AGENCY OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION RULES

CHAPTER 16

WATER WITHDRAWALS FOR SNOWMAKING

Section 16-01 Authority

These rules are adopted pursuant to the authority of Title 10 V.S.A. Chapter 41, Subchapter 3. Water Withdrawal for Snowmaking. These rules shall not supersede the water quality standards adopted by the water resources board pursuant to Title 10 V.S.A. Chapter 47.

Section 16-02 Policy

It is the policy of the State of Vermont to:

(1) assure the protection, maintenance, and restoration of the chemical, physical, and biological water quality, including water quantity, necessary to sustain aquatic communities and stream functions;

(2) help to provide for and enhance the viability of Vermont's ski industry, which uses certain of the state's waters for snowmaking;

(3) permit water withdrawals, diversions, impoundments, and the construction of appurtenant facilities for snowmaking, based on an analysis of the need for water and a consideration of alternatives, consistent with this policy and other applicable laws and rules;

(4) recognize that existing users of the state's waters for snowmaking, which may have an adverse effect on water quality, should have time and opportunity to improve water quality.

Section 16-03 General Standard

(1) The following standard is applicable to agency determinations of acceptable conservation flow, including those made for:

(a) permits issued under 10 V.S.A. Chapter 43 (Dams);

(b) issuance of water quality certificates pursuant to Section 401 of the Federal Clean Water Act;

(c) stream alteration permits or stream flow regulation under to 10 V.S.A. Chapter 41;

(d) authorization by the Commissioner of Fish and Wildlife;

(e) positions taken before Act 250 District Environmental Commissions, the Environmental Board, the Water Resources Board, and recommendations to local authorities where the Commission, Board, or authority has asserted jurisdiction over projects affecting stream flow; and

(f) positions taken in any enforcement action with respect to projects affecting stream flow in connection with any of the above proceedings, permits, or approvals.

(2) The general standard for the winter flow limit (October 1 through March 31) is the February Median Flow (FMF).

(3) The application of the general standard to a specific outtake shall be:

(a) the site specific FMF if data acceptable to the Agency exists, or the applicant or other interested party determines the FMF pursuant to the protocol attached as Appendix A; or

(b) if site specific data is not available, the Vermont statewide average FMF of 0.8 csm.

(4) Approvals shall provide for periodic review of approved projects to determine whether it would be reasonable and feasible to revise the conservation flow requirements. Review intervals shall be no longer than twenty years.

Section 16-04 Water Use Report

(1) New and expanded systems shall measure water use and stream flow.

(2) Each ski area shall file annually with the Agency a report which includes the daily pumping rate and volume; seasonal water withdrawal; trail coverage; compliance with existing conservation flow requirements; available data on stream flow, temperature, and snowfall; known expansion plans; and projections on future water use. This information shall be filed annually as soon as it is available but in any event no more than three years after issuance of this rule.

(3) For purposes of developing a baseline profile of water use by ski areas in Vermont the Agency may request each ski area to provide efficiencies that are currently available and its system design.

Section 16-05 Alternatives Analysis

(1) After the effective date of this procedure, the Agency shall not approve any stream flow alteration if there is a feasible and reasonable alternative that would avoid or lessen the impact to the natural condition of the stream. In determining whether an alternative is reasonable and feasible, the Agency shall consider both natural resource and economic constraints. The Agency's determination as to the economic constraints shall be developed in consultation with an entity competent in analyzing economic issues. The applicant shall reimburse the agency for the actual costs to the agency of this economic analysis.

(2) The applicant shall conduct an analysis that includes an examination of:

(a) the need for the water in consideration of the competitive viability of the ski area;

(b) other potential sources of water and the storage of water on land the applicant owns, controls, or may reasonably obtain the use of, taking into account the economic, environmental, and other relevant aspects of the applicant's use of the land it does not control;

(c) improvements in efficiency and conservation; and

(d) general management practice, provided, however, that while this analysis should include information about individual management decisions proposed or utilized by the applicant, including the timing, methods, or locations of snowmaking as determined to be appropriate by the operator, the Agency does not claim any ability beyond its regulatory authority to control those matters through this policy.

(3) The applicant shall conduct the analysis pursuant to a study plan approved by the Agency. The Agency intends to issue a guidance document following discussions with interested persons with respect to the conduct of these analyses.

