

## CRITICAL WATER PLANNING AREA SCREENING AND REVIEW CRITERIA

### *Introduction*

This document provides the planning criteria by which regional water resources committees, the Statewide Committee and the Secretary will review proposals and make recommendations for designation of Critical Water Planning Areas (CWPA). The criteria will be used in a multi-stage process of nomination, review and recommendation for designation as a CWPA. Potential CWPAs may be nominated by either a regional committee or committee member or any other party. Those nominations would be screened by DEP and the regional committee, with reference to the screening criteria described herein and added to a prioritized list for further in-depth review by the regional committee and the Statewide Committee. Accepted nomination petitions placed on the list would be subjected to detailed watershed-specific analyses with respect to the criteria described herein to determine whether the nomination should be recommended to the Statewide Committee and the Secretary for CWPA designation. These criteria are provided solely for planning purposes and are not intended to reflect existing or future regulatory requirements.

Act 220 provides two methods by which a Critical Water Planning Area may be identified--through the planning process as a component of the regional plan, or in advance of the regional plan based upon information developed in (or during) the planning process.

### **I. Authorization for Designation of Critical Water Planning Areas**

Paragraph 3112(A)(6) of Act 220 states that the State Water Plan and Regional Plans shall include "an identification of Critical Water Planning Areas comprising any significant hydrologic unit where existing or future demands exceed or threaten to exceed the safe yield of available water resources." The Act defines *safe yield* as:

"For purposes of the State Water Plan, the amount of water that can be withdrawn from a water resource over a period of time without impairing the long-term utility of a water resource such as dewatering of an aquifer, impairing the long-term water quality of a water resource, inducing a health threat, or causing irreparable or unmitigated impact upon reasonable and beneficial uses of the water resource. Safe yield of a particular water source is primarily to be determined based upon the predictable rate of natural and artificial replenishment of the water source over a reasonable period of time."

Further, *reasonable and beneficial use* is defined as:

"The use of water for a useful and productive purpose, which is reasonable considering the rights of other users and consistent with the public interest, in a

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quantity and manner as is necessary for efficient utilization. The term includes withdrawal and nonwithdrawal uses.”

*Subsection 3112(D) Designation of Critical Water Planning Areas and Preparation and Approval of Critical Area Resource Plans* states, “(1) Critical Water Planning Areas shall be identified as provided under subsection (A)(6). A Regional Committee may, in advance of the formal adoption of a Regional Plan or the State Water Plan and if justified by evidence developed in the planning process, recommend the designation of a Critical Water Planning Area. Upon such recommendation, the Statewide Committee and Secretary may designate the area for the development of a Critical Area Resource Plan for any watershed or watersheds within a Critical Water Planning Area pursuant to this subsection.”

## **II. Criteria for Identifying Critical Water Planning Areas:**

### **A. Critical Questions**

Before a Critical Water Planning Area may be designated, one of the following questions derived from Act 220 should be answered in the affirmative:

1. In the relevant hydrologic unit, will existing or future demands, inclusive of both withdrawal and nonwithdrawal uses, over the reasonably foreseeable future, considering the expected location and timing of those demands, and any constraints on those demands, exceed or threaten to exceed the amount of withdrawn water that would:
  - a. *impair the long-term utility of the water resource such as dewatering an aquifer; or*
  - b. *impair the long-term water quality of the water resource; or*
  - c. *induce a health threat; or*
  - d. *cause irreparable or unmitigated impact upon reasonable and beneficial withdrawal and nonwithdrawal uses?.*
  
2. In the relevant hydrologic unit, will the rate of net withdrawals to serve existing or future demands exceed or threaten to exceed the long-term rate of natural and artificial replenishment of the resource, including consideration of changes over time to recharge areas?

In applying these questions and evaluating demands that are withdrawal uses, the focus will generally be on net withdrawals, which account for transfers, consumptive water losses, storage and return flows.

