

3/26/2025

The Leesville Lake Association appreciates the opportunity to provide public comment on the draft permit which would allow the continued operation of the Smith Mountain Hydroelectric Project in Bedford, Campbell, Franklin, Pittsylvania, and Roanoke Counties, Virginia. Draft Permit Name: Virginia Water Protection Permit 24-1547

Background

VWP Individual Permit Number 24-1547 must comply with Section 401 of the Clean Water Act, as amended by 33 USC section 1341, and the Virginia State Water Control Law and regulations. Specifically these are Virginia Administrative Code Title 9, Environment Agency 25, State Water Control Board Chapter 260, Water Quality Standards (9VAC25-260). Two sections of 9VAC25-260 are pertinent: 9VAC24-260-187 "Criteria for Man-Made Lakes and Reservoirs to Protect Aquatic Life and Recreational Designated Uses from the Impacts of Nutrients"; and 9VAC25-260-50 "Numerical Criteria for Dissolved Oxygen, pH, and Maximum Temperature".

9VAC25-260-187 specifically defines Smith Mountain Lake, and Leesville Reservoir as man made lakes and reservoirs, with Chlorophyll a criterion of 25 ug/L, and Total Phosphorous of 30 ug/L. Section 187 imposes no Dissolved Oxygen criteria.

9VAC25-260-50 defines Class III Non Tidal Waters (Coastal and Piedmont Zones), as having a Dissolved Oxygen criteria minimum of 4.0 mg/l, Daily Average 5.0mg/l, pH ranging from 6.0-9.0, and Maximum Temperature of 32 degrees C. It footnotes: "For a thermally stratified man-made lake or reservoir in Class III, IV, V, or VI waters that are listed in 9VAC25-260-187, these dissolved oxygen and pH criteria only apply to the epilimnion of the waterbody." Smith Mountain Lake and Leesville Reservoir are Class III waters.

Draft VWP Individual Permit No. 24-1547 Part I- Special Conditions, Section C – Standard Project Conditions, Number 12 (page 3 of 7 Part 1 in draft permit) states: "Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities pursuant to 9VAC25-260"

Draft VWP Individual Permit No. 24-1547 Part I- Special Conditions, Section D – Surface Water Withdrawals, Number 6 (page 4 of 7 Part 1 in draft permit) states: "The permittee shall operate the turbines at Smith Mountain dam from July 1st through September 30th in a fashion that will minimize or eliminate violations of water quality standards for dissolved oxygen in the tail waters below Smith Mountain Dam. During this time period, the permittee will dispatch the turbines with intakes that are highest in the water column first and take those offline last when generating."

Draft VWP Individual Permit No. 24-1547 Part I- Special Conditions, Section E Water Withdrawal Monitoring, Recordation and reporting Conditions, Number 1 (page 5 of 7 Part 1 in draft permit) states: "The permittee shall continue to consult with the Department on implementation of the resource management plans required under FERC Operating License P-2210, including the Water Management Plan and efforts on the improvement of Dissolved Oxygen levels in the tail waters below Smith Mountain Dam."

Draft VWP Individual Permit No. 24-1547 Part II – General Conditions, Section F – Duty to Provide Information (page 5 of 7 Part II in draft permit) states:”The Department (VDEQ) may request (i) such plans, specifications, and other pertinent information as may be necessary to determine the effect of an applicant’s discharge on the quality of State waters or (ii) such other information as may be necessary to accomplish the purposes of this chapter”.

Discussion

Smith Mountain Hydroelectric Project 2024 Annual Water Quality Monitoring Report, dated February 26, 2025, Tables 3.1, 3.2, 3.3, 3.4 show the numbers of days between mid July and mid October 2024 where the water quality standards were not met. Table 4.3 Annual Percentage of Time Instantaneous and Daily Average DO shows that the permittee has not met the dissolved oxygen standards between mid July and mid October over the past ten (10) years.

