

Wayne Patenaude
Pats Peak, Inc.
PO Box 2448
686 Flanders Road
Henniker, NH 03242

WATER QUALITY CERTIFICATION

In Fulfillment of

NH RSA 485-A:12

WQC # 2012-404P-003

Activity Name	Pats Peak Ski Area Expansion
Activity Location	Pats Peak Ski Area Henniker, NH
Affected Surface waters	Craney Pond, Cascade Brook, Chase Brook, Whisper Reservoir, the Lower Reservoir, and several unnamed wetlands.
Owner/Applicant	Wayne Patenaude Pats Peak, Inc. PO Box 2448 686 Flanders Road Henniker, NH 03242
Appurtenant State permit(s) (and any amendments):	DES Wetlands Permit: 2011-03047 DES Alteration of Terrain Permit: AOT - 0360 DES Shoreland Protection Permit: 2011-03133
Applicable Federal permit(s):	NH Programmatic General Permit NAE-R-2012-00339 issued by the U.S. Army Corps of Engineers
DATE OF APPROVAL (subject to Conditions below)	11/29/2012

A. INTRODUCTION

Pats Peak, Inc (Applicant) has filed a request to amend their water quality certification issued in 2001 for the proposed expansion of the Pats Peak Ski area in Henniker, NH (Activity). The Activity includes operation of the existing ski area as well as the proposed construction and operation of an additional 19 acres of ski terrain and a triple chairlift. Proposed operational changes include an increase in the volume of water withdrawn from Craney Pond for snowmaking between November 15 and February 1 of each ski season (15 million gallons to 40 million gallons per season) and an increase in the maximum drawdown of Craney Pond

between pumping events from 3 inches to 6 inches. The Activity does not include the addition of any new impervious areas associated with buildings or paved areas including but not limited to streets, parking areas and drives or the application of any additional herbicides or pesticides.

This Water Quality Certification (WQC) documents laws, regulations, determinations and conditions related to the Activity for the attainment and maintenance of NH surface water quality standards, including the provisions of NH RSA 485-A:8 and NH Code of Administrative Rules Env-Wq 1700, for the support of designated uses identified in the standards.

B. WATER QUALITY CERTIFICATION APPROVAL

Based on the findings and conditions noted below, the New Hampshire Department of Environmental Services (DES) has determined that the Activity will not violate surface water quality standards, or cause additional degradation in surface waters not presently meeting water quality standards. DES hereby issues this certification in accordance with RSA 485-A:12, III and condition E-3 of certification WQC # 2012-404P-002 issued by DES on August 2, 2012 for the federal Clean Water Act section 404 Programmatic General Permit for New Hampshire (General Permit No: NAE-R-2012-00339) issued by the New England District of the U.S. Army Corps of Engineers. This certification is subject to the conditions in section E and completely replaces certification WD Permit # 00007 issued by DES on October 3, 2001 to Pats Peak, Inc.

C. STATEMENT OF FACTS AND LAW

- C-1 Section 401 of the United States Clean Water Act (CWA, 33 U.S.C. 1341) states, in part: "Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate...that any such discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of this title....No license or permit shall be granted until the certification required by this section has been obtained or has been waived...No license or permit shall be granted if certification has been denied by the State..."
- C-2 Section 401 further states, in part "Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations...and shall become a condition on any Federal license or permit subject to the provisions of this section."
- C-3 RSA 485-A:12, III. No activity, including construction and operation of facilities, that requires certification under section 401 of the Clean Water Act and that may result in a discharge, as that term is applied under

section 401 of the Clean Water Act, to surface waters of the state may commence unless the department certifies that any such discharge complies with the state surface water quality standards applicable to the classification for the receiving surface water body. The department shall provide its response to a request for certification to the federal agency or authority responsible for issuing the license, permit, or registration that requires the certification under section 401 of the Clean Water Act. Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22.

- C-4 RSA 485-A:12, IV. No activity that involves surface water withdrawal or diversion of surface water that requires registration under RSA 488:3, that does not otherwise require the certification required under paragraph III, and which was not in active operation as of the effective date of this paragraph, may commence unless the department certifies that the surface water withdrawal or diversion of surface water complies with state surface water quality standards applicable to the classification for the surface water body. The certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide reasonable assurance that the proposed activity complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22.
- C-5 RSA 488:3 Registration Required. –
- I. No person shall withdraw or discharge a cumulative amount of more than 20,000 gallons of water per day, averaged over any 7-day period, or more than 600,000 gallons of water over any 30-day period, at a single real property or place of business without registering the withdrawal or discharge with the department. Transfers of such volume of water shall also be registered. Registration shall be in addition to any required permits.
- II. No registration shall be transferred to another person without written notification to the commissioner.
- C-6 Env-Wq 1702.07 "Biological integrity" means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
- C-7 Env-Wq 1702.17 "Designated uses" means those uses specified in water quality standards for each water body or segment whether or not such uses are presently occurring.

- C-8 Env-Wq 1702.23 "Existing uses" means those uses, other than assimilation or waste transport, which actually occurred in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.
- C-9 Env-Wq 1702.46 defines surface waters as "perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial," and waters of the United States as defined in 40 CFR 122.2."
- C-10 Env-Wq 1703.01 (c) states that "All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters."
- C-11 Env-Wq 1703.01 Water Use Classifications.
(a) State surface waters shall be divided into class A and class B, pursuant to RSA 485-A:8, I, II and III. Each class shall identify the most sensitive use which it is intended to protect.
(b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
(c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
(d) Unless the flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.
- C-12 Env-Wq 1703.19 Biological and Aquatic Community Integrity.
(a) The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
(b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.
- C-13 Env-Wq 1708.02 Applicability. Antidegradation shall apply to:
(a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or affect the existing or designated uses;
(b) Any proposed increase in loadings to a water body when the proposal is associated with existing activities;
(c) Any increase in flow alteration over an existing alteration; and
(d) Any hydrologic modifications, such as dam construction and water withdrawals.
- C-14 Env-Wq 1708.07 Protection of Water Quality in High Quality Waters.

(a) Subject to (b), below, high quality waters shall be maintained and protected, except that insignificant changes in water quality, as determined by the department in accordance with Env-Wq 1708.09, shall be allowed.

(b) Degradation of significant increments of water quality, as determined in accordance with Env-Wq 1708.09, in high quality waters shall be allowed only if it can be demonstrated to the department, in accordance with Env-Wq 1708.10, that allowing the water quality degradation is necessary to accommodate important economic or social development in the area in which the receiving waters are located.

(c) Economic/social benefits demonstration and alternatives analysis shall not be required for authorization of an insignificant lowering of water quality. However, in allowing a lowering of water quality, significant or insignificant, all reasonable measures to minimize degradation shall be used.

(d) If the water body is Class A Water, the requirements of Env-Wq 1708.06 shall also apply.

C-15 Env-Wq 1708.09 Significant or Insignificant Determination.

(a) Any discharge or activity that is projected to use 20% or more of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume or flow rate for water quantity, shall be considered a significant lowering of water quality. The department shall not approve such a discharge or activity unless the applicant demonstrates that the proposed lowering of water quality is necessary to achieve important economic or social development, in accordance with Env-Wq 1708.10, in the area where the water body is located.

(b) Subject to (d), below, those activities that cause an insignificant lowering of water quality shall not be required to demonstrate that they are necessary to provide important economic or social development.

