

February 3, 2014

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street NE  
Washington, DC 20426

*RE: American Whitewater and Vermont Paddlers Club Response to Comments, Recommendations and Prescriptions Filed by the Vermont Agency of Natural Resources in Response to the Federal Energy Regulatory Commission's Notice of Application Ready for Environmental Analysis (FERC No. P-2629), Morrisville Project, Green River Development*

Dear Secretary Bose:

American Whitewater ("AW") and Vermont Paddlers Club ("VPC") submit this response to comments, recommendations and prescriptions filed by the Vermont Agency on Natural Resources ("VANR") in Response to the Federal Energy Regulatory Commission's Notice of Application Ready for Environmental Analysis (FERC No. P-2629, Morrisville Project), Green River Development.

On December 27, 2013, VANR filed comments, recommendations, and preliminary conditions pursuant to Section 401 of the Clean Water Act concerning flow management on the Green River. VANR asserts the Licensee operates the Green River Development as a "hydropeaking project," and requests that FERC include in its final license an article explicitly covering the following recommendation:

The development will operate in true run-of-river mode with outflows equal to inflows on an instantaneous basis. The reservoir water level should be maintained between 1219.75 to 1220 feet msl.

The VANR preliminary 4(e) mandatory conditions propose that the Green River Development be managed as a run-of-river project. In doing so they recommend that the natural flow regime be restored to the Green River, and that power generation and recreation be achieved opportunistically as the natural flow regime allows. Implicitly, VANR opposes the Licensee's proposal to provide two annual scheduled releases on the Green River in order to accommodate the significant public interest in whitewater paddling below the dam.

## **Specific Comments**

American Whitewater has sought to better understand the existing and proposed project operations to analyze the effects of VANR's proposed conditions. We have reviewed historical flow information to accurately characterize the natural flow regime. We have reviewed limited generation data to construct the current flow regime created by the operation of the project. We then compared these two scenarios. Based on our analysis of current and historical flow data, we disagree with VANR's characterization of the Green River development as a "hydropeaking project." We offer our analysis in these comments so that both VANR and FERC can base management decisions on real site-specific information.

### **1. Historical, Proposed, and Current Flow Regimes - Methods**

American Whitewater downloaded the flow records from USGS Gage No. 04291000. Gage data spanned the 1915-1932 period, and we removed 4 incomplete water years (1921, 1922, 1923, 1932). Thus, we analyzed flow data for water years 1916-1920, and 1924-1931, for a total of 13 years. We conducted some basic summary statistics and also selected two years, 1927 and 1931, at random to compare with current operations based on mean daily flows. These years were subsequently determined to represent slightly below and slightly above average years based on mean annual flow, with 1931 having a pronounced spring high water season and 1927 having a pronounced fall high water season.

We have constructed and analyzed the regulated flow regime based on several datasets. First, the Whitewater Boating Study contains records of how often generation exceeded certain thresholds in 2011. Second, the Licensee provided a complete generation record for 2013. We converted these generation values to cfs by multiplying them by 0.162505, which was the average result of dividing four generation values by a corresponding flow as documented in the Whitewater Boating Study. The relationship was consistent enough for illustrative purposes. We assumed base flows of 5.5 cfs for all non-generation days.

