apply to activities regulated by the Secretary.~~

### ~~12-402—Criteria and Procedures for Distribution of Classification Maps~~

~~The Secretary will publish and distribute maps for each groundwater classification to:~~

- ~~(a) — the town clerk in the town or towns affected;~~
- ~~(b) — the Agency regional office for the area affected;~~
- ~~(c) — the owners and/or operators of any public water supplies affected;~~
- ~~(d) — Well Drillers Advisory Board;~~
- ~~(e) — the Vermont Center for Geographic Information;~~

- ~~(f) — the appropriate Regional Planning Commission; and~~
- ~~(g) — other interested parties as appropriate.~~

~~12-403 — Class I, II, III, and IV Groundwater Reclassification Process~~

- ~~(1) — In determining whether or not to reclassify groundwater as a Class I, II, III, or IV the Secretary shall consider the following:
  - ~~(a) — the use or potential future use of the groundwater as a public water supply source;~~
  - ~~(b) — the extent of activity which poses a risk to groundwater;~~
  - ~~(c) — the current water quality of the groundwater;~~
  - ~~(d) — the availability of the groundwater in quantities needed for beneficial use;~~
  - ~~(e) — the consequences of its potential contamination and the availability of alternate sources of water;~~
  - ~~(f) — the classification of adjacent surface waters;~~
  - ~~(g) — the high probability for use as a public water supply source (Subchapter 12-201(18)).
    - ~~(i) — Groundwater not presently in use as public water supply source may be reclassified as Class I or II, if it has a high probability for use as a public water supply source.~~
    - ~~(ii) — Scientifically delineated SPAs for public water supplies may be adopted as a Class I or II, as appropriate;~~~~
  - ~~(h) — other factors relevant to determine the maximum beneficial use of the groundwater.~~~~
- ~~(2) — The Secretary will provide notice of any proposed reclassification by:
  - ~~(a) — advertisement in newspapers of general circulation in the area of the proposed classification or reclassification;~~
  - ~~(b) — written notice with the appropriate town clerk;~~
  - ~~(c) — written notice to all potentially affected property owners of record, and other persons as appropriate, of the proposed classification or reclassification action;~~
  - ~~(d) — written notice to the appropriate Regional Planning Commission; and~~
  - ~~(e) — written notice to the Groundwater Coordinating Committee.~~~~
- ~~(3) — The Secretary will provide a thirty day (30) comment period for each proposed reclassification action which shall start on the date that the notice is published in the newspaper.~~
- ~~(4) — Upon the request of an interested person or upon the Secretary's motion, the Secretary will hold a public information meeting on any proposed reclassification. The public information meeting will be held in a location convenient to the users or potential users of the groundwater which is the subject of the public information meeting. The Secretary will provide notice of the date, time, and location of the public information meeting.~~

~~(5) — Prior to the issuance of any final classification or reclassification decision, the Secretary shall consider all comments received during the public comment period and the public information meeting.~~

#### ~~12-404 — Statutory Requirements for Class I Reclassifications~~

##### ~~(1) — Submission to the Legislature for Approval~~

~~The Secretary shall follow the reclassification procedures in these rules for Class I reclassifications. However, pursuant to 10 V.S.A. 1394(f) any classification of Class I groundwater involving privately owned lands or a reclassification of Class I groundwater to another class shall be submitted by the Secretary to the Natural Resources Committees of both houses of the General Assembly within 15 days of the issuance of the decision order. Under 10 V.S.A. 1394 (f), any such classification or reclassification must be approved by an act of the General Assembly prior to becoming effective.~~

##### ~~(2) — Permanent Protection~~

~~Pursuant to statutory policy at 10 V.S.A. 1394(f), any Class I groundwater shall be permanently protected unless and until a reclassification is approved in accordance with Section 12-404(1).~~

#### ~~12-405 — Appeals~~

~~10 V.S.A. Chapter 48 is silent regarding appeals of reclassification decisions. However, in the opinion of the Secretary, any person aggrieved by a reclassification decision of the Secretary may appeal that decision under the Rules of Civil Procedure to the Superior Court of the county where the affected groundwaters are located.~~

### ~~SUBCHAPTER FIVE — MANAGEMENT OF GROUNDWATER AFTER CLASSIFICATION~~

~~Each of the classes of groundwater has designated beneficial uses and characteristics, the maintenance of which require specific management techniques. This Subchapter sets forth the management requirements for each class.~~

~~In general, groundwater will be managed by adhering to certain standards and criteria for groundwater quality, and by limiting risks by prohibiting or restricting new activities, as appropriate, within each class. Enforcement of these standards, criteria, prohibitions and restrictions will be accomplished through permitting and regulatory programs within the Agency of Natural Resources. This Rule is not enforceable over activities outside the jurisdiction of the~~

Agency of Natural Resources.

~~As provided for in 10 VSA 1394, the Secretary may manage activities which constitute risks to the groundwater and which may be precluded. The criteria and standards for managing these activities are contained in Appendix One and Two.~~

### ~~Management of Class I Groundwater~~

~~(1) All Class I groundwater will be managed to assure compliance with the groundwater quality standards established in Appendix One of this Rule.~~

~~(2) Coordination~~

~~For activities that are not regulated by the Secretary, the Secretary will cooperate with federal, state, and local authorities to limit activities that may pose a risk to the groundwater.~~

~~(3) Permit Oversight~~

~~The Secretary will monitor proposed new construction and development within Class I groundwater areas by reviewing Act 250 and other appropriate permit applications to determine the level of risk to the groundwater.~~

~~(4) Management, Abatement, and Restoration~~

~~(a) The Secretary will cooperate in and encourage the management of land use activities within Class I areas to ensure no exposure to risk. When monitoring of water quality or other information demonstrates that deterioration has occurred, or that risk is imminent or increasing, the Secretary will cooperate in appropriate investigations to determine the probable cause or causes and act, as appropriate under his or her authority, to abate the deterioration and restore the groundwater~~



to its previous uniformly excellent quality.

- (b) ~~When the Secretary finds that a regulated activity causes or allows deterioration of the groundwater quality or poses unacceptable risk, the Secretary will take appropriate actions to reduce the risk up to and including cessation of discharges and remedial action. For activities not regulated by the Secretary, the Secretary will cooperate with the appropriate authority to reduce the risk.~~

- (5) ~~Report to the Legislature~~

~~Annually, the Secretary shall report to the General Assembly on the status of Class I groundwater. The report shall include data reflecting the quality of groundwater and land uses within existing Class I areas and shall propose, as necessary, new Class I areas for approval by the General Assembly.~~

## ~~Management of Class II Groundwater~~

- (1) ~~Prior to issuing any permits or approving any regulated activity in a Class II groundwater area:~~

- (a) ~~the applicant shall provide evidence, and the Secretary will make a finding that the activity:~~
- (i) ~~will not cause the groundwater quality to reach or exceed the primary enforcement standards at a compliance point;~~
  - (ii) ~~will not cause the groundwater quality to reach or exceed the secondary enforcement standards or 110% of the secondary background groundwater quality established under 12-704, whichever is greater, at a compliance point; and~~
  - (iii) ~~is not an Unacceptable Activity in Class II Groundwater (see 12-201(29)); or~~

- (b) ~~the activity is an Acceptable Activity in a Class II area (see Section 2 of Appendix Two).~~

- (2) ~~The Secretary will not issue permits for activities in a Class II area that are an Unacceptable Activity in a Class II area (see Section 2 of Appendix Two).~~