(c) Activities under (b), above shall include, but not be limited to:

(1) Short term or intermittent discharges such as hydrostatic testing of pipelines, fire pump test water, and uncontaminated stormwater discharges or site clean-up activities;

(2) Permanent discharges such as uncontaminated noncontact or uncontaminated geothermal cooling water, uncontaminated groundwater seepage, or unchlorinated or dechlorinated swimming pool water;

(3) Facilities whose nonpoint source runoff is controlled through the use of best management practices; and

(4) Any discharge or activity that is projected to use less than 20% of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass for pollutants.

C-16 Env-Wq 1708.12 Transfer of Water.

(a) In this section, "transfer" means the intentional conveyance of water from one surface water to another surface water for the purpose of

increasing the volume of water available for withdrawal from the receiving surface water. The term does not include the transfer of stormwater, for the purpose of managing stormwater during construction, between basins created or otherwise lawfully used for stormwater detention or treatment, or both, and does not include the discharge of stormwater from a detention or treatment basin to a surface water.

(b) A transfer shall be exempt from (c) and (d), below, unless one or more of the following apply:

(1) The transfer was not in active operation prior to the effective date of the 2011 readoption of this section, as determined pursuant to (f) through (i), below;

(2) The transfer is causing or contributing to a violation of surface water quality standards in the source water or receiving water; or

(3) A change that could impact any designated use of the source water or receiving water is made to the transfer on or after the effective date of the 2011 readoption of this section such that a water quality certification is required under RSA 485-A:12, III or IV.

(c) The transfer of water from one surface water to another shall not be allowed unless all of the following conditions are met:

(1) The transferred water does not contain exotic aquatic species or other species of aquatic life that could result in a violation of Env-Wq 1703.19, relative to the integrity of the biological and aquatic community, in the receiving water;

(2) Existing and designated uses will be maintained and supported in the source water and in the receiving water;

(3) The withdrawal from the source water and transfer to the receiving water either:

a. Will not result in any degradation of water quality; or

b. Have both been reviewed under the process specified in Env-Wq 1708.10 and determined by the department to meet the criteria specified for approval in Env-Wq 1708.10(b)(1)-(3); and

(4) A water conservation plan that meets the water conservation requirements set forth in Env- Wq 2101 has been approved by the department and is being complied with.

(d) Transferred water may be treated to comply with the requirements of this section.

(e) If a transfer is exempt under (b), above, or if all of the conditions specified in (c), above, are met, the transfer of water shall not constitute a discharge under RSA 485-A:8, I, or RSA 485-A:13, I(a).

(f) A transfer shall be deemed to have been in active operation prior to the effective date of the 2011 readoption of this section if all of the following are true:

(1) The infrastructure necessary for the transfer is in place and in usable condition;

(2) Water has been transferred for at least one day in each of at least 3 years from 2000 through 2011; and

(3) At the time of its original initiation, the transfer complied with applicable legal requirements.

(g) If a transfer does not meet the conditions specified in (f), above, the person responsible for the transfer may request the department to make a determination that the transfer was in active operation by submitting the following information in writing:

- (1) The reason(s) why the infrastructure necessary for the transfer is not in place or is not in usable condition, if applicable;
- (2) The total time span, in years, over which the transfer has occurred from the first known transfer to the present;
- (3) The most recent year during which the transfer occurred; and
- (4) Why, based on the information provided in (1)-(3), above, it would be a fair and just result for the department to determine that the transfer qualifies as a transfer that was in active operation prior to the effective date of the 2011 readoption of this section.

(h) If the department determines, based on information provided pursuant to (g), above, that it would be fair and just to determine that the transfer qualifies as a transfer that was in active operation prior to the effective date of the 2011 readoption of this section, then the department shall make that determination.

(i) The department shall notify the person who requested a determination pursuant to (g), above, in writing of its decision.

C-17 In 2010, DES published guidance (hereinafter called the 2010 instream flow guidance or 2010 ISF guidance) for estimating instream flow requirements for the protection of aquatic life for situations. The guidance is available at:

<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-3.pdf>.

C-18 On August 3, 2012, the New England District of the U.S. Army Corps of Engineers reissued the federal Programmatic General Permit for New Hampshire (General Permit No: NAE-R-2012-00339). The expiration date of the NH Programmatic General Permit (PGP) is August 3, 2017. The PGP expedites review of minimal impact work in coastal and inland waters and wetlands within the State of New Hampshire. Subject to certain exclusions and conditions, the PGP eliminates the need to apply for separate approval from the Corps for most minor, non-controversial work in New Hampshire when that work is authorized by the DES Wetlands Bureau. The PGP covers the following:

- a) Work and structures that are located in, or that affect, navigable waters of the United States (U.S.) [33 CFR 328.4(c)] (regulated by the Corps under Section 10 of the Rivers and Harbors Act of 1899);
- b) The discharge of dredged or fill material into waters of the U.S. (regulated by the Corps under Section 404 of the Clean Water Act) ~~and~~;
- c) The transportation of dredged material for the purpose of disposal in the ocean (regulated by the Corps under Section 103 of the Marine

Protection, Research and Sanctuaries Act). The term "discharge of dredged or fill material" also includes certain discharges resulting from excavation. Applicants should contact the Corps to determine if a particular excavation discharge occurring within waters or wetlands is a regulated activity.

C-19 In accordance with Clean Water Act (CWA) Section 401 and NH statute RSA 485-A:12, III, the New Hampshire Department of Environmental Services (DES) issued a 401 Water Quality Certification (WQC # 2012-404P-002) for the current PGP on August 2, 2012. Conditions E-1 through E-6 of WQC # 2012-404P-002 state the following:

E-1. Construction or operation of all projects included under the PGP shall meet NH surface water quality standards.

E-2. Applications for projects included under the PGP shall be subject to DES review to determine whether additional conditions or an individual 401 Certification application is necessary to ensure compliance with surface water quality standards.

E-3. If DES determines that surface water quality standards are being violated by the specific project or there is reasonable potential to expect that water quality standards will be violated if more project specific conditions are not included in the 401 Certification, DES may modify this 401 Certification for the specific project to include additional conditions to ensure compliance with surface water quality standards.

E-4. Construction on any specific project permitted under the PGP shall not commence until all other applicable permits and approvals have been granted, including those permits issued through DES Wetlands Bureau and, if necessary, DES Alteration of Terrain Program.

E-5. All applicable conditions in the NH PGP shall be followed.

E-6. DES reserves the right to inspect any project permitted under the PGP and the effects of the project on affected surface waters at any time to monitor compliance with the NH surface water quality standards.

C-20 On October 3, 2001, DES issued a water quality certification (WD Permit #00007) to the Applicant to withdraw up to 15 million gallons of water from Craney Pond for snow-making between November 15 and February 1 of each ski season. WD Permit # 00007 includes the following conditions:

1. The applicant shall monitor daily water levels in Craney Pond and daily flow in Cascade Brook as follows:

- a. Monitoring shall commence on October 15 of each year and shall continue until March 1 of the following year.

