Senate proposal of amendment

H. 554

An act relating to the regulation of dams

The Senate proposes to the House to amend the bill by striking out all after the enacting clause and inserting in lieu thereof the following:

* * * Regulation of Dams * * *

Sec. 1. 10 V.S.A. chapter 43 is amended to read:

CHAPTER 43. DAMS

§ 1079. PURPOSE

It is the purpose of this chapter to protect public safety and provide for the public good through the inventory, inspection, and evaluation of dams in the State.

§ 1080. DEFINITIONS

As used in this chapter:

- (1) "Department" means the department of environmental conservation Department of Environmental Conservation.
- (2) "Person" means any individual; partnership; company; corporation; association; joint venture; trust; municipality; the state <u>State</u> of Vermont or any agency, department, or subdivision of the state, <u>State</u>; any federal agency, or any other legal or commercial entity.
- (3) "Person in interest" "Interested person" means, in relation to any dam, a person: who has riparian rights affected by that dam; who has a substantial interest in economic or recreational activity affected by the dam; or whose safety would be endangered by a failure of the dam.
- (4) "Engineer" means a professional engineer registered <u>licensed</u> under Title 26 who has experience in the design and investigation of dams.
- (5) "Time" shall be reckoned in the manner prescribed by 1 V.S.A. § 138.
- (6)(A) "Dam" means any artificial barrier, including its appurtenant works, that is capable of impounding water, other liquids, or accumulated sediments.
- (B) "Dam" includes an artificial barrier that meets all of the following:
- (i) previously was capable of impounding water, other liquids, or accumulated sediments;

- (ii) was partially breached; and
- (iii) has not been properly removed or mitigated.

(C) "Dam" shall not mean:

- (i) barriers or structures created by beaver or any other wild animal as that term is defined in section 4001 of this title;
- (ii) transportation infrastructure that has no normal water storage capacity and that impounds water only during storm events;
- (iii) an artificial barrier at a stormwater management structure that is regulated by the Agency of Natural Resources under chapter 47 of this title;
- (iv) an underground or elevated tank to store water otherwise regulated by the Agency of Natural Resources;
- (v) an agricultural waste storage facility regulated by the Agency of Agriculture, Food and Markets under 6 V.S.A. chapter 215; or
 - (vi) any other structure identified by the Department by rule.

(7) "Federal dam" means:

- (A) a dam owned by the United States; or
- (B) a dam subject to a Federal Energy Regulatory Commission license or exemption.
- (8) "Intake structure" means a dam that is constructed and operated for the primary purposes of minimally impounding water for the measurement and withdrawal of streamflow to ensure use of the withdrawn water for snowmaking, potable water, irrigation, or other purposes approved by the Department.
 - (9) "Nonfederal dam" means a dam that is not a federal dam.

§ 1081. JURISDICTION OF DEPARTMENT AND PUBLIC UTILITY COMMISSION

- (a) <u>Powers and duties</u>. Unless otherwise provided, the powers and duties authorized by this chapter shall be exercised by the Department, except that the Public Utility Commission shall exercise those powers and duties over <u>nonfederal</u> dams and projects that relate to or are incident to the generation of electric energy for public use or as a part of a public utility system.
- (b) Transfer of jurisdiction. Jurisdiction over a <u>nonfederal</u> dam is transferred from the Department to the Public Utility Commission whenever the Federal Energy Regulatory Commission grants a license to generate electricity at the dam or whenever when the Public Utility Commission receives an application for a certificate of public good for electricity generation at that dam. Jurisdiction is transferred from the Public Utility

Commission to the Department whenever such a federal license when the license or exemption for a federal dam expires or is otherwise lost, whenever such; when a certificate of public good is revoked or otherwise lost, or whenever when the Public Utility Commission denies an application for a certificate of public good.

(c) <u>Transfer of records.</u> Upon transfer of jurisdiction as set forth in subsection (b) of this section and upon written request, the State agency having former jurisdiction <u>over a dam</u> shall transfer copies of all records pertaining to the dam to the agency acquiring jurisdiction.