- (3) ~~Coordination~~

~~For activities which are not regulated by the Secretary, the Secretary will cooperate with federal, state, and local authorities to limit activities that may cause the groundwater quality to reach or exceed the groundwater standards at any compliance points.~~

~~(4) — Permit Oversight~~

- ~~(a) — The Secretary will monitor proposed new construction and development within Class II groundwater areas by reviewing Act 250 and other appropriate permit applications to determine the level of risk to the groundwater.~~
- ~~(b) — The Secretary may require groundwater quality monitoring for any permitted or regulated activity in a Class II groundwater area.~~

~~(5) — Corrective and Restorative Actions~~

~~When the Secretary finds that a regulated activity poses an unacceptable risk, the Secretary will take or require appropriate actions to reduce the risk up to and including cessation of discharges and remedial action. For activities not regulated by the Secretary, the Secretary will cooperate with the appropriate authority to reduce the risk.~~

**Management of Class III Groundwater**

- ~~(1) — Class III groundwater is the groundwater not otherwise classified as Class I, II or IV groundwater. It is generally protected by the Secretary's rules, guidelines and management practices which the Secretary presumes will reduce the potential for contamination.~~
- ~~(2) — Prior to issuing any permits or approving any regulated activity in a Class III groundwater area:
  - ~~(a) — the applicant shall provide evidence, and the Secretary will make a finding that the activity:
    - ~~(i) — will not cause the groundwater quality to reach or exceed the primary enforcement standards at a compliance point;~~
    - ~~(ii) — it will not cause the groundwater quality to reach or exceed the secondary enforcement standards or 110% of the secondary background groundwater quality established under 12-704, whichever is greater, at a compliance point; and~~
    - ~~(iii) — is not an Unacceptable Activity in Class III Groundwater (see 12-201(29)); or~~~~
  - ~~(b) — the activity is an Acceptable Activity in a Class III area (see Section 2 of Appendix Two).~~~~

- ~~(3) — All activities regulated by the Secretary are presumed to have made the finding for Class III groundwater in 12-503(2), if the activity meets the Secretary's rules and regulations, and those rules and regulations have given due consideration to 12-302(2)(b).~~
- ~~(4) — The Secretary will not issue permits for activities in a Class III area that are an Unacceptable Activity in a Class III area (see Section 3 of Appendix Two).~~
- ~~(5) — Coordination~~

~~For activities that are not regulated by the Secretary, the Secretary will cooperate with federal, state, and local authorities to limit activities that may cause the groundwater quality to reach or exceed the groundwater standards at any compliance point.~~

- ~~(6) — Permit Oversight~~
  - ~~(a) — The Secretary will monitor proposed new construction and development within Class III groundwater areas by reviewing Act 250 and other appropriate permit applications to determine the level of risk to the groundwater.~~
  - ~~(b) — The Secretary may require groundwater quality monitoring for any permitted or regulated activity in Class III groundwater.~~

- ~~(7) — Corrective and Restorative Actions~~

~~When the Secretary finds that a regulated activity poses an unacceptable risk, the Secretary will take or require appropriate actions to reduce the risk up to and including cessation of discharges and remedial action. For activities not regulated by the Secretary, the Secretary will cooperate with the appropriate authority to reduce the risk.~~

## **Management of Class IV Groundwater**

- ~~(1) — Class IV groundwater is the groundwater associated with and found beneath Class IV groundwater areas that have been mapped and classified. It is not suitable as a source of potable water but may be suitable for some agricultural, industrial, and commercial uses.~~
- ~~(2) — Class IV groundwaters will be managed to insure Class III standards or better at the border of the Class IV area and to improve the groundwater quality within the Class IV area.~~
- ~~(3) — All new activities regulated or permitted by the Secretary in a Class IV groundwater area will be required to show that the activity would not cause the groundwater quality to~~

~~reach or exceed the groundwater quality enforcement standards at the compliance points, and that the activity will not cause an increase in existing contaminant levels above enforcement standards at the Class IV boundary. Acceptable Activities for Class II and III areas in Appendix Two are also Acceptable Activities in Class IV areas provided they do not cause the contaminant plume associated with Class IV area to migrate.~~

~~(4) — Coordination~~

~~For activities that are not regulated by the Secretary, the Secretary will cooperate with federal, state, and local authorities to limit activities that may cause the groundwater quality to reach or exceed the groundwater standards at the compliance points, and that the activity will not cause an increase in existing contaminant levels above enforcement standards at the Class IV boundary.~~

~~(5) — Monitoring~~

~~The Secretary will establish a program for groundwater quality monitoring within Class IV groundwater areas. The program will be updated as necessary to protect the public health, the Class IV areas, and adjacent groundwater.~~

~~(6) — Permit Oversight~~

~~The Secretary will monitor proposed new construction and development within Class IV groundwater areas by reviewing Act 250 and other appropriate permit applications to determine the level of risk to the groundwater.~~

~~— Findings of an Acceptable and Unacceptable Activity with Other Regulatory Agencies~~

~~(1) — Requests from Other Agencies~~

~~The Secretary may adopt joint policies with other state agencies to expand groundwater protection efforts to all state agencies which manage activities affecting groundwater.~~

~~Federal, state, and local agencies with authority to regulate activities which may affect groundwater may propose a finding of Acceptable or Unacceptable Activity to groundwater for an activity or type of activity under their jurisdiction in a particular class of groundwater. When such findings are proposed to the Secretary for concurrence, the process listed in 12-505 (2) will be followed.~~

(2) — Process

- (a) — ~~An agency that submits a proposed finding to the Secretary for concurrence that an activity or type of activity is an Acceptable or Unacceptable Activity for a particular class of groundwater will provide the following information to the Groundwater Coordinating Committee:~~
- ~~(i) — a description of the activity;~~
  - ~~(ii) — an analysis of the impact the activity would or would not have on groundwater quality and on the beneficial uses of the particular class of groundwater including:
    - ~~(A) the groundwater quality standards;~~
    - ~~(B) the nature and quantity of groundwater at risk;~~
    - ~~(C) the availability, cost and effectiveness of measures to mitigate risks;~~
    - ~~(D) the nature and quantity of risks that the activity may generate;~~
    - ~~(E) the expense and effectiveness of correcting the damage the risks may cause;~~
    - ~~(F) the consequences to the public interest should damage occur and be irretrievable;~~
    - ~~(G) the economic, social and environmental value of existing activities;~~
    - ~~(H) the Vermont Water Quality Standards including the classification of surface waters; and~~
    - ~~(I) other factors relevant to designating appropriate groundwater classes or managing risks to groundwater quality.~~~~
- (b) — ~~The Groundwater Coordinating Committee will review the submitted information based upon the above criteria. The Groundwater Coordinating Committee could choose to:~~
- ~~(i) — forward a recommendation to the Secretary to make the finding as proposed;~~
  - ~~(ii) — request further information from the proposing agency; or~~
  - ~~(iii) — recommend that the proposing agency revise the request and resubmit the request.~~
- (c) — ~~After receiving the recommendation of the Groundwater Coordinating Committee or upon his or her own motion, the Secretary may make a finding regarding activities that are not under the Secretary's jurisdiction.~~
- (d) — ~~Any finding made through this process will be incorporated in the next revision of the Groundwater Protection Rule and Strategy.~~

— **Potential Public Water Supply Sources**

1/27/2005

~~The Secretary, after consultation with the Groundwater Coordinating Committee, shall establish a procedure for identifying and mapping groundwater determined by the Secretary as potential public water supply sources~~

