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September 30, 2016

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

RE: Wilder, Bellows Falls, and Vernon Hydroelectric Projects (FERC P-1892, P-1855, & P-1904)
Comments on Updated Study Report Filings

Dear Secretary Bose,

The Vermont Agency of Natural Resources (Agency) herein provides comments on the updated study report filings by TransCanada Hydro Northeast, Inc. (TransCanada) for the Wilder (FERC No. 1892), Bellows Falls (FERC No. 1855), and Vernon (FERC No. 1904) hydroelectric projects.

TransCanada filed updated study reports with the Federal Energy Regulatory Commission (FERC) for the lower Connecticut River hydroelectric projects on June 17, 2016 and August 1, 2016. Each filing was followed by an updated study report meeting, held on July 15, 2016 and August 25, 2016, respectively. A summary of each meeting was filed on August 1, 2016 and August 31, 2016. After review of the filings and participation in the meetings, the Agency offers the following comments on the updated study reports. In order to fulfill the goals of the revised study plan and provide information necessary to make future decisions on operations of the hydroelectric projects, the Agency requests that additional analysis be performed on the existing data collected for several studies presented in the above referenced filings.

Comments on Study Reports

Studies 2 & 3 – Riverbank Transect and Riverbank Erosion Study

General Comment: The goal of these studies were to monitor erosion at selected sites in the project affected area to determine the location of erosion and compare these locations with previously compiled erosion maps, assess and characterize the process of erosion, to ascertain the likely causes of erosion, and identify the effects of erosion on other resources.

The study did a complete and thoroughly document the presence erosion over a large geographic area, as well as repeat surveying at 21 monitoring transects, and in general characterizing the processes of erosion that potentially contribute to erosion in the project affected area. However, the study was not able to meet the goal of ascertaining the likely causes of erosion in the project affected area. The Agency acknowledges erosion is a natural process, and that erosional processes may act in concert with one another. Additionally, the causal agent of erosion likely varies on temporal and spatial scales, and likely operates on a time scale greater than two years, as acknowledged in the study report. The concern is by the study not meeting the goal of ascertaining the likely cause of erosion, the Agency is not able to determine whether the rate of erosion in the project affected area is being accelerated by project operations which could potentially impact water quality and other aquatic resources.

The study employed several methods for monitoring and analyzing erosion over a wide geographic area for the limited time of two years. Whether the methods or analysis employed by the study are adequate in identifying the likely

causal agent of erosion at a particular site should be determined. If the methods, analysis or limited time period study are deemed to not provide the necessary information to meet this goal, the Agency recommends that discussion be added to the report identifying the methods and the time need to ascertain the likely causes of erosion at particular sites in the project affected area.

General Comment: The study report indicates that analysis would use outputs from the hydraulic model (Study 4) to provide information on flow velocity, water surface elevation, and shear stress impacting the riverbanks in the project affected area. However, the study report only presents information and discussion on the analysis for the water surface elevation, and not on velocity or shear stress which are provided in an appendix without discussion. Additionally, the study report does not use a correlation analysis to assess project affects as stated in the September 13, 2013 revised study plan for Study 2.

The study report discusses in some depth the importance of shear stress and how slight increases or small decreases can lead to bank erosion at sites susceptible to erosion. The omission of the analysis and discussion for shear stress from the study report seems inappropriate given its potential importance in the erosion process. The Agency recommends that the shear stress and velocity analysis and how these variables are affected by project operations based on information provided by the hydraulic model be presented and discussed in the study report as described in the revised study plan.

Section 5.4.2 Repeat Monitoring – The sections states that, “Normal project operations result in daily or sub-daily fluctuating water levels. At many sites, the position of those daily fluctuations on the bank aligns with the location of notching at the base of the bank (Figure 5.4.2-6 and Appendix A).”

