

MINNESOTA DNR ECOLOGICAL AND WATER RESOURCES

Guidelines for Suspension of Surface Water Appropriation Permits Revised: January 2012

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Introduction

Suspension of surface water appropriation permits takes into consideration a number of factors including water allocation priorities defined in Minnesota Statutes and whether the appropriation involves a consumptive use of water. Other factors, such as the season of appropriation, resource impacts, coordination on interstate boundary waters, and special circumstances, as determined by the Director of DNR Ecological and Water Resources, are also considered when determining what appropriations should be suspended. These guidelines provide background on statutory requirements and general criteria that are considered in determining what surface water appropriation permits will be suspended during periods of specified low flows and water levels.

Suspension Procedures

1. Limits on Surface Water Appropriations

Minnesota Statutes, section 103G.285, subdivision 2 directs the DNR to limit consumptive appropriations of surface water under certain low flow conditions:

If data are available, permits to appropriate water from natural and altered natural watercourses must be limited so that consumptive appropriations are not made from the watercourses during periods of specified low flows. The purpose of the limit is to safeguard water availability for instream uses and for downstream higher priority users located reasonably near the site of appropriation.

Instream uses include fish and wildlife habitat, navigation, water-based recreation, and aesthetics. The DNR Division of Ecological and Water Resources studies river habitats to determine optimal flows for fisheries and aquatic invertebrate habitat. This research supports instream flow protection.

DNR Ecological and Water Resources and the Division of Fish and Wildlife agreed that the annual Q90 exceedance flow value should be used as the specified low flow value for suspending certain surface water appropriations until specific watershed protection levels are established.

The annual Q90 exceedance flow value is the stream discharge that statistically was exceeded 90% of the time during the period of record analyzed. The Inventory, Monitoring, and Analysis Section provides annual Q90 flow values based on available flow records. Current annual Q90 values are reviewed through Water Year 2010. The annual Q90 values will be updated every five years using the available period of record for the gage. All subsequent references to Q90 in this document are to the "annual" Q90.

Figure 1 shows locations where the use of surface water is authorized under water appropriation permits, including uses that would not be subject to suspension.

2. Suspensions Implemented by Major Watershed

Suspensions of surface water appropriation permits are implemented on a watershed basis using Minnesota's 81 major watershed units. This watershed delineation is widely used, and derives from a watershed mapping project funded by the Legislative Commission on Minnesota Resources in the 1970's. Figure 2 shows the locations of the major watershed units and designated stream flow monitoring gage sites.

Permit suspension decisions make use of flow data received from designated monitoring gages and flow measurements made at designated gage sites to verify low flows. Suspension procedures apply to all surface water sources within the entire major watershed.

3. Suspension Considerations

Suspension procedures are activated within a major watershed when the average daily flow at the designated major watershed monitoring gage is at or below Q90 for 120 hours. The designated major watershed monitoring gage is the best available gage for reflecting local flow conditions within that major watershed. Because of significant gaps in Minnesota's stream flow monitoring network, the best available monitoring gage may be located in a different major watershed.

The designated monitoring gages for the Marsh River (#59), Thief River (#65), and Snake River (#68) watersheds all have Q90 values of 0 cfs. This also affects the Grand Marais Creek (#67) and Tamarack River (#69) watersheds because the Snake River watershed gage is used as their suspension trigger. Watersheds with a Q90 value of 0 cfs are subject to suspension when there has been no measurable flow for 120 hours. A Q90 value of 0 cfs indicates that the stream can be expected to have no flow 10% or more of the time. Streams with a Q90 of 0 cfs have minimal base flow (ground water discharge into the stream), and issuance of new surface water appropriation permits on these streams is discouraged consistent with Minnesota Rules, part 6115.0670, subpart 3A (2&3).

In major watershed #20, Mississippi River (Metro), the levels of Long Lake (62-67) in the City of New Brighton and Medicine Lake (27-104) in the City of Plymouth are used in conjunction with flow at the Elm Creek gage to make suspension decisions. Suspension of surface water appropriation permits will be considered if all of the following three thresholds are reached: Long Lake is at or below elevation 864.39 feet (Ramsey County lake gage 1912 datum), Medicine Lake is at or below elevation 887.26 feet, and flow at the Elm Creek gage is at or below 1.6 cfs. When flow at the Elm Creek gage is below 2.5 cfs, DNR Ecological and Water Resources area staff are responsible for monitoring the levels of Long and Medicine Lakes.