## **SUBCHAPTER SIX – RISK ADVISORIES**

### **12-601 Criteria and Procedures for Risk Advisories**

#### **(1) — Issuance of Advisory**

~~When the Secretary finds that events have caused, or are likely to cause, primary groundwater quality enforcement standards (Table 1 of Appendix One) to be reached or exceeded at any groundwater drinking water source or sources, the Secretary, in cooperation with the Commissioner of Health, shall issue a Risk Advisory of such conditions. The Risk Advisory shall include the following information:~~

- ~~(a) — a brief description of the event or events that the Secretary has reason to believe are the cause, or are likely to be the cause, of the contamination;~~
- ~~(b) — a description of the contaminants, the groundwater quality enforcement standard, and the concentrations of the contaminants;~~
- ~~(c) — the location of the drinking water source or sources;~~
- ~~(d) — an advisory not to consume the drinking water; and~~
- ~~(e) — other information as appropriate.~~

#### **(2) — Distribution of the Advisory**

- ~~(a) — The Secretary shall distribute the information in the Risk Advisory in any manner reasonably calculated to give notice of the potential risk to the persons affected.~~
- ~~(b) — Distribution may include notification to the following:
  - ~~i) — the town clerk and Health Officer in the town or towns affected;~~
  - ~~ii) — the Agency regional office for the area affected;~~
  - ~~iii) — the principal newspaper or newspapers for the area affected;~~
  - ~~iv) — the radio and television stations that broadcast to the affected area;~~
  - ~~v) — the regional planning or development commission or commissions serving the affected area;~~
  - ~~vi) — the Vermont Agency of Agriculture, the Vermont Department of Health, Department of Public Safety, and the Agencies of Commerce and Community Development, Human Services, and Transportation;~~
  - ~~vii) — any individuals the Secretary knows would be likely to consume the contaminated or potentially contaminated drinking water;~~
  - ~~viii) — the owners, operators, or both of any public water system using a~~~~

- ~~groundwater source in the vicinity of the area affected;~~
- ~~ix) — owners of properties likely to be affected;~~
- ~~x) — Vermont Water Well Advisory Committee; and~~
- ~~xi) — other interested parties, as appropriate.~~

~~(3) — Risk Advisory Updates~~

~~The Secretary shall issue periodic updates, as appropriate. If the Secretary determines that a drinking water source or sources no longer reaches or exceeds the groundwater quality enforcement standards, the Secretary shall rescind the Risk Advisory and provide notice of the rescission in the same manner as was used for the Risk Advisory.~~

~~(4) The Commissioner of Health has separate and distinct authority to issue Risk Advisories in situations that he or she determines to pose a risk to public health and welfare.~~

## ~~SUB-CHAPTER SEVEN—STANDARDS AND CRITERIA FOR GROUNDWATER PROTECTION~~

### ~~—Applicability~~

- ~~(1) — This Rule establishes groundwater quality enforcement standards, Preventive Action Levels (PALs), and Indicator Parameters. They are contained in Appendix One of this Rule. The groundwater quality enforcement standards, PALs and Indicator Parameters apply to all permit and regulatory programs administered by the Secretary that may affect groundwater. The rules governing activities managed by these programs will be revised to incorporate them as appropriate. In addition to these standards, certain regulated activities have sighting and testing standards for the purpose of protecting groundwater quality and quantity. The relevant rules and regulations regarding a specific activity should be consulted.~~
- ~~(2) — These standards and Preventive Action Levels may serve as recommended guidelines for local governments and other state agencies which have programs or interest in groundwater protection.~~
- ~~(3) — The primary and secondary groundwater quality enforcement standards given in Table 1 and Table 2 of Appendix One are intended to identify a broad range of chemical constituents, the presence of which could pose a risk to the beneficial uses of that class of groundwater.~~
- ~~(4) — Preventive Action Levels are considered as an early warning mechanism of potential groundwater quality degradation. Section 12-803 details the responses when a Preventive Action Level is reached or exceeded.~~
- ~~(5) — The Secretary will consider the need for and may require groundwater quality monitoring as part of Agency permitting and regulatory programs. The monitoring data may be used to determine actions necessary to prevent or remediate conditions where the groundwater quality reaches or exceeds the enforcement standards in Appendix One.~~
- ~~(6) — Sampling and analysis of all constituents in Appendix One is costly and the Secretary will exercise his or her best judgment in the administration of permit and regulatory programs conducted under his or her authority to minimize the cost of sampling and analysis to reasonably assure compliance for those substances likely to be present in the waste to be discharged. In pursuit of this end:~~



- (a) ~~The Secretary may require an applicant, seeking approval for the disposal of sludge, septage, domestic sanitary sewage, industrial or other waste, or any combination thereof, to analyze a representative sample of the substance for any of the constituents listed in Tables 1 and 2 of Appendix One. The Secretary may, based on this sample result, limit sampling and monitoring requirements to only those constituents detected. The Secretary may require the applicant to periodically resample the waste to be disposed of and to adjust subsequent sampling and monitoring requirements to those substances detected.~~
- (b) ~~The Secretary may include in a permit or certificate of compliance, acknowledgment that the Secretary may require the permittee to expand sampling and analytical requirements of a permit or certificate when in the Secretary's judgment there is a possibility that groundwater contamination may have occurred or is about to occur; and~~
- (c) ~~The Secretary may require, as part of any preventive action plan within a permit document, that the permittee automatically increase the frequency of sampling and analysis, the number of sampling points, and the number of constituents to be analyzed when preventive action levels are reached or exceeded.~~

### ~~—Primary Groundwater Quality Standards~~

- (1) ~~The Secretary, hereby adopts, the Primary Groundwater Quality Enforcement Standards contained in Table 1 in Appendix One of this Rule upon consideration of available drinking water quality standards information. The following drinking water quality standards information was and will be used in adopting primary groundwater quality standards:~~
  - (a) ~~United States Environmental Protection Agency Maximum Contaminant Levels (MCL) for drinking water; and~~
  - (b) ~~in cases where a US EPA MCL has not been adopted, the Vermont Health Advisory established by the Vermont Department of Health for the Primary Groundwater Enforcement Standard.~~
- (2) ~~If a Groundwater Quality Enforcement Standard does not exist for a specific substance, and the Secretary in cooperation with the Department of Health determines a standard is needed, until the Secretary is able to adopt a Groundwater Quality Enforcement Standard by rule, the Secretary may use an Interim Groundwater Quality Enforcement Standard.~~

~~This shall be determined in the same fashion as specified in 12-702 (1)(a) and (b).~~

- ~~(3) — If the Secretary uses an Interim Groundwater Quality Standard, the Secretary will adopt this standard by rule the next time the Rule is revised.~~
- ~~(4) — For all substances that have carcinogenic, mutagenic, or teratogenic properties or interactive effects, the preventive action level is 10% of the enforcement standard. The preventive action level for all other listed substances is 50% of the enforcement standard. In situations where the preventive action level established in Appendix One is below the detection limit, the preventive action level shall be re-established at the detection limit.~~

#### ~~—Secondary Groundwater Quality Standards~~

~~The Secretary, upon consideration of available secondary drinking water quality standards information as published by the US EPA, hereby adopts the Secondary Groundwater Quality Standards contained in Table 2 in Appendix One.~~

#### ~~—Establishing Background Groundwater Quality~~

~~The Secretary may determine that it is necessary to establish background groundwater quality for an activity regulated by the Secretary. Background groundwater quality may be established by sampling one or more monitoring points at locations and depths sufficient to yield samples that are representative of background groundwater quality at or near the activity. In determining background groundwater quality, the Secretary may require as many groundwater samples as are necessary.~~

#### ~~—Indicator Parameters~~

- ~~(1) — The Secretary may require monitoring of the groundwater quality characteristics in Table 3 of Appendix One. These groundwater characteristics are Indicator Parameters.~~
- ~~(2) — The Secretary may determine that changes in the values of the Indicator Parameters may be an indicator of possible groundwater quality degradation.~~
- ~~(3) — The Maximum Acceptable Change in the values of the Indicator Parameters are established in Table 3.~~
- ~~(4) — If a Maximum Acceptable Change identified in Table 3 is exceeded, the Secretary may~~

require any of the responses under Section 12-803, Responses When a Preventive Action Level is Reached or Exceeded.