- Comment: The Executive Summary states that, “Bank erosion in the study area is a cyclic process that begins with the formation of notches and overhangs at the base of the bank.” The formation of a notch at the base of the bank was observed at about half of the 21 monitor sites over the course of the study which coincided with the range of water level fluctuation from normal project operations. This daily to sub daily change in water level on the bank seemly would cause changes in the pressure on the bank resulting has the potential to accelerate the erosional process at these particular sites?
- The Agency recommends that further assessment be conducted on the sites where notching occurred at the normal operating level by evaluating existing data, including but not limited to sediment layer of the bank to provide more information on causation of the erosion.

Section 5.6.5a Spatial Variations in Erosion – On page 98 of this section, the report states, “A number of other similar analyses comparing erosion with potential causal factors are possible with the GIS data provided in Appendix C such as determining if erosion preferentially occurs upstream of valley constrictions, adjacent to tributary confluences, near sites of bank armoring, where changes in water-surface slope are greatest, or where shear stress is highest. However, a complete and exhaustive analysis of all possible relationships was beyond the scope of this study.”

- Comment: The Agency disagrees that analyzing the potential causal factor for erosion is beyond the scope of this study, in fact it is an objective of the study. The Agency is not asking for a complete and exhaustive analysis, however several causal factors specified in the revised study plan are not addressed in the report. The study goals as stated in the revised study plan, dated September 13, 2013, for study 2 and 3 indicates that shear stress would be analyzed and additionally the plan for study 3 states, HEC-RAS one-dimensional (1-D) hydraulic modeling is being completed of the entire study area as part of the Hydraulic Modeling Study (Study 4). HEC-RAS modeling will provide information on flow stage, velocity, and shear stress, important factors in the erosion process. The FERC study request for a riverbank erosion study specifically requests that “bank shear assessments” be completed to compare different sites for their susceptibility to erosion, a request that will be the focus of the Riverbank Transect Study (Study 2).”
- Request: The Agency requests that all analysis that were identified in the Revised Study Plan be completed. Including the use of correlation analysis methods and additionally the use of data from the River 2D reaches of river (Study 9).

Section 5.8 Hydraulic and Operations Modeling – This sections states that, “For Study 2, the hydraulic modeling data were used to establish the WSEs for flows of varying magnitude at each of the 21 monitoring sites (Appendix A).”

- Comment: The methods section of the study report (Pg. 5) indicated that this analysis would include flow velocity and shear stress. It is unclear from this section whether a thorough analysis for velocities and shear stress were performed at the 21 monitoring sites.
- Request: If the analysis was not completed as part of the initial study, the Agency request that it be completed and presented in a revised study report.

Study 4 – Hydraulic Modeling Study

The report states, “Calibration was conducted across a range of flows over a period of about 5 to 7 days in 2014 for one typical operations event and one spill event.”

- Comment: Please describe what was considered “typical” operations for the purposes of model calibration. Were specific criteria assessed or was the assessment more subjective in nature? If the former, please describe the criteria. If the latter, please narratively describe the characteristics of “typical” operations.

Study 5 – Operations Modeling Study

General Comment: TransCanada had previously presented data supporting the selection of the five modeled hydrologic years and calibration data to the aquatics working group, but inclusion of that information in the report would help to provide context to the results.

- Request: Please include prior consultation describing calibration and support for selecting the five hydrologic years as an appendix.

Section 4.1 Model Development – The report states, “Update econode Habitat Suitability Index (HSI) rating curves (function of flow and/or elevation) defined in Study 9 – Instream Flow Study.”

- Comment: Please clarify whether this statement refers to traditional rating curves (stage vs. flow) at the study 9 transects or curves that relate flow to habitat suitability (HSI vs. flow).

