

SUSQUEHANNA RIVER BASIN COMMISSION

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Title: Consumptive Use Mitigation Policy

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Authority: Public Law 91-575, 84 Stat. 1509 *et seq.*, Sections 3.1, 3.4(2), 3.5(1) and 3.10, 18 C.F.R. §§ 806.4, 806.5, 806.6 and 806.16.

Policy: The Susquehanna River Basin Commission (Commission or SRBC) established regulatory requirements for consumptive water use at Part 806, including general provisions, application procedures, standards for review and terms of approval. The regulations provide for mitigation by project sponsors for their consumptive water use during low flow periods, and identify several options for such mitigation while reserving discretion for the Commission to determine if the manner of mitigation proposed is acceptable. In consideration that mitigation is based on the elimination of manmade impacts caused by consumptive use during low flows and the return to natural flow conditions, and recent work in quantifying and characterizing consumptive use and mitigation requirements in the basin, the Commission has refined its strategy for meeting mitigation needs. This policy introduces the Commission's consumptive use mitigation strategy and procedures that should be followed both by the agency and project sponsors.

Purpose: This document is intended to provide insight regarding the determination of an acceptable manner of mitigation to be provided by project sponsors for regulated consumptive water use. The document describes contemporary consumptive use mitigation principles and the criteria utilized by the Commission in its review of proposed mitigation plans submitted as part of a consumptive use application.

Applicability: This policy applies to the review of all consumptive use applications filed with the Commission, including applications for new projects, project modifications proposing to increase consumptive use, project renewals, and pre-compact consumptive use if located in a water critical area. The policy is also applicable on a case by case basis in limited circumstances. The document has been developed to provide insight to the regulated community and also to the Commission's Project Review Program, and any other staff involved in regulatory requirements of the Commission. It may also be used by the public to gain information and insight on the Commission's approach to consumptive use mitigation.

Disclaimer: The policy outlined in this document is intended to supplement existing requirements. Nothing in this policy shall affect more stringent regulatory requirements.

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CONSUMPTIVE USE MITIGATION POLICY

I. Introduction

The Susquehanna River Basin Commission (Commission or SRBC) has broad authority for water resources management under Article 3 of the Susquehanna River Basin Compact (SRBC, 1971). The Comprehensive Plan for the Water Resources of the Susquehanna River Basin (SRBC, 2013) contains a specific goal to mitigate impacts to the basin's water resources, focusing on elimination of manmade impacts of consumptive use during droughts. The Comprehensive Plan also contains specific actions to implement the recommendations of the Consumptive Use Mitigation Plan (SRBC, 2008) and, in the absence of water for local mitigation, to restrict new consumptive use in vulnerable watersheds.

The Commission adopted consumptive use regulations to minimize impacts to stream flows for public water supplies, industries, agriculture and recreation, and to protect aquatic life, habitat and water quality during times of critical low flows. The Commission's regulations require that any consumptive use project meeting designated thresholds must submit an application in accordance with 18 CFR § 806.13. Such projects require review and approval subject to the standards set forth in § 806.22. All project sponsors whose consumptive use of water is subject to review and approval are required to mitigate such use.

Since passage of the original consumptive use regulation in 1976, the Commission's regulatory and management programs have developed and evolved in response to emerging science and changing standards. The Commission also has processed hundreds of consumptive use applications associated with new or modified projects. As the number of consumptive use approvals has increased, so have the complexities of managing and monitoring these projects throughout the Susquehanna River Basin. The Commission has conducted various planning efforts, technical studies, water use assessments and hydrologic modeling and analyses, which have influenced contemporary approaches to consumptive use mitigation for the basin.

The most comprehensive effort to assess current and projected mitigation needs, flow thresholds and monitoring, and to develop a mitigation strategy culminated in adoption of the Consumptive Use Mitigation Plan (SRBC, 2008). This plan estimated that current maximum potential consumptive use was approximately 882.5 million gallons per day (mgd) and was projected to increase by an additional 319.7 mgd to 1,202.2 mgd by 2025. The Consumptive Use Mitigation Plan laid out pathways for resolving outstanding questions and mitigation challenges. Recent work for the Cumulative Water Use and Availability Study (CWUAS) (SRBC, 2016) took a broad look at consumptive use in the Susquehanna River Basin. CWUAS leveraged monitoring data reported to the Commission and member state agency data to better quantify and characterize consumptive use and mitigation requirements for watersheds in the basin and assessed the effect of mitigation in offsetting consumptive use during drought conditions.