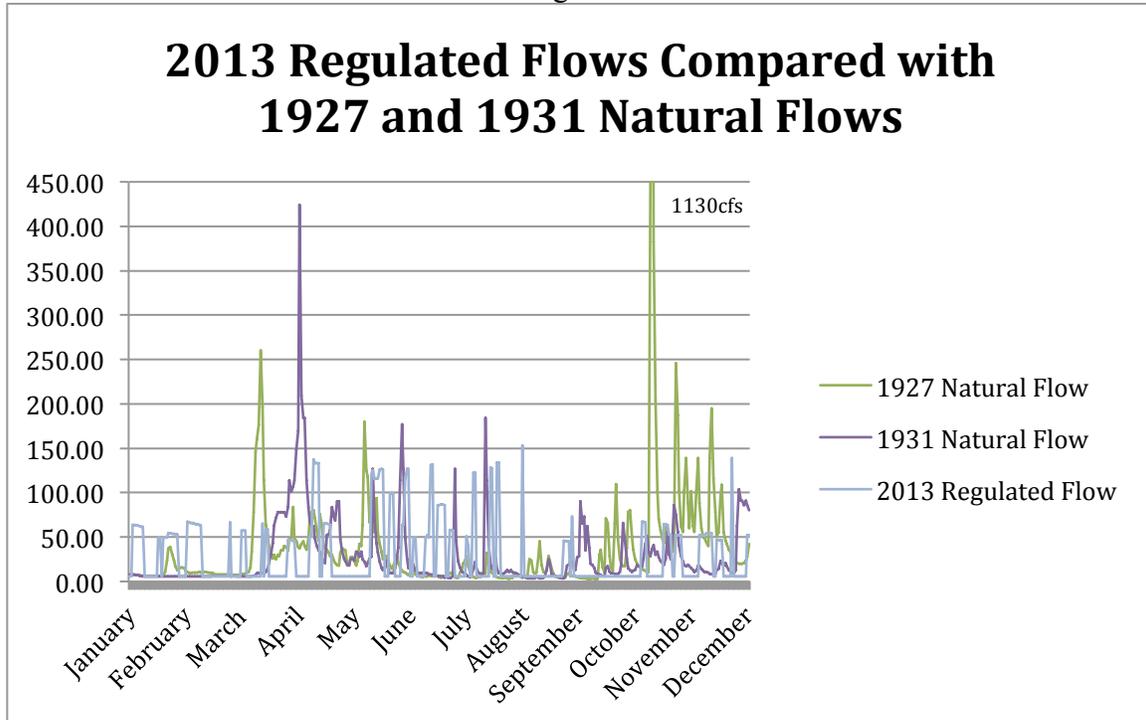
It is important to note that the second hydropower unit was not operational in 2013, so there are no flows over 140 cfs depicted. Under normal operations there would be several days of releases exceeding 200 cfs. In 2011 for example, the Licensee released 8 hours of generation flows between 1200 and 1699 kW, and 6 hours of flows above 1699 kW. In 2013, it appears that there were several spill events for which it was impossible for us to estimate the actual flows.

### **2. Historical, Proposed, and Current Flow Regimes – Results**

VANR states in its comments that "[h]istorically the Green River project has fluctuated flows daily between a very low base flow and a high generation flow," and argues that "[r]apid changes in flow cause corresponding rapid changes in aquatic habitat conditions." Based on this assumption, VANR recommends that the Licensee operate the Green River Development as a run-of-river project. VANR offers no data to support the contention that the Green River is operated as a peaking project. To the contrary, the data

demonstrates that the Licensee operates the Green River development in more of a modified run-of-river mode than in a peaking mode. Generation records show that the Licensee does not peak on an hourly or even a daily basis. Most often the Licensee will generate at moderate flows for several days at a time as inflow allows or demands. Figure 1 compares the generation records from 2013 with our two, selected natural flow years.