(4) Agency decisions made based on the results of an alternatives analysis shall not result in a net loss of water relative to:

(a) the maximum annual snowmaking volume utilized up to and including the 1994-1995 season; and

(b) the volume of water that would have been used by projects permitted but not constructed as of the effective date of this rule. However, with respect to such permitted-but-not-constructed projects, if they involve a withdrawal below 0.5 csm, that volume of water below 0.5 csm may be taken into account when the Agency is considering new or expanded existing systems.

Section 16-06 New Systems

(1) Any new physical water outtake, other than a replacement, repair, or refurbishment of an existing outtake at the same location, is regarded as a new system.

(2) An applicant may withdraw:

(a) 50% of the portion of the water between the level permitted under section 16-03(3) and the levels set in section 16-06(2)(b); plus

(b) any portion of the flow above 1.4 csm from October 1 to November 30 and 1.1 csm from December 1 to March 31.

(3) If the level permitted under section 16-03(3) is not the site specific FMF, then after ten years of site specific hydrologic data collection, the applicant shall not withdraw any water that would cause the stream to be below the site specific FMF at the point of the outtake.

(4) In a drainage area of 10 square miles or less of watershed at the outtake, the Agency shall apply the standard of section 16-06(2), except:

(a) if the alternatives analysis demonstrates to the satisfaction of the Agency that more water is needed than would be available under the 50% limitation, the Agency will adjust or delete the 50% limitation;

(b) if the alternatives analysis demonstrates to the satisfaction of the Agency that more water is needed than would be available after deletion of the 50% limitation, and the Agency does not demonstrate that withdrawal below the FMF would violate the Water Quality Standards, the Agency may approve water withdrawal below the FMF, but in no event below 0.5 csm.

(5) An applicant may design and operate a new system to withdraw water at rates not exceeding the *de minimis* rate, which is defined as 0.005 cubic feet per second per square mile of drainage area (csm), at the withdrawal point subject to the following:

(a) where an applicant already has one or more permitted withdrawals for snowmaking in the same watershed and wishes to continue those uses:

(i) the aggregate rate of withdrawal shall not exceed the *de minimis* rate at the downstream location(s) at any time;[1]

[1]For example, if the applicant has an existing withdrawal that diverts water at 100 gpm and proposes to add a new *de minimis* withdrawal one mile downstream, the applicant would have to either suspend operation of the existing withdrawal when the new one is being used or would have to limit the withdrawal at the new source to the *de minimis* rate less 100 gpm when water is being drawn upstream.

(ii) if the applicant removes water at an existing outtake at rates that exceed *de minimis*, then a *de minimis* withdrawal cannot be added at any location such that there would be a use of water when the source stream is flowing at less than the present minimum conservation flow;[2] and

(iii) any existing withdrawals shall become expanded existing systems subject to section 16-07;

(b) Section 16-04, **Water Use Report** is modified to the extent that stream flow need not be measured at the *de minimis* outtake;

(c) Section 16-05, **Alternatives Analysis** shall only apply in cases where the *de minimis* use is proposed to serve a system that includes other surface water sources for snowmaking;

(d) in cases where there may be cumulative impacts from several withdrawals, the Agency may prohibit the addition of a *de minimis* withdrawal or reduce the allowed rate to less than 0.005 csm.

Section 16-07 Expanded Existing Systems

(1) An expanded existing system is any change in an existing system that requires an Agency determination of acceptable conservation flow under section 16-03(1). This section applies only to the extent the proposed change would actually affect stream flow, except that, an existing system shall not be considered as an expanded existing system until such time as it proposes to increase existing and permitted acreage of trail coverage by 15% (systems with a source at a minimum flow of 0.5 csm or greater) or 7.5% (systems with a source at a minimum flow of less than 0.5 csm), though in no case by more than 40 acres, or proposes to make other changes, including but not limited to an increase in withdrawal capacity or the addition of new water sources or storage reservoirs, unless the system is already being treated as an expanded existing system under a present permit requiring an alternatives analysis. The increase in trail coverage shall be measured relative to the acreage served or permitted to be served by snowmaking during the 1994-1995 season.

(2) Notwithstanding the above, an existing system can be modified to withdraw any portion of stream flow above 1.4 csm from October through November or 1.1 csm from December through March without becoming an expanded existing system. This allowance only applies if the design is such that the flow is not being drawn below the 1.4 csm or 1.1 csm when the additional capacity is being used. For systems with volumetric caps on water use contained in existing permits, the Agency will allow applicants to withdraw the portion of flow above 1.4 csm from October through November or 1.1 csm from December through March without that flow counting towards the volumetric cap, if on those days the applicant does not draw the flow below the 1.4 csm or 1.1 csm.