In consideration of the aforementioned plans and studies, further review of its experiences with projects, and in consultation with its member jurisdictions, the Commission

formulated this policy to provide insight into the determination of consumptive use mitigation to meet the standards set forth in 18 CFR § 806.22(b). This document serves to memorialize contemporary consumptive use mitigation principles and criteria utilized by the Commission in its determination of an acceptable manner of mitigation to be provided by project sponsors.

A. Definition of Consumptive Use

Commission regulations define consumptive use as the “loss of water transferred through a manmade conveyance system or any integral part thereof (including such water that is purveyed through a public water supply or wastewater system), due to transpiration by vegetation, incorporation into products during their manufacture, evaporation, injection of water or wastewater into a subsurface formation from which it would not reasonably be available for future use in the basin, diversion from the basin, or any other process by which the water is not returned to the waters of the basin undiminished in quantity.” § 806.3. Specific examples of consumptive use include the following:

- Transpiration due to irrigation, such as athletic fields and golf courses;
- Incorporation into products, such as concrete, food and beverage products;
- Evaporation, such as power plant cooling and losses from storage impoundments;
- Subsurface injection, such as hydraulic fracturing; or
- Out of basin diversion, such as public water supply systems with a point of return (e.g. wastewater treatment plant discharge) located outside the basin.

B. Regulation of Consumptive Use

Commission regulations require all consumptive use projects subject to review and approval under § 806.4, § 806.5, § 806.6 or § 806.17 to submit an application in accordance with § 806.13 or as provided for in the general permit and to be subject to the standards set forth in § 806.22. Except to the extent that a project involves the diversion of waters from the basin, public water suppliers are exempt from the consumptive use requirements. However, individual consumptive users connected to any public water supply or wastewater system are considered separate consumptive use projects and are required to meet consumptive use mitigation requirements. With the completion of specific low flow augmentation projects at several locations in the basin, agricultural water use projects are not subject to consumptive use requirements. Although agricultural water use projects located outside the basin that involve a diversion of waters from the basin are subject to these requirements.

Generally, projects that meet any of the following criteria are required to submit a consumptive use application to the Commission.

- Any project initiated on or after January 23, 1971, involving consumptive use of an average of 20,000 gallons per day (gpd) or more in any consecutive 30-day period.
- With respect to projects previously approved by the Commission for consumptive use, any project that will involve an increase in consumptive use above that amount which was previously approved.
- With respect to consumptive use projects that existed prior to January 23, 1971, any project that increases its consumptive use by an average of 20,000 gpd or more in any

- consecutive 30-day period. The amount of consumptive use prior to January 23, 1971, is known as “pre-compact” consumptive use.
- Any project, regardless of when initiated, involving a consumptive use of an average of 20,000 gpd or more in any 30-day period, and undergoing a change of ownership, unless the project satisfies the consumptive use requirements or the existing approval is properly transferred.
 - Any unconventional natural gas development project in the basin involving a withdrawal, diversion or consumptive use, regardless of the quantity.
 - Some modifications that include changes to sources of water used for consumptive use.

C. Standards for Consumptive Use Mitigation

Commission regulations at § 806.22(b) require that all projects whose consumptive use is subject to Commission review and approval mitigate their consumptive use in accordance with an approved mitigation plan. The mitigation plan proposed by the project sponsor shall include the method or combination of following methods:

- During low flow periods as may be designated by the Commission for consumptive use mitigation:
 - Reduce withdrawal, in an amount equal to the project’s total consumptive use, and utilize water from alternative surface water storage or aquifers, or underground storage facilities from which water can be withdrawn for a period of 45 days without impact.
 - Release water, in an amount equal to the project’s total consumptive use, for flow augmentation from surface water storage or aquifers, or other underground storage facilities from which water can be withdrawn for a period of 45 days without impact.
 - Discontinue the project’s consumptive use.
- Use, as a source of consumptive use water, surface water storage that is subject to maintenance of an acceptable conservation release.
- Provide monetary payment for annual consumptive use in an amount and manner prescribed by the Commission.
- Implement other approved alternatives.

The methods emphasize local solutions. Essentially, mitigation for consumptive use during designated low flow periods is required on a 1-to-1 basis by employing one or more of several methods in the regulation.