- b. The flow measurements at the existing 18 inch culvert will be accomplished by constructing an H weir at the end of the culvert, or equivalent, to be installed to measure the flow. The weir will also contain a data collector such that data can be retrieved on a bi-weekly basis or as otherwise agreed. The outflow weir will be electronically connected to the pumps such that if the outflow drops to 0.6 cfs the pumps will stop. The pumping vault, to be located below the beach area, will contain a pressure switch to insure that the pump will not turn on if the pond water elevation is below the calculated 1007.6 elevation or its equivalent. The pumping vault will also contain a pond water pressure elevation-monitoring device and data collector that can be retrieved on a bi-weekly basis or as otherwise agreed. Pond elevation and flow measurements will be recorded no less frequently than on an hourly basis. Final plans and specifications for flow and elevation monitoring shall be submitted to DES for approval prior to installation.
 - c. An annual report shall be submitted to DES by May 1 of each year in the form of Attachment A. Supporting documentation shall also be submitted to DES if requested.
2. The applicant shall conduct a study of conditions in Cascade Brook as they may relate to low flow conditions, similar to the study conducted in July 2000, during the summer after the third year of water withdrawals from Craney Pond. The results of this study shall be submitted to DES by September 1 of the year the study is conducted, and used to determine if there are impacts to the Craney Pond/Cascade Brook system and if revisions to this certification are necessary.
3. Based on new data, the amounts of water withdrawn from Craney Pond will be regulated to assure that the flow in Cascade Brook does not fall below February annual median low flow. This is in accord with the authority of the Water Division pursuant to RSA 485-A:4 and the rules promulgated thereunder.
4. The following operating criteria shall apply:
 - a. The Period of withdrawal will occur between November 15 and February 1 of each year. The total volume of water withdrawn will not exceed 15,000,000 gallons.
 - b. The pumps will not be started unless there is greater than 0.6 cfs flowing from the existing outlet pipe or its equivalent measured at the H-weir or its equivalent at the existing Craney Pond Road culvert.
 - c. The pumps will be operated to slowly increase water withdrawal. The pumping rate shall not exceed 1000 gallons per minute (1.5 million gallons per day).
 - d. Each pumping event will not drop the level of the pond more than 3 vertical inches from the start of the event, which is approximately 5,000,000 gallons. Between such pumping events, the recharge period shall be as long as possible, but no less than 48 hours.
 - e. Each time the pumping ceases, the water remaining in the pipe will be drained slowly and discharged to a location at least 75 feet from jurisdictional wetlands or other surface waters of the state and in such a manner that it does not cause a violation of water quality standards, especially with respect to turbidity.
5. All conditions included in NH Wetlands Bureau Permit # 1999-02546 and any amendments become conditions of this certification and must be strictly followed.
6. Surface water uses must be maintained and protected and at no time shall Class B water quality standards be violated.

- C-21 On April 17, 2012, DES received a request (dated April 5, 2012) from the Applicant to amend the Water Quality Certificate (WD Permit # 00007) issued in 2001 to construct and operate an additional 19 acres of ski terrain and a triple chairlift and to increase the volume of water withdrawn from Craney Pond for snowmaking between November 15 and February 1 of each ski season from 15 million gallons to 40 million gallons per season and an increase the maximum drawdown of Craney Pond between pumping events from 3 inches to 6 inches. Additional information supporting the request was submitted by the Applicant from the end April, 2012 through October 19, 2012.
- C-22 In accordance with section 401 of the CWA, this certification was issued for public comment from October 26, 2012 through November 26, 2012. No comments were received.

D. FINDINGS

- D-1 The Activity reviewed for this certification is described in section A of this certification.
- D-2 The Applicant is responsible for construction and operation of the Activity.
- D-3 The New England District of the U.S. Army Corps of Engineers (Corps) has determined that the Activity requires a federal Clean Water Act Section 404 permit for the discharge of dredge or fill material into waters of the U.S. and that the Section 404 NH Programmatic General Permit (PGP) satisfies this requirement (see section C-18 of this certification for further information about the PGP).
- D-4 Condition E-3 of 401 Water Quality Certification (WQC # 2012-404P-002) issued by DES for the current PGP allows DES to modify the 401 certification issued for the PGP to include additional conditions to ensure compliance with surface water quality standards (see section C-19 of this certification). DES has determined that additional conditions are necessary to ensure compliance of this Activity with surface water quality standards and that the 401 certification issued for the PGP therefore needs to be modified for this Activity.
- D-5 The named and unnamed streams, ponds, and wetlands, affected by the Activity, are surface waters as defined in Env-Wq 1702.46 and, have been assigned a legislative classification of Class B¹. Pursuant to RSA 485-A:8,II and Env-Wq 1700, Class B waters are intended to support the following designated uses: aquatic life, primary and secondary contact recreation, fish consumption, wildlife, and, after adequate treatment, water supply.

¹ Legislative Classifications of Surface Waters in New Hampshire. New Hampshire Department of Environmental Services. October 2008. R-WD-08-21.

DES has assigned Assessment Unit (AU) identification numbers to named and unnamed surface waters that appear on 1:24,000 scale hydrography. Consequently, not all surface waters currently have an AU number. Surface waters that do not have an AU number are still considered surface waters provided they meet the definition of Env-Wq 1702.46.

Surface waters that could be potentially affected by this Activity and their associated AU numbers (where available) are shown in the following table.

Surface Water Name and AU Numbers
Craney Pond (NHLAK700030504-01)
Cascade Brook (NHRIV700030504-06)
Chase Brook (NHRIV700030504)
Unnamed Brook (NHRIV700030504-18)
Unnamed Brook (NHRIV700030504-20)
Whisper Reservoir (No AUID)
Lower snow-making Pond (No AUID)
Unnamed wetlands (No AUID)

Whisper Reservoir and the Lower Reservoir were specifically dug for the purpose of storing water for snowmaking and are considered surface waters subject to NH surface water quality regulations (Env-Wq 1700) based on the following discussion. According to Env-Wq 1702.46 surface waters include all perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, marshes, water courses and other bodies of water, natural or artificial as well as waters of the United States as defined in 40 CFR 122.2, which includes wetlands. According to the Applicant, the Lower Pond and Whisper Reservoir were constructed around the mid-1960s and have been used for snowmaking for approximately 45 years. No modifications have been to the Lower Reservoir since it was originally constructed with the exception of rebuilding the spillway in 2010. A wetlands permit was required for this work. Since the mid-1960s Whisper Reservoir has been enlarged three times with the final and current configuration constructed in 1994. A review of historical USGS topographical maps dating back to 1929 indicates that the Lower Pond was likely dug in or immediately adjacent to a small tributary of Chase Brook which likely impacted wetlands. Since the Lower Pond was most likely constructed in a small brook and/or wetlands, and since a wetlands permit was needed when the spillway was rebuilt in 2010, it is considered a surface water. Historical USGS topographic maps going back to 1929 do not show any wetlands or surface waters in the vicinity of Whisper Reservoir at that scale (1:24,000). However, when the reservoir was enlarged in 1994, a wetlands permit was required (Wetlands Permit # 1994-0113). This suggests that at least a portion of the reservoir was constructed in wetlands. Based on this evidence, Whisper Reservoir is also considered a

surface water. In both cases the type of surface water has changed from a wetlands to open water ponds constructed for the specific purpose of storing water for snowmaking.

D-6 According to the 2012 list of impaired waters, the following surface waters in the vicinity of the proposed Activity which have assigned AU numbers are listed as impaired. All impairments, with the exception of those highlighted in bold (which have approved TMDLs), are on the Section 303(d) List. As discussed elsewhere in this certification, water quality is not expected to be measurably impacted by the proposed withdrawals.

Surface Water Name and AU Numbers	Cause of Impairment (Designated Use Impaired)
Craney Pond (NHLAK700030504-01)	Mercury (FC)
Cascade Brook (NHRIV700030504-06)	Mercury (FC)
Chase Brook (NHRIV700030504)	Mercury (FC)
Unnamed Brook (NHRIV700030504-18)	Mercury (FC)
Unnamed Brook (NHRIV700030504-20)	Mercury (FC)
Whisper Reservoir (No AUID)	
Lower snow-making Pond (No AUID)	
<p>Notes: AL = Aquatic Life, PCR = Primary Recreation, SCR = Secondary Recreation, FC = Fish Consumption, SFC = Shellfish Consumption</p> <p>Impairments highlighted in bold have approved TMDLs. All other impairments are on the Section 303(d) List. All fresh surface waters are impaired for mercury due to concentrations found in fish tissue which have resulted in a statewide fish consumption advisory. The primary source of mercury is atmospheric deposition from in-state and out-of-state emissions.</p>	

D-7 The Applicant has requested to increase the amount of water withdrawn from Craney Pond from 15 million gallons per ski season to 40 million gallons as shown in the table below. This is in addition to the approximate 17 to 18 million gallons withdrawn for snowmaking from Chase Brook as discussed in section D-9 of this certification.

