Surface Water Considerations for Public Water Suppliers

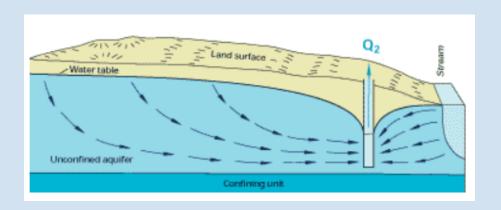
Michael F. College, P.E.

Scenarios (for PWS, surface water)

Direct withdrawal from surface water (SW):

- NY MOU w/NYSDEC
- PA MOU w/PADEP
- MD No existing MOU





Groundwater (GW) withdrawal with surface water impacts:

 Coordinated review with SRBC groundwater staff

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GW Withdrawal Impacting SW



GW Withdrawal Impacting SW





GW Withdrawal Impacting SW





Aspects of Surface Water Review

- Notifications
- Reasonable Foreseeable Need
- Environmental Screening
 - Aquatic Resource Survey
- Access
- Storage
- Metering & Monitoring
- Drought Plans
- Feasibility

- Intake Design
- Source Redundancy
- Water Conservation
 - Unaccounted for Water
 - Per Capita Use
 - Water Conservation
 Program / Leak Detection
 - Metering of Users
- Passby Flows
 - Low Flow Protection Policy (LFPP)



SRBC Low Flow Protection Policy (LFPP)





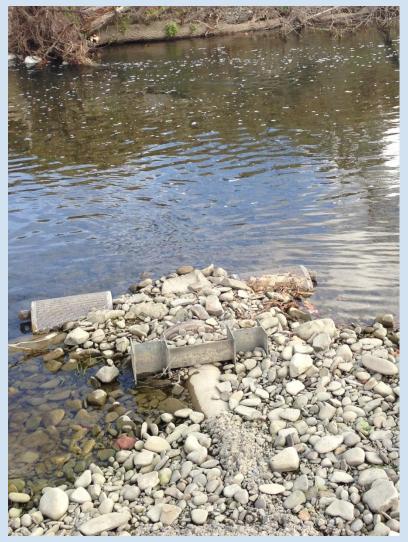
Mike College mcollege@srbc.net 717-238-0423 x1238





Terminology

- Passby Flow:
 - Prescribed quantity of flow (water) that must be allowed to pass the point of impact at all times when a withdrawal is occurring.
 - The amount of water that has to "pass by" the point of withdrawal during low flow events.
 - Think 'interruptible' withdrawal.
 - Is <u>not</u> meant to supplement naturally occurring low flow conditions.





SRBC Low Flow Protection Policy (LFPP)



Ecosystem Flow Recommendations for the Susquehanna River Basin

Report to the Susquehanna River Basin Commission and U.S. Army Corps of Engineers



Submitted by The Nature Conservar

November 2010

Season	Flow	Flow Statistic	Flow	Recommendations		
	Component					
	·		Headwater streams < 50 sq mi	Streams and small rivers (50 – 200 sq mi)	Major tributaries and mainstream (>200 sq mi)	
Annual and Interannual Events	High Flows	Large flood	Maintain magnitude and frequency of 20-yr flood	Same for all streams	Same for all streams	
		Small flood	Maintain magnitude and frequency of 5-yr flood	Same for all streams	Same for all streams	
		Bankfull	Maintain magnitude and frequency of 1 to 2-yr high flow event	Same for all streams	Same for all streams	
All Months	High flows	Monthly Q10	< 10% change to magnitude of monthly Q10	Same for all streams	Same for all streams	
	Seasonal flows	Monthly Median	Between 45 th and 55 th percentiles	Same for all streams	Same for all streams	
		Monthly Range	< 20% change to area under curve between Q10 and Q75	Same for all streams	Same for all streams	
	Low flows	Monthly Low Flow Range	No change to area under curve between Q75 and Q99	≤ 10% change to area under curve between Q75 and Q99	≤ 10% change to area unde curve between Q75 and Q99	
		Monthly Q75 Monthly Q95	No change	No change	No change	
Fall	High flows	Frequency of events > Monthly Q10	NA	NA	Maintain 1-5 events	
Summer		Frequency of events > Monthly Q10	Maintain 2-8 events	Maintain 2-8 events	Maintain 2-8 events	