II. Consumptive Use Mitigation Periods

Commission regulation § 806.22(b)(1) assigns the responsibility to designate low flow periods for consumptive use mitigation to the Commission. Project sponsors planning to use physical mitigation methods - withdrawing or releasing water from a source of storage, or discontinuing the project’s consumptive use – would employ these methods only during consumptive use mitigation periods. Other methods of mitigation (monetary payment,

withdrawing from an impoundment covered by an acceptable conservation release and most alternative methods) are commonly implemented year-round.

The criteria the Commission intends to use for designation of consumptive use mitigation periods are based on analysis of hydrologic conditions and the assessment of basin wide stream flow modeling, and aligned with contemporary ecosystem protection recommendations. As described below, the Commission has determined:

- the most effective and efficient locations to monitor low flow conditions;
- appropriate low flow thresholds when mitigation should begin;
- the mitigation period, and
- the duration of mitigation.

A. Monitoring low flow conditions

Not all regions of the basin experience identical conditions in severe droughts, which has implications regarding the monitoring of streamflow and designating low flows that require mitigation. The Commission has adopted a “subbasin” approach to analyzing, monitoring and implementing consumptive use mitigation measures. The subbasins used are the six major Susquehanna River subbasins, as listed in Table 1 with the associated United States Geological Survey (USGS) streamflow gage that will be used for monitoring hydrologic conditions.

Table 1. Subbasins, Gages and their Modified JASON Monthly P95 Trigger Flow Thresholds

Subbasin	Gage	Jul. Trigger (cfs)	Aug. Trigger (cfs)	Sep. Trigger (cfs)	Oct. Trigger (cfs)	Nov. Trigger (cfs)
Upper Susquehanna	Susquehanna River near Waverly, NY	468	468	432	537	537
Chemung	Chemung River at Chemung, NY	96	96	85	99	99
Middle Susquehanna	Susquehanna River at Wilkes-Barre, PA	970	970	860	982	982
West Branch Susquehanna	West Branch Susquehanna River at Williamsport, PA	677	677	537	594	594
Juniata	Juniata River at Newport, PA	486	486	430	465	465
Lower Susquehanna	Susquehanna River at Harrisburg, PA	3510	3510	2990	3160	3160
Lower Susquehanna	Susquehanna River at Marietta, PA	3770	3770	3030	3670	3670

An additional stream gage, the Susquehanna River at Marietta, PA, is monitored due to its key role in identifying low flow compliance activities associated with the lower Susquehanna River power utilities including nuclear, fossil fuel, pumped storage and conventional hydroelectric plants, and the out-of-basin diversions of the Chester Water Authority and the City of Baltimore.

B. Thresholds when mitigation begins

Consumptive use mitigation criteria and standards for low flow protection associated with water withdrawal projects should be consistent, based on contemporary science and aligned with ecosystem protection recommendations. The Nature Conservancy’s (TNC) “Ecosystem Flow Recommendations for the Susquehanna River Basin” (TNC, 2010), as incorporated into the report “Susquehanna River Basin Ecological Flow Management Study” (2012) prepared by the

U.S. Army Corps of Engineers (USACE), forms the scientific basis for this policy as well as the Commission's Low Flow Protection Policy Related to Withdrawal Approvals (LFPP).

Consumptive use mitigation criteria will be based on a monthly flow threshold representative of natural flow regimes and protective of the species, natural communities, and key ecological processes within streams in the basin. TNC's critical low flow recommendation for main stem rivers is that there be no change to the long-term monthly 95th percent exceedance (P95) flow. Consistent with ecosystem flow provided in its LFPP, the Commission intends to utilize the monthly 95th percentile flow at the long-term subbasin gages as the flow threshold for designation of consumptive use mitigation periods. The threshold values are computed using the entire period of record for each of the trigger gages and will be periodically updated.

C. Critical low flow months

Although consumptive uses are occurring year round, the Commission has determined through hydrologic analyses that the critical months most susceptible to impacts from consumptive uses are July, August, September, October, and November (referred to as the JASON months). August, September, and October are acknowledged as priority months in the Commission's Consumptive Use Mitigation Plan because these months historically exhibit the lowest flows coinciding with the highest consumptive uses.

To conserve water storage for its release during the months with the most critical low flows, the Commission will apply the August P95 flow value as the trigger for consumptive use mitigation in July and the October P95 flow value as the trigger for consumptive use mitigation in November. The modified P95 flow values for key gages for the months July through November are listed in Table 1.

D. Mitigation duration

The standard for the duration of required mitigation has been reduced to a maximum of 45 days in any one year. Previously, the mitigation period was based on the duration of extreme hydrologic conditions (the drought of record) and could last up to 90 days. Analysis of the past 100 years or more of streamflow records show that the overwhelming majority of low flow periods would be adequately covered by a 45-day consumptive use mitigation period.