Study 6 – Water Quality Monitoring Study

The Revised Study Plan (RSP) notes that the Water Quality study was requested by stakeholders “to determine the operational effects of the Wilder, Bellows Falls, and Vernon Projects on water quality”. The stated goal of the study is “to determine potential project effects on water quality parameters of: dissolved oxygen (DO), water temperature, pH, turbidity, conductivity, nutrients, and chlorophyll-a”. The project nexus section states, “[t]his study will provide information on how the project operations may affect water quality within the impoundments and tailraces.” The analysis section of the RSP specifically states, “[w]ater quality results from this study, as well as incidental data collected during other aquatic studies, will be graphically compared to both state water quality standards and project operations, including hourly generation, impoundment elevation, discharge and associated water-level changes in riverine reaches”. Further, the analysis section of the RSP states, “The possible effects of different flow and weather conditions during the different days that the weekly reservoir profiles are conducted will also be analyzed.”

General Comments: A primary goal of the study is “to determine potential project effects on water quality parameters”. The Agency had commented previously that due to the peaking nature of the projects, water quality parameters must be analyzed in the context of operations, such as generation and discharge, in order to determine the effects of the project on water quality. While the Agency appreciates the addition of monthly graphs with project discharge included in Appendix F, the Agency notes this may not fully meet the analysis methods included in the study plan, which states, “water quality results from this study... will be graphically compared to both state water quality standards and project operations, including hourly generation, impoundment elevation, discharge and associated water-level changes in riverine reaches”.

The Agency also notes that meaningful analysis and discussion of water quality parameters in the context of project operations (generation, impoundment elevation, discharge and associated water-level changes) is lacking from the report. The report continues to combine differing operational conditions by using daily or weekly mean values. Presentation and analysis in such a manner allows inferences to be drawn regarding water quality parameters over

time, but not in regards to project effects. In its response to comments on March 1, 2016 filing, TC noted, “we note that the data are affected by a range of variables beyond project operations (local weather patterns, tributary inflows, etc.) which we will also include to the extent that information is available”. While the Agency acknowledges that water quality is influenced by many factors, analyzing the data on shorter timeframes (sub-daily) or in comparison to changes in project operation may help to exclude the influence of confounding factors. For parameters in which the standards are discrete instantaneous values (e.g dissolved oxygen), if there are not exceedances of the Standard, analysis in the context of project operations may not be necessary. However, for a parameter like temperature in which the standard is determined by the degree of departure from ambient temperature, analysis of the water quality parameter in the context of project operations is critical to determine project effects and compliance with water quality standards.

In issuing a water quality certification for the projects, the Agency must determine that the discharge or activity complies with Vermont Water Quality Standards. In the case of the lower Connecticut River hydroelectric projects, the activity is energy generation, with discharge occurring in the tailrace. In order to make a determination regarding compliance of the activity with water quality standards, water quality parameters must be evaluated in a manner that do not combine modes of operations (minimum flow and generation), but rather analyze these distinct modes of operations comparatively.

- Request: Consistent with the revised study plan, please analyze hourly generation, impoundment elevation, discharge and associated water-level changes on relevant water quality parameters” in order “to determine potential project effects on water quality parameters”.

The Executive Summary states, “All applicable Vermont and New Hampshire surface water quality standards were met, with the exception of the upper limit for pH (VT and NH) and temperature (VT only). However, exceedances were not associated with project operations; they were instead attributable to natural conditions (low flow, high air temperature) or potential nutrient loading from sources outside the projects”.

- Comment: The applicable temperature standard for cold water fish habitat in Vermont is “change or rate of change either upward or downward, shall not exceed 1°F (0.56°C) from ambient temperatures due to all discharges and activities and be controlled to ensure full support of aquatic biota, wildlife, and aquatic habitat uses”. Without an analysis of how project operations (the activity) affect ambient temperature, compliance with the temperature standard cannot be determined and the potential effect of the project operation cannot be ascertained.

5.1 Weather, Flow, and Operations –

- Comment: The Agency notes that project operations are not discussed in this section.

Study 13 – Tributary and Backwater Area Fish Access and Habitats Study

General Comment: For the purposes of this study depths > 0.5 feet were assumed to provide adequate access for fish to enter into tributaries and backwaters from the mainstem river or vice versa. However, it should be noted that recently published Federal guidelines for nature-like fishways require a minimum channel depth of 1.5 feet, 2.5 feet and 1.75 feet for rainbow smelt, brook trout and juvenile salmonids respectively (Turek et al. 2016). Therefore, the defined 0.5 feet criteria should be considered a very liberal estimate, particularly when combined with the criterion of 50% of time.

