

Enclosure 2

West Virginia 2018-2020-2022 Clean Water Act Section 303(D) List: EPA's Process for Identifying Additional Impaired Waters

Clean Water Act (CWA) Section 303(d), 33 U.S.C. § 1313(d), (Section 303(d)) requires each state to identify those waters within its jurisdiction for which effluent limitations required by CWA Section 301(b)(1)(A) and (B), 33 U.S.C. § 1311(b)(1)(A) and (B), are not stringent enough to implement any applicable water quality standard, to establish a priority ranking for such waters, and to submit a listing of such waters to the U.S. Environmental Protection Agency (EPA) (Section 303(d) list, or list).

On May 5, 2023, EPA received from the West Virginia Department of Environmental Protection (WVDEP) West Virginia's 2018-2020-2022 Section 303(d) list of water quality limited segments (WQLSs) (West Virginia's 2018-2020-2022 Section 303(d) list), as part of the Integrated Report submitted by WVDEP (submission) to meet the requirements of CWA Sections 303(d), 305(b), and 314; 33 U.S.C. § 1313(d), 1315(b), and 1324. As described in Enclosure 1, EPA has partially disapproved West Virginia's 2018-2020-2022 Section 303(d) list because WVDEP failed to provide a technical, science-based rationale for not using all existing and readily available water quality-related data and information, specifically, information related to whether certain waters are achieving West Virginia's narrative water quality criteria as applied to aquatic life (W. Va. CSR § 47-2-3.2(e) & (i)), when it developed West Virginia's 2018-2020-2022 Section 303(d) list. See 40 CFR 130.7(b)(5).^{1,2} As required by 40 CFR 130.7(d)(2), EPA has identified waters in addition to those on WVDEP's submittal that are not achieving West Virginia's water quality standards by evaluating and using this existing and readily available water quality related data and information.

In so doing, EPA utilized a methodology jointly developed by WVDEP and EPA biologists called the Genus Level Index of Most Probably Stream Status (GLIMPSS). Below is a description of the methodology and sources of data that EPA used to (1) assess the specific water quality data and information; and (2) determine whether/which waters were not attaining West Virginia's narrative water quality criteria as applied to aquatic life. Employing that methodology and evaluating and subsequently using this existing and readily available data, EPA is adding 346 WQLSs to West Virginia's Section 303(d) list. The waters that EPA is adding to West Virginia's Section 303(d) list are identified in Enclosure 3 to EPA's partial disapproval correspondence. EPA will issue a notice in the Federal Register that explains EPA's action and

¹ "EPA will evaluate whether a state, territory, or authorized tribe provides a technical, science-based rationale for decisions not to use data or information. See 2006 IR memo, at 37; *Sierra Club v. Leavitt*, 488 F.3d 904, 913-14 (11th Cir. 2007); *Potomac Riverkeeper, Inc. v. Wheeler*, 381 F. Supp. 3d 1, 14-18 (D.D.C. 2019), *aff'd*, 815 F. App'x 551 (D.C. Cir. 2020); *Center for Biological Diversity v. EPA*, 90 F. Supp. 3d 1177, 1211-12 (W.D. Wash. 2015); *Friends of the Wild Swan, Inc. v. US EPA*, 130 F. Supp. 2d 1184, 1193-94 (D. Mont. 1999)."

² To the extent WVDEP believes it did evaluate the genus-level data, WVDEP did not provide a technical, science-based rationale for not using that data for assessment purposes. See 40 CFR 130.7(b)(6)(iii)). Failure by a State to provide a technical, science-based rationale for a listing methodology, or for a decision to exclude data or information from consideration, may result in partial disapproval of the list for failure to include waters in Category 5, and potential additions of waters to the list by EPA. (Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) and 314 of the Clean Water Act).

the additional WQLS the EPA has identified as impaired. There will be a 30-day public comment period. Upon completion of the public comment period, EPA will review all comments and make revisions to the list of WQLS as appropriate.

West Virginia's Narrative Water Quality Criteria

West Virginia's narrative water quality criteria (W. Va. CSR § 47-2-3.2(e) & (i)) provide:

3.2. No sewage, industrial wastes or other wastes present in any of the waters of the state shall cause therein or materially contribute to any of the following conditions thereof:

* * *

3.2.e. Materials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life;

* * *

[and] 3.2.i. Any other condition, including radiological exposure, which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed.

WVDEP's Bioassessment Methodology and Use of Family-Level Data

Since publication of the West Virginia Stream Condition Index (WVSCI) in 2000, available biological data and science have progressed significantly. The number of available reference sites has increased, and the state of the science has shifted focus from family-level analysis to genus-level analysis. EPA's National Rivers and Streams Assessment³ and several neighboring states (KY, OH, PA, MD, TN) use genus-level assessment tools.