III. Consumptive Use Mitigation Plans

Commission regulations at § 806.22(b) require that all projects whose consumptive use is subject to Commission review and approval mitigate their consumptive use in accordance with an approved mitigation plan. Currently, most approved projects provide monetary payment for total annual consumptive use in lieu of providing actual mitigation water. This method makes the Commission responsible for a project's mitigation by providing funds for the acquisition and maintenance of water storage assets used to augment streamflow during low flow periods.

Generally, these releases are made to the main stem of the river from a limited number of water storage reservoirs located in the Susquehanna River's headwaters.

With the approved mitigation plan, the Commission is placing more responsibility on project sponsors to find other means of mitigation, in whole or in part, instead of relying exclusively on the payment method of mitigation. The regulation also reduces the consumptive use mitigation period to a maximum of 45 days and encourages a plan having several types of mitigation; these changes significantly reduce barriers to project sponsors considering mitigation that requires water storage.

The shift in approach should generate a greater variety of methods approved to mitigate consumptive use, including more local solutions, and should correspondingly reduce the number of projects paying the consumptive use mitigation fee. Moving forward, project sponsors will share the ongoing challenge to find and develop water storage facilities and consider other mitigation options. Having a large, integrated system that would eliminate consumptive use or replace it through secondary sources would benefit the Basin by allowing additional management flexibility of low flow augmentation and enhanced protection to instream habitat during low flow periods.

A project sponsor will submit its proposed mitigation plan as part of the application for consumptive use. That application will include specific instructions for plan preparation. However, in general terms, the narrative should fully evaluate all feasible options for providing consumptive use mitigation, explain the reasons for limiting consideration to those alternatives, and propose the most effective means for achieving consumptive use mitigation. The plan can have several elements, including descriptions of technologies to avoid consumptive use, conservation measures that will minimize consumptive use, and the most appropriate method or suite of methods to mitigate consumptive use.

If a single option is not feasible to mitigate all consumptive use of the project, the plan may contain several mitigation methods. For example, a project sponsor might propose to make releases in the amount of its consumptive use from storage. If the storage volume would be insufficient continue releases throughout a 45-day mitigation period, the plan could propose to utilize an alternate method of mitigation such as payment of the mitigation fee. If 80 percent of the anticipated consumptive water use could be handled through physical mitigation, the project sponsor would pay 20 percent of the fee on its total annual consumptive use.

The Commission will use a factored approach in its review of the proposed mitigation plan. The approved mitigation plan will become part of the project's docket approval; compliance with the approved plan will be required in conditions contained in the docket.

IV. Consumptive Use Mitigation Methods

In their mitigation plan, a project sponsor may propose to employ one or more of several options described in regulation, or propose alternative method(s). The mitigation methods listed in regulation are described further below.

A. Use storage during low flow periods

During prescribed low flow periods, project sponsors may propose to directly utilize water from an alternate source of storage for their consumptive use, thereby reducing their withdrawal by the amount of their consumptive use. Alternately, project sponsors may propose to make releases of water in the amount of their consumptive use from storage, providing flow augmentation during consumptive use mitigation periods.

The storage source could be an impoundment, lake, inactive quarry pool, aquifer, flooded mine, storage tank or other source; supplied by surface water, groundwater or other water source. The storage could be owned or controlled by the project sponsor, or owned by others and contracted for by the project sponsor. In its review, the Commission will evaluate the potential daily yield, the volume of available storage, the connectivity with groundwater and surface water features, and the orientation and proximity to the project. If being used as the alternate source of water for a project's consumptive use, the quality of the stored water would have to be acceptable for purposes of the project. If being released to a stream, the quality of the water source, raw or treated, would have to meet applicable federal and state requirements regarding discharges to receiving streams in the basin.

Using storage for mitigation must add water to the system to offset or compensate for losses related to the consumptive water use. The withdrawal from or release of storage should not divert natural groundwater discharge or augmented surface flows, or in any way further diminish natural inflow to the river systems during the consumptive use mitigation period. Any impacts from a withdrawal should occur outside of a designated mitigation period when hydrologic conditions are beginning to recover or flows have returned to normal levels.

