New Hampshire Department of Environmental Services Responses to Comments and Substantive and Minor Revisions Water Quality Certification No. 2022-FERC-002 Watson Dam Hydroelectric Project October 19, 2023

From September 8, 2023, to October 9, 2023, the New Hampshire Department of Environmental Services, Watershed Management Bureau (NHDES), posted for public comment a draft version of Water Quality Certification No. 2022-FERC-002 (Certification) for Watson Associate L.P.'s (Applicant) proposed relicensing of the Watson Dam Hydroelectric Project (Project) by the Federal Energy Regulatory Commission (FERC). The Project is located on the Cocheco River in the City of Dover. The Certification is required under 33 U.S. Code § 1341 (section 401 of the federal Clean Water Act) and NH RSA 485-A:12, III to provide reasonable assurance that discharges to surface waters that may result from the Project will comply with New Hampshire surface water quality standards, which are specified under <u>New Hampshire RSA 485-A:8</u> and <u>New Hampshire Code of Administrative Rule Chapter Env-Wq 1700</u> (Surface Water Quality Standards). In accordance with RSA 485-A:12, III, NHDES granted the Certification with conditions that are necessary to provide assurance that the Project will comply with applicable Surface Water Quality Standards.

During the public comment period, NHDES received comments from the City of Dover, the Applicant, and the Cocheo River Local Advisory Committee. NHDES lists the comments that NHDES received and provides responses to those comments. NHDES shows the comments it received by either quoting the comment, using quotation marks and italics font, or by paraphrasing a comment. In addition, if NHDES revised the Certification because of comments on the draft Certification, NHDES describes those revisions under each comment that is relevant to the revisions. At the end of this document, NHDES also describes other substantive and minor revisions that NHDES made to the Certification after the public comment period.

To obtain a copy of the comments that were submitted to NHDES or a marked-up version of the draft Certification showing all revisions to the Certification, please contact James Tilley, Supervisor of the NHDES Water Quality Certification Program, at (603) 271-0699 or james.w.tilley@des.nh.gov.

Responses To Comments

A. Comments from the City of Dover (City):

A.1. "Comment 1: Duckweed Accumulation, Impacts, and Mitigation or Prevention Measures

The Project's impoundment results in the accumulation of duckweed, known as Common duckweed or Lemna minor, particularly in hot summer months, when river flows are at their lowest. The United States Environmental Protection Agency notes the presence of a significant amount of duckweed in this area, and specifically 'several extremely slow moving mini- segments . . . near the Watson Road dam.' USEPA, NPDES Fact Sheet for City of Rochester, at 26-27 (quoting 2015 report), available at

<u>https://www3.epa.gov/region1/npdes/permits/2023/finalnh0100668permit.pdf</u>. The photograph below was taken from this same EPA Fact Sheet, which also notes that instream phosphorus in one sample period dropped significantly at monitoring stations just before and after the Watson Dam, "corresponding to pervasive duckweed growth found in this same location" and, to EPA, suggesting duckweed uptake in the impoundment area. NPDES Permit No. NH0100668 MFS20210820

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Duckweed has been shown to result in decreased dissolved oxygen and light penetration. See, e.g., J. Vymazal, Constructed Wetlands, Surface Flow, Encyclopedia of Ecology (2008). A 2007 NHDES article noted that '[t]hick mats of duckweed can shade pond bottoms and affect photosynthesis of submerged plants." A. Smagula and J. Connor, Aquatic Plants & Algae of New Hampshire's Lakes and Ponds, at 36 (NHDES 2007).

In short, the City of Dover's staff believes the duckweed condition adversely impacts aquatic life and habitat. The City of Dover considers the duckweed (or the degree of it) as an unnatural condition in this area with a direct nexus to the impoundment of water.

The City proposes that NHDES include an express condition, as part of Condition 9 in the draft WQC or as a stand-alone condition, requiring the Project's operator to undertake actions to address and prevent accumulation of duckweed, which may need to include regular surface cleaning of the impoundment area to address and prevent accumulation of duckweed."