Section 6.1.2 (Page 46) - The report states, “This revised report includes the requested evaluation of study sites during the spring spawning period to identify periods of time with < 0.5 ft of water depth for one hour or more (the minimum model time step) as well as for 12 hours or more as originally proposed. The 12-hour criterion was retained simply to create a breakpoint for analysis purposes, but is also considered reasonable for quantifying adverse project effects as fish approaching from the mainstem would have adequate access under this criterion for no less than 50% of the total time on any un-flagged date while the < 0.5 ft of access at any time is considered the most conservative condition.”

- Comment: The Agency disagrees with the statement that the 12-hour criterion is reasonable for quantifying adverse project effects. Limited access for 50% of the time to tributaries and backwaters for fish that are making spawning migrations can have substantial impacts to spawning success due to delays, behavioral

avoidance and potential stranding. While the study concludes “Analysis based on summer/fall 2014 observations and water level logger data, and based on hydraulic and operations model (Studies 4 and 5) data for spring time (April 1 – June 30) indicate that normal project operations have little to no effect on fish ability to access tributaries on most days”, Table 6.1.2-3. Indicates that over 40% of the sites “frequently” had water depths less than 0.5 feet. This represents a substantial portion of the sites that have access issues during a time when fish are making spawning migrations into these tributaries.

Section 7.0 (Page 55) - The report states, “While some study sites showed occasional or frequent project effects, these sites comprise a small fraction of all available fish habitat in tributaries and backwaters within the basin”.

- Comment: This statement should be revised as it is an inaccurate representation of study conclusions and overall sample design. The study design was to randomly select a subset of streams of various stream orders within the project area. These sample streams aimed to represent the population of streams that could be affected by project operations. Considering the biological importance of low order streams which provide valuable spawning and rearing habitat and the fact that 40% of these sites (at the 100% criterion) had frequent project-related access issues is of concern to the Agency. This represents a substantial impact when evaluating the total number of streams that likely have project related access issues. For example, and as indicated in Table 7.0-1., stream orders 0-3 represent 73% of the available tributaries.

Study 14/15 – Resident Fish Spawning in Impoundments and Riverine Sections

General Comment: In earlier correspondence The Agency recommended that TransCanada develop a sampling plan that would involve sampling earlier in the season and target species where no or limited spawning data was collected (walleye, white sucker, largemouth bass, black crappie, northern pike, chain pickerel, spottail shiner, and golden shiner). The request was not adopted as it was suggested that the information collected during studies 14 and 15, combined with existing literature and other project-specific information collected in others studies that describe habitat, water level fluctuations, and water surface elevations at likely spawning sites for these species, will be adequate to describe project effects and inform the development of license conditions.

- Request: As such, we recommend that additional analysis consistent with the above recommendation and utilizing the information collected during studies 14 and 15, combined with existing literature and other project-specific information collected in others studies that describe habitat, water level fluctuations, and water surface elevations at likely spawning sites for these species be included in the report.

Section 4.2.3 (Page 32) - The report states “Repeated backwater surveys indicated that Yellow Perch fry had hatched and egg masses were no longer present in the Bellows Falls backwater habitats by May 12, and Wilder backwaters appeared devoid of egg masses by May 14. Consequently, the estimated duration of incubating perch egg masses was truncated on May 15 for all study sites”.

- Comment: This approach is not consistent with the methodology of utilizing temperatures to determine when fry would hatch, nor was this approach included in the previous version of the report (March 1, 2016 filing). While it may be possible that fry hatched earlier than predicted at some locations, it is also just as likely that fry hatched later than predicted due to variability when analyzing regression relationships ($R^2=0.79$ for yellow perch, and $R^2=0.86$ for fallfish). Moreover, these are samples aimed to represent a population of egg masses, unless analysis occurs as to determine the probability of fry hatching earlier or later than the predicted relationships, results will inevitably underestimate project-related dewatering events.
- Request: Therefore, we recommend that the original temperature-egg incubation relationship be used to estimate the length of time an observed Yellow Perch egg mass persisted at a particular location.

