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CRITICAL WATER PLANNING AREA

DESIGNATION CRITERIA

INTRODUCTION

This document provides the criteria and standards by which regional water resources committees; the Statewide Committee and the Secretary shall review proposals and make recommendations for designation of Critical Water Planning Areas.

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 "For purposes of the State Water Plan, the amount of water that can be withdrawn from a water resource over a period of time without impairing the long-term utility of a water resource such as dewatering of an aquifer, impairing the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 quantity and manner as is necessary for efficient utilization. The term includes withdrawal and nonwithdrawal uses."

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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 and Standards for Identifying Critical Water Planning Areas:

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 the long-term rate of natural and artificial replenishment of the resource, with 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, Act 220 asks, among other questions, whether

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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 criteria were developed as a screening guide for use by the Regional and Statewide Committees and the Secretary.

A. **Planning Area Size** – Generally, 15 square miles should be the minimum-size significant hydrologic unit considered for CWPA designation.

Paragraph 3112(A)(6) of Act 220 states that Critical Water Planning Areas shall be comprised of significant hydrologic units. Because of the limitations on the ability to use regression techniques to develop hydrologic statistics on areas smaller than 15 square miles this should be the lower limit of watershed size recommended for consideration as a Critical Water Planning Area. 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 is available for the smaller area.

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

B. **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 CWPA's proposed prior to completion of the regional plan. CWPA's 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.

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C. 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.

1. 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.

2. 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.

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.

Withdrawal use calculations should be based on net water withdrawals. The net withdrawal should account for transfers, consumptive water losses, storage and return flows.

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, 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 others, has developed methods for projecting

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- Industrial, mining and commercial - DEP, in conjunction with others, is developing methods for projecting.
- Livestock, irrigation and other agricultural uses - DEP in conjunction with the Pennsylvania Department of Agriculture and others are developing methods for projecting.
- 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 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 Delaware River Basin Commission also provides a list of references, as an appendix to its Integrated Resource Plan policy that is provided as a reference here.

D. Safe Yield of Available Resources

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 will be met. Reasonable discretion must however 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 above)

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 result in a violation of instream water quality standards.

Among non-withdrawal uses, requirements for instream aquatic resources are often determinative. For purposes of screening criteria for identifying potential CWPAs, existing or projected withdrawals are not likely to cause irreparable or

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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:

- Class A trout streams (carbonate) – 5% of habitat loss (using 30% of Q7-10 as a surrogate).
- Class A trout streams (noncarbonate)– 5% habitat loss (using 50% of Q7-10 as a surrogate).
- Class B – 10% habitat loss (using 100% of Q7-10 as a surrogate)
- C and D trout streams – 15% habitat loss (using 100% of Q7-10 as a surrogate)
- Other streams – 50% of the 1 in 10 year baseflow.
- Repeated acute dewatering of one or more stream reaches causing significant impact on aquatic resources of the watershed.

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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/endangered species, migratory fish, other fisheries management objectives of the PAFBC, public water supply, white water rafting, recreational uses, important regional economic uses, etc.) may result in different flow criteria than the above criteria, 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 criteria will be established herein.

Finally, 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 Section I.