Table 1 lists the 81 major watersheds, their designated monitoring gages, and corresponding Q90 flows.

Designated Stream Flow Monitoring Sites

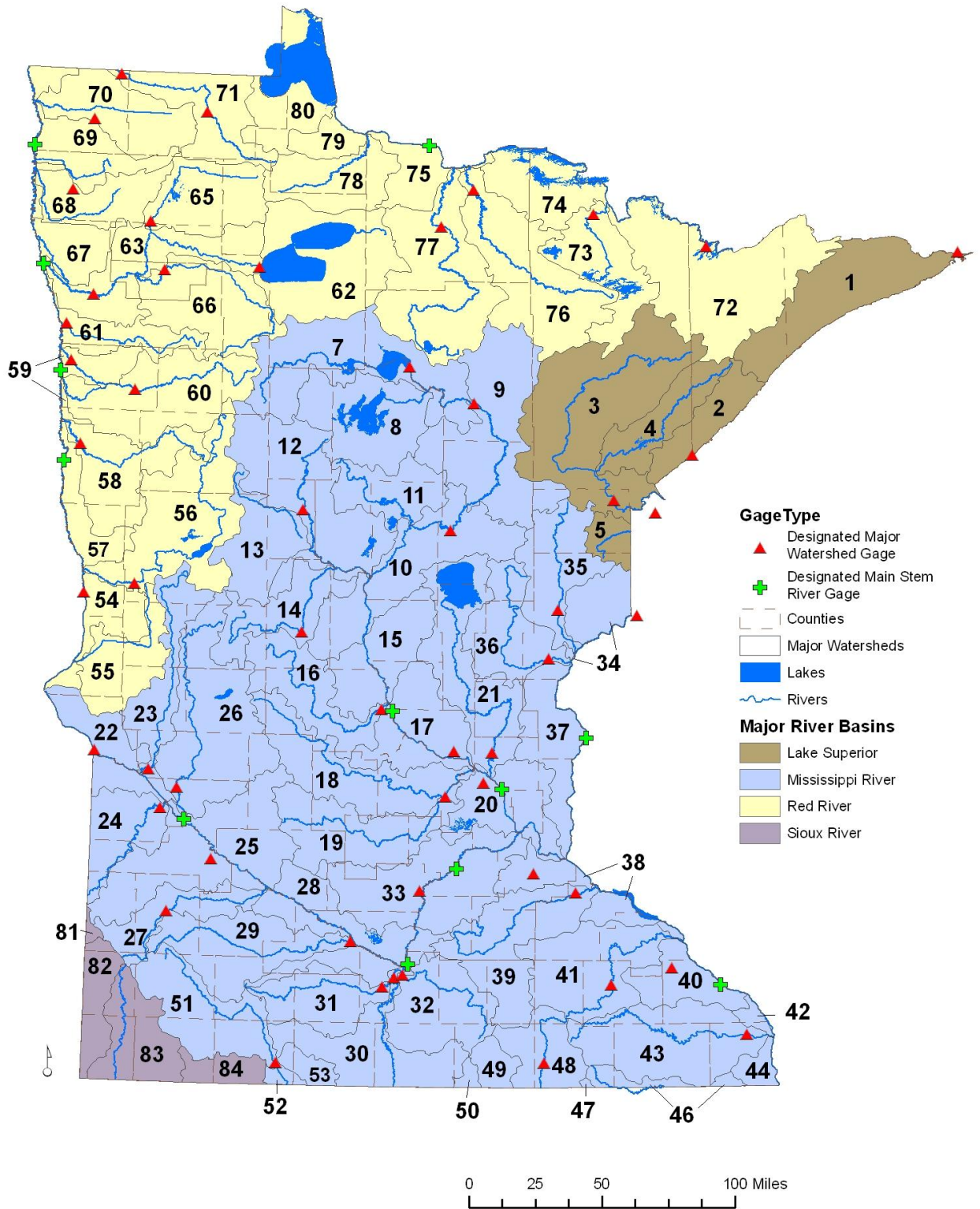


Figure 2

December 2011

Table 1. Designated Stream Gages and Annual Q90 Flow Values

No.	Major Watershed	Designated Watershed Monitoring Gage	Annual Q90 Flow (in cfs)
1	Lake Superior – North	04010500 - Pigeon River near Grand Portage	82
2	Lake Superior – South	04015330 - Knife River near Two Harbors	4.6
3	St. Louis River	04024000 - St. Louis River at Scanlon	638
4	Cloquet River	Refer to gage for Watershed # 3	
5	Nemadji River	04024430 – Nemadji River near South Superior, WI	54
6	unassigned number		
7	Mississippi River (Headwaters)	MNBM5 – Lake Winnibigoshish Dam at Bena (* flows manipulated at this site)	100
8	Leech Lake River	Refer to gage for Watershed # 7	
9	Mississippi River (Grand Rapids)	05211000 - Mississippi River at Grand Rapids	309
10	Mississippi River (Brainerd)	05227500 - Mississippi River at Aitkin	919
11	Pine River	Refer to gage for Watershed # 10	
12	Crow Wing River	05244000 - Crow Wing River at Nimrod	240
13	Redeye River (Leaf River)	Refer to gage for Watershed # 12	
14	Long Prairie River	05245100 - Long Prairie River at Long Prairie	31
15	Mississippi River (Sartell)	Refer to gage for Watershed # 16	
16	Sauk River	05270500 - Sauk River near St. Cloud	42
17	Mississippi River (St. Cloud)	05275000 - Elk River near Big Lake	74
18	North Fork Crow River	05280000 - Crow River at Rockford	43
19	South Fork Crow River	Refer to gage for Watershed # 18	