### ~~—Determining if a Groundwater Quality Standard has been Reached or Exceeded~~

- ~~(1) — If a preventive action level or an enforcement standard for a substance listed in Table 1 or 2 in Appendix One of this Rule, or a Maximum Acceptable Change for an Indicator Parameter is reached or exceeded at a compliance point, the Secretary may require a response in accordance with the rules promulgated under the Secretary's authority.~~
- ~~(2) — In determining if an enforcement standard is reached or exceeded, the Secretary may utilize, or may require the use of generally accepted statistical methods which provide a statistical 95% level of confidence that the standard has or has not been reached or exceeded. If there are not enough data for a statistical analysis, the Secretary may choose to require more groundwater samples or to consider the existing laboratory analytical results as indicating that the groundwater quality reaches or exceeds the preventive action limit or enforcement standard. When sampling clearly indicates the Groundwater Enforcement Standards have been or will be met or exceeded, the Secretary may determine that the standard has been reached or exceeded without calculating a 95% confidence level.~~
- ~~(3) — In determining if a change in the concentration of a substance has occurred, the Secretary may require the use of generally accepted statistical methods that show whether or not a statistically significant change in the concentration of the substance has occurred.~~
- ~~(4) — The Secretary will determine acceptable analytical methods to be used to analyze groundwater quality. In determining the acceptable laboratory analytical method, the Secretary may consider the detection limits and practical quantification limits, the cost of available analytical methods, and the site benefits derived from using more expensive analytical methods. This determination may vary from site to site.~~

### ~~—Monitoring and Laboratory Data Requirements~~

- ~~(1) — When groundwater quality monitoring is required by a regulatory program or permit, all water quality samples except field analyses for pH, specific conductance, and temperature shall be analyzed by an acceptable laboratory. The results of the analysis shall be submitted to the Secretary. The samples shall be collected in accordance with methods approved or specified by the Secretary.~~

- (2) ~~The laboratory shall utilize the analytical methodology specified in the Secretary's rules or acceptable to the regulatory program. Where no analytical methodology is specified, the laboratory shall use an analytical methodology with a limit of detection and limit of quantification below the preventive action level. Where the limit of detection or limit of quantification is above the preventive action limit for that substance, the laboratory shall use the best available analytical methodology published by the EPA or acceptable to the Secretary to produce the lowest limit of detection and limit of quantification.~~

## ~~SUBCHAPTER EIGHT—MANAGING RISKS TO GROUNDWATER QUALITY~~

### ~~12-801—Compliance Points~~

- (1) ~~Activities which may affect groundwater, and which are regulated by the Secretary, shall be designed to minimize the level of substances in groundwater and to not reach or exceed the primary and secondary groundwater quality enforcement standards at the following compliance point locations:~~
- ~~(a) any point of present use of groundwater as a source of potable water; and~~
  - ~~(b) any point at or within the boundary of any Class I groundwater area; and either~~
  - ~~(c) any point at the boundary of the property on which the activity is located; or~~
  - ~~(d) any point within the property boundaries beyond the 3-dimensional Design Management Zone if one is established by the Secretary for a regulated activity.~~  
~~(See Section 12-802.)~~
- (2) ~~In order to assess the groundwater quality at an activity regulated by the Secretary, the Secretary may require groundwater monitoring as part of any regulatory or permit process.~~

### ~~12-802—Design Management Zones~~

- (1) ~~For activities regulated by the Secretary, the Secretary may determine it is necessary to require the owner or operator of an activity to develop a Design Management Zone. The purpose of the Design Management Zone is to create an area within a large parcel of land; the boundaries at which the groundwater quality standards included in Appendix One of this Rule must not be reached or exceeded.~~
- ~~(a) The Design Management Zone for activities which may affect groundwater, and are subject to regulation by the Secretary, shall be an area enclosed by vertical boundaries which extend from the land surface downward through all water~~

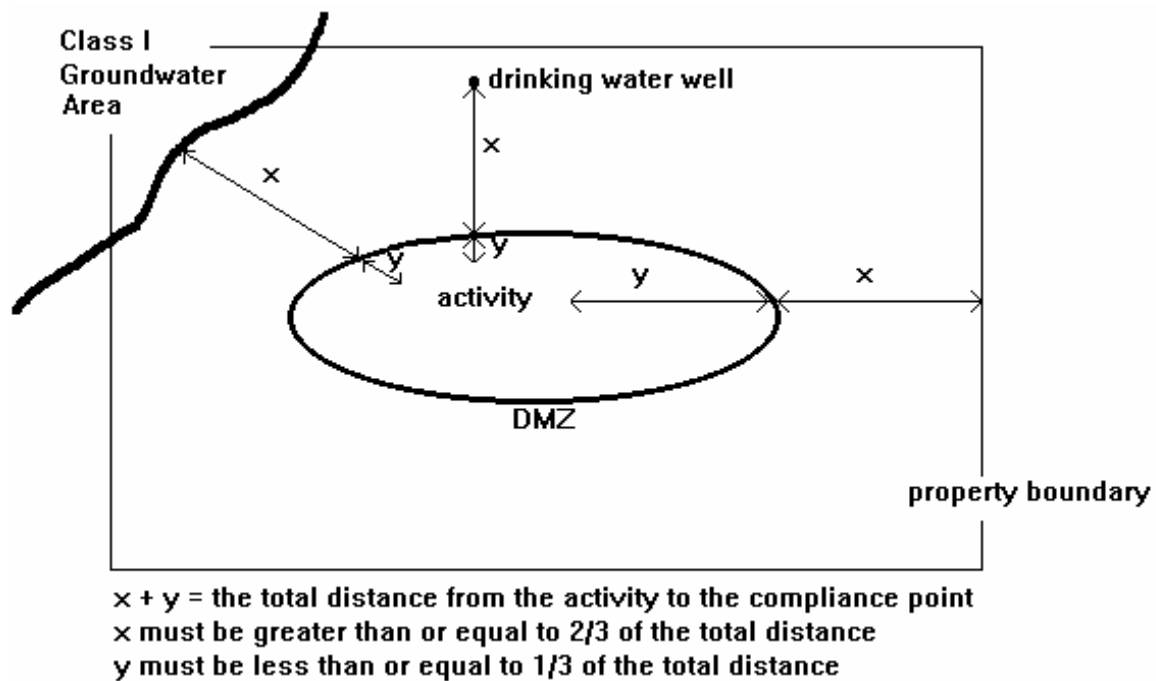
~~saturated geological formations. The Design Management Zone may extend horizontally beyond the regulated activity or waste boundary, for example, as shown in Figure 1 but not beyond a distance greater than 1/3 of the total distance to a compliance point (as defined in 12-801 (1)) other than the boundary of the Design Management Zone itself.\* The waste boundary shall be the outermost limit at which waste from an activity has been stored, applied or disposed of, or permitted or approved for storage, application or disposal. For solid or hazardous waste facilities regulated under 10 V.S.A., Chapter 159, the waste boundary shall include the horizontal space taken up by any liner, dike or other barrier to contain the waste.~~