NHDES Response: NHDES acknowledges and understands the City's concern about accumulation of duckweed in the impoundment of the Project. However, NHDES determined that a Certification condition to require the Project's operator to take actions to address and prevent the accumulation of duckweed is not necessary to provide assurance that the project will comply with Surface Water Quality Standards. NHDES's determination is based, in part, on EPA's conclusion that a reduction of phosphorus concentrations in the Cocheco River should result in reductions of duckweed growth in the impoundment of the Project, as described below.

The following definitions and Env-Wq 1700 - Surface Water Quality Standards are relevant to NHDES's response:

- Env-Wq 1702.15 defines "cultural eutrophication" as "the human-induced addition of wastes that contain nutrients to surface waters, resulting in excessive plant growth or a decrease in dissolved oxygen, or both."
- Env-Wq 1702.33 defines "nuisance species" as "any species of flora or fauna living in or near the water whose noxious characteristics or presence in sufficient number or mass prevent or interfere with a designated use of those surface waters."
- Env-Wq 1703.03(c)(1)d. specifies the following: "(c) Unless otherwise specifically allowed by a statute, rule, order, or permit, the following physical, chemical, and biological criteria shall apply to all surface waters: (1) All surface waters shall be free from substances in kind or quantity that: d. Result in the dominance of nuisance species."
- Env-Wq 1703.14(b) and (c) specify the following: "(b)Class B waters shall contain no
 phosphorus or nitrogen in such concentrations that would impair any existing or designated
 uses, unless naturally occurring; (c) Existing discharges containing phosphorus or nitrogen,
 or both, which encourage cultural eutrophication shall be treated to remove the nutrient(s)
 to ensure attainment and maintenance of water quality standards."

On March 20, 2023 the U.S. Environmental Protection Agency (EPA) issued National Pollutant Discharge Elimination System (NPDES) Permit No. NH0100668 to the City of Rochester to authorize discharges from Rochester's Wastewater Treatment Facility (Rochester's WWTF) to the Cocheco River.¹ Among other requirements, NPDES Permit No. NH0100668 limits discharges of total phosphorus from Rochester's WWTF to 0.12 milligrams per liter, based on a monthly average, from April 1 to October 31.

In EPA's response to comments that were submitted for a draft version of NPDES Permit No. NH0100668, EPA stated that discharges of phosphorus from Rochester's WWTF had reasonable potential to cause or contribute to a violation of New Hampshire's narrative phosphorus Surface Water Quality Standards (i.e., Env-Wq 1703.14(b) and (c)), primarily through cultural eutrophication. EPA's evaluation and conclusion was based, in part, on excessive duckweed growth and documented uptake of phosphorus in downstream areas suffering from pervasive duckweed growth. EPA asserted that discharges from Rochester's WWTF must be treated to remove phosphorus to ensure attainment and maintenance of relevant Surface Water Quality Standards. Although EPA referenced the Project's impoundment as an area that may be more sensitive to cultural eutrophication, EPA also asserted the following: "While reduction of phosphorus concentrations to an oligotrophic level would be ideal, smaller reductions from the current hypereutrophic conditions to merely eutrophic conditions should result in reductions of duckweed growth in the downstream segments of the Cocheco River and its impoundments."

EPA's decision to limit phosphorus discharges from Rochester's WWTF also recognized that a section of the Cocheco River, which is labelled as assessment unit identification number (AUID) NHRIV600030608-03, as impaired for dissolved oxygen saturation in New Hampshire's

¹ A copy of NPDES Permit No. NH0100668 and its attachments can be downloaded from the following EPA website, accessed October 13, 2023: <u>Rochester Wastewater Treatment Facility, Rochester, New Hampshire; Final Permit;</u> <u>NH0100668 (epa.gov)</u>.

