

**GUIDELINES FOR IDENTIFICATION
OF
CRITICAL WATER PLANNING AREAS**

GUIDANCE DOCUMENT

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

DOCUMENT ID: 392-2130-014

TITLE: Guidelines for Identification of Critical Water Planning Areas

EFFECTIVE DATE: Upon publication as final in the *Pennsylvania Bulletin*

AUTHORITY: Water Resources Planning Act of 2002 (P.L. 1776, No. 220)

POLICY: As the State Water Plan is being updated, the Department will ensure the identification of Critical Water Planning areas under its authority will follow a consistent application of criteria and process.

PURPOSE: Clean, reliable ground water and surface water resources are critical for sustaining the environmental health of our natural resources, protecting the public's health and safety, and maintaining the economic vitality of the Commonwealth. The purpose of this policy is to provide guidance to DEP staff, Regional Committees and the Statewide Committee in the identification of Critical Water Planning Areas, where demands on the resource exceed or threaten to exceed availability.

APPLICABILITY: This policy applies to all Department programs implementing the identification of Critical Water Planning Areas.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirement. Nothing in the policies or procedures shall affect regulatory requirements. The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH:

LOCATION:

Table of Contents

	<u>Page</u>
Table of Contents	i
Introduction	ii
Chapter 1. Authorization for Designation of Critical Water Planning Areas	1
Chapter 2. Process For Nomination, Review, Recommendation and Designation of CWPAs	2
Stage 1 – Process for Submission and Prioritization of CWPA Nominations	2
Stage 2 – Process for Data Verification and Development and Review of Nomination Petitions	4
Stage 3 – Process for Regional Committee Review and Recommendation of a CWPA	5
Stage 4 – Process for Statewide Committee and Secretary Review of CWPA Recommendation	5
Chapter 3. Criteria for Identifying Critical Water Planning Areas	7
Section A. Critical Questions	7
Section B. Screening and Review Criteria	8
Section C. CWPA Designation	11

Introduction

The Water Resources Planning Act (Act 220 of 2002) requires that the State Water Plan be updated by March 2008. The Act also provides for identification of Critical Water Planning Areas (CWPAs). It defines a CWPA as a “significant hydrologic unit where existing or future demands exceed or threaten to exceed the safe yield of available water resources.”

CWPAs may be identified through the planning process as a component of a regional plan component of the State Water Plan, or in advance of the regional plan based upon information developed in (or during) the planning process. This document outlines the process (Chapter 2) and criteria (Chapter 3) that will be used to identify CWPAs in (or during) the planning process. The criteria are solely for planning purposes and are not intended to reflect existing or future regulatory requirements.

Potential CWPAs may be nominated by a Regional Water Resources Committee, a committee member, or any other person or entity. An applicant must submit a nomination petition to DEP. The petition must delineate and describe the proposed area, identify the primary stream within the area, describe the reason for the proposed designation, show evidence that each county and municipality in the proposed area has been notified of the proposed nomination, and designate a lead entity and contact person for communication about the nomination. DEP will need additional information to evaluate petitions, and applicants are encouraged to provide such information if they can.

Nominations will be screened by DEP and the Regional Committee with reference to screening criteria described in Chapter 3. Accepted nomination petitions will be placed on a prioritized list by the Regional Committee. These nominations will then be subjected to detailed watershed-specific analyses with respect to Chapters 1 and 3 to determine whether the nomination should be recommended to the Statewide Committee and the Secretary for CWPA designation. The final decision on whether to designate a CWPA will be made by the Statewide Water Resources Committee and the Secretary of DEP.

After an area receives CWPA designation, a more intensive planning process will be undertaken to produce a Critical Area Resource Plan (CARP). This plan will include a more detailed investigation of water availability and current and future demands for water. Existing and potential conflicts among users will be identified, along with possible alternatives to resolve such conflicts; and supply-side and demand-side alternatives to assure an adequate supply of water in the future will be identified. The Regional Committee will establish a Critical Area Advisory Committee to guide the development of each CARP. The entity nominating an area for CWPA status should be prepared to play an active role in the planning process.

The CARP that results from the study is not a regulatory document and will not be binding. It will, however, suggest measures and actions that could be adopted voluntarily to address the potential water shortage in the area. Because of limited resources for completion of CARPs, some areas that meet the minimum criteria may not receive designation as a CWPA.

Chapter 1

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.”

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.”

