

**NH Department of Environmental Services (NHDES)
Response to Comments and List of Substantive Changes
for
Section 401 Water Quality Certification
WQC # 2014-404P-001**

July 28, 2015

On March 4, 2015 the New Hampshire Department of Environmental Services (DES) issued a draft of the following Section 401 Water Quality Certification (WQC or Certification) for public review and comment:

WQC # 2014-404P-001
Project Name: Water Withdrawal and Redevelopment of the Balsams Grand Resort
Wilderness Ski Area
Owner/Applicant: Dixville Capital LLC

The public comment period ended on April 3, 2015. Comments were received from the following:

- Thomas A. Linell
- Brookfield Renewable Energy Group, Great Lakes Hydro America LLC (Brookfield)
- The Androscoggin River Committee (ARC)
- Appalachian Mountain Club (AMC)

Copies of the comment letters are provided at the end of this document in Appendix A. Comments received from the AMC and ARC are very similar and included a copy of the 1998 “Upper Androscoggin River Storage Projects Settlement Agreement”. This was not included in Appendix A because of its large size; however, a copy of the Settlement Agreement may be obtained from DES by calling or emailing Owen David (603-271-0699 or owen.david@des.nh.gov).

DES' response to comments are provided below (in bold, italics) followed by a summary of other substantive changes made to the final WQC. Only comments that may impact the WQC (i.e., compliance of the project with NH surface water quality standards) were addressed. In some cases comments were paraphrased. As previously mentioned, complete copies of the comment letters are provided in Appendix A.

RESPONSE TO COMMENTS FROM THE MR. THOMAS A. LINELL

Linell Comment #1:

“The application appears to allow Androscoggin River water to be used within the Mohawk River watershed, where the only existing ski terrain exists, this should not be allowed. If Androscoggin River water is to be allowed to be withdrawn, it should not be allowed to be withdrawn based on the full build out of proposed ski area. The 404 permit should be allowed only for ski terrain which has received all other necessary permits such as alteration of terrain permits. Any 404 permit should be proportional to permitted ski terrain at a given point in time, in the Androscoggin River drainage.”

DES Response to Linell Comment #1: NO CHANGES MADE TO THE WQC.

The Applicant cannot proceed with any phase of the Activity until all applicable permits have been approved for that phase, including the Alteration of Terrain (AoT) and Wetlands permits. The Applicant must then comply with all conditions in the DES AoT and Wetland permits (see Condition E-6 of the WQC).

Condition E-10.e of the WQC (which references Condition E-13) requires the Applicant to develop a Water Conservation Plan (WCP) in accordance with Env-Wq 2101. See “DES Response to AMC and ARC Comment #4” below for further information regarding the WCP.

When preparing a WQC, DES addresses the information provided by the Applicant when they file a request for Certification. DES’ rationale for allowing or denying parts or all of an Applicant’s requests are provided in Section D (Findings) of the WQC. Since the Applicant’s certification application requested a maximum seasonal withdrawal of 34 cfs from the Androscoggin River, DES evaluated 34 cfs in the WQC to determine if this withdrawal would likely comply with water quality standards. DES’ rationale for allowing this withdrawal is provided in Findings D-26 through D-31 and D-33 through D-35.

**RESPONSE TO COMMENTS FROM BROOKFIELD RENEWABLE ENERGY GROUP,
GREAT LAKES HYDRO AMERICA, LLC (BROOKFIELD)**

Brookfield Comment #1:

I am writing to alert you that approval of the above-referenced application for a 401 Water Quality Certification for the Balsams Snowmaking Water Withdrawal project would adversely affect 15 federally-licensed hydroelectric facilities that Great Lakes Hydro America, LLC and its affiliates (collectively, “GLHA”) own and/or manage on the Androscoggin River downstream of the proposed project.

Withdrawing water from the river as requested is projected to potentially displace as much as 3,000 MWh per year of clean renewable energy generation. In addition, the requested withdrawal could cause flows to drop below the GLHA facilities’ minimum flow levels required by their respective Federal Energy Regulatory Commission licenses, particularly in dry years, unless the proposed project is required to coordinate its water withdrawal with GLHA’s facilities on an ongoing basis and to install and monitor gages downstream of the withdrawal location. DES should account for such displacement and flow concerns in its review of environmental effects of the proposed project.

