



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE



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Damien Houlihan  
Chief, Stormwater and Construction Permits Section  
U.S. Environmental Protection Agency – Region 1  
5 Post Office Square – Suite 100  
Boston, Massachusetts 02109-3912

Dear Mr. Houlihan:

This letter constitutes a request from the U.S. Fish & Wildlife Service's North Atlantic-Appalachian Region (Service) for a permit modification to the Aquaculture General Permits (AQUAGP) pertinent to Dwight D. Eisenhower National Fish Hatchery, Nashua National Fish Hatchery, and White River National Fish Hatchery. Over the last several months, Service staff have met with staff from the U.S. Environmental Protection Agency – Region 1 (EPA) to discuss issues with implementing the new AQUAGP. The EPA staff advised that the most appropriate mechanism to make changes to the permit is through a permit modification request.

The specific aspects of the AQUAGP that are causing the greatest issues relate to formalin and hydrogen peroxide sampling requirements. These chemicals are used to treat fungus on eggs. We have researched alternative treatment options, but these chemicals are the only options available. These treatments are regulated by the Federal Drug Administration, which has only approved formalin and hydrogen peroxide for this purpose.

We believe that the current testing completed to date has demonstrated that samples are consistently well below the permit threshold. The testing for these two chemicals is quite rigorous and is resulting in staffing and operational challenges, therefore we are requesting a permit modification to reduce or eliminate the testing requirement for formalin (Dwight D. Eisenhower NFH & White River NFH) and hydrogen peroxide (Nashua NFH). More detail on the individual hatcheries and their treatments will be provided below under the heading for the specific treatment that they use.

### **Formalin Monitoring Requirement, Permit No. VTG130000**

- Dwight D. Eisenhower National Fish Hatchery – North Chittenden, VT
- White River National Fish Hatchery – Bethel, VT

The Dwight D. Eisenhower National Fish Hatchery and White River National Fish Hatchery seek a permit modification specific to the formalin testing requirement. Vermont General Permit No. VTG130000 currently requires one grab sample for formalin per discharge event. This is the most expensive, labor intensive, and burdensome test done at these units, and the documented outputs are well below permit limits. Additional information is summarized as follows:

- Chemical Used & Why: At Dwight D. Eisenhower NFH and White River NFH, formalin is used instead of Hydrogen Peroxide for these two units because it has been more reliable in variable conditions, is better suited for larger batches of eggs, is considered safer for the user, supply is more reliable and easier to locate and purchase in the quantities needed.
  - Specific Product Name(s) with Safety Data Sheet(s):
    - Dwight D. Eisenhower NFH: Parasite-S 37% Formaldehyde Solution, 13% Methanol Inhibited (see attachments for Safety Data Sheet)
    - White River NFH: Parasite-S 37% Formaldehyde Solution, 13% Methanol Inhibited (see attachments for Safety Data Sheet)
- Frequency, magnitude, duration, and method of application:
  - Over the course of the Fall/Winter season, egg treatments are vital in keeping eggs healthy and alive to support the hatchery's critical programs. These units start treating eggs mid-October and treat until early January, treating every other day during that time span.
  - The treatments are temporally very brief. These are generally 15-minute treatments that then dilute out over the course of the day with peak concentrations around 2-3 hours post treatment, depending on flows.
  - Both units use less than one 55-gallon drum of formalin per year.

At Dwight D. Eisenhower NFH the treatment is mainly eggs, where a 15-minute treatment of formalin is dispensed with a chicken waterer in the tank room. The formalin flows through an 8-tray heath stack unit. The formalin then continues through "B-series" 20 - 8' x 100' size rectangular raceway (~7,500 gallons per raceway) with an average depth of 15". The formalin makes its way to the final discharge line and mixes with outgoing "A series" brook water, then eventually out to Furnace Brook. In testing to date the unit has averaged a discharge level far below the AQUAGP permit thresholds, as testing by a licensed water analytical lab has shown an average .078 ppm or 78 ug/L in grab sample results. Furthermore, all formalin discharge samples taken for egg treatments this past season resulted in lower than allowable limits. These results have been substantially lower than the estimated discharge calculations, as well.

Though Dwight D. Eisenhower NFH showed levels of formalin far below the maximum daily limit of concern while treating eggs, staff were surprised to find elevated results during cleaning of the raceways. This is likely because the unit does not have a settling basin or effluent treatment system, something that will be rectified in a large-level modernization effort scheduled to take place FY24-26. The elevated levels during raceway cleaning were unexpected and staff are working on corrective actions to lower formalin concentration levels for future raceway cleanings. That said, the Service focuses its permit modification request on formalin testing during egg treatment and will continue to test for formalin levels during each raceway cleaning until resolved.