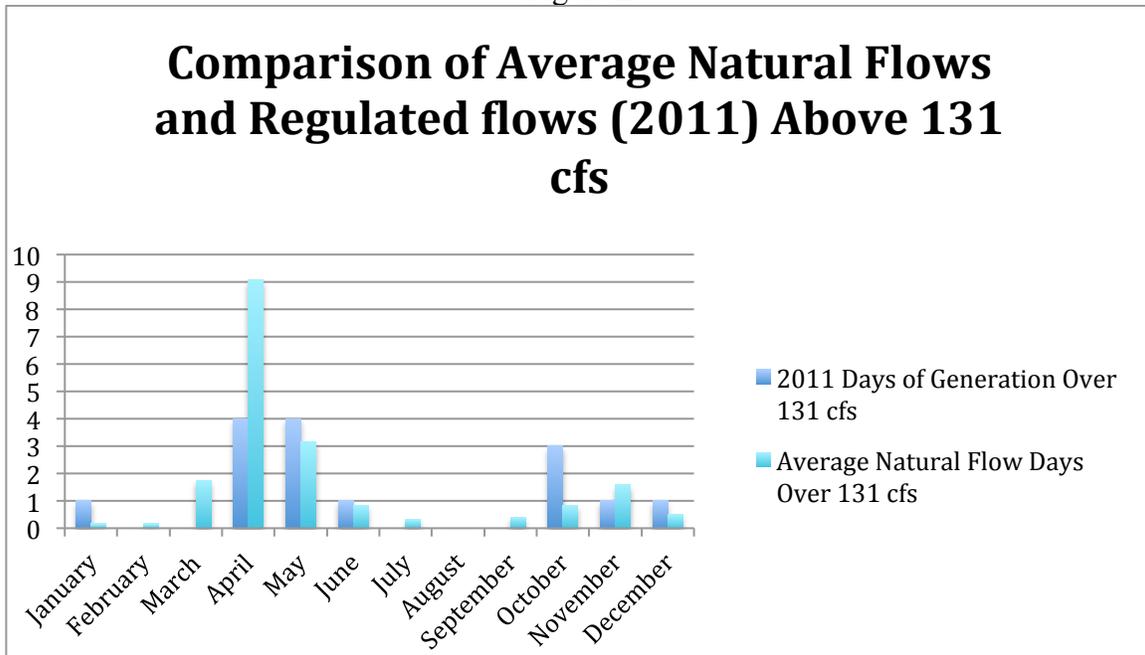
Figure 1



This figure, and the data underlying it, do not support VANR’s statement that the Green River development is operated as a hydropeaking project. There were 32 regulated high flow events in 2013, many of which spanned several days and were in the relatively low 70 cfs range. Only 9 regulated events exceeded 100 cfs. This does not constitute hourly or daily peaking operations. There were 24 corresponding natural events in 1927, 10 of which exceeded 100 cfs, and 16-19 corresponding events in 1931 with 5 of them exceeding 100 cfs. It does thus appear that the project increases the frequency of pulse flows, but not to the severe degree assumed by VANR. When flows over 100 cfs are looked at, the project has no significant effect on the frequency.

The 2011 flow data is more coarse than the 2013 data we received, and it indicates that the regulated and unregulated flow regimes are even more similar than the 2013 data. It also indicates that at least in that one year, the regulated flow regime had fewer high flow days than the average natural flow regime.

Figure 2



While there is no standard way to differentiate the two, we would characterize this flow regime as a modified run-of-river project rather than a true peaking project. Peaking projects typically follow peak power prices at a minute-by-minute or hourly scale, and by design have significant storage capacity. The small amount of storage, flashy watershed, practice of releasing water for several days at a time, and tight reservoir level restrictions prevent the Green River development from being considered a true peaking project.

This is significant because VANR cites several very old studies focused on peaking projects and assumes they apply to the Green River. We question whether these studies, conducted on distant and different rivers with different operating regimes can reasonably be applied to the Green. In addition, citing these few old studies ignores other more rigorous, modern and relevant studies that suggest pulse flows that are moderately or even significantly more frequent than natural may not have deleterious impacts on aquatic species. We suggest reviewing the studies conducted by the USGS on the Indian River in New York, as well as the fisheries studies conducted during relicensing on the Nantahala River (NC) and most importantly the Green itself.