~~\*Note: The purpose of the 1/3 maximum allowable distance provision is to allow enough time for the Secretary to select the proper response and for the response to take effect before beneficial uses are affected.~~

- ~~(b) In issuing or reissuing a permit, license or approval, the Secretary may approve, modify, expand, or reduce a Design Management Zone at each regulated or proposed activity.~~
- ~~(c) The Secretary will consider the following factors in approving or modifying a Design Management Zone:
  - ~~(i) Site topography;~~
  - ~~(ii) Nature, thickness and permeability of unconsolidated materials;~~
  - ~~(iii) Nature and permeability of bedrock;~~
  - ~~(iv) Groundwater depth, flow direction and velocity;~~
  - ~~(v) Waste volume, waste type and characteristics, including waste loading;~~
  - ~~(vi) Contaminant mobility;~~
  - ~~(vii) Distances to property boundary and surface waters;~~
  - ~~(viii) Engineering design of the activity;~~
  - ~~(ix) Life span of the activity;~~
  - ~~(x) Present and anticipated use of land and groundwater;~~
  - ~~(xi) Potential abatement options if an enforcement standard is reached or exceeded; and~~
  - ~~(xii) Groundwater classification.~~~~
- ~~(2) The Secretary may require groundwater monitoring within a Design Management Zone to evaluate the fate and migration of substances and to help the Secretary determine if an enforcement standard has been or will be reached or exceeded at a compliance point.~~

- (3) ~~Design Management Zones are not intended for use in areas where the groundwater is already contaminated; but are intended for managing areas where new activities could affect groundwater quality.~~

Figure 1  
EXAMPLE OF A DESIGN MANAGEMENT ZONE  
WITH COMPLIANCE POINTS



NOT TO SCALE

Compliance Points for Enforcement Standards (see 12-801)

- a) ~~Any point of present use of groundwater as a source of potable water; and~~  
b) ~~any point at or within any Class I groundwater area; and either~~

- e) ~~any point at the boundary of the property on which an activity is located; or~~
- d) ~~any point within the property boundaries beyond the 3-dimensional Design Management Zone if one is established by the Secretary for a regulated activity.~~

~~12-803~~ **Responses When a Preventive Action Level is Reached or Exceeded**

(1) ~~If groundwater monitoring indicates that the concentration of a waste in groundwater, including Indicator Parameters, for which monitoring was required by the Secretary, reaches or exceeds a preventive action level at a compliance point:~~

(a) ~~The owner or operator of the activity shall notify the Secretary in writing in accordance with any deadlines in applicable statutes, rules, permits or plan approvals. Where no deadlines are imposed, the owner or operator shall notify the Secretary within five working days after receiving the results. The notification shall provide a preliminary analysis of the cause and significance of the concentration.~~

(b) ~~Upon receipt of the notice under 12-803(1)(a), the Secretary will evaluate the information and if further information is required to make the assessment under 12-803(1)(c), may direct the owner or operator to prepare and submit a report by a specified deadline. The report shall assess the cause and significance of the increased concentration. The Secretary may require the regulated party to analyze and predict whether or not an enforcement standard will be reached or exceeded at a compliance point.~~

(c) ~~The Secretary may assess the cause and significance of the concentration of the waste in determining the appropriate response measures. If a preventive action level is reached or exceeded at a monitoring point, the Secretary will determine whether the reaching or exceeding of the preventive action limit indicates the potential for an enforcement standard to be reached or exceeded at a compliance point. In addition to all other relevant information, the Secretary will consider the information submitted under 12-803(1)(a) and (b) and the following factors where applicable:~~

(i) ~~Reliability of Sampling Data~~

~~As part of the review of the quality of the sampling data, the Secretary will evaluate the sampling procedures, precision and accuracy of the analytical test, size of the data set, and the quality control and quality assurance procedures used. If there is insufficient information to evaluate the reliability of the sampling data, the Secretary may require additional samples or other changes in the monitoring program at the activity.~~

~~(ii) — Public Health, Welfare and Environmental Effects of the Substance~~

~~The Secretary shall consider the public health, welfare and environmental effects of the waste, including but not limited to its mobility in the subsurface, environmental fate, the risks considered when the standard was adopted and whether it is carcinogenic, mutagenic, teratogenic or has interactive effects with other substances.~~

~~(iii) — Performance of the Activity~~

~~The Secretary will consider whether the activity is performing as designed. The Secretary will consider the type, age and size of the activity; the type of design, if applicable; the operational history; and other factors related to performance of the activity as appropriate.~~

~~(vi) — Other Known or Suspected Sources of the Substance in the Area~~

~~If other known or suspected sources are present in the vicinity of an activity of concern, the Secretary will evaluate the probability of contributions from other sources of the substance. The Secretary will consider, at a minimum, the number, size, type and age of nearby sources; the groundwater flow patterns; and the substances involved.~~

~~(v) — Hydrogeologic Conditions~~

~~The Secretary will consider the geologic and groundwater conditions. This may include, but is not limited to, the following data: the nature, thickness and permeability of the unconsolidated materials; the nature and permeability of bedrock; the depth to the water table; groundwater flow gradients, both vertical and horizontal; the position of the activity within the groundwater flow system; and the present and potential groundwater use in the vicinity of the activity at which the groundwater quality standards are reached or exceeded. If there is insufficient hydrogeologic information, the Secretary may require additional information.~~

- ~~(2) — Based on the evaluation of the report required under 12-803(1)(b) and the factors in 12-803(1)(c), the Secretary will specify the responses to be implemented by the owner or operator of the activity in order to prevent the groundwater quality from reaching or~~



exceeding enforcement standards at a compliance point.

- (3) ~~The range of responses which the Secretary may take or may require the owner or operator to take if a preventive action level for a substance has been reached or exceeded, and the data indicate a probability that an enforcement standard will be reached or exceeded at a compliance point, may include, but are not limited to the following:~~
- (a) ~~No action;~~
  - (b) ~~Sample wells or require sampling of wells;~~
  - (c) ~~Require a change in the monitoring program, including increased monitoring;~~
  - (d) ~~Require an investigation of the extent of groundwater contamination;~~
  - (e) ~~Require a revision of the operational procedures at the activity;~~
  - (f) ~~Require a change in the design or construction of the activity;~~
  - (g) ~~Require an alternate method of waste treatment or disposal;~~
  - (h) ~~Require prohibition or closure and abandonment of an activity;~~
  - (i) ~~Require remedial action to renovate or restore groundwater quality;~~
  - (j) ~~Revise rules or criteria on activity design, location or management practices; or~~
  - (k) ~~Require other action as necessary to prevent the reaching or exceeding the groundwater quality enforcement standards at a compliance point.~~
- (4) ~~The Secretary may determine that no remedial action to restore groundwater quality is necessary if the enforcement standards will not be reached or exceeded at a compliance point as defined in 12-801.~~
- (5) ~~If the Secretary determines that the probable cause of reaching or exceeding a preventive action level for the substances listed in Appendix One is an activity over which the Secretary does not have statutory authority, the Secretary may:~~
- (a) ~~Notify the appropriate local, State, or Federal authorities of the factual evidence; and~~
  - (b) ~~cooperate with the appropriate local, State, or Federal Authorities in determining appropriate action under 12-803(2).~~

#### ~~12-804 Responses When an Enforcement Standard is Reached or Exceeded~~

- (1) ~~Notification~~

~~When monitoring groundwater quality pursuant to this Rule or under other authorities of~~

the Secretary, if the concentration of a substance in groundwater reaches or exceeds an enforcement standard the steps listed below will be followed:

(a) — The owner or operator of the facility shall notify the Secretary in writing in accordance with applicable statutes, rules, permits or plan approvals. Where no deadlines are imposed, the owner or operator shall notify the Secretary within five working days of receiving the results. The notification shall provide a preliminary analysis of the cause and significance of the concentration of the substance(s) reaching or exceeding the groundwater quality enforcement standard.