At the request of WVDEP, EPA worked with WVDEP to develop GLIMPSS to assess West Virginia's waters, finalized in 2011. GLIMPSS consists of seven stratum specific models (mountain/plateau and spring/summer) each with between eight and ten metrics. Generally, all metric values were converted to a standard 0 (worst) to 100 (best) point scale. The standardized metric scores were then averaged for each benthic sample site to come up with a final index score ranging from 0.0 to 100.0. Using the distribution of scores from all sites that are considered reference sites, a threshold score representing the 5th percentile of reference sites, was identified as the lowest GLIMPSS score that was considered as fully supportive of the narrative criteria as applied to aquatic life.⁴ This means that approximately 95 percent of all reference sites had a higher score. Setting a threshold as a percentile of the reference population corresponds to

³ Hyperlink: <https://www.epa.gov/national-aquatic-resource-surveys/nrsa>

⁴ As a general matter, the reference sites will have experienced some alteration and thus represent some degree of departure from truly natural conditions. To account for this, many states (Virginia for example) use 10th percentile of reference, or even the 25th percentile of reference. EPA agreed with WVDEP's use of the 5th percentile of reference because of the high quality and general confidence in West Virginia's reference samples as representative of a condition closer to natural conditions.

setting the acceptable significance of a hypothesis test (α), or the acceptable type 1 error rate (false positive), as the reference percentile. Use of the 5th percentile of reference sites is a more conservative approach (i.e., will identify fewer waters as impaired) than the approach taken by surrounding states, which set their thresholds at the 10th or even 25th percentile of reference. GLIMPSS was externally peer reviewed and published in the journal *Environmental Monitoring & Assessment* (May 2012)⁵.

GLIMPSS is a more robust index designed to provide a higher resolution assessment than the WVDEP's existing family-level index (WVSCI). In developing GLIMPSS, 41 different biological metrics were tested across seasonal and geographic strata, primarily to refine expectation criteria for a healthy aquatic community composition in West Virginia waters. GLIMPSS was initially developed using nearly 400 reference sites (as opposed to the 107 reference sites initially used for WVSCI). WVDEP has accumulated 21 years' worth of biological data sampled and identified using genus-level taxonomy with over 6,300 sites that have GLIMPSS (Pond, et al. 2011⁶) scores calculated. GLIMPSS responds favorably to various stressors, providing better diagnostic capabilities than the WVSCI. GLIMPSS is also a more accurate index due to the fact that it accounts for natural variability driven by geographic location, seasonality, and waterbody size.

EPA's Process for Identifying Additional Impaired Waters

EPA started identifying biological impairments by evaluating the biological data assembled by WVDEP for the CWA Section 305(b) portion of its final 2018-2020-2022 Integrated Report, which is described in Enclosure 1 of EPA's partial disapproval correspondence and WVDEP's official Integrated Report in ATTAINS.

EPA assessed the GLIMPSS data provided by WVDEP and determined impairment if the most recent score at any site in an assessment unit was less than the 5th percentile of reference condition. Since the first publication of GLIMPSS, as noted in Enclosure 1, WV has collected more reference site data and refined taxonomic information, incorporating it into their GLIMPSS index and derivation of the 5th percentile of reference condition. The final GLIMPSS scores provided to EPA reflect these updates. EPA separately reviewed these GLIMPSS updates and concluded that they reflect the best available science and result in the most accurate assessments.

Based upon EPA's evaluation and use of the genus-level data, EPA has identified 346 additional WQLSs for inclusion on West Virginia's Section 303(d) list (See Enclosure 3). (EPA identified the cause of these impairments as "Benthic Macroinvertebrate Bioassessment", consistent with the cause WVDEP uses to identify biologically impaired waters in ATTAINS.) EPA has also noted 27 waters that WVDEP included on its list as impaired using the methodology described in Enclosure 1 and in Section 5.4 of the IR, but that EPA would consider

⁵ Pond GJ, Bailey JE, Lowman BM, Whitman MJ. Calibration and validation of a regionally and seasonally stratified macroinvertebrate index for West Virginia Wadeable streams. *Environ Monit Assess.* 2013 Feb;185(2):1515-40. doi: 10.1007/s10661-012-2648-3. Epub 2012 May 13. PMID: 22580746.

⁶ Pond, G.J., J.E. Bailey, B. Lowman, and M. J. Whitman. 2011. The West Virginia GLIMPSS (genus-level index of most probable stream status): a benthic macroinvertebrate index of biotic integrity for West Virginia's Wadeable streams. West Virginia Department of Environmental Protection, Division of Water and Waste Management, Watershed Assessment Branch, Charleston, WV. DOI: 10.13140/RG.2.1.4536.3682

to be meeting applicable water quality standards based on genus-level data and the GLIMPSS methodology (See Enclosure 4).

EPA neither approves nor disapproves the substance of the states' priority ranking submittal and is under no obligation per 40 CFR 130.7(b)(4) or the CWA to include a priority ranking or schedule for stressor identification and TMDL development for waters identified to be added to a state's section 303(d) List. EPA expects WVDEP to incorporate the waters, if any, identified by EPA into its next priority ranking.

EPA will open a public comment period on these additions to West Virginia's Section 303(d) list and will, if appropriate, revise its identification of waters and pollutants to be added following consideration of any comments received. EPA's identification of waters to be added to WV's 2018-2020-2022 303(d) list may contain some waters that have previously been identified as impaired by WVDEP and have a Total Maximum Daily Load (TMDL) completed. If WVDEP or others believe the most probable stressors to the aquatic life in any waters are pollutants for which a TMDL already has been established, a justification that the TMDL already established will achieve water quality standards should be provided during EPA's public comment period.