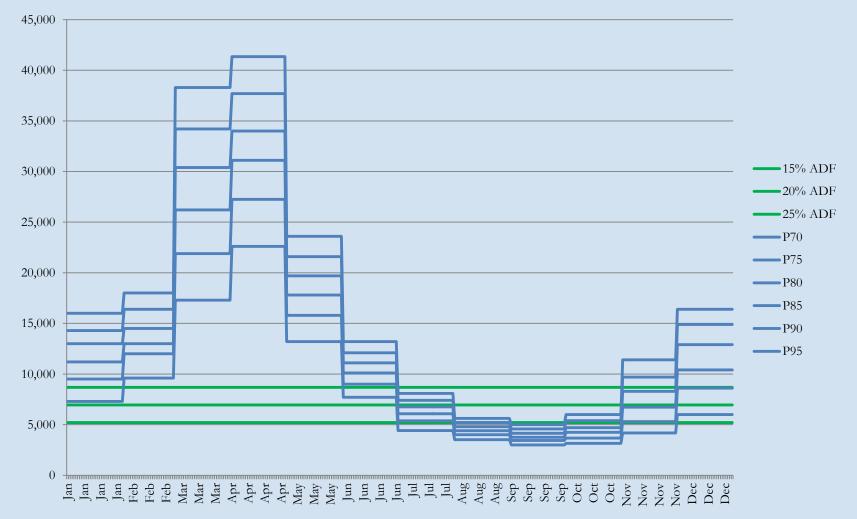


Low Flow Protection Policy 2012-01 (LFPP)

- Replaced previous "passby" policy (No. 2003-01).
- Ensures flow alterations related to withdrawals do not cause significant adverse impacts to water resources during low flows.
- Incorporates scientific advances in ecosystem flow protection criteria.
- Used to establish limits and conditions on withdrawal approvals or supports a denial of an application request where such standards cannot be met.



Susquehanna River @ Harrisburg



Susquehanna River Basin Commission

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Aquatic Resource Class (ARC)

ARC	Description	Drainage Area (square miles)	Total Stream Length (miles)	Percent Composition	
1	Headwaters	<=10	40,421	81	
2	Creeks	>10 <50	4,357	10	
3	Small Rivers	>=50 <200	2,139	4	
4	Medium Tributary Rivers	>=200 <1,000	1,300	3	
5	Medium Mainstem Rivers	>=1,000 <5,000	467	1	
6	Large Rivers	>=5,000	582	1	
* For pla	anning purposes, maps showing ge major hydrologic subbasins are pr	eneralized ARC stream d	esignations in the Susqueh	anna River Basir	



ARC 1 (2 mi²)

ARC 3 (64 mi²)

ARC 6 (8,880 mi²)

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ARC 1 (2 MI²)



ARC 3 (64 MI²)





ARC 6 (8,880 MI²)





De minimis Thresholds

De minimis withdrawals:

"Unless a proposed net withdrawal, evaluated both <u>individually and</u> <u>cumulatively</u>, is considered by the Commission to be <u>too low in magnitude to</u> <u>have any appreciable effect on instream flows</u>, a passby flow or conservation release condition will be imposed in the approval. *De minimis* withdrawal thresholds are stepped by ARC as previously described (see Table 2)."

ARC 5 ARC 6				Tuble 2. De minimis minuruwai Intesnotas by Aquate Resource Class							
ANC 5 ANC 0	ARC 4	ARC 3	ARC 2	ARC 1							
6 monthly 10% monthl P95 P95	5% monthly P95	5% monthly P95	5% monthly P95	None							
	2	5	5	None							

Table 2. De minimis Withdrawal Thresholds by Aquatic Resource Class

Passby Flow

When Recommended?

Individual Instantaneous withdrawal is greater than de minimis threshold

OR

Cumulative Water Demand (Proposed Withdrawal + Existing Upstream Users) is greater than de minimis threshold

Percent Exceedance Value Method – Used throughout the basin in rivers and streams
of varying sizes, and based on ARC. Variability in climate, geology, and hydrology
among physiographic provinces and states is accommodated for in the selection of
representative reference stream gages or applicable regional regression equations
used to compute the monthly percent exceedance values. The calculated monthly
passby flow/conservation release values are the standard thresholds for low flow
protection. Percent exceedance flow values are specified as the required monthly
passby flow/conservation release values according to Table 3 below.