It should be noted that Act 220 does not establish a “No-Impact” standard for planning purposes. In contrast, Act 220 recognizes that, at times of drought or other stresses, water resources may be limited and impacts may be felt with respect to all types of use (withdrawal and in-stream uses alike). In judging the adequacy of the water resource,

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Act 220 asks, among other questions, whether the degree and extent of impacts will be serious, whether those impacts will be irreparable, whether those impacts will be long-term, and whether those impacts can or will be mitigated.

In consideration of the above, the following numerical and non-numerical planning criteria were developed as a screening guide for use by the Regional and Statewide Committees and the Secretary.

## **B. Screening and Review Criteria**

- 1. Planning Area Size (Significant Hydrologic Unit)** – Generally, 15 square miles should be the minimum-size hydrologic unit considered significant for CWPA designation.

Paragraph 3112(A)(6) of Act 220 states that Critical Water Planning Areas shall be comprised of significant hydrologic units. The result of CWPA designation will be the development of a Critical Area Resource Plan (CARP). CARPs should not be developed for small areas such that broader issues of the larger watershed are not considered, thus suggesting that an area of about 15 square miles or larger should be the minimum. This size would also better lend itself to multi-municipal participation in the planning process. Limitations on the ability to use regression techniques to develop hydrologic statistics on areas smaller than 15 square miles are a limiting factor on the watershed size that can be applied in the water budget tool being developed by USGS. It is recognized that areas smaller than 15 square miles may be brought forward as areas subtended within a larger hydrologic unit, particularly if adequate reliable site-specific hydrologic data are available for the smaller area.

A significant hydrologic unit may be comprised of either a surface water or ground water unit, or both.

## **2. Maximum Time Horizon**

- 5 years for recommendations prior to completion of the plan.
- 15 years for recommendations developed in the plan.

Critical Water Planning Areas are predicated on existing or future demands exceeding the safe yield of available resources. Projected future demands should be based on no longer than five-year projections for CWPAs proposed prior to completion of the regional plan. CWPAs identified in the regional planning process should be based on projections extending no more than 15 years into the future.

Considering that the state water plan will be updated every 5 years, and considering the accuracy of projections beyond 15 years, a time horizon longer than 15 years is likely to introduce substantial uncertainty into the

evaluation and is therefore considered inappropriate. Areas recommended prior to completion of the regional plan should be able to demonstrate a more immediate safe yield threat.

### **3. Existing and Future Demands**

Demands on the water resources occur as both withdrawal and non-withdrawal uses, including water quality considerations. Water budgets are a tool for assessing the adequacy of available water resources and must account for net withdrawals.

#### **a. Population Projections**

Population projections should be consistent with State Water Plan projections, or the proposal should include justification otherwise, based upon local information.

Many withdrawal and non-withdrawal uses are related to population. Therefore projections of such future demands need to be based upon reasonable population projections. Population projections developed as part of the state water plan process should be used; however, reasonable local projections can be used if justified.

#### **b. Withdrawal and Non-Withdrawal Uses**

Withdrawal and Non-withdrawal uses should be consistent with statewide water use statistics for use categories or other reliable information.

Withdrawal use calculations should be based on net water withdrawals.

The net withdrawal should account for transfers, consumptive water losses, storage and return flows.

Water use calculations should account for existing permit requirements for passby and conservation release flows, where applicable, and should consider seasonality, interruptibility and water quality factors.

Projection methods, including consumptive use coefficients, developed as part of the state water plan process should be used. Reasonable alternative projections, based on industry norms, River Basin Commission (RBC) studies, experts in the field or existing standards, may be used.

Withdrawal and non-withdrawal uses include but are not limited to:

- Public water supply and self-supplied domestic - DEP, in conjunction with RBCs and others, is developing methods for projecting
- Industrial, mining and commercial - DEP, in conjunction with RBCs and others, is developing methods for projecting.
- Livestock, irrigation and other agricultural uses – DEP, in conjunction with the Pennsylvania Department of Agriculture, RBCs and others, is developing methods for projecting.