§ 1082. AUTHORIZATION

- (a) No person shall construct, enlarge, raise, lower, remodel, reconstruct, or otherwise alter any <u>nonfederal</u> dam, pond, or impoundment or other structure which that is or will be capable of impounding more than 500,000 cubic feet of water or other liquid after construction or alteration, or remove, breach, or otherwise lessen the capacity of an existing <u>nonfederal</u> dam that is or was capable of impounding more than 500,000 cubic feet within or along the borders of this <u>state</u> <u>State</u> where land in this <u>state</u> <u>State</u> is proposed to be overflowed, or at the outlet of any body of water within this <u>state</u> <u>State</u>, unless authorized by the <u>state</u> <u>State</u> agency having jurisdiction so to do. However, in the matter of flood control projects where cooperation with the federal government is provided for by the provisions of section 1100 of this title, that section shall control.
- (b) For the purposes of this chapter, the volume a dam or other structure is capable of impounding is the volume of water or other liquid, including any accumulated sediments, controlled by the structure with the water or liquid level at the top of the <u>lowest</u> nonoverflow part of the structure.
- (c) An intake structure in existence on July 1, 2018 that continues to operate in accordance with a valid Department permit or approval that contains requirements for inspection and maintenance subject to section 1105 of this title shall have a rebuttable presumption of compliance with the requirements of this chapter and rules adopted under this chapter, provided that no presumption of compliance shall apply if one or both of the following occur on or after July 1, 2018:
- (1) the owner or operator of the intake takes an action that requires authorization under this section; or
- (2) the Department issues an order under section 1095 of this title directing reconstruction, repair, removal, breaching, draining, or other action it considers necessary to improve the safety of the dam.

§ 1083. APPLICATION

(a) Any person who proposes to undertake an action subject to regulation

pursuant to section 1082 of this title shall apply in writing to the State agency having jurisdiction. The application shall set forth:

- (1) the location, the height, length, and other dimensions, and any proposed changes to any existing dam;
- (2) the approximate area to be overflowed and the approximate number of $\frac{1}{2}$ or any change in the number of cubic feet of water to be impounded;
- (3) the plans and specifications to be followed in the construction, remodeling, reconstruction, altering, lowering, raising, removal, breaching, or adding to;
 - (4) any change in operation and maintenance procedures; and
- (5) other information that the <u>state</u> <u>State</u> agency having jurisdiction considers necessary to properly review the application.
- (b) The plans and specifications shall be prepared under the supervision of an engineer.

§ 1083a. AGRICULTURAL DAMS

- (a) Notwithstanding the provisions of sections 1082, 1083, 1084, and 1086 of this title, the owners of an agricultural enterprise who propose, as an integral and exclusive part of the enterprise, to construct or alter any dam, pond or impoundment or other structure requiring a permit under section 1083 shall apply to the natural resources conservation district in which his land is located. The natural resources conservation districts created under the provisions of chapter 31 of this title shall be the state agency having jurisdiction and shall review and approve the applications in the same manner as would the department. The districts may request the assistance of the department for any investigatory work necessary for a determination of public good and for any review of plans and specifications as provided in section 1086.
- (b) As used in this section, "agricultural enterprise" means any farm, including stock, dairy, poultry, forage crop and truck farms, plantations, ranches and orchards, which does not fall within the definition of "activities not engaged in for a profit" as defined in Section 183 of the Internal Revenue Code and regulations relating thereto. The growing of timber does not in itself constitute farming.
- (c) Notwithstanding the provisions of this section, jurisdiction shall revert to the department when there is a change in use or when there is a change in ownership which affects use. In those cases the department may, on its own motion, hold meetings in order to determine the effect on the public good and public safety. The department may issue an order modifying the terms and conditions of approval.

- (d) The natural resources conservation districts may adopt any rules necessary to administer this chapter. The districts shall adhere to the requirements of chapter 25 of Title 3 in the adoption of those rules.
- (e) Notwithstanding the provisions of chapter 7 of Title 3, the attorney general shall counsel the districts in any case where a suit has been instituted against the districts for any decision made under the provisions of this chapter. [Repealed.]

§ 1084. DEPARTMENT OF FISH AND WILDLIFE; INVESTIGATION

The commissioner of fish and wildlife Commissioner of Fish and Wildlife shall investigate the potential effects on fish and wildlife habitats of any proposal subject to section 1082 of this title and shall certify the results to the state State agency having jurisdiction prior to any hearing or meeting relating to the determination of public good and public safety.