Section 4.2.3 (Page 33)

- Comment: Based on descriptions on page 33, it is not clear if the data was analyzed according to the literature or site observations. Please clarify. For example, nests containing fry were assumed to remain active for an additional 20 days following the first observation of fry. However, Table 4.2-1. indicates that fry presence was observed up to 26 days. If site observations were made to make these assumptions, then we recommend that the maximum number of days be the assumption, especially considering the low sample size of some life-stages.

Section 5.2.4 (Page 58) – The report estimates the percentage mortality of Yellow Perch egg masses observed in shallow margins of backwater habitats vulnerable to project effects ranged from 0% in the VB-050 backwater to 99.9% in the BB-019 (Black River) backwater (Figure 5.2-6), with an average overall mortality rate of 56%.

- Comment: The Agency requested that the proportion of the total number of egg masses that were subject to dewatering be presented in the report. Based on Figure 5.2-6 the total proportion of yellow perch egg masses that were vulnerable to dewatering was 69% (566/819). For sunfish nests 23% (28/120) were subject to dewatering or nest abandonment. These proportions should be included in the report.

Section 5.3.6 (Page 74) “Because Fallfish lay their eggs at the level of the streambed prior to covering them with the mound of rocks (Reed, 1971; Magee, 1989; Maurakis & Woolcott, 1992), Fallfish nest elevations were measured at the base of the nest mound, and any WSEs that maintained at least 0.5 ft of depth at the base of the mound was considered to be fully protective of the eggs and larvae”.

- Comment: In prior comments, the Agency recommended that the WSE be compared to the top of the nest mound rather than the base, as the literature suggests that the nest must be inundated to provide adequate aeration for developing larvae. The report should acknowledge that the 0.5 foot criteria is not based on reported literature. Considering fallfish nests are fully inundated at the time of construction, this analytical approach likely underestimates project-related effects.

Section 6.1.1 (Page 112) - The report states, “Using highly conservative assumptions, the 2015 egg mass and water level logger WSE data suggests that on average as much as 56% of perch eggs may have been dewatered”.

- Comment: See previous comment. The Agency’s analysis indicates that 69% of yellow perch eggs masses were vulnerable to dewatering. This section should be revised accordingly.

Section 7.0 (Page 128) - The report states, “consequently the population of Yellow Perch does not appear to be adversely affected by either normal project operations or high flow operations”.

- Comment: Unless this statement is evaluated in the context of instantaneous run of river operations (i.e. control), which would shed light on how the species performs in the absence of project-related flow fluctuations this conclusion is pure speculation. As such, we recommend it be removed from the report.

Study 16 – Sea Lamprey Spawning Assessment

General Comment: The report describes severity of project effects by breaking project impacts into three categories ‘no project effects, moderate project effects and project effects. Moderate project effects are defined as such because at least one nest elevation was continuously inundated. We disagree with this categorization as it underestimates project effects. As such we request that “moderate”, and “project effects” be combined or tabulated separately in total to accurately reflect that 81% (13/16) of the sites were affected by the project.

Executive Summary (Page ES-2) – The report states, “only the most vulnerable habitats were surveyed, but it is likely that Sea Lamprey also spawned in relatively deep water, despite literature suggesting that spawning occurs at shallow depths”.

- Comment: Given this statement is not supported by the literature, based on the observations obtained from this study, please provide the proportion of deep (>5 feet) lamprey spawning sites that were observed. If this statement can’t be supported by the literature or observations from the study, the Agency requests that the statement be removed.

Section 4.5 (Page 22) - Water level loggers were only deployed where nest capping occurred (3 sites). For the remainder of the sites, logger data from studies 14 and 15 were used as a substitute.