At White River NFH the treatment of eggs uses a 15-minute treatment of formalin dispensed by IV bottles. The treatment flows through the 16 tray egg incubation stacks and the 48 to 69 gallons per minute being treated is then discharged into the fish production water discharge of 1300+ gallons per minute. This diluted flow is further diluted as it drains into the settling pond

(approx. volume 1 million gallons) prior to discharge from the facility. The maximum recorded concentration in discharge was 420ug/L, far below the 4.6mg/L maximum daily limit of concern. The unit has had no formalin discharge samples approaching permitted allowable limits.

At both units the Service's goal has been to identify when peak discharges occur and what concentrations are observed with routine egg treatments and cleanings. The units had multiple samples done at intervals to capture peak discharge. Peak concentrations typically occur about 3 hours after treatment with routine flows. Various factors create natural variability in discharge concentrations, but sampled values are consistently below calculated expected values when treating eggs. The units concluded egg treatment for this cycle and will begin again next fall.

*Request* - The Service requests the following permit modifications in regard to formalin:

- Dwight D. Eisenhower NFH: Eliminate or significantly reduce permit requirement for formalin testing during treatment of eggs. Samples taken during egg treatment are far below the maximum daily limit of concern, and the frequency and cost of the testing is onerous. The unit will continue formalin testing whenever raceway cleanings occur, as detailed above, until corrective actions lower formalin levels during that specific activity (at which time the Service may request a further permit modification to eliminate or significantly reduce formalin testing requirements for raceway cleanings).
- White River NFH: Eliminate or significantly reduce formalin testing. Samples taken during egg treatment and cleanings are far below the maximum daily limit of concern.

### **Hydrogen Peroxide Monitoring Requirement, Permit No. NHG130000**

- Nashua National Fish Hatchery – Nashua, NH

The Nashua National Fish Hatchery seeks a permit modification specific to the hydrogen peroxide testing requirement. At present, New Hampshire General Permit No. NHG130000 requires that one grab sample for hydrogen peroxide per discharge event. This testing is burdensome for staff and the outputs are well below permit threshold limits. Additional information is summarized as follows:

- Chemical Used & Why: At Nashua NFH, hydrogen peroxide is used rather than formalin because Nashua NFH has smaller batches of eggs than Dwight D. Eisenhower NFH or White River NFH and require less hydrogen peroxide for treatment.
  - Specific Product Name(s) with Safety Data Sheet(s):
    - Hydrogen Peroxide 35% (see attachments for Safety Data Sheet)
- Frequency, magnitude, duration, and method of application for the chemical. Including any seasonal schedule of application.
  - Nashua NFH starts treating eggs in late November and treats until late January.
  - Discharging a few hundred milliliters over a 15-minute treatment of eggs does not show up in the effluent because Nashua NFH is discharging over 1500 GPM. To date all results have been well below the threshold, and most with a 0.0 result.

During landlocked Atlantic salmon egg incubation staff treat eggs with a 15-minute hydrogen peroxide drip flow-through treatment to reduce saprolegnia fungus on eggs, which results in

mortality. Treatment is done 5-6 days per week during specific developmental stages of Atlantic salmon egg incubation. Staff began testing for the presence of hydrogen peroxide in effluent discharge on December 16, 2021, and at no point was the permit threshold exceeded. Over the course of 20 samples dating from December 16, 2021, through January 19, 2022, the average was 0.395. Staff can/will further reduce the concentration of hydrogen peroxide in discharge by increasing water flow (GPM) during treatment, thereby increasing dilution factors.

*Request* - The Service requests the following permit modifications regarding hydrogen peroxide:

- Nashua NFH: Eliminate or significantly reduce the hydrogen peroxide testing requirement. Samples taken during egg treatment and cleanings are far below the maximum daily limit of concern and the frequency and impact of testing is burdensome.

Given the testing results to date and the impact these tests are having on Service staff and operations, the Service requests a permit modification to reduce or eliminate the testing requirement for formalin (Dwight D. Eisenhower NFH & White River NFH) and hydrogen peroxide (Nashua NFH). We are not currently seeking to include North Attleboro National Fish Hatchery in this amendment request, as that station has not used formalin in quite some time and uses very little hydrogen peroxide. If that changes in the future, we will coordinate with EPA on any changes needed in the AQUAGP.

We appreciate the technical support and strong collaboration with the EPA staff that have been assisting us with this issue.

If you have any questions, please contact Jeff Mast, at (413) 253-8402, or by electronic mail at [jeffrey\\_mast@fws.gov](mailto:jeffrey_mast@fws.gov).

Sincerely,

**RICHARD  
JACOBSON**  Digitally signed by  
RICHARD JACOBSON  
Date: 2022.03.23  
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Rick Jacobson  
Assistant Regional Director,  
Fish and Aquatic Conservation

Enclosures: Safety Data Sheets

cc: Hayley Franz, New Hampshire Department of Environmental Services  
Amy Polaczyk, Vermont Department of Environmental Conservation  
Cathy Vakalopoulos, Massachusetts Department of Environmental Protection  
Nathan Chien, U.S. Environmental Protection Agency – Region 1