§ 1085. NOTICE OF APPLICATION

Upon receipt of the application required by section 1082 of this title, the State agency having jurisdiction shall give notice to the legislative body of each municipality in which the dam is allocated located and to all persons interested persons.

- (1) The Department shall proceed in accordance with chapter 170 of this title.
- (2) For any project subject to its jurisdiction under this chapter, the Public Utilities Utility Commission shall hold a hearing on the application. The purpose of the hearing shall be to determine whether the project serves the public good as defined in section 1086 of this title and provides adequately for the public safety. The hearing shall be held in a municipality in the vicinity of the proposed project and may be consolidated with other hearings, including hearings under 30 V.S.A. § 248 concerning the same project. Notice shall be given at least 10 days before the hearing to interested persons by posting in the municipal offices of the towns in which the project will be completed and by publishing in a local newspaper.

§ 1086. DETERMINATION OF PUBLIC GOOD; CERTIFICATES

- (a) "Public good" means the greatest benefit of the people of the State. In determining whether the public good is served, the State agency having jurisdiction shall give due consideration \underline{to} , among other things, to the effect the proposed project will have on:
- (1) the quantity, kind, and extent of cultivated agricultural land that may be rendered unfit for use by or enhanced by the project, including both the immediate and long-range agricultural land use impacts;
 - (2) scenic and recreational values;

- (3) fish and wildlife;
- (4) forests and forest programs;
- (5) the need for a minimum water discharge flow rate schedule to protect the natural rate of flow and the water quality of the affected waters; [Repealed.]
- (6) the existing uses of the waters by the public for boating, fishing, swimming, and other recreational uses;
- (7) the creation of any hazard to navigation, fishing, swimming, or other public uses;
- (8) the need for cutting clean and removal of all timber or tree growth from all or part of the flowage area;
 - (9) the creation of any public benefits;
- (10) the classification, if any, of the affected waters under chapter 47 of this title attainment of the Vermont water quality standards;
 - (11) any applicable State, regional, or municipal plans;
 - (12) municipal grand lists and revenues;
 - (13) public safety; and
- (14) in the case of <u>the</u> proposed removal of a dam that formerly related to or was incident to the generation of electric energy, but which <u>that</u> was not subject to a memorandum of understanding dated prior to January 1, 2006 relating to its removal, the potential for and value of future power production.
- (b) If the State agency having jurisdiction finds that the proposed project proposed under section 1082 of this title will serve the public good, and, in case of any waters designated by the Secretary as outstanding resource waters, will preserve or enhance the values and activities sought to be protected by designation, the agency shall issue its order approving the application. The order shall include conditions for minimum stream flow to protect fish and instream aquatic life attainment of water quality standards, as determined by the Agency of Natural Resources, and such other conditions as the agency having jurisdiction considers necessary to protect any element of the public good listed in subsection (a) of this section. Otherwise it shall issue its order disapproving the application.
- (c) The Agency <u>State agency having jurisdiction</u> shall provide the applicant and interested <u>parties persons</u> with copies of its order.
- (d) In the case of a proposed removal of a dam that is under the jurisdiction of the Department and that formerly related to or was incident to the generation of electric energy but that was not subject to a memorandum of

understanding dated before January 1, 2006 relating to its removal, the Department shall consult with the Department of Public Service regarding the potential for and value of future power production at the site.

§ 1087. REVIEW OF PLANS AND SPECIFICATIONS

Upon receipt of an application, the state For any proposal subject to authorization under section 1082, the State agency having jurisdiction shall employ a registered an engineer experienced in the design and investigation of dams to investigate the property, review the plans and specifications, and make additional investigations as it the State agency having jurisdiction considers necessary to ensure that the project adequately provides for the public safety. The engineer shall report his or her findings to the agency State agency having jurisdiction.

§ 1089. EMPLOYMENT OF HYDRAULIC ENGINEER

With the approval of the governor Governor, the state State agency having jurisdiction may employ a competent hydraulie an engineer to investigate the property, review the plans and specifications, and make such additional investigation as such the State agency shall deem necessary, and such engineer shall report to the State agency his or her findings in respect thereto.

§ 1090. CONSTRUCTION SUPERVISION

The construction, alteration, or other action authorized in section 1086 of this title shall be supervised by a registered an engineer employed by the applicant. Upon completion of the authorized project, the engineer shall certify to the agency having jurisdiction that the project has been completed in conformance with the approved plans and specifications.