DES should also take into account the riparian rights Doctrine of Reasonable Use and the longstanding case law applying it, under which landowners cannot use water adjoining their property without due consideration of the usage rights of downstream landowners with rights to that water as it flows to their property. Approving Dixville Capital’s application without conditioning such approval on entry by Dixville Capital and GLHA into an agreement by which Dixville Capital will compensate GLHA for lost revenues (with security to satisfy such payment by a credit-worthy entity) would negatively affect these downstream hydroelectric facilities. With such a condition, however, GLHA is willing to consent to the requested water withdrawal level of up to 2.94 million cubic feet of water per day intermittently for six months annually.

DES Response to Brookfield Comment #1: NO CHANGES MADE TO THE WQC.

The purpose of the WQC is to ensure the Activity will not violate New Hampshire surface water quality standards. For reasons indicated in the WQC, the Activity is expected to meet water quality standards if the conditions in section E of the WQC are met. The riparian rights Doctrine of Reasonable Use (RRDRU), referenced by the commenter, concerns third party property rights and not compliance with surface water quality standards. As such the RRDRU does not influence DES' decision to issue or deny water quality certification.

With regards to minimum flows, Finding D-27 and Condition E-10.d¹ make it clear that when the Errol Dam is passing its minimum licensed flow of 522 cfs (which is equivalent to approximately 523 cfs at the location of the proposed withdrawal), the Activity cannot withdraw any water from the Androscoggin River. Consequently, the Activity should not impact minimum licensed flows downstream. As noted above, the WQC has no authority to address other users' perceived rights or practices.

With regards to measuring river flows to ensure compliance with the WQC, there is an active United States Geological Survey (USGS) gaging station (No. 01053500) located approximately 1700 feet downstream of the Errol Dam. "Real time" flow at the gaging station is available on the internet². Since the withdrawal for the Activity is proposed to be in close proximity to this gage, the USGS gaging station is expected to provide sufficient real time flow data to ensure the Applicant does not withdraw water when the Errol Dam is passing the minimum licensed flow. Specifics regarding how the Applicant will ensure the withdrawal complies with the WQC conditions will be provided in the Operations Plan that the Applicant must prepare and submit to DES for approval (Condition E-10.k of the WQC) prior to withdrawing any water from the Androscoggin River. For example, the Operations Plan must describe how the compliance with the withdrawal conditions of the WQC will be measured, recorded, reported and maintained, a description of the equipment that will be used (including accuracy), how it will be maintained and notification requirements. The Applicant must then implement the DES approved Operations Plan.

RESPONSE TO COMMENTS FROM APPALACHIAN MOUNTAIN CLUB (AMC) AND ANDROSCOGGIN RIVER COMMITTEE (ARC)

AMC and ARC Comment #1:

“The Androscoggin River Committee, of which AMC is a member, submitted earlier comments on March 27, 2015. That letter's content, which was originally sent to the Balsams development team in early March, included questions intended to gather further information about the impact of the proposed pumping from the Androscoggin River for snowmaking purposes. Only yesterday did the Balsams team send a reply to that letter and questions (please see their answers embedded in the original letter, attached).”

DES Response to AMC and ARC Comment #1: NO CHANGES MADE TO THE WQC.

¹ As indicated at the end of this document under “Other Substantive Changes Made to the Final WQC”, Condition E-10.d was revised to clarify, and better reflect the intent, that the Applicant shall not withdraw water when flow upstream of the withdrawal is 523 cfs or less, and, when withdrawals are allowed, the Applicant shall not allow the withdrawal to cause the river flow downstream of the withdrawal to be less than 523 cfs.

² see http://waterdata.usgs.gov/nh/nwis/uv/?site_no=01053500&PARAMeter_cd=00065,00060,72020

A copy of the Applicant's response to the questions raised by the AMC and ARC is provided in Appendix A.

AMC and ARC Comment #2:

Unfortunately, their responses are so general in nature that they offer little additional data or insight into the permit application. For example they offer insufficient evidence that the impact of the proposed pumping of water from the river, and the eventual return of 85% of the snowmaking runoff pulse via Clear Stream back to the Androscoggin during spring runoff/flood stage, will in fact be minimal. This area in Errol floods frequently. Major significant questions remain about the potential impact of this project on the river's ecosystem (possible winter fish mortality at the withdrawal pump) or other downstream uses.

DES Response to AMC and ARC Comment #2: NO CHANGES MADE TO THE WQC.