<u>Reason</u>	<u>Million Gallons</u>
Existing volume that can be withdrawn per 2001 Water Quality Certification WD 00007	15

Volume needed for additional terrain/parks/widening construction that have been added since 2001	5 to 10
Volume needed for proposed construction and operation of an additional 19 acres of ski terrain and a triple chairlift.	15
Total proposed withdrawal from Craney Pond per ski season	35 to 40

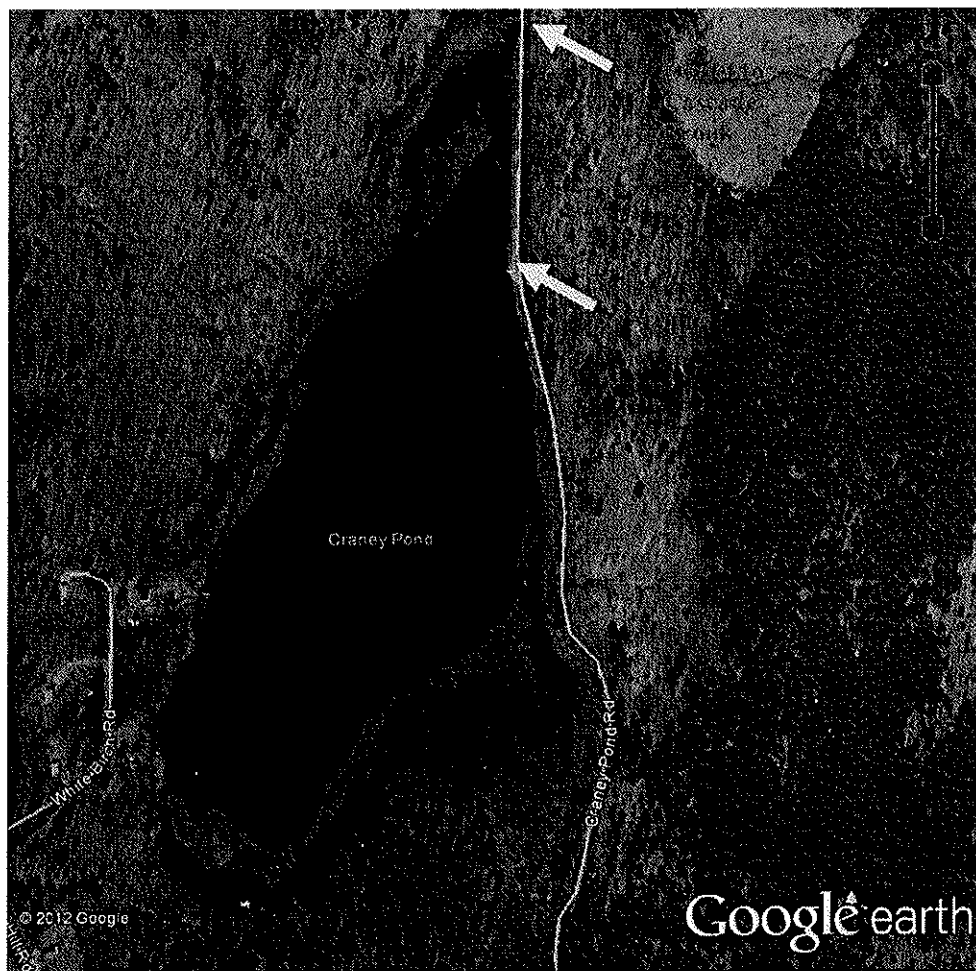
- D-8 Craney Pond Snowmaking Withdrawal. Craney Pond (see Figure 1) is located in the south end of Henniker and has a relatively small drainage area of approximately 429 acres (0.67 square miles). Based on a bathymetric survey conducted by DES on 10/5/12 (at which time the water surface elevation was estimated to be approximately 1009.0+/-) the pond has a surface area of approximately 39.9 acres, a volume of approximately 326.9 acre-ft, a maximum depth of approximately 30 feet and an average depth of approximately 8.2 feet. On the north end, Craney Pond discharges to Cascade Brook through three 18 inch culverts under the gravel access road (Craney Pond Road). Cascade Brook travels about 1300 feet before emptying into an approximate 8 acre wetlands². During the drought of 1999 a flow from the pond was maintained even when many (even large) lakes in the state dropped significantly in water level². The maintained water elevation suggests that Craney Pond is fed by an underground bedrock source and does not exclusively depend on rainfall events for the steady state water elevations².

The pond is classified as a warm water fishery by the NH Fish and Game Department. "Measurements to the pond and looking at the extended vegetation growing in the pond indicate that there is a wide shallow shelf around the pond with a deeper center"². According to the 2012 bathymetry, the upper 2 feet (elevation 1009 to 1007 +/-) comprises approximately 8.7 acres or about 22% of the total surface area of the pond. There is an active beaver dam located approximately 150 feet upstream of the outlet which can restrict flow to the outlet and lead to higher pond elevations upstream of the beaver dam than downstream of the beaver dam in the vicinity of the outlet. According to information submitted by the Applicant in October 2012, the area of the pond between the beaver dam and the outlet is approximately one acre. The normal elevation of the pond with the beaver dam is approximately 1009.0 +/- which is about 1 foot below the low point Craney Pond Road. Based on monitoring conducted by the Applicant, the water surface elevation upstream (south) of the beaver dam often varies between approximately elevation 1009 and 1012 +/-.

² Withdrawal Management and Operation Plan, Pats Peak – Craney Pond. Henniker, NH. March 2000. Keach-Nordstrom Associates, Inc. for Pats Peak, Inc.

Water from Craney Pond is currently pumped from Craney Pond to Whisper Reservoir. Water in Whisper Reservoir is controlled by a series of gate valves which regulates the volume of water allowed to flow by gravity to the Lower Pond at the base of the ski slopes. Water in the Lower Pond is then pumped to the snow guns located on the ski slopes.

Figure 1: Aerial of Craney Pond



Water Quality Certification WD 00007 issued in 2001 currently allows the applicant to withdraw water from Craney Pond for snowmaking provided certain criteria are met (see section C-20 of this certification for a complete list of withdrawal conditions). In summary the Applicant can currently withdraw 15 million gallons of water from Craney Pond between November 15 and February 1 of each season and pump it to Whisper Reservoir provided:

- a. Pumping automatically stops when flow in Cascade Brook is less than or equal to 0.6 cfs (the estimated February annual median low flow based on the drainage area multiplied by a yield of approximately 0.8 cfs/square mile) as measured by an H weir installed in one of the 18

inch outlet culverts conveying water from Craney Pond to Cascade Brook (see Figure 1);

- b. Pumping automatically stops when the water surface of Craney Pond (as measured at the pump vault located near the beach area which is about 850 feet south of the Cascade Brook H-weir – see Figure 1) is less than 1007.6 (elevation 1007.6 corresponds to a flow of approximately 0.6 cfs at the H-weir proposed at the time);and
- c. Pumping stops when the pond has been drawn down 3 inches from the start of the pumping event and pumping does not resume until the pond has had a chance to recharge for at least 48 hours.
- d. The maximum pumping rate is 1000 gallons per minute and pumps will be operated to slowly increase water withdrawal.
- e. Monitor flow in Cascade Brook at the H-weir and elevation in Craney Pond at the pump vault from October 15 until March 1 of the following year.
- f. Conduct a study of conditions in Cascade Brook during the summer after the third year of water withdrawals from Craney Pond to determine if there are impacts to Craney Pond and if revisions to the certification are necessary.
- g. Submit annual reports to DES by May 1 of each year.