- Comment: As stated in earlier correspondence we feel that utilizing data from pressure transducers that are miles away may not be representative of site conditions. As such, we request that in such cases analysis occur utilizing 2015 modeled data. This type of analysis may provide more accurate results.

Table 5.2-3 (Page 55)

- Request: Please include minimum and maximum durations (hours) to better understand nest exposure times and biological impacts from such events.

Table 6.1 (Page 86) The report states, “Mortality was less than 7 percent for exposure periods of less than 24 hours (based on lab study). For nests in this study that experienced exposure, the average period of exposure at each site was no more than 11 hours based on 2015 level logger data and, except for one specific nest elevation at Site 16- BT-003, less than 24 hours for all model years”.

- Comment: Presenting average exposure time does not adequately describe the biological impacts from such events. Analysis should include the proportion of nests that were exposed for a time period greater than 24 hours. It should also be noted that laboratory experiments are conducted in controlled environments and are not always comparable to field studies. For example, and as stated in the report, “exposure of a nest that is occupied may result in a detrimental effect, such as prevention of access by adults during active nest construction and spawning, abandonment of nest construction or spawning, egg mortality due to desiccation or unsuitable water quality (such as when water in an exposed nest warms quickly), and mortality of ammocoetes”. We recommend that increased risk of predation be included as potential impact. These additional impacts cannot be accounted for in a laboratory setting.

Comments from Other Resource Agencies – The Agency concurs with the comments and recommendations of the United States Fish and Wildlife Service filed on September 30, 2016 regarding the Sea Lamprey Spawning Assessment.

Study 21 – American Shad Telemetry Study

As outlined in the Revised Study Plan, the goals of this study are to characterize effects, if any, of project operations on behavior, approach routes, passage success, survival, and residency time by adult American shad as they move through the Vernon Project during both upstream and downstream migrations; and characterize whether project operations affect American shad spawning site use and availability, spawning habitat quantity and quality, and spawning activity in the river reaches from downstream of Vernon dam to the Bellows Falls Project.

General Comment: The analysis was not carried out in a manner that would allow the goals of the study to be met. The analysis to characterize behavior, approach routes, passage success, survival and residency time by adult American shad in the context of project operations is simplistic and does not adequately inform the Agency of the role and interplay between changing variables including operational turbine discharge, turbines used, spill (ranging), diel period (AWS set on/off – operational), on ladder attraction, entry attempts, and subsequent passage and later downstream route, residency (delay), and survival/fate.

Comments from Other Resource Agencies – The Agency concurs with the United States Fish and Wildlife Service regarding comments, recommendations, and request for additional analysis for the American shad telemetry study.

Study 25 – Dragonfly and Damselfly Inventory and Assessment

General Comment: The goal of this study was to conduct a baseline inventory and habitat assessment, collect data on the emergence and eclosion behavior of odonates in the project area, and review information on the life history, ecology, and behavior of odonates in order to assess potential project effects. While the study report analyzed the effects of project operations through water-level fluctuations on habitat availability and the potential for direct mortality from rapidly rising water from project operations, it does not analyze species differences in vertical and horizontal distance from the edge of water with water level fluctuation observed at each site. Completion of this analysis would provide information on the potential vulnerability of a species to water level fluctuation from project operations. Additionally, the analysis may potentially provide further information on the presences, absence or low abundance of a species at a site. The Agency recommend that range of vertical and horizontal distance travelled by each species be analyzed in the report.

Section 4.4 Field Surveys – The report and datasheet state that, “For each specimen identified, species, life stage (larva, eclosing, exuvia, or teneral), surface the specimen was found on, and vertical and horizontal distance from the observed water line were collected.”

- Comment: The report does not present information related to the surface or substrate that the specimens were found on and whether the substrate used by species differed.
- Request: The Agency request that this information be presented and analyzed in the report.