2020/2022 "303(d) list", which EPA approved.² That section of the Cocheco River begins at the confluence of the Cocheco River and Isinglass River and ends approximately one mile upstream of this Project's dam. Based on the upstream extent of the Project's impoundment that FERC depicted in Figure 2 of its Environmental Assessment for relicensing of the Project, and data from NHDES's Environmental Monitoring Database, NHDES determined that the data that NHDES used to propose listing that section of the Cocheco River as impaired for dissolved oxygen saturation were from samples collected upstream of the Project's impoundment.³ In New Hampshire's 2020/2020 303(d) list, NHDES did not propose to list any other freshwater sections of the Cocheco River downstream of Rochester's WWTF as impaired for Surface Water Quality Standards of dissolved oxygen.

Duckweed, which is native to New Hampshire, may be considered a nuisance species as defined in Env-Wq 1702.33. The only paragraph that specifies Surface Water Quality Standards for a "nuisance species" is Env-Wq 1703.03(c)(1)d: surface waters must be free of substances in kind or quantity that result in the dominance of nuisance species. If duckweed growth results in its dominance in the Project's impoundment, then the growth may meet the definition of "nuisance species". However, EPA determined, and NHDES agrees, that phosphorus is the most likely substance that would cause that dominance and that a reduction in phosphorus concentrations in the Cocheco River should result in reductions of duckweed growth in the Project's impoundment. EPA expects, and NHDES agrees, that the impoundment of the Project will experience a reduction in phosphorus concentrations after the City of Rochester has complied with the total phosphorus limits of NPDES Permit No. NH0100668. If duckweed growth in the Project's impoundment is not reduced after a reduction in phosphorus concentrations, and NHDES determines that the Project is causing or contributing excessive duckweed growth that results in a violation of Surface Water Quality Standards at a magnitude, duration, and frequency that contributes to an impaired designated use, or is not protecting or maintaining an existing use, then Condition 12 of the Certification provides NHDES with the authority to require the Applicant to develop and implement a water quality improvement plan to address the violation.

Revisions Made: None

A.2. "Comment 2: Project's Flashboards, Emergency Action Plan, and Risks Posed to Surrounding Resources

Separate from the duckweed concerns, the City of Dover also calls attention to—and requests an express condition as part of the draft WQC—requiring several specific, express emergency preparedness measures.

Future flooding and public safety concerns grow more acute with the onset of climate change, which will or foreseeably could entail increased prevalence of flooding conditions. Climate changes have impacted (and will continue to impact) freshwater resources. As New Hampshire has seen just this year, with historic rainfall, climate change is having direct impacts and the

² The term "303(d) list" is an abbreviation for New Hampshire's list of impaired and threatened waters that states are required to submit to EPA for approval every two years in accordance with section 303(d) of the Clean Water Act. A copy of NHDES's 2020/2022 303(d) list can be downloaded from the following NHDES website, accessed October 13, 2023: <u>SWQA Publications | NH Department of Environmental Services</u>.

³ FERC Document Accession No. <u>20230628-3016</u> (FERC's Environmental Assessment for relicensing of the Project)

plans and measures of the past must continually be reevaluated to ensure efficacy and adequacy. As well, reduced snow-pack, increased severity and frequency of severe storms and heavy rain, each have increased risk potential to aged water infrastructure system, including dams. Surface water ecosystems and water quality are being impacted by increased runoff (decreases filtration and mobilizes surface water pollutants) resulting from heavy rains. Global warming and increased surface water temperatures are also impacting water quality which is apparent at Dover's dams.

Flooding related to the Watson dam does or will directly impact surrounding properties, wildlife, soils, erosion, recreation, aesthetics, and cultural resources in this area. Such a sudden release could or would be expected to also harm water quality by, for example, causing significant sediments to be released together with substances trapped in those sediments2.

Accordingly, the City of Dover respectfully requests that NHDES include an express condition, as part of Condition 9 in the draft WQC or as a stand-alone condition, requiring (i) the Project's operator to at least annually submit the Project's operations and maintenance plan and emergency preparedness plan for review, comment, and approval by NHDES, and including the City of Dover as part of that periodic review process,3 and (ii) periodic, scheduled emergency preparedness exercises, to include emergency response officials from the City of Dover."