The storage volume should be sufficient to supply, or provide releases offsetting, the project's total daily consumptive use during all or a significant part of a consumptive use mitigation period. Non-consumptive water could continue to be withdrawn from the primary source(s); however, withdrawals from any source may not be used to contribute to storage during the mitigation period. If the mitigation resources are not sufficient to provide coverage for the entire consumptive use over a period of 45 days, an additional mitigation method must be proposed to be implemented after the volume of storage has been depleted.

In its review of a proposed source of storage, the Commission will also evaluate its potential to be refilled within a reasonable period of time.

B. Discontinue consumptive use during low flow periods

In lieu of providing actual mitigation water, a project sponsor may discontinue all of its consumptive use during the consumptive use mitigation period, or a significant part of such period. Withdrawals related to other non-consumptive project uses and operations would not be affected.

C. Use surface water storage that is subject to maintenance of an acceptable conservation release

Using as the primary source water that is withdrawn from a storage impoundment may be accepted as mitigation, provided the impoundment is subject to the maintenance of a required conservation release that is acceptable to the Commission. A conservation release is defined as a prescribed quantity of flow from an impoundment structure that must be continuously maintained downstream of the impoundment for low flow protection. Conservation releases are intended to protect aquatic resources and downstream uses, prevent water quality degradation, and adverse lowering of streamflow levels.

The mandated flow must be released throughout the life of the impoundment, not only during periods of low flow but also when the reservoir is refilling to replenish its storage. The impoundment may be publically or privately owned or controlled. However, public water supply reservoirs that serve as the system's primary source of water supply commonly do not have sufficient storage to assure releases during extended droughts.

D. Monetary Payment

The payment of fees for total annual consumptive use is intended to efficiently aggregate mitigation needs of "small" consumptive use projects and provide funds to allow the Commission to undertake the acquisition and maintenance of large-scale storage projects. These projects provide releases during consumptive use mitigation periods on behalf of the consumptive use projects paying the fee. Rather than replacing the consumptive use actually occurring at that time, water is generally released according to a low flow operation schedule to augment streamflows whenever the flow at key river gages drops below a specified level.

The payment, remitted to Commission after each quarter of operation throughout the year, is based on the actual reported daily consumptive use multiplied by the mitigation rate published in SRBC's Regulatory Program Fee Schedule. The mitigation rate may be adjusted by the Commission annually.

E. Other Alternatives

Other alternatives may be acceptable if shown to contribute to offsetting consumptive use during critical low flow periods. Alternative methods might include extraordinary water conservation measures, utilization of lesser quality waters for consumptive use, consumptive use avoidance through use of alternative types of highly efficient cooling technologies or other "non-traditional" means of consumptive use mitigation. As appropriate and if supported by documentation, the Commission in the future may develop criteria for the consideration of treatment of abandoned mine discharge, floodplain protection, recharge enhancement and other best management practices as part of an acceptable consumptive use mitigation plan.

V. Consumptive Use Mitigation Factors

The regulations provide that the "Commission, in its sole discretion, [shall] determine the acceptable manner of mitigation to be provided by project sponsors whose consumptive use of water is subject to review and approval." § 806.22(c). The regulations also state that the Commission may modify the manner of mitigation required in a project approval. Due to the

consumptive use program's focus on basin-wide impact avoidance and supporting flows to the Chesapeake Bay, the Commission may consider a broad scope of mitigation methods, based on individual project characteristics and constraints.

Acceptability of the proposed mitigation plan is heavily dependent on several factors, among the most critical being the anticipated amount of consumptive use coupled with the low flow characteristics of the potentially impacted watershed. The Commission is increasingly concerned about the availability of water to meet immediate and future needs as water is needed to satisfy the continuing prospect of growing population and increasing demands for drinking water, freshwater inflow to the Chesapeake Bay, power generation, industrial activity, commercial uses, recreation and ecological diversity. Water resources are neither limitless nor equally distributed across the basin, and in some areas the demand for and use of water resources may be approaching or exceeding the sustainable limit.

In making its determination concerning the mitigation plan proposed by a project sponsor, the Commission will consider: the project's location; water source characteristics; anticipated amount of consumptive use; proposed method of mitigation and their effects on the purposes set forth in § 806.2; and any other pertinent factors. These factors are described below to inform various elements of project planning and preparation of a proposed mitigation plan.

A. Project Location

The Commission recognizes that proposed facility locations in particular areas of the Basin can exacerbate issues and impacts related to consumptive use due to overall limited water availability, increasing and competing demands, and higher water quality.