Chapter 2

Process For Nomination, Review, Recommendation and Designation of CWPAs

In order to recommend or designate Critical Water Planning Areas in advance of formal adoption of a Regional Plan or the State Water Plan, the following process will be used, whereby Regional Committees may receive CWPA nominations based on evidence already available or developed in the planning process and may recommend significant hydrologic units for designation as CWPAs. The designation process consists of four stages: Stage 1 - A nomination and prioritization process, by the Regional and Statewide Committee; Stage 2 - A data verification, development and review process, by DEP; Stage 3 - a review and recommendation process, by the Regional Committee; and Stage 4 - a review and designation process, by the Statewide Committee and DEP Secretary.

Stage 1 – Process for Submission and Prioritization of CWPA Nominations

1. A nomination petition shall be submitted to DEP and must include the following information:
 - a. Delineation of the proposed CWPA on a suitable scale map
 - b. Name of primary stream or hydrologic unit or units within the proposed CWPA
 - c. Description of reason for proposed designation, in accordance with Chapter 3
 - d. Evidence of notification of intent to file a nomination, to each county and municipality within the proposed CWPA.
 - e. Designation of a lead entity and contact person responsible for coordination and communication of the nomination, including signature and attestation of accuracy.

The nomination petition should also include as much of the following information as is available:

- a. Inventory of current withdrawals, discharges and storage within the proposed CWPA
- b. Projected withdrawals, discharges and storage in next 5 years within the proposed CWPA
- c. Other available information documenting the reason described in paragraph c, above, including any supporting technical studies.
- d. Identification of pending or proposed water resources management actions that may address the potential shortage, conflict or impact
- e. List of specific issues or items to be addressed in a Critical Area Resources Plan (CARP) for the proposed CWPA
- f. List of potential local or other resources, other than state agencies or river basin commissions, which may be available to assist in additional data development in Stage 2.
- g. Proposed budget, including potential sources and disposition of funds, for developing the CARP

- h. Letters of commitment for funding
- i. Copies of, or references to, relevant water resources planning documents (e.g. Act 167 Storm Water Management Plan, Rivers Conservation Plan, etc.)
- j. Letters of support for designation as a CWPA

Four copies of nomination petitions and supporting documents must be submitted to the Department. The Department will distribute copies of complete nominations to: 1) Chair of the appropriate Regional Committee; 2) appropriate PADEP Regional Office(s); and 3) appropriate interstate compact basin commissions.

2. Each Regional Committee will create and maintain a regional prioritized list of CWPA nomination petitions accepted in accordance with the procedures of this section.

Upon receipt of a nomination petition, DEP on behalf of the Regional Committee will review the petition for completeness of mandatory information and availability of information necessary to conduct an initial screening of the nomination based upon the *initial screening* criteria and other considerations in Section B of Chapter 3, and:

- a. If the petition is incomplete, DEP will return the petition with a description of the incomplete information.
- b. If the petition is complete and sufficient data for *initial screening* are available, DEP will forward the data with the petition to the Regional Committee. DEP will notify the petitioner.
- c. If sufficient data for *initial screening* are not available, DEP will forward the petition to the Regional Committee with a list of the data needed and a projected timetable for obtaining the data. DEP will notify the petitioner. DEP will then endeavor to obtain the necessary data.

Upon receipt of a petition and necessary data from DEP, the Chair of the Regional Committee will schedule a discussion of the nomination petition at a Regional Committee meeting. At this meeting, the Regional Committee will apply the *initial screening* criteria and other considerations in Section B of Chapter 3 to determine whether the nomination will be accepted for inclusion on the regional list of nominations. If the petition is added to the regional list, the Regional Committee will assign the petition a priority relative to all petitions on the regional list. DEP will provide notice of addition of the nomination petition to the Regional list in the *Pennsylvania Bulletin*.

3. Each time a petition is added to a regional list, the nomination petition along with the revised list will be forwarded to the Statewide Committee. The Statewide Committee will combine the six Regional Committee prioritized lists of CWPA nomination petitions into one statewide prioritized list of CWPA nomination petitions.

Upon receipt of a nomination petition and revised list from a Regional Committee, the Chair of the Statewide Committee will schedule and conduct a discussion of the nomination petition for inclusion on the statewide list of nominations. The discussion will take place at a Statewide Committee meeting. The Statewide Committee will assign the petition a priority relative to all petitions on the statewide list.

4. At all Regional and Statewide Committee meetings, DEP will report on the status of each nomination petition on the regional or statewide list. The Regional and Statewide Committees may revise priorities on their respective lists at any meeting, particularly if new nominations have been received.