Section 4.5 Habitat Assessment – The reports states, “For each transect, the following habitat characteristics were estimated: bank height, steepness, and relative stability; percentage of the bank consisting of bare substrate, vegetation, and other cover; and percent canopy cover.”

- Comment: The habitat data is not presented in the report. The study evaluates the potential project effects of project operations on habitat, yet it does not provide a summary of habitat parameters measured in the study.
Request: The Agency request this information be included in the report.

Section 5.3 Habitat and Eclosion Behavior – The section presents species information on the vertical distance traveled, and a limited comparison to other odonate species.

- Comment: The Agency recommends that a comparison of the vertical distance traveled from the water surface between species should be present graphically, preferably in a box plot.

Section 5.3 Habitat and Eclosion Behavior - The final paragraph of this section states, “Although horizontal distance of exuviae from the water surface was measured in the field, it was found to be of limited use. Because of the non-uniform nature of the bank profiles and the non-linear path frequently observed for emerging larvae, the actual horizontal distance travelled could not be determined unless the individual was tracked from emergence from the water to its eclosion location.”

- Comment: The Agency agrees that it is not possible to know the exact horizontal distance an individual traveled during emergence do to the reasons listed in the report. However, the distance travelled for some odonate species has been recorded by other studies (Morrison et al. 2006; Martin 2007; Martin 2010).
- Request: A comparison to observed horizontal distance travel for odonate species to the distances recorded by other studies should be conducted.

Section 6.1 Habitat Inundation – The report states, “Appropriate habitat for odonates consists of fine aquatic substrates (sand and silt) for larvae with nearby steep, sparsely vegetated banks for eclosion. There is potential for habitat needed during the critical emergence period to be unavailable when the entire bank height becomes inundated.”

- Comment: The report only generally defines the ‘appropriate habitat’ and does not provide a quantitative measure to determine how the maximum and minimum elevations of habitat were determined for the inundation analysis. Additionally, in Section 5.3 the reports states that “Transects with few or no odonate observations were widely variable in all habitat characteristics and no consistent trends were found. No specific habitat characteristic appeared to be a good predictor of odonate abundance” If habitat was not determined to be a good predictor of odonate abundance, is it the appropriate variable to assess in terms of the project effects on odonates?
- Request: The Agency request that additional information be provided on how the minimum and maximum elevation of available habitat were defined and why habitat was used to assess project effects. Additionally, the Agency requests additional analysis of how other variables collected during the field study, such as substrate or vertical height of the species from the water are affected by project operations.

Study 26 – Cobblestone and Puritan Tiger Beetle Survey

Section 6.2 Assessment of Project Effects on Adults – This section analyzed the effects of normal project operations on adult cobblestone tiger beetle habitat for the five model years as the percent of days the habitat range (maximum and minimum elevation) is inundated.

- Comment: The Agency recommends that the proportion of adult cobblestone tiger beetle habitat affected in general by project operations from the five model years be examined and included in the report.

Study 32 – Bellows Falls Aesthetic Flow Study

General Comment: The Agency appreciates the collection of additional field data that has been incorporated into the report consistent with the Revised Study Plan. The additional video provides valuable data to evaluate compliance with the Aesthetics management objectives and criteria of the Vermont Water Quality Standards. The Agency notes that dependent on the results of the instream flow study and pending a bypass flow proposal, it may be necessary to evaluate an additional flow for aesthetics at a later date, if the Agency could not make a positive finding in regards to aesthetics on each flow bracketing the proposed bypass flow.

Very truly yours,



Eric Davis
River Ecologist

c: Jeff Crocker, VTDEC
Lael Will, VTDFW
Owen Davis, NHDES
Gregg Comstock, NHDES
Gabe Gries, NHFG
John Warner, USFWS
Melissa Grader, USFWS
Ken Sprankle, CRC
David Deen, CRWC
Katie Kennedy, TNC
John Ragonese, TransCanada
Jennifer Griffin, TransCanada

Encl: Attachment A - Literature Cited

ATTACHMENT A
LITERATURE CITED

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