Limited water availability. Hydrologic settings with limited water capacity available to support water resources development as a function of local watershed characteristics and hydrologic conditions pose a serious challenge for securing consumptive use makeup water. These areas include Water Challenged Areas identified in the Commission's Groundwater Management Plan, water critical areas, and areas along the Basin divide. As appropriate, Resolution No. 2015-01 requires that project sponsors proposing consumptive water use for the purposes of cooling in headwater settings must consider the use of dry cooling technologies to reduce consumptive use.

Increasing and competing demands. The location of a project in a Commission-identified Potentially Stressed Area or a water critical area will also be a factor used by the Commission in determining the manner of acceptable mitigation. Potentially Stressed Areas are areas where high existing or projected cumulative water use is anticipated to exceed long-term sustainability of water resources or cause conflicts among water users. Critical water planning areas designated by member jurisdictions or the Commission are defined in regulation as areas where potential shortages due to drought are projected or intense competition among water users exists. Project sponsors proposing consumptive water use in these settings should consider using available technologies to avoid/reduce consumptive use.

Areas in the Lower Susquehanna River Subbasin have concentrations of consumptive use due to the more densely distributed population and industry, and the location of major diversions

for Baltimore and Chester and two nuclear power plants. In particular, projects locating on the Conowingo Pond require special consideration related to water use impacts and mitigation measures.

Water quality. Certain high quality settings with state designated use protections indicative of unique chemical and biological conditions may be particularly sensitive to water use impacts, such as Aquatic Resource Class (ARC) 1 sources with Exceptional Value (EV) protected water uses. The location of a project in areas of higher water quality will be considered in determining the manner of acceptable mitigation.

B. Water Source Characteristics

The specific characteristics of the water source are a critical factor considered in determining the acceptable manner of mitigation to be provided by project sponsors. This includes the source type. Consumptive uses utilizing stream sources are more likely to have an immediate impact on low flow conditions than sources such as impoundments and groundwater that typically exhibit a delayed influence on low flows as a function of water storage. This would also hold true for a small withdrawal relative to the main stem river. These moderated effects due to storage dynamics may suggest that localized mitigation is not as critical as it might be for consumptive uses directly from riverine sources.

Source water quantity and quality are also key factors to be considered regarding acceptable consumptive use mitigation. These characteristics can differ substantially across the basin and various stream types. Larger surface water sources are less sensitive than those in areas with limited water availability to impacts from consumptive use. Sources with compromised water quality may be preferable options for consumptive use as compared to pristine sources, as described in SRBC Resolution No. 2012-01 adopting a policy for use and reuse of lesser quality waters.

The regulations for consumptive use of water contain the provision that “Any consumptive use project described below shall require an application to be submitted in accordance with § 806.13, and shall be subject to the standards set forth in § 806.22, and, *to the extent that it involves a withdrawal from groundwater or surface water, shall also be subject to the standards set forth in § 806.23 [Standards for water withdrawals].*” § 806.4(a)(1), emphasis and note added.

Therefore, withdrawals from any proposed source of consumptive use are evaluated for sustainability and limited to the amount of water that can be withdrawn without causing potential significant adverse impacts. Significant adverse impacts may include among others excessive lowering of water levels, rendering competing supplies unreliable, degradation of water quality, adversely affecting fish, wildlife or other living resources or their habitat, and substantially impacting the low flow of streams. Groundwater withdrawals, including those from quarries, will be evaluated for the degree of hydraulic connection to streams.

This section of the regulations also contains the requirement for an alternatives analysis for new surface water withdrawal projects in settings with a drainage area of 50 square miles or less, in a waterway with higher water quality, or if prompted by a request from the Commission.

In the Commission's review, consideration will be given to potential impacts from the consumptive use of water from alternative sources.

C. Anticipated Amount of Consumptive Use

The magnitude of the consumptive use will be evaluated as an absolute quantity, a quantity relative to the drainage area at the point of withdrawal, and a cumulative quantity of consumptive use in the hydrologic subbasin. In its mitigation plan, a project sponsor should propose water conservation measures as appropriate to reduce the amount of consumptive use and burden of mitigation given the water availability within a particular hydrologic setting and as appropriate to the proper conservation of the waters of the basin.

In addition to the *maximum* amount of water reasonably expected to be consumed on a peak day of project operation requested in an application, the Commission will also evaluate for each calendar month the average amount of water reasonably expected to be consumed, based on projections for new projects or monitoring data for existing projects. These data may be used to demonstrate the seasonality of consumptive use, capacity limitations or variability in product demand.