The H-weir that was installed in the outlet pipe is a 10 inch Palmer Bowlus flume, model PERM P-B Serial # 4563, manufactured by Engineered Fiberglass Composites, Inc. A sonic level probe measures water depth in the throat of the flume. The sensor is located roughly three feet above the flume base (elevation 1007.02 based on 10/16/12 as-builts provided by the Applicant) and can measure water levels up to at least 2.5 feet (elevation 1009.52). Flow is calculated using the following regression equation:

$$Y=2.6094x^2 + 0.3864x - 0.0432$$

- D-9 Where y = discharge in cfs and x is the depth of water in the flume (i.e., head) in feet. According the manufacturer, the flume has a capacity to measure up to 1.22 cfs at a head of 0.63 feet (elevation 1007.65). A flow of 0.6 cfs corresponds to a head of about 0.43 feet (elevation 1007.45). Information submitted by the Applicant (Metering Manhole Plan View) indicates the startup logic switch does not allow the pumps to start if flow is below 0.7 cfs (head elevation of approximately 1007.49) and will shut down the pumps when flow in the flume falls to 0.7 cfs (elevation 1007.49 in the flume). Manual flume measurements were taken during the 2002-2003 ski season and electronic measurements commenced on March 13, 2003. In 2003 the Applicant installed a 20 inch diameter intake pipe

approximately 850 feet south of the outlet to Cascade Brook and approximately 150 feet into the pond from the shore / Craney Pond Road. The end of the pipe consists of an "L" shaped structure with the open end of the intake structure facing up towards the surface to prevent sediment from being sucked into the pipe. The top of the open end is at elevation 1002.5 +/- and has a screen with 1 inch openings to minimize impingement or entrainment of aquatic life. The pipe is connected to a pump vault (i.e., wet well) adjacent to Craney Pond Road (see Figure 1) with two 1000 gallon per minute submersible pumps (one serves as a back up) that was completed in 2003. The water surface of the pond is measured in the pump vault by a submersible pressure transducer mounted in the suction pipe. The vault is heated to keep the sensor tube ice free. The maximum water surface elevation that can be recorded is 1012.4. Flow is measured by a flow meter on the discharge side of the pumps. Withdrawals using the new permanent pump station began the winter of 2003. Since the water level sensor was installed, there have been numerous problems with collecting accurate information. Data from the 2006-7 season through the 2009-10 season is suspect for various reasons such as blocking of the sensor vent, flooding of the vault, and faulty communication between the sensor and computer. Data from 2010-11 and 2011-12 season is considered the most accurate. The Applicant plans to implement changes to collect more accurate water level data on a consistent basis. In accordance with the 2001 certification (WD 00007), the Applicant conducted biological assessments of Cascade Brook in the summer of 2000 (baseline), 2004 and 2011. The purpose was to determine if the winter withdrawals from Craney Pond are having an impact on aquatic life in the brook. The studies included habitat and macroinvertebrate assessments using the EPA Rapid Bioassessment Protocols, assessment of the fish community based on electro-fishing results and measurements of dissolved oxygen, temperature, specific conductance, pH and stream velocity. The 2011 report was prepared by GZA Environmental Inc. and included a comparison to the 2000 and 2004 study results. The 2011 GZA report concluded the following: "Based upon the sampling parameters, GZA did not find evidence of negative biological changes associated with Cascade Brook. In fact, the invertebrate and fish populations observed in 2011, in comparison to previous events, were greater in number and diversity. Based on the comparison between the three data sets, the water withdrawal from Craney Pond does not appear to have resulted in detectable negative changes to the biological community of Cascade Brook." Assessments conducted during the summer to assess the impacts of winter withdrawals are not totally conclusive. However, based on the above, changes to the current minimum flow requirement of 0.6 cfs in Cascade Brook do not appear necessary at this time. That being said, bioassessments should continue in the future to confirm this and should be revised, if possible, to better detect if there is an impact due to winter withdrawals. As shown in Figure 2 and

Figure 3 below, data collected over the past few years indicate that there is not a good relationship between flow in Cascade Brook and water surface elevation in Craney Pond. This is because the sensor used to measure the pond elevation is in the pump vault (i.e., wet well) located approximately 850 feet south of the where flow is measured in the 10 inch Palmer Bowlus flume (see Figure 1). The sensor measuring water depth in the Palmer Bowlus flume (which is then translated to flow using the equation presented above) is located in the manhole directly above the Palmer Bowlus flume. On occasion, flow into the manhole and flume is blocked with debris and ice. This can cause a low flow reading in the flume. Even if the flume is not blocked, there can be differences in the water surface at the flume and at the pump vault due to the beaver dam located approximately 150 feet upstream of the flume which can also restrict flow due to debris and ice and cause higher elevations on the south side (by the pump vault), than by the flume. The lower line in each of the two figures below shows what the flow reading should have been in the flume if the water surface elevation at the pump vault and at the flume were the same.

Figure 2: Craney Pond water surface elevation (measured at the pump vault) vs Flow to Cascade Brook (measured at the Palmer Bowlus flume) from November 2010 through February 2011

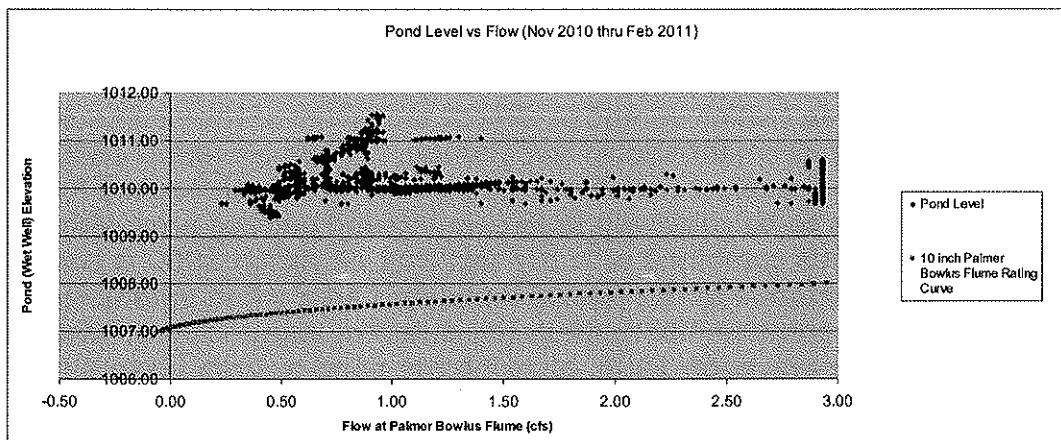
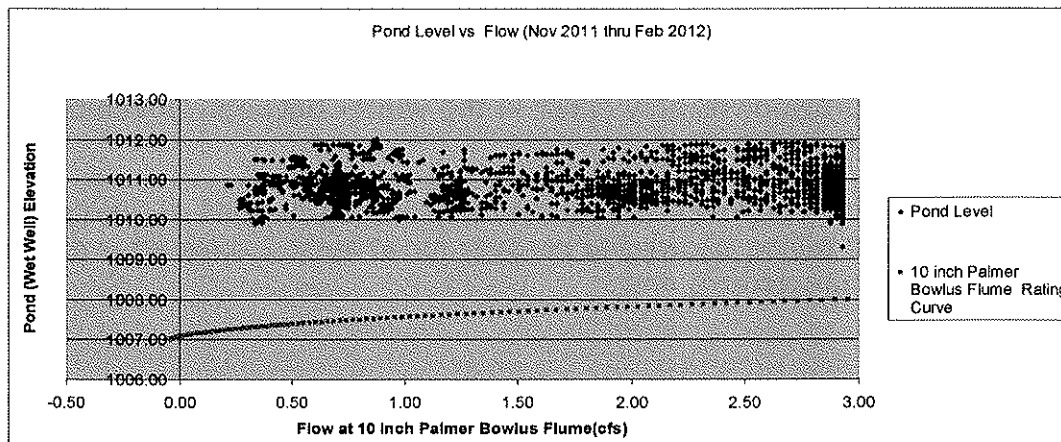