(b) — Upon receipt of the notice under 12-804(1)(a), the Secretary will evaluate the information to determine if it is sufficient to make the assessment required under 12-804(1)(c). If further information is required to make this assessment, the Secretary may direct the owner or operator to conduct an investigation of the groundwater contamination and prepare and submit a report by a specified deadline. The report shall contain the information required to allow the Secretary to make the assessment required by 12-804(1)(c). If the Secretary determines that the report is incomplete or incorrect, the Secretary may require the owner/operator to revise the report and resubmit it to the Secretary.

(c) — The Secretary will assess the cause and significance of the increased concentration of the substance, will determine if the enforcement standards have or will be reached or exceeded at a compliance point, and may determine the source, fate and transport of the waste in the groundwater, in order to determine the appropriate action under applicable rules and regulations.

(2) — Response

If the evaluation under 12-804(1) indicates that an enforcement standard has been reached or exceeded or will be reached or exceeded at a compliance point, the Secretary shall take action under applicable regulatory or statutory authority to achieve the goals listed in 12-804(3). These actions may include, but are not limited to:

(a) — revision of the operational procedures at an activity;

(b) — changing the design or construction of the activity;

(c) — using an alternate method of waste treatment or disposal;

- (d) — ~~closure and abandonment of an activity;~~
- (e) — ~~remedial action to renovate or restore ground water quality;~~
- (f) — ~~development of a system to contain the contamination within the compliance point locations; or~~
- (g) — ~~allow natural attenuation of the contaminants in coordination with long term groundwater monitoring to track the contaminant or contaminants in the groundwater.~~

(3) — ~~Goals of Responding~~

~~The goals of responding under 12-804(2), are to manage groundwater consistent with its classification to prevent groundwater from reaching or exceeding an enforcement standard at a compliance point. If an enforcement standard has been reached or exceeded at a compliance point, the goal is to take appropriate action to return the groundwater quality to below enforcement standards, if possible.~~

(4) — ~~Determining a Response~~

~~In determining a response under 12-803(2) and in attempting to achieve the goals listed in 12-804(3), the Secretary should consider the following:~~

(i) — ~~Reliability of Sampling Data~~

~~As part of reviewing the quality of the sampling data, the Secretary will evaluate the sampling procedures, precision and accuracy of the analytical test, size of the data set, and the quality control and quality assurance procedures used. If there is insufficient information to evaluate the reliability of the sampling data, the Secretary may require additional samples or other changes in the monitoring program at the activity.~~

(ii) — ~~Public Health, Welfare and Environmental Effects of the Substance~~

~~The Secretary shall consider the public health, welfare and environmental effects~~

~~of the waste, including but not limited to its mobility in the subsurface, environmental fate, the risks considered when the standard was adopted and whether it is carcinogenic, mutagenic, teratogenic or has interactive effects with other substances.~~

~~(iii) — Performance of the Activity~~

~~The Secretary will consider whether the activity is performing as designed. The Secretary will consider the type, age and size of the activity; the type of design, if applicable; the operational history; and other factors related to performance of the activity as appropriate.~~

~~(vi) — Other Known or Suspected Sources of the Substance in the Area~~

~~If other known or suspected sources are present in the vicinity of an activity of concern, the Secretary will evaluate the probability of contributions from other sources of the substance. The Secretary will consider, at a minimum, the number, size, type and age of nearby sources; the groundwater flow patterns; and the substances involved.~~

~~(v) — Hydrogeologic Conditions~~

~~The Secretary will consider the geologic and groundwater conditions. This may include, but is not limited to the following data: the nature, thickness and permeability of the unconsolidated materials; the nature and permeability of bedrock; the depth to the water table; groundwater flow gradients, both vertical and horizontal; the position of the activity within the groundwater flow system; and the present and potential groundwater use in the vicinity of the activity at which the groundwater quality standards are reached or exceeded. If there is insufficient hydrogeologic information, the Secretary may require additional information.~~

~~(5) — Non-regulated Activities~~

~~If an activity is not subject to regulation by the Secretary, and if the concentration of a substance in groundwater exceeds an enforcement standard, the Secretary may:~~

- ~~(a) — notify the appropriate local, state, or Federal authorities of the factual evidence; and~~
- ~~(b) — cooperate with the appropriate local, state, or Federal authorities in determining the appropriate action.~~

~~(6) — Background Exceedences~~

~~In some cases, the background groundwater quality at an activity will naturally reach or exceed the enforcement standards in Appendix One. In these cases, the Secretary will not require the owner or operator of the activity to remediate the groundwater below the naturally occurring background groundwater quality.~~

**APPENDIX ONE**

**Groundwater Quality Standards**

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Acetone	700.0	350.0
Acifluorfen	1.0	0.1
Alachlor	2.0	0.7
Aldicarb	7.0	3.5
Aldicarb Sulfone	7.0	3.5
Aldicarb Sulfoxide	7.0	3.5
Aldrin	0.05	0.05
Alpha Particle Activity (Gross)	15 pCi/liter	5 pCi/liter

Ametryn	60.0	30.0
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<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Ammonium Sulfamate	2000.0	1000.0
Anthracene	2100.0	1050.0
Antimony	6.0	3.0
Arsenic	10.0	1.0
Asbestos	$7 \times 10^6$ fibers/liter (>10 micron length)	$0.7 \times 10^6$ fibers/liter (>10 micron length)
Atrazine	3.0	1.5
Azoxystrobin Technical	1476.0	147.6
Bacteria Total Coliform	Absent	Absent
Barium	2000.0	1000.0
Baygon	3.0	1.5



<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Bendiocarb	3.0	1.5
Benefin	2100.0	1050.0
Benomyl	350.0	175.0
Bensulide	50.0	25.0
Bentazon	200.0	100.0
Benzene*	5.0	0.5
Benzo(a)pyrene	0.2	0.1
Beryllium	4.0	1.0
Beta Particle and Photon Radioactivity	4 millirems/yr	50 pCi/liter <sup>†</sup>

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<sup>1</sup>The PAL has been established based upon the Safe Drinking Water Act monitoring requirements, not a percentage of the Enforcement Standard. Please see CFR 40 Section 141.16 and 141.26.