Of particular concern is the amount of consumptive use likely to be consumed during the months of July through November. These consumptive use quantities most closely relate to potential impacts and associated mitigation strategies, including calculations of storage.

D. Proposed Method of Mitigation and their effects on the purposes set forth in § 806.2

Mitigation methods proposed in the mitigation plan will be evaluated for feasibility and effectiveness of consumptive use mitigation, as a local solution to potential impacts at the source, for cumulative impacts in the watershed, and mitigation for global impacts to the basin.

Mitigation Location. In consideration that mitigation is based on the elimination of manmade impacts caused by consumptive use during low flows and the return to natural flow conditions, location of mitigation affects both the level of local benefits and basin-wide impacts.

Regardless of the method, any mitigation located at the project site most effectively eliminates potential adverse impacts, locally and basin-wide, and therefore is preferred by the Commission. Mitigation at other locations always involves a site-specific evaluation to weigh benefits and consequences.

Mitigation through releases from storage at a location upstream of the project in the same watershed would likely eliminate any adverse impacts downstream from the project site. However, flows would be increased above natural levels in the reach upstream from the project, which may adversely impact a sensitive stream and, therefore, require an evaluation of the hydraulic capacity of the intervening reach. Also, benefits at the project site could be reduced or delayed due to bank storage and time of travel considerations.

Location should be evaluated for overall proximity and the potential benefits from mitigation at a selected location. In descending order, the general desirability of mitigation locations is:

- at the project site,
- upstream of the project in the same watershed,
- downstream of the project in the same watershed,
- upstream of the project in the same SRBC subbasin, and
- downstream of the project in the same SRBC subbasin.

Due to its use of a “subbasin” approach to analyze, monitor and implement consumptive use mitigation measures, the Commission generally finds mitigation locations proposed upstream of the project in a different subbasin or downstream of the project in a different subbasin to be less desirable than other methods.

Mitigation Options. Although ultimately dependent on specifics of the project and mitigation plan, the mitigation methods listed in regulation are ranked considering their relative effectiveness (local, regional and basinwide), issues related to implementation, and ease of compliance monitoring. In descending order, the general desirability of mitigation options is:

- discontinue consumptive use,
- use water from a storage facility that maintains a conservation release,
- reduce withdrawal in amount equal to consumptive use and withdraw from alternative surface or underground storage facilities,
- release water for flow augmentation, in amount equal to consumptive use, from surface or underground storage facilities,
- implement other alternatives approved by the Commission, and
- provide monetary payment for annual consumptive use.

In general, the preference is for mitigation that avoids any adverse impacts, provides compensatory water, and utilizes other alternatives including “non-traditional” means of mitigation. Where discontinuance is possible, this method of mitigation not only stops the impacts to downstream uses and the ecosystem but also assures no further impacts will be created elsewhere in the Basin.

Consumptive Use Mitigation Sources. Proposed water sources should be feasible, have sufficient storage volume to meet the needs of the project, acceptable water quality for use or discharge, and provide actual mitigation that benefits the water resources of the Basin. Due to the wide variety and numerous types of potential water sources, each proposed source will be evaluated in accordance with site specific criteria in addition to the general criteria outlined below:

- Water sources should be located in or adjacent to the Susquehanna River Basin such that consumptive use mitigation can benefit receiving streams within the basin.

- Water sources should be surface water storage, aquifers or other underground storage chambers, or facilities available during low flow periods in the basin.
- As appropriate, water sources should be available for releases for flow augmentation during low flow periods in the basin, typically from July through November.
- As appropriate, water sources or storage tanks should have adequate storage volume for direct withdrawals that satisfy the project's consumptive use.
- Water sources should be hydraulically isolated and capable of providing releases of water to augment streamflow without otherwise impacting surface water flows.
- The storage volume should be sufficiently large for a significant daily yield for a total mitigation period of 45 days, or some portion thereof.
- The quality of the water source, raw or treated, should be able to meet applicable federal and state requirements regarding discharges to receiving streams in the basin.
- Release rates from water sources should be appropriate considering the natural flow regime and hydraulic capacity of the receiving stream.

Monetary Payment. The decision to accept the consumptive use fee instead of other mitigation options is based primarily on the magnitude of the consumptive use itself, relative to the drainage area at the point of impact, and the cumulative water use in the subbasin. The fee is commonly the only feasible option for projects using public water supply as their exclusive water source and is likely appropriate for “small” projects in many hydrologic settings.