§ 1095. UNSAFE DAM; PETITION; HEARING; EMERGENCY

- (a) On receipt of a petition signed by not less no fewer than ten persons in interest interested persons or the legislative body of a municipality, the State agency having jurisdiction shall, or upon its own motion it may, institute investigations by an engineer as described in section 1087 of this title regarding the safety of any existing nonfederal dam or portion of a the dam, of any size. The agency may fix a time and place for hearing and shall give notice in the manner it directs to all parties interested persons. The engineer shall present his or her findings and recommendations at the hearing. After the hearing, if the agency finds that the nonfederal dam or portion of the dam as maintained or operated is unsafe or is a menace to people or property above or below the dam, it shall issue an order directing reconstruction, repair, removal, breaching, draining, or other action it considers necessary to make the dam safe improve the safety of the dam sufficiently to protect life and property as required by the State agency having jurisdiction.
 - (b) If, upon the expiration of such date as may be ordered, the owner of

person owning legal title to such dam or the owner of the land on which the dam is located has not complied with the order directing the reconstruction, repair, breaching, removal, draining, or other action of such unsafe dam, the state State agency having jurisdiction may petition the superior court Superior Court in the county in which the dam is located to enforce its order or exercise the right of eminent domain to acquire such the rights as that may be necessary to effectuate a remedy as the public safety or public good may require. If the order has been appealed, the court may prohibit the exercise of eminent domain by the State agency having jurisdiction pending disposition of the appeal.

(c) If, upon completion of the investigation described in subsection (a) of this section, the state State agency having jurisdiction considers the dam to present an imminent threat to human life or property, it shall take whatever action it considers necessary to protect life and property and subsequently shall conduct the hearing described in subsection (a) of this section.

§ 1097. SURVEY OF EXISTING DAMS; ORDERS FOR PROTECTION OF SALMON

The Fish and Wildlife Board shall forthwith make a survey of all dams within the state which impound more than three hundred thousand cubic feet of water and determine if the operation of such dams adversely affects the propagation and preservation of salmon, or materially diminishes the amount of flow in portions of a stream likely to be used for such preservation and propagation of salmon. If the Board determines that the operation of an existing dam does adversely affect the propagation and preservation of salmon or materially diminishes the flow of water over portions of stream likely to be used therefor, it shall order such changes in operation for such length of time or times as are reasonably necessary in its judgment to fully protect such preservation and propagation of salmon. Any order of the board made under this section shall be based upon facts found and stated. Appeal from an order of the board may be taken in the manner prescribed for appeals from the Public Utility Commission as provided in 30 V.S.A. chapter 1. [Repealed.]

§ 1098. REMOVAL OF OBSTRUCTIONS; APPROPRIATION

The department may contract for the removal of sandbars, debris, or other obstructions from streams which the department finds that while so obstructed may be a menace in time of flood, or endanger property or life below, or the property of riparian owners. The expense of investigation and removal of the obstruction shall be paid by the state from funds provided for that purpose. [Repealed.]

* * *

- (a) Inspection; schedule. All nonfederal dams in the State shall be inspected according to a schedule adopted by rule by the State agency having jurisdiction over the dam.
- (b) Dam inspection. A nonfederal dam in the State shall be inspected under one or both of the following methods:
- (1) The State agency having jurisdiction shall over a dam may employ an engineer to make periodic inspections of nonfederal dams in the State to determine their condition and the extent, if any, to which they pose a potential possible or actual probable threat to life and property, or.
- (2) The State agency having jurisdiction shall adopt rules pursuant to 3 V.S.A. chapter 25 to require an adequate level of inspection by an independent registered engineer experienced in the design and investigation of dams. The agency shall provide the owner with the findings of the inspection and any recommendations.
- (c) Dam safety reports. If a dam inspection report is completed by the State agency having jurisdiction, the agency shall provide the person owning legal title to the dam or the owner of the land on which the dam is located with a copy of the inspection report.

* * *

§ 1107. HAZARD POTENTIAL CLASSIFICATIONS

- (a) The State agency having jurisdiction over a nonfederal dam listed in the Vermont Dam Inventory shall assess the hazard potential classification of the dam based on the potential loss of human life, property damage, and economic loss that would occur in the event of the failure of the dam. There shall be four hazard potential classifications: high, significant, low, and minimal.
- (b) The State agency having jurisdiction over a nonfederal dam on the Vermont Dam Inventory may assess or reassess the hazard potential classification of the dam at any time.