Figure 3: Craney Pond water surface elevation (measured at the pump vault) vs Flow to Cascade Brook (measured at the Palmer Bowlus flume) from November 2011 through February 2012



The Applicant has requested to increase the volume they may withdraw from Craney Pond from 15 million gallons to 40 million gallons and to increase the maximum pond level drop between pumping events from 3 inches to 6 inches. No other changes to the Craney Pond withdrawal conditions in the 2001 certification (WD 00007) were requested.

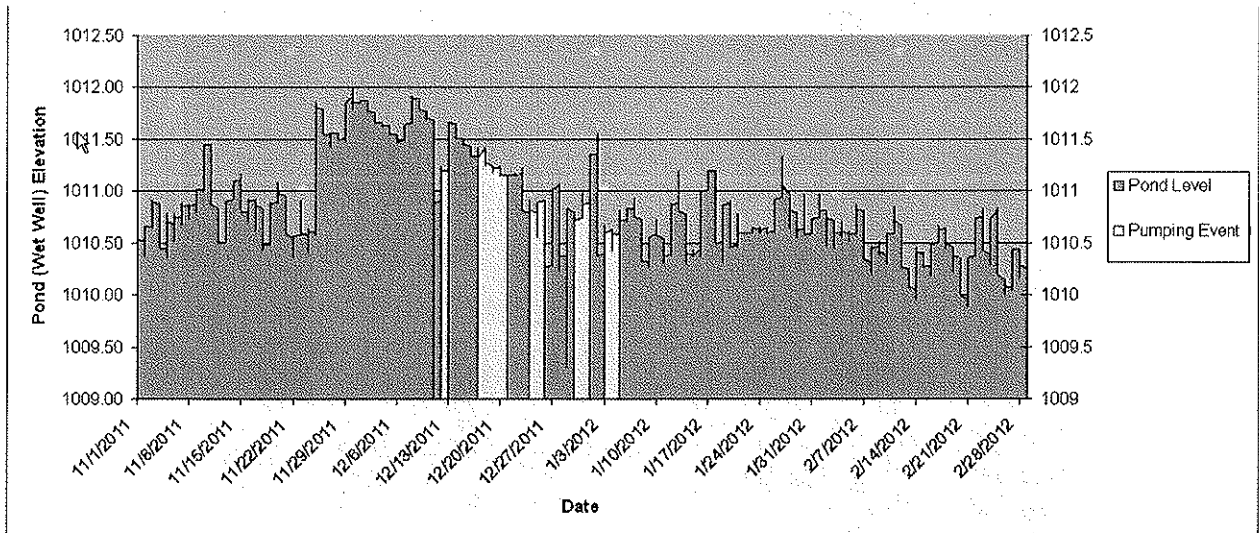
Of special concern with regards to the request to increase the maximum drawdown between pumping events to 6 inches is the protection of the wintering amphibians, like frogs and turtles. Aquatic frogs and turtles hibernate over the winter below the ice at the bottom of lakes and ponds in varying depths of water. As previously mentioned at the beginning of this section, at a pond elevation of approximately 1009, approximately 8.7 acres or 22% of Craney Pond is estimated to have a depth of 2 feet or less. This includes the area from the beaver dam north to the outlet to Cascade Brook which is estimated to include about 1 acre of water with elevation less than 2 feet. Elevation 1009 is the approximate normal water surface elevation in the pond with the beaver dam (although the pond elevations are typically higher than this during the winter depending on precipitation and restrictions at the beaver dam due to ice and debris buildup). The Applicant can currently withdraw water until the pond drops 3 inches (or to elevation 1007.5, whichever occurs first) after which pumping must stop for at least 2 days to allow the pond depth to recover as much as possible. To protect the over-wintering amphibians in the shallower areas (which comprise almost a quarter of the pond surface area), this requirement should not change. Above elevation 1009 (which is only approximately 1 foot below the lowest points on Craney Pond Road there appears to be relatively little gain in pond surface area with elevation³. This combined with the fact that elevation 1009 is considered to be representative of the typical inundated area when amphibians begin to search for areas to hibernate in the autumn, suggests that when the pond is above elevation 1009, allowing the pond to drop up to 6 inches between pumping events between November 15 and February 1 should not have a measurable impact on the wintering amphibians. Although the frequency of the temporary drawdowns will increase, allowing up to a 6 inch drawdown between pumping events when the pond is above elevation 1009 is not expected to have a measurable impact on aquatic life in the vicinity because

- a. the drawdowns only occur in the winter between November 15 and February 1,
- b. the drawdowns are not constant for long periods of time since the pond will be allowed to recover for at least 2 days after each 6 inch drawdown, and

³ This is based on visual observation and a topographic plan prepared by Dahlberg Land Services dated December 6, 1999 that includes the edge of the pond and Craney Road from the Cascade Brook outlet south approximately 900 feet to the intake pipe and pump vault.

c. the pond already experiences drops of more than 6 inches (0.5 feet) on occasion when pumping is not occurring (see Figure 4).

Figure 4 Craney Pond water surface elevation as measured at the pump vault (November 2011 through February 2012)



Chase Brook Existing Withdrawal: In addition to withdrawals from Craney Pond, the Applicant has also been withdrawing water from Chase Brook for snowmaking since the mid-1970s. Water is diverted from Chase Brook by gravity flow to an approximate 1.5 foot wide by 200 foot long channel that empties into a small 30 foot x 30 foot pool (see and Figure 6). The drainage area upstream of the point of withdrawal in Chase Brook is approximately 1.38 square miles. When water is needed for snowmaking, water from the pool is then pumped at a rate of 250 gallons per minute (0.56 cfs) to the Lower Pond. From December 2011 through February 2012, approximately 17.5 million gallons were withdrawn from Chase Brook. A series of rocks were placed across the brook channel to back up and direct some of the flow to the pumping area. The loose-placed rock barrier is approximately 2 feet high and allows a fair amount of leakage (see figure 5). That being said there are currently no restrictions on the withdrawal to ensure sufficient water is left in the brook to protect aquatic life.

Figure 5 Chase Brook looking upstream towards the rock diversion barrier. The beginning of the diversion ditch leading to the pump pool is upstream of the rock barrier on the left.



Figure 6 View looking downstream at the Chase Brook diversion ditch which conveys water from the brook to a small pool where the pump is located.



To protect aquatic life, flows should mimic natural variable flows as much as possible. For snowmaking withdrawals, the median of the mean February flow or inflow (whichever is less) has been used as a minimum

flow threshold to protect aquatic life. Based on an analysis of flows from three USGS gages⁴, with flows at the gages transposed by area to estimate flows in Chase Brook, the median of the mean February flow is estimated to be approximately 1.23 cfs in Chase Brook. A plan is needed to determine what the existing minimum flow is in Chase Brook under current operation and if this needs to change, as well as how the minimum flow will be maintained. In addition, the NH Fish and Game Department should be consulted to determine if anything more needs to be done to ensure adequate fish passage up and downstream of the dam.

