



SUSQUEHANNA RIVER BASIN COMMISSION

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LOW FLOW PROTECTION POLICY (LFPP): SUMMARY OF MAJOR REVISIONS

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The proposed Low Flow Protection Policy (LFPP) has undergone an extensive interagency and public review process that has resulted in certain changes and adjustments. The policy development process and a summary of the major revisions in Commission staff's recommended final proposed Policy and Technical Guidance are described herein.

Background:

- Withdrawals from the waters of the Susquehanna River Basin are subject to review and approval by the Susquehanna River Basin Commission (the "Commission") under Section 3.10 of the Susquehanna River Basin Compact and under 18 CFR §806.4; and under 18 CFR §806.23, such withdrawals may be limited, conditioned, or denied to avoid significant adverse impacts, including adverse cumulative impacts to the water resources of the basin.
- In collaboration with the Commission's Water Resources Management Advisory Committee, resource agencies of its member jurisdictions and *The Nature Conservancy*, the Commission has developed a Low Flow Protection Policy (LFPP) and a companion document titled "Technical Guidance for Low Flow Protection Related to Withdrawal Approvals".
- The purpose of the LFPP is to provide implementation guidance to the Commission staff, project sponsors and the public on the criteria, methodology, and process used to evaluate water withdrawal applications with respect to protection of resources under low flow conditions. In accordance with 18 CFR §806.23, the LFPP will be used in concert with other tools to establish limitations or conditions on withdrawal approvals issued by the Commission to ensure that any flow alteration related to such withdrawals does not cause significant adverse impacts to the water resources of the basin, or to support a denial of any such application request where such standards cannot be met.
- The policy is grounded in contemporary science and will add clarity, transparency and predictability to the project review and approval process under the Commission's regulatory program.

Public Review:

- On March 15, 2012, the Commission released proposed LFPP for public review and comment (the original May 16 deadline was extended to July 16, 2012).
- Extensive and thoughtful comments were received reflecting significant interest in the LFPP; these were posted on the Commission's website.
- Commenters included resource agencies and environmental organizations, the regulated community, environmental consultants, and the general public.
- Commenters are geographically diverse and reside in New York, Pennsylvania and Maryland, as well as outside the Susquehanna River Basin.

Summary of Major Revisions:

The commentary has been reviewed and relevant issues grouped and summarized. The most significant issues and major revisions include the following:

1. Recommended Policy Changes

- a. Expanded Statement of Purpose: Further clarification of the purpose of the LFPP is offered to stress the policy's foundation in contemporary science and an acknowledgment that the development, use and stewardship of the basin's water resources requires the balancing of a variety of considerations, including those outlined in the Compact.

Recommended changes in the proposed final policy will provide the necessary flexibility to the Commission in its approach to low flow protection related to water withdrawals. Part of the mission of the Commission is to provide for the reasonable and sustained development and use of surface water and groundwater for municipal, agricultural, recreational, commercial, and industrial purposes. Reasonable water use calls for careful planning and examination of future demands for water, recognition of limits of water availability, and conservation. The Commission also encourages water conservation at all levels, including better cooling technologies and the use of reclaimed and impaired water for industry and natural gas operations that do not require freshwater, as part of a global solution to water sustainability.

- b. Applicability to Groundwater Withdrawals: The proposed LFPP is intended to protect surface waters, and as such, its applicability to groundwater withdrawals was unclear to some commenters within the regulated community. Clarification has been added that the policy is applicable to groundwater projects if the withdrawal may cause a significant adverse impact to streamflow or other surface water features. References have been removed to specific "tests" of impact to surface waters including an analysis of a 120-day drawdown without recharge, a documented reversal of the hydraulic gradient adjacent to a stream within the course of the required constant rate testing, and diminution of discharge or baseflow to the receiving stream.
- c. De Minimis Withdrawals: The draft policy included a narrative description for *de minimis* withdrawals. This language was intended to recognize that some withdrawals, at some locations, are sufficiently small in rate and quantity that the impacts on streamflows and the ecosystems they support are negligible. Potential significant adverse impact from net withdrawals (e.g., the proposed withdrawal minus the return flow in proximity to the

point of withdrawal), would be evaluated on a case-by-case basis during project review considering hydrology, cumulative water use in the watershed, and environmental data including the results from an aquatic resource survey.