Stage 2 – Process for Data Verification and Development and Review of Nomination Petitions

Once a nomination has been included on the statewide nominations list, it will be necessary to develop any additional data that may be required for a complete review of the nomination. The complete review will be based upon the authorizations in Chapter 1 and the overall criteria provided in Chapter 3. Such additional supporting information may be developed or provided by any organization or entity, including the proponent, the regional committee, the Department, a river basin commission or any other appropriate entity.

In accordance with the outline below, DEP, relying upon its own resources and resources of other agencies or organizations to the extent available, will conduct a review of each petition on the statewide list as necessary to determine the adequacy and completeness of available data to support a recommendation for designation as a CWPA. If insufficient data are available, DEP, again relying upon its own resources and resources of other agencies or organizations or the petitioner to the extent available, will develop sufficient data for submission to the Regional Committee to enable the Regional Committee to make a decision as to whether the proposed area should be recommended for designation.

DEP will:

- a. Review nomination for completeness of all information necessary to conduct a full review, and develop (in conjunction with other appropriate entities) a schedule for completion of information, as necessary
- b. Develop additional information necessary for full review of nomination
- c. Verify:
 - i. Delineation of proposed Critical Water Planning Area (map)
 - ii. Water withdrawal, discharge and storage information (historical and current)
 - iii. Demand projections (for math and consistency with census information)
 - iv. Facts supporting reason for proposed designation (in coordination with other local, state, interstate and federal agencies, as appropriate)
- d. Summarize relevance of studies identified in petition; identify additional studies or information sources
- e. Identify additional potential water resources management alternatives to address the potential shortage, conflict or impact
- f. Evaluate nomination, applying Chapter 1 and Section A of Chapter 3, with consideration of the criteria in Section B of Chapter 3
- g. Prepare CWPA Petition Review Memorandum and conclusions regarding whether or not the nomination satisfies the CWPA designation criteria, and send to Chair of Regional Committee with supporting documentation

Stage 3 – Process for Regional Committee Review and Recommendation of a CWPA

A Regional Committee will use the following review and decision-making process to recommend a CWPA designation to the Statewide Committee:

- a. Distribute petition and CWPA Petition Review Memorandum to Regional Committee members
- b. Make nomination materials available for public review
- b. Regional Committee meets to discuss and approve proceeding with public hearing.
- c. Schedule a public hearing on agenda for committee meeting
- d. Notify petitioner and potentially affected parties of scheduled public hearing. Affected municipalities will be sent a copy of the CWPA Petition Review Memorandum (or a summary with information on how to obtain the complete document).
- e. Publish notice in Pennsylvania Bulletin and provide a public comment period
- f. Applying Chapter 1 and Section A of Chapter 3, with consideration of the criteria in Section B of Chapter 3, act on petition after public hearing at a scheduled advertised meeting of Committee. Actions may include:
 - i. Refer petition back to applicant or DEP staff for additional evaluation
 - ii. Recommend approval and forward recommendation to Statewide Committee
 - iii. Reject the petition and provide documentation of the reasons for rejection.

Stage 4 – Process for Statewide Committee and Secretary Review of CWPA Recommendation

Applying Chapter 1 and Section A of Chapter 3, with consideration of the criteria in Section B of Chapter 3, the Statewide Committee and the Secretary will use the following process to consider the recommendation of a Regional Committee for designation of a CWPA:

1. Statewide Committee
 - a. Receive Regional Committee recommendation with supporting information and summary of public testimony before the Regional Committee
 - b. Schedule for Statewide Committee Meeting
 - c. Distribute to Statewide Committee members with supporting information
 - d. Act on recommendation at scheduled, advertised meeting:
 - i. Approve and forward to DEP Secretary for concurrence and final decision, or
 - ii. Reject and return to Regional Committee for possible second review and hearing. Provide documentation of reasons for rejection.
2. DEP Secretary
 - a. Approve or reject recommendation
 - b. Notify Statewide and Regional Committee and applicant of decision

3. If the recommendation is approved by the Statewide Committee and DEP Secretary, the identification of the Critical Water Planning Area will become a component of the Regional Water Plan under Section 3112(a)(6) of the Act.

Chapter 3

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, 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. It is recognized that areas smaller than 15 square miles may be brought forward with adequate justification and if adequate reliable site-specific hydrologic data are available or can be developed 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 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 must 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.
- 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 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:

- 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 adequate 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.

C. CWPA Designation

As described in Chapter 1, a significant hydrologic unit may be nominated to a regional committee for consideration as a CWPA. Based upon the screening criteria 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 Chapter 1 and in Section A of this Chapter.