With regards to Clear Stream, please see DES Response to AMC and ARC Comment #5 below.

With regards to winter fish mortality at the withdrawal pump, Condition E-10.g requires the Applicant to design and operate the withdrawal intake structure in a manner that will minimize (to the maximum extent practicable) the entrainment and impingement of fish and other aquatic life. Further, final plans and calculations must be approved by the New Hampshire Fish and Game Department (NHFGD), and construction of the withdrawal intake must be in accordance with the NHFGD approved plans.

AMC and ARC Comment #3:

“The proposed pumping has the potential to jeopardize the Upper Androscoggin River Storage Projects Settlement Agreement (SA) negotiated in 1998 (please see attached) and signed by then Commissioner of NH DES Robert Varney, Gorham Selectmen, the Mayor of Berlin, Maine State agencies, and many others. AMC had a lead role in developing that SA. As described in the document, “This Settlement Agreement serves to strike a carefully considered balance between maintaining the energy, flood protection, wastewater assimilative capacity, ecological, and recreational values of the Upper Androscoggin River Storage and Aziscohos Projects...” The SA was a delicate balance between seasonal water levels in Aziscohos, Mooselookgumtic & Cupsuptic, and Lake Umbagog (the storage reservoirs), and water flows released into the Rapid, Magalloway, and Androscoggin downstream of the Errol dam. Changes in winter reservoir water storage management and release, to compensate downstream for the timing of the water withdrawn, can impact later seasons. The 1909 Androscoggin River Improvement Company (ARCO) agreement requires the river flow at Berlin be maintained at “as high a point above the minimum 1,550 cubic feet per second (cfs) as shall be consistent with proper and economical use of the stored water.” The 1998 cooperative settlement agreement among the power company, state and federal agencies, and conservation groups as part of the FERC license was created and agreed to based on reservoir water levels and flows to protect fish and wildlife, recreation, and other needs, while maintaining the purpose of the ARCO agreement for hydroelectric and other needs downstream. AMC understands that the magnitude and timing of the proposed water withdrawals could impact downstream generation at multiple hydroelectric stations. AMC request that NH DES, prior to issuing a final 401 WQC for a water withdrawal, properly analyze the potential impacts of this proposed water withdrawal on the upper storage projects water management plan and on downstream users. The current draft 401 WQC only narrowly addresses minimum flow levels. It fails to analyze or address how the magnitude of the proposed

withdrawals and their timing will impact upper storage management or downstream hydroelectric generation and other uses dependent on such flows. It is unclear that the draft certificate takes into full account the requirements of the SA, despite NH DES being a signatory.”

DES Response to AMC and ARC Comment #3: NO CHANGES MADE TO THE WQC

The purpose of the WQC is to ensure the Activity will not violate New Hampshire surface water quality standards. For reasons indicated in the WQC, the Activity is expected to meet water quality standards if the conditions in section E of the WQCare met.

Because this Activity is not included in the Upper Androscoggin River Storage Projects Settlement Agreement (SA), it is not bound by any of its provisions. While, as the commenter points out, DES is a party to the SA, this Activity was neither envisioned as part of the SA nor were provisions for any additional water users included in the SA. Further, the SA does not prohibit additional water users. Therefore, the SA does not apply to this Activity. Even if the SA were to somehow apply in this situation, it does not appear that the Activity will have a significant impact on current operations of the Upstream Storage Projects in Maine, the Errol Dam, the downstream hydroelectric facilities or the downstream wastewater treatment facilities in Berlin and Gorham New Hampshire for the following reasons:

- 1. In accordance with Condition E-10.d³, the project will not withdraw water when the Errol Dam is discharging its licensed minimum flow of 522 cfs or inflow, whichever is less, (which is equivalent to approximately 523 cfs at the location of the withdrawal). Consequently, the Activity should not impact minimum licensed flows downstream of the withdrawal.***
- 2. The FERC license for the Upper Storage Projects in Maine (FERC No. 11834), which included the minimum flow and lake elevation requirements in the SA, was issued on December 19, 2002. To determine what typical flows have been in the river since the license became effective during the proposed snowmaking period (October 15th through March 15th), DES obtained average daily flow data from the USGS gaging station in Errol, New Hampshire (# 01053500) for the period January 1, 2003 to March 15, 2015. Only days within this time frame that fell within the proposed snowmaking period were included. Results are shown in the figure below. As shown, since January 1, 2003, the minimum flow in the River at the USGS gage in Errol during the proposed snowmaking period was 947 cfs which is well above the licensed minimum flow of 522 cfs (or approximately 523 cfs at the gaging station). The average flow during this period was 2470 cfs and the median flow was 2410 cfs. The maximum proposed withdrawal of 34 cfs represents only 3.5% of the minimum flow (34/947) and 1.4% of the median flow (34/2410). Further, the majority of the water withdrawn (approximately 85% based on area – see Finding D-29) will eventually return to the Androscoggin River. Finally, based on DES’ experience with other ski areas in the state, it is highly unlikely that the Activity will withdraw 34 cfs continuously from the Androscoggin River from October 15th through March 15th.***