However, many commenters stressed the need for a clear (numeric) quantitative *de minimis* withdrawal threshold so they can make informed business decisions. Clear and concise criteria are desirable not only for the regulated community, but also to provide consistency for project review in judging which withdrawals (and when a withdrawal) may be “inconsequential.” Commission staff acknowledges the appeal of a more objective approach, and the policy has been revised to reference quantitative thresholds now included in the revised Technical Guidance.

- d. Withdrawal Limits: A new section in the Policy acknowledges that such limits, in combination with passby flow conditions and conservation releases, are used on a case-by-case basis to preserve ecologically important natural flow variability and meet seasonal flow protection objectives. This approach is consistent with the Commission’s current practice. The earlier draft primarily used higher passby flow/ conservation release thresholds to protect low flows which, while simpler to implement, would have imposed more severe restrictions on withdrawals in some locations. The approach of using a combination of a passby flow and a percent-of-flow based withdrawal limit provides the necessary flexibility to manage the impacts of proposed withdrawals and allows for individualized low flow protection.
- e. Cumulative Water Use Assessments: General language is added to the Policy to memorialize the existing practice used by the Commission to assess both localized impact of withdrawals within the context of existing net withdrawals in a watershed and basin-wide implications of the proposed use. The section has been clarified and refined, and several paragraphs that were duplicated in the Technical Guidance have been deleted to avoid redundancy.
- f. Coordination and Implementation: Language in the previous draft policy was brought over from the current passby flow policy (SRBC Policy No. 2003-01). Additional new language highlights the need for flexibility of implementation of the methodology set forth in the Technical Guidance, particularly as it relates to coordination with the member jurisdictions. As several states may independently adopt flow standards, the Policy provides a path forward to maximize consistency of low flow protection across the basin.
- g. Alternatives Analysis: Although mandated for all proposed withdrawals in headwater areas in the initial draft, revised language is consistent with 18 CFR § 806.14(b)(iii) in that the Commission may require an alternatives analysis for any proposed project during its review process. Criteria for evaluation of alternate source(s) are also described. From a practical standpoint, such an analysis should be most often required of projects having a potentially significant adverse impact, not solely determined by watershed size, and can therefore be better established during the application review process.
- h. Headwater Protection: The prohibition of certain withdrawal projects in headwater areas has been removed from the policy and is the subject of proposed rulemaking being considered at the December 2012 Commission meeting. This proposed rulemaking

would amend 18 CFR Part 806, adding a new section that would limit surface water and certain groundwater withdrawal projects in headwater areas (those drainage areas of less than or equal to 10 square miles). Surface water withdrawals in headwater areas would be limited to riparian users and public water supply systems. Groundwater withdrawals that impact streamflow or other surface water features in headwater areas would likewise be limited to use on the land from which the water is withdrawn or for public water supply.

The revised classification of headwaters, based solely on drainage area, conforms more closely with the Northeast Aquatic Habitat Classification System (NEAHCS) and focuses the highest levels of protection in the smallest watersheds, all those with drainage areas less than 10 square miles. The use of drainage area alone instead of a combination of drainage area and stream order will allow for simpler implementation while accomplishing the same objective as there is considerable evidence that stream order and drainage area are highly correlated. Applying the restrictions would be prospective and would not affect existing projects including those undergoing approval, modification or renewal.

- i. Implementation of the Policy: Several commenters expressed serious concerns regarding the application of a new LFPP to existing withdrawals. The final proposed policy clarifies when and how existing withdrawal projects may become subject to low flow requirements, providing specificity to the regulated community and others having an interest in such projects. With regard to applicability to existing projects undergoing approval, modification or renewal, language was added to recognize the need to balance technical feasibility and economic implications to the project with environmental and other considerations.
 - j. Emergency Provisions: Language has been added to the final proposed Policy to indicate that priorities for water use during extreme low flow events will be established by the Commission pursuant to its emergency powers under the Compact. Further, the Commission will consider proposed rulemaking at its December 2012 Commission meeting, which would amend 18 CFR §806.34, Emergencies, to expand provisions to include requests to modify, waive or partially waive a docket condition for approved projects (such as a passby flow/ conservation release condition).
2. **Recommended Technical Guidance Changes** – Most revisions are intended to align the proposed final Technical Guidance with the revisions being recommended to the Policy and provide additional detail on implementation of the policy. Others are minor refinements, corrections or clarifications suggested in the commentary and, as such, will not be addressed here. The most significant revisions to the Technical Guidance include the following:
- a. Aquatic Resource Classification System: In response to numerous comments criticizing the criteria for the Aquatic Resource Classes and the overall classification system in the draft policy, Commission staff is recommending a significant revision. The previous classes were considered to be overly broad and encompassing of far too wide a range of streams to provide for meaningful groupings based on sensitivity to low flows; several classification criteria would result in the over-protection of many of the basin's streams to the detriment of reasonable development and use. The revised classification system is