§ 1108. DAM INVENTORY; REGISTRATION

- (a) Dam inventory. The Department of Environmental Conservation shall maintain a current inventory of all known dams in the State of Vermont. The Department of Environmental Conservation shall update and publish the Vermont Dam Inventory annually and shall include information collected in the Inventory as part of the Agency of Natural Resources' Natural Resources Atlas.
- (b) Dam registration. If a dam is listed on the Vermont Dam Inventory and is under the jurisdiction of the Department, the person owning legal title to a dam or the person owning the land on which the dam is located shall, upon request of the Department, submit information to the Department regarding the

dam, including the condition of the dam, whether and when the dam has been inspected, and any other information that the Department may require to ensure public safety. A person who fails to comply with the request of the Department under this section shall be subject to a civil penalty under chapter 201 of this title.

§ 1109. MARKETABILITY OF TITLE

The failure of the person owning legal title to a dam or the owner of the land on which the dam is located to record a dam registration or a dam inspection report when required under this chapter or rules adopted under this chapter shall not create an encumbrance on record title or an effect on marketability of title for the real estate property or properties on which the dam is located.

§ 1110. RULEMAKING

The Commissioner of Environmental Conservation shall adopt rules to implement the requirements of this chapter for dams under the jurisdiction of the Department. The rules shall include:

- (1) a standard or regulatory threshold under which a dam is exempt from the registration or inspection requirements of this chapter;
 - (2) standards for:
- (A) the siting, design, construction, reconstruction, enlargement, modification, or alteration of a dam;
 - (B) operation and maintenance of a dam;
 - (C) inspection, monitoring, record keeping, and reporting;
 - (D) repair, breach, or removal of a dam;
 - (E) application for authorization under section 1082 of this title; and
- (F) for the development of an emergency action plan for a dam, including guidance on how to develop an emergency action plan, the content of a plan, and when and how an emergency action plan should be updated;
 - (3) criteria for the hazard potential classification of dams in the State;
- (4) a process by which a person owning legal title to a dam or a person owning the land on which the dam is located shall register a dam and record the existence of the dam in the lands records; and
- (5) requirements for the person owning legal title to a dam or the person owning the land on which the dam is located to conduct inspections of the dam; and

§ 1111. NATURAL RESOURCES ATLAS; DAM STATUS

Annually on or before January 1, the Public Utility Commission shall submit to the Department updated inventory information from the previous calendar year for dams under the jurisdiction of the Public Utility Commission.

Sec. 2. DAM REGISTRATION PROGRAM REPORT

On or before January 1, 2023, the Department of Environmental Conservation shall submit a report to the House Committees on Natural Resources, Fish, and Wildlife and on Ways and Means and the Senate Committees on Natural Resources and Energy and on Finance. The report shall contain:

- (1) an evaluation of the dam registration program under 10 V.S.A. chapter 43;
- (2) a recommendation on whether to modify the fee structure of the dam registration program;
- (3) a summary of the dams registered under the program, organized by amount of water impounded and hazard potential classification; and
- (4) an evaluation of any other dam safety concerns related to dam registration.

Sec. 3. ADOPTION OF RULES

The Secretary of Natural Resources shall adopt the rules required under 10 V.S.A. § 1110 as follows:

- (1) the rules required under 10 V.S.A. § 1110(1) (exemptions), § 1110(3) (emergency action plan), § 1110(4) (hazard potential classification), § 1110(5) (dam registration), and § 1110(6) (dam inspection) shall be adopted on or before July 1, 2020; and
- (2) the rules required under 10 V.S.A. § 1110(2) (dam design standards) shall be adopted on or before July 1, 2022.
 - * * * Groundwater Source Testing * * *

Sec. 4. 10 V.S.A. § 1982 is added to read:

§ 1982. TESTING OF GROUNDWATER SOURCES

- (a) Definition. As used in this section, "groundwater source" means that portion of a potable water supply that draws water from the ground, including a drilled well, shallow well, driven well point, or spring.
- (b) Testing prior to new use. Prior to use of a new groundwater source as a potable water supply, the person who owns or controls the groundwater source shall test the groundwater source for the parameters set forth in subsection (c) of this section.