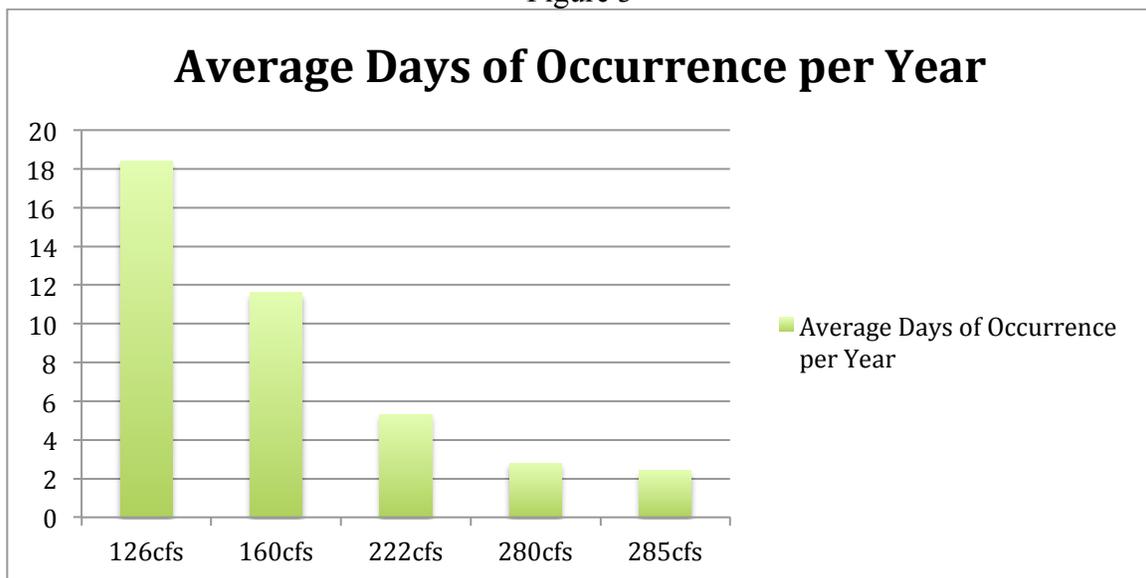
VANR does not offer any data showing that the Green River under current operations is not currently providing for their target native and exotic fish species. In fact, the VANR states that all the target species are naturally reproducing in the Green River, and/or using it as valuable habitat. There are no creel or other data to indicate that the fish species in the Green River are anything but thriving under the current operating regime. What data we do have seems to indicate that there may not be a significant impact in need of corrective management.

We feel that the fisheries data, weight of studies conducted elsewhere, and

hydrology data at least infer that the current operating regime may not be so bad as to require conversion to true run-of-river conditions to meet management targets. Importantly, the remaining evidence presented by VANR in support of run-of-river conditions, the PHABSIM Study, actually suggests that the current flow regime may be better than natural. To us this is evidence that the PHABSIM model fails to capture the holistic roles that various flows play in the river ecosystem, but the fact remains that the model does not suggest that the natural flow regime is good for fish or better than the regulated flow regime.

Consider the following figure, depicting the number of days each year the Green River would naturally exceed certain agency flow thresholds, in cfs.

Figure 3



The natural flow regime, and run-of-river conditions, do not avoid the high flows that the PHABSIM model deems imperfect for target fish species. For the data we looked at, converting from a modified run-of-river to a true run of river operation would have no effect on the number of flow events over 100 cfs. The PHABSIM model offers no support for ending or curtailing the current regulated flow pulses.

Contrary to what VANR seems to assert, high flows should not be avoided. They are a vital part of the natural flow regime. While they may not offer fish optimal aquatic habitat during their short duration, they create optimal physical habitat for those fish by flushing sediment and stagnant water, by improving dissolved oxygen, by inhibiting vegetative encroachment, and by other means. High flows are important parts of any flow regime, and PHABSIM is simply not designed to document that value or prescribe the needed flows.

### 3. Management Context

We do not argue with VANR's assertion that the natural flow regime is the ecological ideal. Of course we fully agree. We regularly advocate for the restoration of

the natural flow regime, or sufficient portions of it to maintain key ecological and recreational values on regulated rivers. While VANR has not provided compelling evidence for converting this project to a true run-of-river project, we do not disagree that doing so may have some incremental ecological benefit – but at what cost is the logical question.

In this case the natural flow regime would grant paddlers 19 days of paddling opportunities each year, albeit unscheduled and at times hard to catch. The regulated project only offers paddlers 10 days of paddling opportunities that are only occasionally predictable. The Licensee proposes to schedule 2 days, and AW and VPC have requested additional days be scheduled. Scheduled paddling opportunities are utilized for paddling to a much greater extent than unscheduled or naturally stochastic events. There will be paddling opportunities either way. We would support the return of run-of-river conditions if there were ecological benefits, however in this case that does not appear to be the case.