Table 3. Passby Flow/Conservation Release Schedule

ARC 1	ARC 2	ARC 3	ARC 4	ARC 5	ARC 6
monthly P70	monthly P75	monthly P80	monthly P85	monthly P90	monthly P95



LFPP – Additional Considerations

- Exceptional Quality Waters
- Impaired Waters
- Monthly vs. Seasonal Statistics (Operational Impacts)
- Project Specific Instream Flow Studies
- Agency Coordination
- Sensitive Resources
- Impacts to Flow Variability (Median Flows)
- Conservation Releases (Reservoirs)
- PA-MD Instream Flow Study (PA-MD IFS) Method

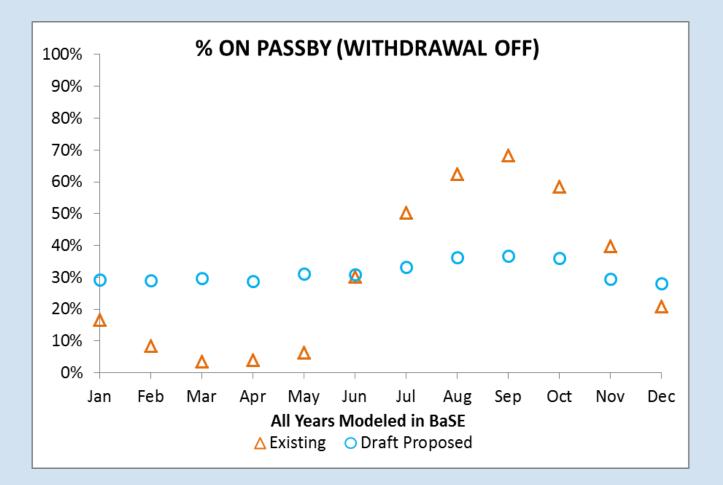


LFPP - Discretion

- Policy/Technical Guidance vs. Regulation
- Case-by-case Considerations
 - Gross vs. Net Withdrawal
 - PWS Point of return
 - Storage/Impoundments
- Existing Withdrawal Projects
 - Previously unregulated w/o passby flows
 - Renewals (w/o increase)
 - Was the quantity previously used?
- Alternative Sources
- Interim operating periods



Passby Sample Previous vs. Current Policy



Susquehanna River Basin Commission

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Passby Sample Previous vs. Current Policy





PADEP – MOU applicable to surface water PV

(as applicable to surface water PWS)

MEMORANDUM OF UNDERSTANDING BETWEEN THE SUSQUEHANNA RIVER BASIN COMMISSION AND THE PENNSYL VANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION REGARDING COORDINATION OF PROJECT REVIEW FUNCTIONS

THIS MEMORANDUM OF UNDERSTANDING is made by and between the Susquehanna River Basin Commission, a (ederal-interstate compact agency (the "Commission" or "SRBC") and the Pennsylvania Department of Environmental Protection ("DEP"). WHEREAS,

- The Susquehanna River Basin Compact, P.L. 91-575, Section 3.2 declares that "It is the policy of the signatory parties to preserve and utilize the functions, powers and duties of the existing locities and agencies of government... and the Commission is directed to utilize those offices and agencies for the purposes of this compact." And
- Section 3.7 (2) of the Compact further declares that the Commission may employ any other agency or instrumentality of a signatory party for any purpose; and
- Section 3.10 (1) provides that to assure that the Commission is apprised of all projects within the basin, monthly reports and listings of all permits granted or similar actions taken by officers or agencies of the signatory parties shall be submitted to the Commission in a manner preservibed by it; and
- Section 3.10 (1) further provides that those projects which also require Commission approval shall be submitted to the Commission through appropriate offices or agencies of a signatory party; and
- Section 3.10 (5) provides that the Commission, after consultation with the appropriate offices or agencics of the signatory parties, shall establish the procedure of submission, review and consideration of projects; and
- Commission Regulation Section 803.6 provides that, to avoid duplication of work and to cooperate with other government agencies, the Commission may develop agreements of understanding with agencies of the signatory parities regarding joint review of projects; and
- Such agreements may inter alia, outline the procedures for joint review and delegate SRBC approval authority to a signatory agency.