one based on drainage area that conforms more closely with the NEAHCS. Instead of classifications unique to the Susquehanna basin, the Technical Guidance will benefit from employing a standard classification system that is widely accepted, as well as consistent with TNC's ecosystem flow recommendations.

The Aquatic Resource Classification (ARC) system is modified to include six classes, based on drainage area. Special designation or protection classifications by member jurisdictions are no longer included in ARC system, but will be considered by the Commission in its determination of appropriate low flow protection levels.

The revised drainage area classification would group waters with greater hydrologic and ecological similarities to one another and leverage the statistical correlation among drainage area, stream size, and sensitivity to low flows. Although there is not enough resolution in contemporary instream flow science and TNC's ecosystem flow recommendations to justify more than two sets of low flow thresholds for impact to aquatic ecosystems, the architecture of the classification would be in place to incorporate findings as new science is developed.

The addition of more classes better replicates a rational and intuitive protection scheme that is effective for the smallest, middle, and largest drainage areas. Headwater protection would be focused into drainages of less than 10 square miles, while an additional class comprised of headwater and small streams having drainage areas less than 50 square miles would allow for withdrawals for all uses (managed with passby flow and conservation release thresholds on the order of monthly P75, consistent with TNC's flow recommendations, and withdrawal limits, if necessary). For mid-sized drainage areas, more classes would allow for withdrawals to be managed using a range of passby flow and conservation release thresholds on the order of monthly P80-P90. In mainstem rivers, withdrawals would be constrained with passby flows only when they are individually large in magnitude or cumulatively significant; otherwise, withdrawals would be encouraged in the largest drainage areas that are the least susceptible to adverse flow alteration during low flows.

Commenters pointed out that some of the former criteria such as rare, threatened and endangered (RTE) species were ill-chosen. Commission staff agrees that, as written, the RTE species criterion could result in dramatic over-protection of waters. For example, documented presence of rare mussels would have automatically elevated segments of the Susquehanna River to Class 1 under the former classification system. This clearly was not intended when the policy was drafted. It is also noted that "occurrence" of RTE species or candidate species is not appropriate to automatically invoke the more protective low flow protection provisions of a different ARC. Staff has reviewed existing Commission practice and concluded that sufficient RTE protection is being provided on a case-by-case basis through the Pennsylvania Natural Diversity Index (PNDI) and equivalent processes in New York and Maryland. If RTE species are present, the project approval will continue to include conditions to appropriately protect such species. There being no need to offer additional protection through the LFPP, staff recommends entirely eliminating the criterion.

- b. Special Designation or Classification by Member Jurisdictions: Several commenters expressed concerns the Commission should only rely on stream designations arrived at through state's rulemaking process and avoid determination of "equivalency." Using the more coherent stream groupings provided by the NEAHCS as the primary driver for determination of sensitivity to low flows should address the concern. However, it is the intent of the Commission to implement a policy that provides equal protection to all ecologically similar streams throughout the basin, irrespective of a state's classification system. The Commission will consider state stream designations as well as the results from its aquatic resource surveys and other field data on a case-by-case basis to further inform its determination of appropriate levels of low flow protection.
- c. Cumulative Water Use Assessment: Some of the commentary received on this issue suggests that the Commission is adding a new element to its review of projects and the establishment of low flow protection conditions. That is not the case. Cumulative water use assessment is currently undertaken in the review of withdrawals under the existing policy. Nothing changes under the new policy, except that the current practice is now memorialized.

Cumulative water use assessment has been and will continue to be undertaken to assess both the localized impact of withdrawals and the watershed scale implications of that use. Commission staff evaluates each proposed withdrawal for both its individual and cumulative potential impacts within a watershed during low flow periods. Not evaluating cumulative water use when reviewing proposed withdrawals could result in approving numerous withdrawals within a watershed that do not exceed a *de minimis* withdrawal threshold individually, but cumulatively result in unacceptable limits of hydrologic alteration and potential adverse impacts to water resources.