NHDES Response: NHDES determined that it does not have the authority under RSA 485-A:12, III, to include conditions in the Certification relative to the Project's emergency preparedness. It is NHDES's understanding that FERC regulates emergency preparedness of hydroelectric facilities under 16 U.S. Code § 791a-825r, 42 U.S. Code § 7101-7352, and associated regulations under Code of Federal Regulations (CFR) Title 40 Part 12 – Safety of Water Power Projects and Project Works.⁴ NHDES recommends that the City contact FERC and the Applicant about its concerns regarding the Project's emergency preparedness.

Revisions Made: None

B. Comments from the Applicant

B.1. The Applicant responded to comments submitted by the City about duckweed (see Comment A.1, above). The Applicant disagreed with the City's assertion that NHDES should include a condition in the Certification that would require the Applicant to regularly address an accumulation of duckweed in the Project's impoundment. The Applicant stated that discharges of phosphorus from Rochester's WWTF and high temperatures results in duckweed growth in the Project's impoundment and upstream and downstream of the boundary of the Watson Hydroelectric Project.

NHDES Response: See NHDES's response to Comment A.1, above.

Revisions Made: None

B.2. The Applicant responded to comments submitted by the City about the Project's emergency preparedness (see Comment A.2, above). The Applicant disagreed with the City's assertion that

⁴ A copy of 40 CFR Part 12 may be downloaded from the following U.S. National Archives website, accessed October 13, 2023: <u>eCFR :: 18 CFR Part 12 -- Safety of Water Power Projects and Project Works</u>.

NHDES should include a condition in the Certification relative to the Project's emergency preparedness. The Applicant asserted that the City did not provide evidence that such a Certification condition is necessary, and that FERC regulates the Project's emergency preparedness.

NHDES Response: See NHDES's response to Comment A.2, above.

Revisions Made: None

B.3. The Applicant submitted the following comment relative to Condition 9.v. of the Certification:

"Passing 90% of river flow, until impoundment is refilled, hurts upstream more than it helps downstream. This was exactly the reason Cocheco Falls refilling section was changed. Large draw downs for maintenance typically are done during lowest flow times of the year, to enable the maintenance work. 90% refilling criteria hurts upstream habitat, more than is benefits downstream habitat."

NHDES Response: During consultation with the U.S. Fish and Wildlife Service (USFWS) and the New Hampshire Fish and Game Department (NHFGD) about this comment, NHDES determined that it should not modify the refill procedures specified in Condition 9.v. because those procedures are most protective, and necessary to protect, aquatic life and wildlife upstream and downstream of the Project. Condition 9.v. requires the Applicant to utilize only 10 percent of inflow to refill the Project's impoundment and release 90 percent of the inflow downstream of the Project (i.e., 90/10 refill ratio). During consultation with USFWS and NHFGD regarding refill procedures at the Cocheco Falls Hydroelectric Project, NHDES determined that a certification condition that would have required a 90/10 refill ratio for the Cocheco Falls Hydroelectric Project was not necessary because the Cocheco River downstream of that project is influenced by tides.

Revisions Made: None

C. Comments from the Cocheco River Local Advisory Committee

C.1. The Cocheco River Local Advisory Committee informed NHDES that it found no issues with the relicensing of the Project.

NHDES Response: NHDES appreciates the Cocheco River Local Advisory Committee's review of the draft Certification and its comment.

Revisions Made: None

Substantive Revision to the Certification

After the draft Certification was published for public comment, NHDES determined, in consultation with NHFGD, that it is not necessary at this time to require the Applicant to install a plunge pool at the downstream base of the Project's dam, which would have been required under Condition 14.ii of the draft Certification. NHDES added paragraph C-7 to the Certification to describe that consultation. Condition 14.ii would have required the Applicant to file with FERC a plunge pool construction and

design plan within two years of FERC's license reissuance, and construct the plunge pool so that it would be operational by June 1st of the third year of FERC's license reissuance. The purpose of the plunge pool is to prevent fish from impacting rock features when fish plunge from the 18-foot-wide spillway notch of the Project's dam to the Cocheco River below the dam.