20	Mississippi River (Metro)	05287890 - Elm Creek near Champlin [also see Section 3 above]	1.6
21	Rum River	05286000 - Rum River near St. Francis	120
22	Minnesota River (Headwaters)	05292000 - Minnesota River at Ortonville	1.3
23	Pomme de Terre River	05294000 - Pomme de Terre River at Appleton	9.1
24	Lac qui Parle River	05300000 - Lac qui Parle River at Lac Qui Parle	0.8
25	Minnesota River (Granite Falls)	05313500 - Yellow Medicine River near Granite Falls	2.8
26	Chippewa River	05304500 - Chippewa River near Milan	19
27	Redwood River	05315000 - Redwood River near Marshall	2.2
28	Minnesota River (Mankato)	Refer to gage for Watershed No. 29	
29	Cottonwood River	05317000 - Cottonwood River near New Ulm	15
30	Blue Earth River	05320000 - Blue Earth River near Rapidan	47
31	Watonwan River	05319500 - Watonwan River near Garden City	15
32	Le Sueur River	05320500 - Le Sueur River near Rapidan	18
33	Minnesota River (Shakopee)	05327000 - High Island Creek near Henderson	2.0
34	St. Croix River (Upper)	05333500 - St. Croix River at Danbury, WI	720
35	Kettle River	05336700 – Kettle River below Sandstone	123
36	Snake River	05338500 - Snake River near Pine City	80
37	St. Croix River (Stillwater)	Refer to gage for Watershed # 36	
38	Mississippi River (Red Wing & Lake Pepin)	05345000 - Vermillion River near Empire	18
39	Cannon River	05355200 - Cannon River at Welch	110
40	Mississippi River (Winona)	H40016001 - Whitewater River near Beaver	98
41	Zumbro River	05372995 - South Fork Zumbro River at Rochester	48