D-10 Whisper Reservoir and Lower Pond: As discussed in section D-5 of this certification, Whisper Reservoir and the Lower Pond were constructed in the 1960s for the purpose of storing water for snowmaking. Though not originally open surface waters (i.e., ponds) both are considered surface waters subject to NH surface water quality regulations (Env-Wq 1700) because they were apparently constructed in wetlands. Since the mid-1960s, no changes have been made to the Lower Pond other than reconstruction of the spillway in 2010. Whisper Reservoir, however, has been enlarged three different times with the latest being in 1994.

Item	Whisper Reservoir	Lower Pond
Date Originally Constructed	Mid-1960s	Mid-1960s
Source of Water	Water pumped from Craney Pond and surface runoff from mountain	Gravity flow from Whisper Reservoir, water pumped from Chase Brook, and surface runoff from the mountain
Outlet	A series of gate valves control the amount of water which is allowed to flow by gravity to the Lower Pond	Water from the Lower Pond is pumped up the mountain to the snow guns to make snow. Overflow from the pond flows by gravity into a tributary of Chase Brook.

4 USGS gage data used to estimate the median February flow in Chase Brook

USGS Gage	Drainage Area (square miles)	Median February Flow at gage (cfs)	Median February Flow in Chase Brook (cfs)
01135150 Pope Brook near North Danville, VT	3.25	2.91	1.23
01139800 East Orange Branch at East Orange, VT	8.95	7.81	1.20
01078000 Smith River near Bristol, NH	85.8	77	1.24
Average			1.23

Item	Whisper Reservoir	Lower Pond
Maximum Storage Volume	5.0 Million Gallons	0.6 Million Gallons
Water Elevation when full	694 feet	593 feet
Maximum Water Level Fluctuation	Approximately 10 feet	Approximately 10 feet
Maximum and average daily volume withdrawn for snow-making	Max: 7.2 Million gallons per day Ave: 3.6 Million gallons per day	Max: 7.2 Million gallons per day Ave: 3.6 Million gallons per day

The only change proposed by the Applicant to Whisper Reservoir and Lower Pond is to increase the volume of water from Craney Pond that is temporarily stored at both storage ponds (which will result in an increase in the frequency that water is withdrawn from each storage pond for snowmaking since more water is being conveyed to each storage pond). No changes are proposed in the magnitude of water level fluctuations in the ponds (which has been occurring for many years) or in the volume of water received from Chase Brook in the Lower Pond. The proposed changes are not expected to have a measurable impact on aquatic life in the storage ponds which were specifically constructed in the mid-1960s for the purpose of storing water for snowmaking.

- D-11 Water conveyed from Craney Pond to Whisper Reservoir and Lower Pond and water conveyed from Chase Brook to the Lower Pond constitute transfers of water for storage and are therefore subject to Env-Wq 1708.12 Transfer of Water (see section C-16 of this certification).

Env-Wq 1708.12 (b) states that transfers may be exempt from the provisions in Env-Wq 1708.12 (c) and (d) provided none of the criteria in Env-Wq 1708.12 (b) (1) – (3) apply (see section C-16 of this certification). Since none of these criteria apply to the Chase Brook withdrawal, the Chase Brook withdrawal is exempt. The proposed changes to the Craney Pond withdrawal however are not exempt since Env-Wq 1708.12(b)(3) applies; that is, it represents a change that will occur after the 2011 readoption of Env-Wq 1708.12 and has the potential to impact designated uses of the source water or receiving water such that it requires certification under RSA 485-A12, III or IV.

Env-Wq 1708.12 (c)(1)-(4) includes 4 conditions that must be met if transfers in order to allow transfers. Each condition is provided below along with rationale (*in italics*) as to why they apply or not.

(1) The transferred water does not contain exotic aquatic species or other species of aquatic life that could result in a violation of Env-Wq 1703.19, relative to the integrity of the biological and aquatic community, in the receiving water;

(This condition is met since the source of withdrawal (Craney Pond) and the receiving waters (Whisper Reservoir and Long Pond) have not changed since transfers began approximately 10 years ago and in consideration of the fact that Whisper Reservoir and the Lower Pond were constructed back in the mid-1960s specifically to store water for snow-making.)

(2) Existing and designated uses will be maintained and supported in the source water and in the receiving water;

(This condition is met since the source of withdrawal (Craney Pond) and the receiving waters (Whisper Reservoir and Long Pond) have not changed since transfers began approximately 10 years ago and in consideration of the fact that Whisper Reservoir and the Lower Pond were constructed back in the mid-1960s specifically to store water for snow-making. Further, as discussed in section D-8 of this certification, the proposed changes in the volume of water withdrawn from Craney Pond during each ski season and maximum drawdown between pumping events (3 inches to 6 inches) are not expected to result in any measurable change in the quality or uses of the source or receiving waters provided they are implemented in accordance with the conditions specified in section E of this certification. Further, as discussed in D-8, Craney Pond currently experiences drops of over 6 inches on occasion during the winter even when there are no withdrawals).

(3) The withdrawal from the source water and transfer to the receiving water either:

a. Will not result in any degradation of water quality; or

(This condition is met for the reasons specified in condition (2) above)

b. Have both been reviewed under the process specified in Env-Wq 1708.10 and determined by the department to meet the criteria specified for approval in Env-Wq 1708.10(b)(1)-(3); and

(This condition is not applicable since condition (3) a. above was met.)

(4) A water conservation plan that meets the water conservation requirements set forth in Env-Wq 2101 has been approved by the department and is being complied with.

(This condition will be met by including a condition in this certification that requires the Applicant to submit a water conservation plan to DES for approval and to begin implementing the approved plan prior to implementation of any changes to the current withdrawal criteria for Craney Pond specified in the 2001 Water Quality Certification WD 00007.)

- D-12 The Activity includes dredge and fill of wetlands. The 401 Certification decision relies, in part, on an approved permit from the DES Wetlands Bureau for the potential construction-related impacts to jurisdictional wetlands. Through its processing and issuance, the DES wetlands permit addresses the dredge and fill impacts to jurisdictional wetlands.
- D-13 The Activity includes alteration of terrain which may impact surface waters. The 401 Certification decision relies, in part, on an approved permit from the DES Alteration of Terrain Bureau for the potential construction and/or operation-related impacts of stormwater from the Activity on surface waters. Through its processing, and issuance, the DES Alteration of Terrain permit is expected to address the potential impacts of stormwater from the Activity on receiving surface waters.
- D-14 The proposed surface water withdrawals from Craney Pond and Chase Brook require registration in accordance with RSA 488:3.

E. WATER QUALITY CERTIFICATION CONDITIONS

Unless otherwise authorized by DES, the following conditions shall apply.

- E-1. This certification is a modification of the 401 Water Quality Certification (WQC # 2012-404P-002) issued by DES for the NH Programmatic General Permit (PGP) issued by the New England District of the U.S. Army Corps of Engineers (Corps) in 2012 (see sections D-3 and D-4 of this certification). The conditions specified herein are in addition to the conditions included in certification WQC # 2012-404P-002 (see section C-19) and only apply to this Activity.
- E-2. Upon its issuance, this certification completely replaces certification WD Permit # 00007 issued by DES on 10/3/2001 to Pats Peak, Inc.
- E-3. The Activity shall not cause or contribute to a violation of surface water quality standards. DES may modify this Water Quality Certification to include additional conditions to ensure the Activity complies with surface water quality standards.
- E-4. The Applicant shall consult with DES regarding any proposed modifications to the Activity to determine whether this Water Quality Certification requires modification in the future.