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[2]For example, if an applicant has an existing permitted withdrawal with a minimum flow equal to the February median flow, a new withdrawal may not be constructed downstream that removes water at *de minimis* rates.

(3) The goal of the policy is to increase existing permitted flow limits for withdrawal systems that are less than FMF to the FMF. In order to make all reasonable and feasible efforts to progress towards or attain this goal, a schedule shall be included as a condition of approving the expansion which shall provide:

(a) for existing systems that have permitted flow limits of 0.5 csm and above, compliance with the FMF, but no sooner than is determined to be reasonable and feasible based on the results of the alternatives analysis;

(b) for existing systems that have permitted flow limits below 0.5 csm, the incremental implementation of alternatives and restoration of higher conservation flows to a minimum of 0.5 csm within five years after permit approval and to the FMF within a reasonable period of time, but to neither flow level any sooner than is determined to be reasonable and feasible based on the results of the alternatives analysis.

(c) Projects approved under subsections (3)(a) or (b) based on schedules that do not attain the FMF will be reviewed at five year intervals to determine whether it would be reasonable and feasible to increase conservation flows towards attainment of the FMF.

Section 16-08 Existing Systems That Do Not Expand

(1) No change in the flow limits or allowable withdrawal rate for an existing system will be required prior to July 1, 2000 unless a new interconnected system or an expansion of the existing system is proposed and approved.

(2) In addition to its general applicability, the Agency may, however, take action to increase conservation flows for existing systems pursuant to 10 V.S.A. §1003.

(3) Pursuant to Title 10 V.S.A., Section 1032, existing systems with minimum stream flows less than the standard established in section 16-03(2) shall be reviewed by the secretary by no later than July 1, 2000. This review shall include an assessment of the completeness of water use reports submitted as required under section 16-04(2) of these rules and other required information submitted by the permittee and of compliance with permit conditions and limits.

Section 16-09 Procedures For Case Management

(1) The Agency shall make reasonable efforts to consolidate any determinations of conservation flow under section 16-03(1) in a consolidated proceeding.

(2) The Agency shall:

(a) provide general public notice of any request that would require it to make a determination of conservation flow pursuant to section 16-03(1). This notice shall, at minimum, be sent to any person who is entitled to receive notice under the relevant authority requiring the determination and others who have requested notice of the determination;

(b) hold an informal conference open to anyone who is interested in participating at which the issues raised by the application are discussed, the issues that may need to be resolved are identified, the scope of the proceeding is determined preliminarily, and a tentative schedule for action on the applications is developed; and

(c) if requested or on its own motion, hold a consolidated hearing on its draft determination prior to making its final determination on conservation flow.

(3) The decision reached pursuant to this rule shall fulfill the Agency's obligation in making its conservation flow determination pursuant to section 16-03(1).

APPENDIX A
STREAM HYDROLOGIC ANALYSIS

A hydrologic evaluation of the stream may be used to determine the appropriate stream flow statistics under section 16-03(3).

The applicant shall gauge stream flows in accordance with the following table:

Season	Accepted Data Collection Period	Number of Acceptable Daily Flows Required in Data Set
Fall/Winter	December 15 - March 15	76

The Agency may, in its discretion, eliminate the highest 10% of the average daily flows and appropriate outlying data points measured at the study stream. The remaining daily flows contained in this record shall be regressed against contemporaneous data from a suitable long-term gauge to derive an equation that can be used to reliably estimate flow statistics at the study site from gauged-flow statistics at the long-term gauge. The long-term gauge must be unregulated, have a minimum 10 year period of record, and otherwise be acceptable to the Agency for the purposes of the analysis. The analysis shall be considered successful if: 1) a correlation coefficient of 0.9 or greater is attained and 2) the +95% confidence interval value for the FMF is no greater than 110% of the actual estimate based on the regression equation. If the data set is doubled and the confidence interval requirement is met, then the minimum acceptable correlation coefficient will be 0.8. The equation shall then be used to estimate FMF for the study site from the long-term gauge statistics.

The full gauging data set shall be furnished to the Agency on 3.5 or 5.25 inch disk, and the statistical analysis shall be provided.

Effective date of this rule: February 15, 1996