³ As indicated at the end of this document under “Other Substantive Changes Made to the Final WQC”, Condition E-10.d was revised to clarify, and better reflect the intent, that the Applicant shall not withdraw water when flow upstream of the withdrawal is 523 cfs or less, and, when withdrawals are allowed, the Applicant shall not allow the withdrawal to cause the river flow downstream of the withdrawal to be less than 523 cfs

allows DES to grant waivers of certain provisions in Env-Wq 2101 provided the person requesting the waiver submits a written request to DES that includes the information specified in Env-Wq 2101.23(d). On May 11, 2015, the Applicant submitted a written request to waive the deadline for submittal of a water conservation plan in Env-Wq 2101.24. According to the Applicant, the WCP could not be filed with the WQC request as the design details necessary to prepare a meaningful water conservation plan were not yet available. The Applicant requested that submittal of the WCP be delayed until further project details are developed for each water use and that a WCP be submitted separately for each design phase. On May 12, 2015, DES approved the waiver request with the condition that the Applicant submit a WCP for each phase of the project and receive written approval of the WCP from DES prior to construction of that phase.

Fact C-32 in the WQC was amended to reflect the allowance for waivers in Env-Wq 2101.23, as well as when the waiver request was submitted and approved by DES.

Condition E-13 was revised as follows:

“E-13 Water Conservation Plan: Prior to construction of any phase of the Activity, the Applicant shall consult with the DES Water Conservation Program to determine if a water conservation plan is required for that phase in accordance with Env-Wq 2101 (see C-32). If required, the Applicant shall submit a water conservation plan for that phase that meets the requirements of Env-Wq 2101 and receive DES approval of the plan by the time specified by the DES Water Conservation Program. The Applicant shall then implement the approved plan.”

AMC and ARC Comment #5:

“If in fact 85% of the spring runoff is going to come back into the Androscoggin River, what is the control system that will be implemented to lessen the damage (impact?) that will now be imposed on the Clear Stream drainage system? The existing bridges and century old banks have been developed to withstand the present rate of runoff. It would seem that adding this considerable surplus of runoff would substantially stress this existing infrastructure.”

DES Response to AMC and ARC Comment #5: NO CHANGES MADE TO THE WQC.

On July 14, 2015, the Applicant’s engineer (Horizons Engineering or Horizons) submitted results of an analysis regarding the contribution of melting artificial snow on peak flows in Clear Stream and the Mohawk River during storm events (attached as Appendix B). The analysis was based on the methodology of a previous analysis completed for the Loon Mountain Ski Resort Development and Expansion project as part of the February 2002 Final Environmental Impact Statement (EIS) for the project. Similar to the Loon Mountain EIS, a runoff depth from snowmelt of 0.5 inches per day was used for the analysis. This rate is based on a 1998 study conducted by Carlson and Fay⁴ which analyzed (among other things), the impacts of greater amounts of snowmaking at Loon Mountain on runoff. A copy of the Carlson and Fay report is included in Attachment B. To determine peak storm flows, Horizons used the New Hampshire StreamStats Internet-based regression analysis tool maintained by the United States Geological Survey to model 2-year through 500-year storm

⁴ The Snowmelt Report (6/23/98). Joan Carlson and Stephen Fay. White Mountain National Forest. Laconia, New Hampshire.

*events at three locations in the Clear Stream watershed and one location in the Mohawk River watershed. The Horizons analyses does not include assessment of flows resulting from changes in land cover type as these will be regulated under the Alteration of Terrain permitting process*⁵.