- d. De Minimis Withdrawals: Commission staff recommends a stepped approach in describing quantitative *de minimis* withdrawal thresholds to provide the necessary flexibility that allows extra protection for the most sensitive headwater resources and more uninterrupted withdrawals from large rivers and impaired waters. Defining a monthly *de minimis* withdrawal threshold based on stream (and watershed) size would typically result in low flow protection requirements for all months in headwater streams, and July through November in mid-sized streams and large rivers. However, only larger withdrawals from small streams would typically necessitate passby flow requirements for months outside of the traditional low flow months of July through November.

The proposed quantitative thresholds for *de minimis* withdrawals and the Commission-furnished table of monthly Px values for 132 reference gages (based on the currently available periods of record) will provide a level of predictability to project sponsors for planning purposes.

- e. Exceptional Quality and Impaired Waters: Commission staff acknowledges that there were legitimate criticisms of the treatment of exceptional quality and impaired waters in the draft LFPP. For exceptional quality streams, the Technical Guidance was revised to recognize the potential increased sensitivity to withdrawals and hydrologic alteration in these sources, particularly during extreme summer low flow conditions. Applications for withdrawals in such settings will be evaluated more closely based on state stream

designations, available fisheries data and aquatic resource survey data, and higher monthly percent exceedence flow values or other provisions may be recommended for low flow protection.

For impaired waters where a proposed withdrawal will not prohibit recovery efforts or prevent critical TMDLs from being met, the *de minimis* withdrawal threshold may be increased and lower monthly exceedence flow values may be recommended on a case-by-case basis. Staff will work with the member jurisdictions to address incentives for the use of impaired waters and anticipates that separate guidance will be developed within the next year to address implementation of Commission Policy No. 2012-01, Use and Reuse of Lesser Quality Water, adopted on March 15, 2012. The primary components of that policy are definition of impaired and lesser quality waters, analysis of alternate sources that are impaired and prioritization of review.

- f. Passby Flow/ Conservation Release Thresholds: Comments from the regulated community encouraged Commission staff to revisit the TNC ecosystem flow recommendations. Some thresholds in the proposed policy stood out as being overly conservative, such as the monthly median (P50) flow thresholds required from July through October for all ARC 1 streams. While recognizing that the Commission's goal is to ensure that the policy provides for sufficiently conservative levels of low flow protection without resorting to site-specific evaluations for all projects, Commission staff recommends that passby flow and conservation release thresholds be reduced to better align with original TNC low flow recommendations (P75 to P95).

Under the proposed policy, withdrawals that, considered individually and cumulatively, exceed the monthly *de minimis* withdrawal threshold would typically be subject to low flow protection requirements for that month. Staff proposes revised passby flow and conservation release thresholds that would typically be monthly P95 to P75 flows, rendering the source unavailable 5 to 25 percent of the time in an average year during months in which the *de minimis* withdrawal threshold was exceeded.

Note, however, that the Px values in the Technical Guidance, as well as the recommended quantitative thresholds for *de minimis* withdrawals, are fundamentally a guide for Commission staff in their formulation of review recommendations. Site specific considerations are applied to each application, including but not limited to the state's stream classification, RTE species, results from aquatic resource surveys, and channel morphology/ hydraulics. The Commission has also furnished a table of monthly Px values for 132 reference gages for planning purposes. Because these values are derived based on the long-term historic streamflows within each month, they reflect inter-annual variability with respect to streamflow, water availability, and ecosystem needs.

The proposed final policy is intended to have broad applicability to withdrawals throughout the basin. However, a project sponsor, the Commission, or others continue to have the option of conducting a special site-specific study(ies) to demonstrate the acceptability of alternate low flow protection instead of the standard application of the policy/guidance. Given the sheer size and streamflows associated with the large mainstem rivers and the proposed monthly *de minimis* withdrawal threshold of 10 percent of P95, only very large individual withdrawal projects with very substantial cumulative

upstream consumptive use would necessitate a low flow protection requirements. Historically, development of alternate sources and upstream mitigation measures have allowed uninterrupted operations for projects such as power generation projects sited on large mainstem rivers.