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Boron	600.0	300.0
Bromacil	90.0	45.0
Bromate	10.0	5.0
Bromochloromethane	90.0	9.0
Bromomethane	10.0	1.0
Bromoxynil	14.0	1.4
Butylate	350.0	175.0
Cadmium	5.0	2.5
Carbaryl	70.0	7.0
Carbofuran	40.0	20.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Carbon Tetrachloride*	5.0	0.5
Carboxin	700.0	70.0
Chloramben	100.0	50.0
Chloramines	70.0	35.0
Chlordane	2.0	0.44
Chlorite	1000.0	500.0
Chlorobenzene	100.0	50.0
Chloroisopropyl Ether(Bis-2)	300.0	150.0
Chloromethane	30.0	15.0
Chlorothalonil	1.5	0.15

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Chlorotoluene (ortho)	100.0	50.0
Chlorotoluene (para)	100.0	50.0
Chlorpyrifos	20.0	10.0
Chromium	100.0	50.0
Cimectacarb	1050.0	105.0
Clopyralid	330.0	165.0
Copper	1300.0	650.0
Cyanazine	1.0	0.5
Cyanide	200.0	100.0
Daethal	7.0	0.7

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Dalapon	200.0	100.0
Dazomet	88.0	44.0
Di(2-ethylhexyl)adipate	400.0	200.0
Di(2-ethylhexyl)phthalate	6.0	3.0
Diazinon	0.6	0.3
Dibromochloropropane*	0.2	0.02
Dicamba	189.0	18.9
Dichlorobenzene (meta)	600.0	300.0
Dichlorobenzene (ortho)	600.0	300.0
Dichlorobenzene (para)	75.0	37.5

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Dichlorodifluoromethane	1000.0	500.0
Dichloroethane (1,1)	70.0	35
Dichloroethane (1,2)*	5.0	0.5
Dichloroethene (1,1)	7.0	0.7
Dichloroethene (cis 1,2)	70.0	35.0
Dichloroethene (trans 1,2)	100.0	50.0
Dichlorophenoxyacetic Acid (2,4)	70.0	7.0
Dichloroprop	140.0	14.0
Dichloropropane (1,2)*	5.0	0.5
Dichloropropene (1,3)	0.5	0.5

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Dieldrin	0.02	0.02
Dimethrin	2000.0	1000.0
Dinoseb	7.0	0.7
Dioxane (para)	20.0	20.0
Diphenamid	200.0	100.0
Diquat	20.0	10.0
Disulfoton	0.30	0.03
Diuron	10.0	5.0
Endothall	100.0	50.0
Endrin	2.0	1.0



<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Ethofumesate	280.0	28.0
Ethoprop	1.0	0.1
Ethylbenzene	700.0	350.0
Ethylene Dibromide	0.05	0.01
Ethylene Glycol	7000.0	700.0
Ethylene Thiourea	5.0	5.0
Etridiazole	1.0	0.1
Fenamiphos	2.0	1.0
Fenarimol	630.5	315.25
Fluometuron	90.0	45.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Fluoranthene	280.0	140.0
Fluorenes	280.0	140.0
Fluoride	4000.0	2000.0
Flurprimidol	700.0	350.0
Flutolanil	1400.0	140.0
Fluvalinate	70.0	35.0
Fonofos	10.0	5.0
Formaldehyde	1000.0	100.0
Fosetyl-Al	2343.0	234.3
Glufosinate-ammonium	20.0	10.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Glyphosate	700.0	350.0
Haloacetic Acids (Total)	60.0	6.0
Halofenozide	46.0	23.0
Halosulfuron-methyl	990.0	495.0
Heptachlor	0.4	0.088
Heptachlor Epoxide	0.2	0.06
Hexachlorobenzene*	1.0	0.22
Hexochlorobutadiene	1.0	0.5
Hexachlorocyclopentadiene	50.0	25.0
Hexane (n)	420.0	210.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Hexazinone	200.0	100.0
Imidacloprid	93.0	9.3
Iprodione	280.0	140.0
Isophorone	100.0	50.0
Isoxaben	175.0	17.5
Lead	15.0	1.5
Lindane	0.2	0.1
Maleic Hydrazide	4000.0	400.0
Maneb	35.0	17.5
Manganese	840.0	420.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
MCPA	10.0	1.0
Mecoprop	35.0	3.5
Mercury	2.0	0.5
Metalaxyl	350.0	35.0
Methomyl	200.0	100.0
Methoxychlor	40.0	4.0
Methyl Ethyl Ketone	4200.0	2100.0
Methyl Isobutyl Ketone	560.0	280.0
Methyl Parathion	2.0	1.0
Methyl tert-butyl Ether	40.0	20.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Methylene Chloride	5.0	0.5
Metolachlor	70.0	35.0
Metribuzin	32.5	16.25
Molybdenum	40.0	20.0
Myelobutanil	120.0	12.0
Naphthalene	20.0	10.0
Napropamide	70.0	35.0
Nickel	100.0	50.0
Nitrate	10000.0	5000.0
Nitrates + Nitrites (total)	10000.0	5000.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Nitrites	1000.0	500.0
Ortho-phenylphenol	18.0	9.0
Oxamyl	200.0	100.0
Paclobtrazol	455.0	45.5
Paraquat	30.0	3.0
Pendimethalin	280.0	140.0
Pentachloronitrobenzene	6.0	3.0
Pentachlorophenol	1.0	0.3
Phenol	2100.0	210.0
Picloram	500.0	250.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Polychlorinated Biphenyls	0.5	0.25
Prometon	100.0	50.0
Pronamide	50.0	25.0
Propamocarb hydrochloride	924.0	92.4
Propachlor	90.0	45.0
Propazine	10.0	5.0
Propham	100.0	50.0
Propiconazole	104.0	10.4
Propham	100.0	50.0
Quinclorac	369.0	184.5



<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Radium (Combined 226 + 228)	5 pCi/liter	0.5pCi/liter
Selenium	50.0	25.0
Simazine	4.0	2.0
Styrene	100.0	50.0
Tebuthiuron	500.0	250.0
Terbacil	90.0	45.0
Terbufos	0.9	0.45
Tetrachlorodibenzo-p-Dioxin (2,3,7,8)	0.00003	0.000011
Tetrachloroethane (1,1,1,2)	70.0	35.0
Tetrachloroethylene*	5.0	0.5

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Thallium	2.0	1.0
Thiophanate Methyl	560.0	280.0
Thiram	35.0	3.5
Toluene	1000.0	500.0
Toxaphene	3.0	2.2
Triadimefon	10.0	1.0
Trichlorfon	1.5	0.15
Trichlorobenzene (1,2,4)	70.0	35.0
Trichlorobenzene (1,3,5)	40.0	20.0
Trichloroethane (1,1,1)	200.0	100.0

<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Trichloroethane (1,1,2)	5.0	2.5
Trichloroethylene	5.0	0.5
Trichlorofluoromethane	2100.0	1050.0
Trichlorophenoxyacetic Acid (2,4,5)	70.0	7.0
Trichlorophenoxypropionic (2,4,5)	50.0	25.0
Trichloropropane (1,2,3)	5.0	0.5
Triclopyr	487.0	243.5
Trifloxystrobin	410.0	205.0
Trifluralin	5.0	2.5

Trihalomethanes (Total) Comprised of Bromodichloromethane, Bromoform, Chloroform, and	80.0	8.0
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<b>TABLE 1 Primary Groundwater Quality Standards</b>		
<b>Substance</b>	<b>Enforcement Standard (micrograms per liter (=ppb), except as noted)</b>	<b>Preventive Action Level** (micrograms per liter (=ppb), except as noted)</b>
Dibromochloromethane:		
Trimethylbenzene (1,2,4)	5.0	2.5
Trimethylbenzene (1,3,5)	4.0	2.0
Uranium	20.0	2.0
Vinyl chloride*	2.0	0.5
Xylenes	10000.0	5000.0
Zinc	350.0	175.0

\*Contaminants of special concern to the Department of Environmental Conservation and the Department of Health. Contact the Department of Environmental Conservation if these contaminants are found in a drinking water source for additional information concerning resampling and risk notification.