Year	% Time Instantaneous DO Standard Met (4.0mg/l)	% Time Daily Average DO Standard Met (5.0 mg/l)
2015	75%	83%
2016	87%	60%
2017	97%	48%
2018	60%	47%
2019	66%	37%
2020	69%	40%
2021	81%	60%
2022	76%	42%
2023	88%	57%
2024	75%	60%

What confidence does VDEQ have that the permittee is going to meet the standards over the period of performance of this draft permit?

Smith Mountain Hydroelectric Project 2024 Annual Water Quality Monitoring Report, dated February 26, 2025, Summary and Recommendations states “Continue to use the “first on, last off” operating protocol from July 1 to November 15.” VDEQ Individual Permit No. 24-1547 “Permit Decision Rationale (page 4 of 19) Table 1”Smith Mountain Intakes, Penstocks, and Unit Parameters

Shows: Smith Mountain Lake level at 795 feet

Penstock 1 – 655 feet - Pinstock 1 is 140 feet deep or 42.7 meters deep

Penstock 2 – 737 feet Pinstock 2 is 59 feet deep or 18 meters deep

Penstock 3 – 737 feet Pinstock 3 is 59 feet deep or 18 meters deep

Penstock 4 – 737 feet Pinstock 4 is 59 feet deep or 18 meters deep

Penstock 5 – 600 feet Pinstock 5 is 195 feet deep or 50.4 meters deep

Smith Mountain Hydroelectric Project 2024 Annual Water Quality Monitoring Report, dated February 26, 2025 oxygen curves at SML we see this with depth:

Dissolved oxygen is below 5 mg/L by 8 meters depth

Dissolved oxygen is between 2-3 mg/L by 18 meters depth

Dissolved oxygen is zero(anoxic) by 40 meters

“First on-Last Off” procedure at best yields 2-3 mg/l dissolved oxygen at the tailwater which does not meet the water quality standard. Certainly that is better than using Pinstocks 1 and 5 (0 mg/l Dissolved Oxygen), but it does not solve the issue. Is it a violation of 9VAC25-260-50 to discharge water from SML hypolimnion into epilimnion of Leesville Lake lowering the epilimnion of LVL waters below the 4 mg/L instantaneous dissolved oxygen threshold?

Smith Mountain Hydroelectric Project 2024 Annual Water Quality Monitoring Report, dated February 26, 2025, Summary and Recommendations states that APCo will “Continue to evaluate engineering measures that are feasible to enhance DO in the Project tailwater.” APCo conducted DO improvement studies from 2008 to 2023, and at the 2024 Water Quality TRC, April 13, 2024 stated that no further studies will be conducted for DO improvement. What confidence does VDEQ have that the permittee will meet the requirements of Draft Permit Part I Section E 1 Water Withdrawal Monitoring, and Part II F Duty to Provide Information to achieve improvement of DO in the tailwaters?

Draft VWP Individual Permit No. 24-1547 Part I- Special Conditions, Section C – Standard Project Conditions, Number 5 (page 2 of 7 Part 1 in draft permit) states “No activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half the width of the stream at any given time”. Debris , especially during high flow events, has often significantly impacted both navigation and safety on the lake. Under Draft Permit Part II F Duty to Provide Information, what confidence does VDEQ have that the permittee will meet the requirements of debris removal for safe navigation and channel blockage?

Recommendations

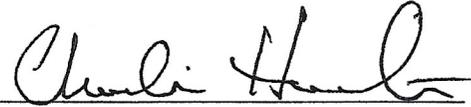
VDEQ should incorporate a time phased requirement for permittee to achieve year-round compliance of 4.0 mg/l instantaneous dissolved oxygen, and 5.0 mg/l daily average dissolved oxygen in order to meet Virginia state standards . VDEQ should describe penalties if those standards are. violated

VDEQ should mandate aggressive debris removal, reporting, and expeditious fielding of the Debris Diversion and Collection device at the Pigg River/Leesville Lake Confluence to the permittee in order to provide safe navigation of the lake.

Submitted:



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