No.	Major Watershed	Designated Watershed Monitoring Gage	Annual Q90 Flow (in cfs)
42	Mississippi River (La Crescent)	Refer to gage for Watershed # 43	
43	Root River	H43007002 - Root River near Mound Prairie	594
44	Mississippi River (Reno)	Refer to gage for Watershed # 43	
45	unassigned number		
46	Upper Iowa River	Refer to gage for Watershed # 43	
47	Wapsipinican River	Refer to gage for Watershed # 43	
48	Cedar River	05457000 - Cedar River near Austin	46
49	Shell Rock River	Refer to gage for Watershed # 48	
50	Winnebago River (Lime Creek)	Refer to gage for Watershed # 48	
51	W. Fork Des Moines River (Headwaters)	05476000 - Des Moines River at Jackson	4.9
52	W. Fork Des Moines River (Lower)	Refer to gage for Watershed # 51	
53	E. Fork Des Moines River	Refer to gage for Watershed # 51	
54	Bois de Souix River	05051300 - Bois de Souix River near Doran	0.4
55	Mustinka River	Refer to gage for Watershed # 54	
56	Otter Tail River	05046000 - Otter Tail River near Fergus Falls	43
57	Red River of the North (Headwaters)	Refer to gage for Watershed # 58	
58	Buffalo River	05062000 - Buffalo River at Dilworth	11
59	Marsh River	05067500 - Marsh River near Shelly	0
60	Wild Rice River	05062500 - Wild Rice River at Twin Valley	17
61	Sand Hill River	05069000 - Sand Hill River at Climax	9.5
62	Upper and Lower Red Lake River	05074500 - Red Lake River at Red Lake	47
63	Red Lake River	05079000 - Red Lake River at Crookston	122
64	Unassigned number		
65	Thief River	05076000 - Thief River near Thief River Falls	0
66	Clearwater River	05078000 - Clearwater River at Plummer	35
67	Grand Marais Creek	Refer to gage for Watershed # 68	
68	Snake River	05087500 - Middle River at Argyle	0
69	Tamarack River	Refer to gage for Watershed # 68	
70	Two River	05094000 - South Branch Two Rivers at Lake Bronson	1.0
71	Roseau River	05112000 - Roseau River near Caribou	10
72	Rainy River (Headwaters)	05127500 - Basswood River near Winton	365
73	Vermillion River	05129115 - Vermilion River near Crane Lake	139
74	Rainy River (Rainy Lake)	Refer to gage for Watershed # 73	
75	Rainy River (Manitou)	Refer to gage for Watershed # 77	
76	Little Fork River	05131500 - Little Fork River at Little Fork	86
77	Big Fork River	05132000 - Big Fork River at Big Falls	83
78	Rapid River	05104500 - Roseau River below South Fork near Malung	2.0
79	Rainy River (Baudette)	Refer to gage for Watershed #78	
80	Lake of the Woods	Refer to gage for Watershed # 71	
81	Big Sioux River (Medary Creek)	Refer to gage for Watershed # 83	
82	Big Sioux River (Pipestone)	Refer to gage for Watershed # 83	
83	Rock River	06483500 - Rock River at Rock Valley, IA	19
84	Little Sioux River	Refer to gage for Watershed # 83	

4. Appropriations Directly From Main Stem Rivers

Stream flow levels at or below Q90 at a designated major watershed monitoring gage will activate appropriation suspension procedures in the entire major watershed. Suspension procedures will not commence for appropriations downstream of the main stem river gage site that have fallen below Q90. The main stem rivers include: Minnesota River, Mississippi River, Rainy River, Red River of the North, and St. Croix River.

Stream flows at or below Q90 at a designated main stem river gage on these five main stem rivers could result in suspension of surface water appropriation permits in all contributing watersheds upstream of the designated main stem river gage, depending on the breadth and severity of drought conditions. Designated main stem river gages and their Q90s are shown in Table 1a.

Table 1a. Designated Main Stem River Gages and Annual Q90 Flow Values

Watershed Number	Designated Main Stem River Gage	Q90 Flow (in cfs)
	Mississippi River	
7	MNBM5 – Lake Winnibigoshish Dam at Bena (* flows manipulated at this site)	100
9	05211000 - Mississippi R. at Grand Rapids	309
10	05227500 - Mississippi River at Aitkin	919
20	05288500 - Mississippi River near Anoka	2220
40	05378500 - Mississippi River at Winona	10200
	Minnesota River	
25	05311000 - Minnesota River at Montevideo	36
28	05325000 - Minnesota River at Mankato	190
33	05330000 - Minnesota River near Jordan	350
	St. Croix River	
37	05340500 - St. Croix River at St. Croix Falls	1580
	Red River of the North	
57	05054000 - Red River at Fargo	47
59	05064500 - Red River at Halstad	250
67	05082500 - Red River at Grand Forks	300
69	05092000 - Red River at Drayton	521
	Rainy River	
75	05133500 - Rainy River at Manitou Rapids	4960

***Using Current Q90 Values**

The Q90 values listed in this document are current as of spring 2011. The most current figures are found by looking up the individual Station Number (Gage ID) at the USGS National Water Information System: Web Interface at

<http://waterdata.usgs.gov/mn/nwis/current/?type=flow>:

When different from the number published in this document, the current Q90 found at the USGS website should be used for considering permit suspension.