NOW THEREFORE, the parties to this memorandum set forth the following as the terms and conditions of their understanding:

- Adopted 1999
- Establishes procedure for coordinated, concurrent review
- PADEP is primary



PADEP – MOU (as applicable to surface water PWS)

- Applicant submits application to PADEP
- PADEP provides copy of application to SRBC
- SRBC provides comment to PADEP
- PADEP duly considers comments
- PADEP provides copy of issued (final) Water Allocation Permit (WAP) to SRBC
- If in agreement SRBC accepts WAP as SRBC approval
- SRBC can require separate application





20170311

	State Collage Borough Water Acaberla	RECEIVED	Permit No.	.WA14-473B
	State College Borough Water Authority Centre Count	Sesconhanna River	a wettind 190	
	WATES	ALLOCATION PERM	<u>ur</u>	
SRBC USQUEHANNA RIVER ASIN COMMISSION Y • P\$2* MD • USA	4423 N. Front Street Harrisburg, PA 17 April 4, 2017	110-1788 717.238.0423 +	abc.net	i by the Act of and Natural t of December 3, rative Code, as ty vested in and known as the Wat principal offices for public water rights in the um of 500,000 Roaring Run,
Mr. Brian Heiser				exclusive
Assistant Executive Direct				test in, to or over
State College Borough Wa 201 West Branch Road	tter Authority			ny injury to priva I laws or
State College, PA 16801				ary.
н	a River Basia Commission Approval – Doc State College Borough Water Authority. Shingletown Gap Reservoir – Roaring Run arris Township, Centre County, Pennsylva DEP Water Allocation Permit No. WA 14–	L Haj		st day of May, eveloped as set fo part thereof, ons, regulations a
Dear Mr. Heiser:				only, provided,
application for Water All College Borough Water A Environmental Protection permit as approved and o § 806.7 and the Memora	River Basin Commission (Commission) ocation Permit No. WA 14-473B and the Authority on January 20, 2017, by the P (PADEP). The Commission concurs v onditioned by PADEP. Pursuant to Comm adum of Understanding between the Cor- your approval from the Commission und	permit issued to the St ennsylvania Department with the January 20, 20 mission Regulation 18 C mmission and PADEP, th	of 17. FR his	hin a period of for der this permit, or h this permit is r hereby allocated rmittee an n's Northcentral
8 CFR Part 806, and i Commission Docket No. 1	s identified as Commission Docket No. 9920104 shall be considered expired effect) days of the receipt of this letter, the proje	20170311. Additional ive January 20, 2017.	lly,	o operate and of water withdraw ly basis to the Drinking Water
ap to January 20, 2017, m	ust be uploaded on the Commission's Moni	toring Data Website.	64.,	mes for inspectio
an appeal to this action ma notice. All appeals must Regulation 18 CFR § 808 made under this section st	ission Regulation 18 CFR § 808.2 relatin y be made to the Commission within thirty be made in writing and conform to the re 2. Pursuant to Commission Regulation 11 ays the commencement of the ninety (90)- usquehanna River Basin Compact.	(30) days of receipt of t quirements of Commissi S CFR § 808.2(i), an app	his ion eal	ess than 0.42 cub the Roaring Run lions per day or 0.
18 CFR § 808.2 is not a	filing of an administrative appeal pursuan mandatory prerequisite to an aggreved p District Court pursuant to Section 3.10(6)	arty filing an appeal to t	the	
			serving	
		usquebanna.River V		

PADEP – MOU (as applicable to surface water PWS)

- Existing SRBC docket (issued prior to MOU being effective)
 - Submit letter to SRBC requesting submission of WAP renewal to PADEP (as part of the MOU process) to be considered renewal application.
 - Prior to 6-months before docket expiration
 - Submit WAP renewal to PADEP.
- Questions
 - Contact SRBC staff



Consumptive Use of Water

• From § 806.4(a)(1):

Except to the extent that they involve the diversion of the waters of the basin, public water supplies shall be exempt from the requirements of this section regarding consumptive use; provided, however, that nothing in this section shall be construed to exempt individual consumptive users connected to any such public water supply from the requirements of this section.

- Except for diversions, PWS are exempt.
- Does not exempt individual users supplied by PWS that exceed 20,000 gpd (30-day average)



hanna River Basin Commission



Credits: Dickinson College/Mayapple Golf Course, Panda Power/Gemma Power Systems, Hershey

Community Archives,

srbc.n.