- E-5. The Applicant shall allow DES to inspect the Activity and its effects on affected surface waters at any time to monitor compliance with the conditions of this Water Quality Certification.
- E-6. The Applicant shall comply with the conditions of the DES Wetlands permit, DES Alteration of Terrain permit and the DES Shoreland Protection permit, including any amendments. The conditions of these permits shall become conditions of this 401 Certification upon issuance of this 401 Certification.
- E-7. Transfer of this Certification to a new owner shall require notification to and approval by DES.
- E-8. Withdrawal of surface water for snow-making shall comply with the following criteria:
 - a. Surface water withdrawals for snowmaking shall only be from Craney Pond and Chase Brook. Withdrawals from these sources shall not occur at any other time.
 - b. Withdrawals from Craney Pond for snowmaking shall also comply with the following:
 - 1) Surface water withdrawals shall only occur during the ski season between November 15 and February 1 of each year.
 - 2) The total volume of surface water withdrawn shall not exceed 40 million gallons per ski season.
 - 3) The pumping rate shall not exceed 1000 gallons per minute (1.5 million gallons per day). The pumps shall be programmed to slowly increase withdrawal and to automatically shut-off when there is less than 0.6 cfs flowing into Cascade Brook as measured at the existing Palmer Bowlus flume or DES approved equivalent. The flume shall contain a data collector such that data can be retrieved on a bi-weekly basis or as otherwise specified by DES.
 - 4) The pumps shall be programmed to automatically shut-off when the water surface elevation in Craney Pond as measured by the pressure elevation monitoring device located in the pumping vault below the beach area is below elevation 1007.6.

The pumps shall be programmed such that when the pond is at or below pond elevation 1009.0 (as measured by the pressure elevation monitoring device located in the pumping vault), each pumping event will not drop the level of the pond more than 3 vertical inches from the start of the event, and that between such pumping events, the recharge period is as long as possible, but no less than 48 hours.

5) The pumps shall be programmed such that when the pond is above pond elevation 1009.0, each pumping event will not drop the level of the pond more than 6 vertical inches from the start of the event and that between such pumping events, the recharge period is as long as possible, but no less than 48 hours.

6) Each time the pumping ceases, the water remaining in the pipe shall be drained slowly and discharged to a location at least 75 feet from the jurisdictional wetlands or other surface waters of the state and in such a manner that it does not cause a violation of water quality standards, especially with respect to turbidity.

c. Withdrawals from Chase Brook for snowmaking shall also comply with the following:

1) The pumping rate shall not exceed 250 gallons per minute (0.36 million gallons per day or 0.56 cfs).

2) Surface water withdrawals from Chase Brook shall only occur during the ski season between November 15 and March 1 of each year.

3) By June 1, 2013 the Applicant shall consult with the NH Fish and Game Department (NHFG) to determine if anything needs to be done to ensure adequate fish passage in Chase Brook in the vicinity of the existing loose rock barrier located just below the diversion channel to the pump pool.

4) By August 1, 2013, the Applicant shall submit a plan for ensuring there is adequate flow for the protection of aquatic life in Chase Brook when water is withdrawn for snowmaking. The plan shall include, but not be limited to, the minimum flow that is currently maintained, a description of what would be necessary to maintain a flow equal to the median February flow of 1.23 cfs and the impact this would have on snowmaking capabilities, the Applicant's recommended minimum flow (and justification for that flow), the average and maximum volume of water currently withdrawn from Chase Brook during the ski season, a description of how flow will be monitored and linked to pump operation to ensure minimum flow is maintained, the maximum pumping rate, results of conversations with the NH Fish and Game Department regarding fish passage (see condition E-8.c.3 above) and a schedule for implementing the proposed plan. Once approved by DES, the Applicant shall then implement the approved plan.

E-9. The Applicant shall monitor and record water surface elevation, flow and volume withdrawn (i.e., pumped) no less frequently than on an hourly basis. Monitoring shall commence on October 15 of each year and shall continue until March 1 of the following year.

- E-10. Within 90 days of the date this certification was issued, the Applicant shall submit a plan to correct historical problems associated with accurately and consistently monitoring, recording and reporting water surface elevation in Craney Pond, the volume withdrawn from Craney Pond and flow discharging from Craney Pond into Cascade Brook. The Applicant shall then implement the approved plan.
- E-11. The Applicant shall submit flow and elevation data for Craney Pond, Cascade Brook and Chase Brook as well as the volume of water pumped from each source and submit this information to DES within 30 days of receiving a request from DES. Unless otherwise directed by DES, the Applicant shall submit a compliance report by May 1 of each year for the period October 15 through March 1 that summarizes compliance with the required minimum flow, water surface elevations, withdrawal restrictions, any periods of non-compliance and actions taken to get back into compliance. Submittals shall include all data in an electronic MS Excel spreadsheet with appropriate tables and charts to facilitate analysis and with areas of non-compliance clearly identified.
- E-12. The Applicant shall conduct a biological assessment of the conditions in Cascade Brook after the first year of withdrawing surface water from Craney Pond in accordance with the conditions specified in this certification. Prior to conducting the study, the Applicant shall consult with DES to determine if any changes to the methods used in the November 2011 report by GZA Environmental, Inc (see section D-8 of this certification), should be made to better assess the impacts of winter withdrawals on aquatic life in Cascade Brook. The study shall be submitted to DES by November 1 of the year the data was collected. The Applicant shall submit the data collected for the study in a format that can be uploaded into the DES Environmental Monitoring Database (EMD). Depending on the results, DES may require additional studies in the future.
- E-13. The Applicant shall register, measure, and report all withdrawals with the Water Use Registration and Reporting Program in accordance with RSA 488:3, Env-Wq 2102, this Water Quality Certification. The Applicant shall consult with the DES Water Use Registration and Reporting Program to determine specific measuring and reporting requirements for the Pat's Peak ski area. The Applicant shall then implement the measuring and reporting requirements.
- E-14. Prior to implementing any changes to the withdrawal criteria for Craney Pond specified in the 2001 Water Quality Certification (WD 00007), the Applicant shall obtain DES approval of and begin implementation of a water conservation plan that meets the water conservation requirements set forth in Env-Wq 2101.
- E-15. The Applicant shall submit a comprehensive Snowmaking Withdrawal Plan by August 31, 2013. The plan shall include a comprehensive description

of all sources of snowmaking withdrawals, when withdrawals occur, any restrictions on the withdrawals, how compliance with those restrictions are being satisfied, specifics on the equipment that is installed, how equipment is maintained, rating curves, a copy of this water quality certification (and any amendments), etc. The Applicant shall then implement the approved plan. The plan shall be updated as necessary each year. If revisions are made to the plan, the Applicant shall notify DES within 30 days of when revisions are made and provide DES with a copy if requested.

APPEAL

If you are aggrieved by this decision, you may appeal the decision to the Water Council. Any appeal must be filed within 30 days of the date of this decision, and must conform to the requirements of Env-Wq 200. Inquiries regarding appeal procedures should be directed to NHDES Council Appeals Clerk, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095; telephone (603) 271-6072.

If you have questions regarding this Certification, please contact Owen David at (603) 271-0699 or Owen.David@des.nh.gov



Harry T. Stewart
Director, DES Water Division

cc: Town of Henniker Board of Selectmen
Town of Henniker Conservation Commission
Kris Blomback, Pats Peak
John Warner, USFWS
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Ted Diers, NHDES
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