However, NHDES also determined, in consultation with NHFGD, that circumstances of downstream fish passage may change during the term of the FERC license. NHDES determined that it is necessary to include a condition in the Certification to require the Applicant to install a plunge pool if NHDES and NHFGD determines that the Project is causing mortality or injury to fish at a magnitude, duration, and frequency that does provide for the protection and propagation of fish in accordance with Env-Wa 1703.01(c). Therefore, NHDES modified the condition to only require the Applicant to plan and construct a plunge pool at the Project if NHDES determines that Project is causing a violation of Env-Wq 1703.01(c).

NHDES also made editorial revisions to Condition 14 to clarify the requirements of the condition.

Additions and Revisions Made (shown in bold text font):

"C-7. On October 12, 2023, NHFGD informed NHDES that it determined that requiring the Applicant to install the plunge pool, as NHFGD described under Recommendation 3 in its August 15, 2023 letter to FERC (see paragraph C-6 of this certification), is not necessary at this time. However, NHFGD asserted that the plunge pool may be necessary at a later time if circumstances of downstream fish passage at the Project change."

"14. Fish Passage and Protection: The Applicant shall implement the following **items recommendations** for the project that USFWS described recommended for the Project in a letter that USFWS filed it-with FERC on October 19, 2022, as amended by a letter that USFWS filed with FERC on August 14, 2023; and as supported by NHFGD in an email that it sent to NHDES on July 17, 2023, and in letters that it filed with FERC on October 19, 2023, and August 15, 2023 (see paragraphs C-3, C-4, C-5, and C-6 of this certification):

- i. Trashrack Replacement;
- ii. Plunge Pool Alteration
- ii. Fishway Operation and Maintenance Plan;
- iii. Upstream American Eel Passage;
- iv. American Eel Passage Assessment; and
- v. Plunge Pool Alteration, subject to the following:
 - (1) The Applicant shall only implement this item if NHDES determines, in consultation with NHFGD, that circumstances of downstream fish passage at the Project have changed and the Project is causing mortality or injury to fish at a magnitude, duration, and frequency that does not provide for the protection and propagation of fish and results in a violation of Env-Wq 1703.01(c). NHDES shall notify the Applicant in writing of this determination and the Applicant shall implement the actions described under Recommendation 3 of NHFGD's August 15, 2023 letter. However, the Applicant shall file the plunge pool plan with FERC within two years of NHDES's notification, and the Applicant shall make the plunge pool operational by June 1 of the third year after NHDES's notification.

a. This condition is necessary to assure that the discharges from the proposed Project will comply with the Surface Water Quality Standards because the implementation of the recommendations would help protect, mitigate, and enhance fish and wildlife resources that are impacted by the Project and provide for adequate fish passage. Paragraph v. is an adaptive management condition necessary to assure that the proposed Project will comply with Env-Wq 1703.01(c) of the Surface Water Quality Standards.

Minor Revisions to the Certification

NHDES discovered a minor error in Condition 9.ii.(2) of the Certification. To address the error, NHDES deleted a portion of that condition, which does change the intent of the condition, as shown in the following text:

Condition 9.ii.(2): "From June 1 through November 15 in years when NHFGD stocks river herring upstream of the Project, and from August 15 through November 15 in years when NHFGD does not stock river herring upstream of the Project, the Applicant shall discharge a minimum of 20 cfs to the downstream fish passage facility **during years when NHFGD stocks river herring upstream of the Project's dam**."

In addition to the revisions noted above, NHDES made other minor revisions not considered substantiative to the Certification after the draft Certification was published for a public comment period. Examples include minor format revisions and removing the word "DRAFT" in the header and watermark.