5. Suspensions on Individual Public Waters Basins

Appropriations from individual public waters basins will be subject to suspension, if the major watershed unit that they are located within is suspended.

Appropriations from an individual public waters basin may be suspended even though the major watershed containing the basin is not suspended, if water levels reach or fall below the protection elevation specified in applicable permits. The Director will make decisions on suspension and reinstatement of permits authorizing appropriation from individual basins based on information and recommendations from Ecological and Water Resources staff.

If no protection elevation is specified in the applicable permit(s), the following protection elevations will apply:

A) For basins with a functioning outlet below their ordinary high water level (OHW), the basin's runout elevation will be used as the protection elevation for permit suspension.

B) For basins without a functioning outlet below the OHW (landlocked basins), the protection elevation for permit suspension will be 1.5 feet below the OHW.

A protection elevation other than those listed in A or B must be based on an analysis of important aquatic vegetation characteristics related to fish and wildlife habitat, existing uses by the public and riparian landowners, the total volume of the basin, and the slope of the littoral zone as provided in Minnesota Statutes, section 103G.285, subdivision 3. The Director must approve all such exceptions.

6. State Border Waters

Permits for appropriations taken directly from watercourses forming the boundary between Minnesota and another state or province will not be restricted or suspended unless the adjoining state or province jointly imposes restrictions. The Director will consult with the adjoining state or province and Division Management Team in making decisions on border waters appropriations.

7. Early Notice to Appropriators

The Conservation Assistance and Regulation Section may send written notice of low flow conditions within a major watershed to appropriators whose permits are subject to suspension.

If possible, these notices should occur prior to flows dropping to Q90. The purpose of this low flow notice is to encourage appropriators to conserve water; implement water allocation plans to reduce the likelihood of suspension; and develop contingency sources of water. Notice may also be given by radio, television, newspaper, or email. The Director will consult with the Conservation Assistance and Regulation Section Administrator, the appropriate Regional Manager(s), the Inventory, Monitoring, and Analysis Section Administrator, and other field and/or technical staff prior to sending these notices.

In addition, DNR Ecological and Water Resources staff may be assigned to make courtesy contacts with affected legislators, county offices, watershed districts, and other local government clientele, or develop and distribute press releases.

8. Permit Suspension and Reinstatement Notices

The Director will consider suspension of surface water appropriation permits when average daily flow has been at or below Q90 for 120 hours, except:

- a) in watersheds with approved allocation plans that specify unique appropriation limits and permit suspension/reinstatement procedures;
- b) in watersheds where there are no permitted surface water appropriations occurring that are subject to suspension; or
- c) where the Director determines that a specific permit will not be suspended for good cause in order to use water resources of the state in the best interests of its people, and to promote the public health, safety or welfare, in accordance with Minnesota Statutes, section 103A.201, subdivision 1.

Field staff will attempt to contact affected appropriators by phone to inform them that a suspension decision has been made. The Conservation Assistance and Regulation Section will send individual suspension notices to all affected appropriators by certified mail

Reinstatement of suspended permits will be considered when average daily flow at the designated gage exceeds for at least 72 hours Q90 plus the cumulative instantaneous total of all suspended appropriations from contributing surface water sources within the watershed. Field staff will make courtesy contacts with affected appropriators upon request of the Director. The Conservation Assistance and Regulation Section will mail individual reinstatement notices to all suspended appropriators.

These criteria apply to all watersheds, except those with approved allocation plans that specify unique appropriation limits and suspension/reinstatement procedures (see Section 17).