- (c) Parameters of testing. A water sample collected under this section shall be analyzed for, at a minimum: arsenic, lead, uranium, gross alpha radiation, total coliform bacteria, total nitrate and nitrite, fluoride, manganese, and any other parameters required by the Agency by rule. The Agency by rule may require testing for a parameter by region or specific geographic area of concern.
- (d) Submission of test results. Results of the testing required under subsection (b) shall be submitted, in a form provided by the Department of Health, to the Department of Health and, when required by the Secretary pursuant to a permit, to the Secretary.
- (e) Rulemaking. The Secretary, after consultation with the Department of Health, the Wastewater and Potable Water Supply Technical Advisory Committee, private laboratories, and other interested parties, shall adopt by rule requirements regarding:
- (1) when, prior to use of a new groundwater source, the test required under subsection (b) of this section shall be conducted;
- (2) who shall be authorized to sample the source for the test required under subsections (b) and (c) of this section, provided that the rule shall include the person who owns or controls the groundwater source and licensed well drillers among those authorized to sample the source;
- (3) how a water sample shall be collected in order to comply with the requirements of the analyses to be performed; and
 - (4) any other requirements necessary to implement this section.
- (f) Marketability of title. Noncompliance with the requirements of this section shall not affect the marketability of title or create a defect in title of a property, provided water test results required under this section are forwarded, prior to the conveyance of the property, to the Department of Health and, when required by the Secretary pursuant to a permit, to the Agency.

Sec. 5. AGENCY OF NATURAL RESOURCES; GROUNDWATER SOURCE TESTING; RULEMAKING

The Secretary of Natural Resources shall commence rulemaking under 10 V.S.A. § 1982 on or before July 1, 2018. The Secretary shall adopt rules under 10 V.S.A. § 1982 on or before January 1, 2019.

Sec. 6. 18 V.S.A. § 501b is amended to read:

§ 501b. CERTIFICATION OF LABORATORIES

(a) The commissioner <u>Commissioner</u> may certify a laboratory that meets the standards currently in effect of the National Environmental Laboratory Accreditation Conference and is accredited by an approved National

Environmental Laboratory Accreditation Program accrediting authority or its equivalent to perform the testing and monitoring:

- (1) required under 10 V.S.A. chapter 56 and the federal Safe Drinking Water Act; and
- (2) of water from a potable water supply, as that term is defined in 10 V.S.A. § 1972(6).
- (b)(1) The commissioner Commissioner may by order suspend or revoke a certificate granted under this section, after notice and opportunity to be heard, if the commissioner Commissioner finds that the certificate holder has:
- (A) submitted materially false or materially inaccurate information; or
- (B) violated any material requirement, restriction, or condition of the certificate; or
 - (C) violated any statute, rule, or order relating to this title.
- (2) The order shall set forth what steps, if any, may be taken by the certificate holder to relieve the holder of the suspension or enable the certificate holder to reapply for certification if a previous certificate has been revoked.
- (c) A person may appeal the suspension or revocation of the certificate to the board Board under section 128 of this title.

* * *

- (f) A laboratory certified to conduct testing of groundwater sources or water supplies from for use by a potable water supply, as that term is defined in 10 V.S.A. § 1972(6), including under the requirements of 10 V.S.A. § 1982, shall submit the results of groundwater analyses to the department of health and the agency of natural resources Department of Health in a format required by the department of health Department of Health.
- Sec. 7. 10 V.S.A. § 1974 is amended to read:

§ 1974. EXEMPTIONS

Notwithstanding any other requirements of this chapter, the following projects and actions are exempt:

* * *

(8) From the permit required for operation of failed supply under subdivision 1973(a)(4) of this tittle for the use or operation of a failed supply that consists of only one groundwater source that provides water to only one single family residence.

Sec. 8. EFFECTIVE DATES

- (a) This section and Sec 5 (groundwater testing rulemaking) shall take effect on passage.
- (b) Sec. 4 (groundwater source testing) shall take effect on July 1, 2019, except that 10 V.S.A. § 1982(e) shall take effect on passage.
 - (c) All other sections shall take effect on July 1, 2018.

And that after passage the title of the bill be amended to read:

An act relating to the regulation of dams and the testing of groundwater sources.