\*\* Where the PAL is below the substance's detection limit, the PAL has been redefined at the detection limit.

**TABLE 2**  
**Secondary Groundwater Quality Standards**

<b>Substance</b>	<b>Enforcement Standard (milligrams per liter-- except as noted)</b>	<b>Preventive Action Level (milligrams per liter-- except as noted)</b>
Aluminum	0.2	0.1
Chloride	250	125
Color	15 color units	7.5 color units
Copper	1.0	0.5
Fluoride	2.0	1.0
Foaming Agents MBAS (Methylene Blue Active Substances)	0.5	0.25
Iron	0.3	0.15
Manganese	0.05	0.025
Odor	3 (Threshold Odor No.)	1.5 (Threshold Odor No.)
Silver	0.1	0.05
Sodium	250	125
Sulfate	250	125
Total Dissolved Solids (TDS)	500	250
Zinc	5	2.5

Note: An activity shall not cause the groundwater quality to reach or exceed the secondary enforcement standards or 110% of the secondary background groundwater quality standards established under 12-704, whichever is greater.

**TABLE 3**  
**Maximum Acceptable Change for Indicator Parameters**

<b>Parameter</b>	<b>Maximum Acceptable Change (mg/l – excepted as noted)</b>
Alkalinity	100
Biochemical Oxygen Demand (BOD <sub>5</sub> )	25
Chemical Oxygen Demand (COD)	25
Potassium	5
Sodium	10
Field Specific Conductance	100 micromhos/cm
pH	1 pH unit
Temperature	10 °F (5.6 °C) or 3 standard deviations
Total Hardness (as CaCO <sub>3</sub> )	100
Total Organic Carbon (TOC)	1
Total Organic Halogen (TOX)	0.25

## APPENDIX TWO

### Acceptable and Unacceptable Activities

The following activities are those which the Secretary has determined are acceptable or unacceptable activities in specific groundwater classes. The Secretary may identify specific activities which are acceptable activities in a reclassification decision.

#### (1) — Class I Groundwater Areas

All human activities in Class I groundwater areas are unacceptable activities except:

- (a) — Any activities approved or permitted by the Secretary which are necessary to operate and maintain a public water supply system;
- (b) — Outdoor recreational activities such as fishing, hiking, hunting, skiing, snowshoeing, trapping, and during periods of snow cover, snowmobiling; which do not cause or allow disposal of wastes or otherwise threaten groundwater quality. This subsection shall not be construed to permit the operation of all terrain vehicles or motorcycles.
- (c) — When consistent with Accepted Agricultural Practices (AAP), the low density pasturing of livestock, at a density not to exceed that approved by the Vermont Agency of Agriculture, the liming, mowing or clipping of pastures and maple sap collection;
- (d) — When consistent with Acceptable Management Practices (AMP), the harvesting of trees by the selection method for lumber, fiber, or fuel, and Christmas tree production from wild uncultivated stands; and
- (e) — Other activities identified by the Secretary in the classification decision.

#### (2) — Class II Groundwater Areas



~~(a) — Unacceptable Activities~~

- ~~(i) — the construction of new or expanded use of unpermitted injection wells; unsewered floor drains; construction and demolition debris disposal facilities; municipal solid waste disposal facilities; hazardous waste disposal facilities;~~

- ~~(ii) — new improperly constructed or protected wells;~~
- ~~(iii) — the installation of new underground storage tanks not meeting the Agency's underground storage tank criteria pursuant to Chapter 8 of the Environmental Protection Rules;~~
- ~~(iv) — any activity which results in discharges to the groundwater of any hazardous or radioactive waste.~~
- ~~(v) — new subsurface ground water discharges of sewage from individual residences which do not meet the Secretary's sewage disposal rule criteria;~~
- ~~(vi) — new stockpiles of highway deicing salt or salted sand piles;~~
- ~~(vii) — new pit privies;~~
- ~~(viii) — new junkyards; and~~
- ~~(ix) — new commercial storage or mixing facilities for fertilizers, pesticides or other hazardous materials.~~

~~(b) — Acceptable Activities:~~

~~The following activities are Acceptable Activities for Class II groundwater.~~

- ~~(i) — Accepted Agricultural Practices insofar as they give due consideration to protecting groundwater quality, unless the Secretary, with the consent of the Commissioner of Agriculture, Food and Markets, finds that a specific practice has exceeded or threatens to exceed the groundwater quality enforcement standards in Appendix One;~~
- ~~(ii) — Acceptable Management Practices (AMP) for forestry insofar as they give due consideration to protecting groundwater quality, unless the Secretary, in consultation with the Commissioner of Forests, Parks and Recreation, finds that a specific practice has exceeded or threatens to exceed the groundwater quality enforcement standards in Appendix One;~~
- ~~(iii) — Activities which are permissible in Class I ground water areas as provided~~

~~in Section 1 of Appendix Two; and~~

~~(iv) Treatment/disposal systems for sanitary wastewater that are 1000 gallons per day or less, when design, location, and construction standards meet the Secretary's sewage disposal rules.~~

~~(v) Replacement treatment/disposal systems for sanitary wastewater when~~

~~permitted by the Secretary when design, location and construction standards meet the Secretary's sewage disposal rules.~~

### ~~(3) Class III Groundwater~~

#### ~~(a) Unacceptable Activities~~

~~Any activity which results in discharges to the groundwater of any hazardous or radioactive waste is prohibited in a Class III groundwater area.~~

#### ~~(b) Acceptable Activities~~

~~The following activities are Acceptable Activities for Class III groundwater:~~

~~(i) Accepted Agricultural Practices insofar as they give due consideration to protecting groundwater quality unless the Secretary, with the consent of the Commissioner of Agriculture, Food, and Markets finds that a specific practice has exceeded or threatens to exceed the groundwater quality enforcement standards in Appendix One.~~

~~(ii) Acceptable Management Practices (AMP) for forestry insofar as they give due consideration to protecting groundwater quality, unless the Secretary, in consultation with the Commissioner of Forests, Parks and Recreation, finds that a specific practice has exceeded or threatens to exceed the groundwater quality enforcement standards in Appendix One;~~

~~(iii) Treatment/disposal systems for sanitary waste water only when design, location and construction standards meet the Secretary's sewage disposal rules.~~

~~(iv) The application of sewage treatment plant sludge, septage and dairy wastes for crop production and soil enhancement when:~~

~~(A) the activity is permitted by the Secretary;~~

~~(B) the adjacent groundwater quality is monitored for nitrate concentrations and other constituents as the Secretary may require~~

~~in both upgradient and downgradient directions; and  
(C) there is no evidence of exceeding the groundwater quality  
enforcement standards at any compliance point in Appendix One.~~

~~(v) Activities which are Acceptable Activities in Class I and II groundwater  
areas as provided Section 1 and 2 of Appendix Two.~~

- ~~(vi) — Land surface or subsurface discharges of treated industrial type, non-sanitary waste waters when treatment achieves an effluent quality prior to discharge which does not reach or exceed any groundwater quality enforcement standard listed in Appendix One.~~

~~(4) — Class IV Groundwater Areas~~

~~Acceptable and Unacceptable Activities for Class IV Groundwater will be based upon Section 12-504.~~

~~—End of Chapter 12—~~