Project sponsors intending to undertake large projects, generally having a consumptive use of 5 mgd or more, require substantial capital investment and benefit from project planning efforts and significant professional expertise. Therefore, it is likely feasible that the project sponsor also has the capability to bear its obligation to acquire storage for consumptive use mitigation. For these projects, payment of the fee may not be acceptable as the exclusive method of mitigation.

If the magnitude of consumptive use is large relative to the size of the drainage area, the Commission will evaluate issues related to project location and the fee may not be acceptable as the exclusive method of mitigation.

E. Other Pertinent Factors

With due regard for all approval standards, applicable laws, and other safeguards, the Commission may consider other pertinent factors in making its determination of the acceptable manner of mitigation to be provided by project sponsors. Although the pertinent factors will be specific to a particular project and proposed mitigation plan, in general, these may include:

- **Extraordinary water conservation, reuse, and recycling.** This could include consumptive use projects proposing to implement water conservation measures that significantly exceed the Commission's standards cited in 18 CFR § 806.25, use and reuse lesser quality water as a primary source as encouraged by Commission Resolution No. 2012-01, or employ dry cooling technology for power generation and other facilities as described in Commission Resolution No. 2015-02. Although not a direct offset of consumptive use, these techniques can complement other initiatives by decreasing the amount of water (or higher quality water) consumptively used, thus lessening the impact of consumptive use on the water resources of the basin.
- **Public health and safety.** This could include consumptive use projects involving out of basin diversions for legitimate public welfare considerations, remediation and treatment facilities to address groundwater contamination, spills, suppression of underground mine fires and other projects related to public health and safety.
- **Economic significance.** This could include consideration of economic development factors and an evaluation of costs, benefits, trade-offs and drawbacks of various options for providing effective consumptive use mitigation.

VI. Coordination and Implementation

Recommendations developed under this Policy are subject to approval and action by the Commission. The Commission will coordinate with the appropriate agencies of its member jurisdictions in the review of consumptive water use applications and evaluations undertaken pursuant to this policy.

In accordance with the Commission's Comprehensive Plan and 18 CFR §806.22, the Commission may for any project modify the consumptive use mitigation method or increase the conservation release requirement above the amount determined using its standard ecosystem protection guidelines, limit the consumptive use volume or rate, or deny a request for a new or increased consumptive use in cases where sensitive environmental resources or water quality may be adversely impacted. The Commission will not approve a proposed consumptive use that would violate an anti-degradation provision for the protection of existing water quality or would cause significant adverse impacts to the water resources of the Susquehanna River Basin.

With regard to the review of an application to consumptively use water from an impoundment for which a member jurisdiction has issued an approval imposing a conservation release, the Commission will coordinate with the member jurisdiction to determine whether such condition is sufficient for consumptive use mitigation and otherwise meets the objectives of this Policy.

This Policy is applicable to the review of all applications for: (1) new consumptive use projects; (2) project modifications proposing to increase consumptive use; or (3) consumptive use projects subject to renewal.

This Policy is also applicable on a case-by-case basis where: (1) a project modification is proposed to physical features, operations or consumptive use that would increase its impact on streamflow or other surface water features; (2) a consumptive use project was previously unregulated but becomes subject to review and approval pursuant to 18 CFR §806.4; or (3) a project approval transfer is proposed that is subject to the requirements of 18 CFR §806.6(d). However, where the application of this Policy would result in the imposition of a new or modified consumptive use mitigation condition, the Commission will consider the technical feasibility, economic implications, environmental considerations, provision for water storage, flow augmentation measures, and any other pertinent factors it deems appropriate in its case-by-case determination of consumptive use mitigation requirements for such existing projects.

For existing projects undergoing approval, modification, renewal or transfer, where the application of the Policy would result in the imposition of a new or modified consumptive use mitigation condition, the Commission may also establish interim operating conditions of appropriate duration on a case-by-case basis for such projects.

The Commission reserves the right, upon due notice to the project sponsor, to apply this Policy to any existing consumptive use project whenever it determines that continued operation of such project is causing, or may cause, significant adverse impact to the water resources of the Susquehanna River Basin.

In addition, nothing set forth in this Policy prevents the Commission from varying from the policy as specific circumstances may dictate, provided the actions comply with applicable statutory and regulatory authority. Finally, prioritization of water use during extreme low flow conditions is appropriately established by the Commission pursuant to its drought emergency powers under Section 11.4 of the Susquehanna River Basin Compact, in consultation with its member jurisdictions, rather than under this Policy.