According to Horizons, the modeled snowmelt from the proposed ski trails increased the modeled peak flow rate for the 5-year storm event at the project boundary by approximately 2.4% and 1.9% respectively in Clear Stream and the Mohawk River. At analysis points further downstream, the impact of man-made snow on peak storm flows becomes less. Horizons, concluded that the runoff contribution (in terms of flow rate) from melting of man-made snow on the ski trails during storm events is a relatively minor contribution to overall storm flows, and is likely well within the margin of error of flow analysis. This is similar to the Carlson and Fay report which concluded that although the increase in snowmaking will lengthen the duration of the snowmelt period (due to larger quantities of snow), peak flow remains relatively unchanged.

Based on the Horizons report, the proposed Activity is not expected to have a significant impact on peak flows and flooding in Clear Stream or the Mohawk River.

AMC and ARC Comment #6:

“How much water will be drawn from Lake Gloriette or other sources for snowmaking purposes?”

Thank you for your consideration of our comments. As stated in our previous letter, we are supportive of the Balsam’s reconstruction efforts overall. However, the project needs to be designed, scaled, and appropriately reviewed so that it does not negatively impact other legitimate interests in the area.”

DES Response to AMC and ARC Comment #6: NO CHANGES MADE TO THE WQC.

The Applicant did not provide information regarding the amount of water which may be withdrawn from Lake Gloriette or other sources for snowmaking or other purposes. However, to identify all other sources of withdrawals that may occur in future phases of the Activity and to determine if they will comply with State surface water quality standards, DES included Condition E-12 in the WQC, as described below.

Prior to construction of any phase of the Activity involving earth disturbance (excluding the Androscoggin River withdrawal intake, pump station and piping to the ski area) Condition E-12 of the WQC requires the Applicant to provide a description of all other existing and proposed surface water withdrawals associated with each phase. This includes withdrawals from surface waters other than the Androscoggin River for purposes including, but not limited to, snowmaking and irrigation. Condition E-13 further requires the Applicant to submit information that will be used by DES to ensure the withdrawals will comply with State surface water quality standards. Information that must be submitted includes, but is not limited to the

⁵ Alteration of Terrain (AoT) regulations (Env-Wq 1500) are at <http://des.nh.gov/organization/divisions/water/aot/index.htm>. Env-Wq 1507.06 of the AoT regulations requires post-development peak flow rates to be no greater than pre-development peak flow rates for the 10 year and 50 year 24 hour storms.

following: an overall description of the withdrawals; a map showing the location of all surface water withdrawals; the drainage area upstream of all points of surface water withdrawals; when water is withdrawn; the maximum rate and volume that water is withdrawn; how much river flow is left in the source water for the protection of designated uses such as aquatic life; stream statistics at the point of withdrawal based on the USGS StreamStats website⁶; where the withdrawn water is discharged; average and maximum fluctuations in any surface water lakes, ponds or impoundments used as the source water for withdrawals; and, how long the system has been in operation and when it was last operated. For the golf course (which is currently closed), the above information is required prior to re-opening the course for golfing. Condition E-12 further states that if DES decides that additional conditions are necessary to ensure water quality standards are met, they shall become conditions of the Certification and shall be implemented by the Applicant.

If there are other surface water withdrawals that will be used for snowmaking or other purposes (including but not limited to Lake Gloriette), Condition E-12 will ensure the withdrawals are conducted in a manner that will comply with State surface water quality standards.

OTHER SUBSTANTIVE CHANGES MADE TO THE FINAL WQC

In addition to the revisions mentioned above, the following includes a list of other substantive changes to the final water quality certification.

1. Condition E-10.d was revised as follows to clarify, and better reflect the intent, that
 - no water can be withdrawn when flow in the river is at or below the minimum flow that can currently be discharged from the Errol Dam in accordance with dam's FERC license (equivalent to 523 cfs at the proposed withdrawal location), and
 - the withdrawal cannot cause flow in the river immediately downstream of the withdrawal to be less than the minimum flow of 523 cfs.

E-10.d. "Androscoggin River Flow Restrictions: The Applicant shall not withdraw any water from the Androscoggin River when the instantaneous river flow upstream of the withdrawal is less than or equal to 523 cfs. When the instantaneous river flow immediately upstream of the withdrawal exceeds 523 cfs, the withdrawal shall not cause the river flow immediately downstream of the withdrawal to be less than 523 cfs at any time."

⁶ The USGS StreamStats website is at http://water.usgs.gov/osw/streamstats/new_hampshire.html