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- Electrical generation - The Electric Power Generators Association (EPGA) has information on projections.
- Recreation/aesthetic - DCNR, the Pennsylvania Fish and Boat Commission and the Army Corps of Engineers (ACOE) are sources of information.
- Hydropower - EPGA may have information.
- Navigation - ACOE establishes flow targets and operates impoundments to support navigation.
- Aquatic resources - The Pennsylvania Fish and Boat Commission, US Fish and Wildlife Service and others have various methods for determining in-stream flows necessary to support aquatic resources.

The Appendix to the Delaware River Basin Commission's report, "Guidelines for Developing an Integrated Resource Plan Under the Delaware River Basin Commission Southeastern Pennsylvania Ground Water Protected Area Regulations", provides a list of references. It is accessible at: <http://www.state.nj.us/drbc/Res2002-7.htm>.

#### 4. Safe Yield of Available Resources

##### a. Watershed Water Budget

Withdrawals, return flows and storage, including both surface and ground water, should be used to derive a complete water budget for the proposed Critical Water Planning Area, with the resulting balance determining whether all cumulative withdrawal and non-withdrawal uses and water quality objectives can be met. Reasonable discretion must be used to determine if unmet needs justify designation of the area as a Critical Water Planning Area, under the criteria cited by Act 220 (per Section II.A. above)

##### b. Water Quality

To the extent that water quality limits the availability of adequate water supply, it should be considered in determining the safe yield of a water source. Conversely, withdrawals should not be the primary cause of a violation of instream water quality standards.

##### c. Aquatic Resource Uses

Among non-withdrawal uses, requirements for instream aquatic resources are often determinative of instream flow needs. For purposes of screening criteria for identifying potential CWPAs, existing or projected withdrawals are not likely to cause irreparable or unmitigated impacts to reasonable and beneficial withdrawal and non-withdrawal uses (including requirements for instream aquatic resources) and maintenance of long-term water quality if the total cumulative unmitigated net withdrawals do not exceed, or result in, at least one of the following values or conditions:

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- Repeated acute dewatering of a stream reach, causing significant impact on aquatic resources (50% of  $Q_{7-10}$  may be used as a surrogate for initial screening purposes subject to subsequent further evaluation of the likely impacts of withdrawals on the duration and frequency of dewatering and the impact of that dewatering on aquatic resources. It is recognized that some streams become dry seasonally or during drought, and some aquatic resources may be adapted to periodic dewatering.)
- Class A trout streams (carbonate) – 5% mean annual habitat loss (30% of  $Q_{7-10}$  may be used as a surrogate for initial screening purposes)
- Class A trout streams (noncarbonate) – 5% mean annual habitat loss (50% of  $Q_{7-10}$  may be used as a surrogate for initial screening purposes)
- Class B trout streams – loss of Class B biomass rating or 10% mean annual habitat loss
- Class C and D trout streams – loss of Class C or D biomass rating or 15% mean annual habitat loss

**d. Other Critical Uses**

Support of other critical uses (for example, but not limited to: protected and statewide uses as defined in 25 PA Code Chapter 93, threatened or endangered species, migratory fish, other fisheries management objectives of the Pennsylvania Fish and Boat Commission, public water supply, white water rafting, recreational uses, important regional economic uses, etc.) may result in different flow criteria than those provided above, and will be judged on a case-by-case basis. The proposal must provide technical justification for any such criteria to be applied in support of specific critical uses and an explanation of why the use is critical. No numerical planning criteria are provided herein. In considering the flows required for such critical uses, the planning process should consider the nature, degree and duration of potential impacts on the specific critical use and the screening criteria should allow for planning in advance of harm to these uses.

**III. CWPA Designation**

As described in the *Process for Recommendation of Critical Water Planning Areas During Development of State Water Plan*, a significant hydrologic unit may be nominated to a regional committee for consideration as a CWPA. Based upon the screening criteria

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described herein, the regional committee will conduct an initial screening review of the nomination to determine whether it should be subjected to further review and consideration for recommendation as a CWPA. If so, data will be completed to the extent necessary to conduct a detailed review and make a determination whether the hydrologic unit should be recommended for designation as a CWPA. In order for a CWPA designation proposal to be approved, the proposal must demonstrate that total existing or projected demand exceeds or threatens to exceed available safe yield, as described in Sections I and II.A.