For the small incremental ecological gain achieved by transitioning to run-of-river, the project would quite likely become uneconomical and cumbersome to operate. Should the Licensee decide they are not interested in re-licensing an uneconomical project, AW and VPC would pursue the removal of the dam, as is the normal turn of events. This would offer additional ecological benefits in restoring natural riverine habitat.

Is the small incremental ecological gain achieved through a small change in the flow regime worth the elimination of hydropower on the grid, the loss of loon habitat and recreation on the reservoir, and scheduled paddling opportunities? It is rare for us to say this, but we feel like the best adapted plan for the waterway, and the best way to meet state water quality standards and natural resource goals, may be to allow continued power generation, enhanced whitewater recreation through ensuring more generation flows are scheduled and boatable, and continued management of reservoir levels. Should power generation fall out of this mix, the balance would sway to full removal of the project in our opinion.

#### **4. Reservoir Levels**

Closely connected with river flows are reservoir levels. Operational flexibility in reservoir levels allows for power generation and whitewater paddling releases. As we have indicated above, prescriptions that severely limit reservoir fluctuation may result in the removal of the reservoir itself, and moreover would have significant impacts on power generation and scheduled paddling opportunities while having a minimal ecological benefit.

We understand and appreciate the desire to manage the reservoir as though it were a lake to maximize ecological value. It is not a lake though, it is a reservoir, and we suggest that there is a management sweet spot that allows for operational flexibility and maintains other values. We have seen no evidence that the current 1-foot of flexibility between May-November has had significant impacts and suggest that the best adapted plan for the waterway includes that degree of flexibility.

## Conclusion

American Whitewater recognizes that the natural flow regime is the ecological ideal for streams, and we often support its restoration. On many projects, run-of-river operations are consistent with the operation of the project, support existing and potential recreational uses, produce reasonably profitable power generation, and can widely be viewed as the best-adapted plan for rivers regulated by existing hydropower dams. We are not certain that this is the case on the Green River. True run-of-river operations may render the project uneconomical. If this is the case, we ask that FERC fully consider other operating regimes, as well as the decommissioning and removal of the project works as an alternative.

Our analysis of the flow regime revealed that the VANR might be operating under the false assumption that the Green River is managed as a peaking project. This flaw triggered a natural response to curb what is perceived as a deleterious operating regime. We have determined that the project is not a true peaking project, and that none of the evidence VANR cites indicates there will be any significant ecological benefit from transitioning from a modified run-of-river project to a true run-of-river project. The impacts of this action, however, would be numerous and largely predictable.

We ask that FERC and VANR consider the data and constructive analysis we have presented in these comments, and carefully weigh what the best adapted plan for the waterway is, and how to best meet the diverse goals of the state. We feel that whitewater recreation is fully consistent with the best adapted plan and state goals and standards, and that river recreation should be enhanced moving forward. We ask that any prescriptions be based on sound science, with a clear nexus between the facts found and the decisions made, and that river paddling be protected and enhanced as a beneficial use of the Green River. We ask that both FERC and the resource agencies consider these constructive comments and modify their recommendations accordingly.

Thank you for considering these interests and requests,

Respectfully submitted,

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**UNITED STATES OF AMERICA**  
**BEFORE THE**  
**FEDERAL ENERGY REGULATORY COMMISSION**

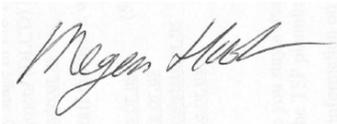
**Morrisville Water and Light  
Morrisville Project  
Green River Development**

**Project No. 2629**

**CERTIFICATE OF SERVICE**

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, I hereby certify that I have this day caused the foregoing **American Whitewater and Vermont Paddler Club's Response to Comments, Recommendations and Prescriptions Filed by the Vermont Agency of Natural Resources in Response to FERC's Notice of Application Ready for Environmental Analysis (P-2629)** to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 3rd day of February 2014.



Megan Hooker  
American Whitewater