9. Roles of DNR Ecological and Water Resources Personnel

The **Conservation Assistance and Regulation Section** will create and maintain lists and copies of all surface water appropriation permits organized by major watersheds, and coordinate communications regarding permit suspension procedures with DNR Ecological and Water Resources' field staff and appropriators. Area Hydrologists will be provided with a list of

all surface water permits within a watershed that are subject to suspension, including a contact person and phone number, prior to those permits being suspended. Area Hydrologists are to indicate in the permit at the time the permit is issued whether the permit is subject to suspension, and they will have an opportunity to review and comment on the list of permits being considered for suspension prior to suspensions being ordered.

The Inventory, Monitoring, and Analysis Section will monitor stream flow conditions and provide DNR Ecological and Water Resources staff with a weekly Stream Flow Report from April through September. The primary sources of stream flow information are the automated stream flow gages maintained by the U.S. Geological Survey, the Corps of Engineers, and DNR Ecological and Water Resources. Currently, about 25 of the state's 81 major watershed units do not contain an automated stream flow gage, so data from neighboring watersheds are used to estimate stream flow conditions. Field measurements are often necessary to verify actual flows and stage-discharge relationships because 1) rating curves, which are used to show the relationship between water stage and discharge, can become unreliable at extremely low flows, and 2) automated gages can fail or be shut down. Inventory, Monitoring and Analysis Section staff will coordinate with the U.S. Geological Survey, DNR Ecological and Water Resources field staff, and other agencies and local units of government in verifying flows during low flow events.

After consultation with the appropriate section managers, the **Director** will decide when and where to suspend and reinstate surface water appropriation permits taking into consideration all relevant factors including climatic conditions, time of year, statutory water allocation priorities, resource impacts, and public health, safety and welfare considerations.

Table 2 summarizes DNR Ecological and Water Resources' suspension procedures and the roles of Ecological and Water Resources' personnel.

Table 2. Summary of Suspension Procedures and Staff Roles

Stream Flow or Basin Water Level	Phase	DNR Ecological and Water Resources' Actions in Affected Watersheds
Normal to below normal	Monitor	Inventory, Monitoring, and Analysis Section: 1. Weekly stream flow report by remote methods and lake gaging program 2. Weekly and seasonal precipitation reporting
Extended period of time below normal	Monitor more closely	Inventory, Monitoring, and Analysis Section: 1. Ask NWS to provide low-flow forecasts 2. Identify geographical extent of precipitation deficit, and describe in historical context 3. Offer short-term and long-range precipitation outlooks
Approaching Q90 or basin protection elevation	Notify suspendable appropriators and continue to monitor	Inventory, Monitoring, and Analysis Section: 1. Ask USGS, field staff, other agencies, and LGU's for assistance in obtaining field data 2. Provide precipitation information for inclusion in advance notices to permittees Conservation Assistance and Regulation Section: 1. Notify AH, RM, Director, Commissioner's Office & Enforcement Officers 2. Advise appropriators of decreasing flows - conserve water use (IF TIME ALLOWS) 3. Notify public water suppliers - implement conservation plans (IF TIME ALLOWS)
At or below Q90 or basin protection elevation	Verify	Inventory, Monitoring, and Analysis Section and Field Hydrologists: 1. Verify flows and basin water elevations in field
As soon as field verification is complete	Consult and decide	Field Hydrologists, Inventory, Monitoring, and Analysis Section, and Conservation Assistance and Regulation Section: 1. Advise Director - Director decides if and when permits are suspended
Flow \leq Q90, or water level \leq basin protection elevation, for at least 120 hours	Suspend	1. Suspend appropriations (Conservation Assistance and Regulation Section) 2. Phone call to permittees (Field Staff) 3. Written suspension notice to permittees (Conservation Assistance and Regulation Section, Permits Unit) 4. Written summary to Ecological and Water Resources, Enforcement Officers, Fisheries, and Wildlife.
Flow returns to $>$ Q90 plus sum of all suspended appropriations, or water level $>$ basin protection elevation, for at least 72 hours	Reinstate	1. Reinstate suspended appropriations (Conservation Assistance and Regulation Section, Permits Unit) 2. Phone call to permittees upon request (Field Staff, if time allows) 3. Written reinstatement notice to permittees (Conservation Assistance and Regulation Section, Permits Unit) 4. Written summary to Ecological and Water Resources, Enforcement Officers, Fisheries, Wildlife, Conservation Assistance and Regulation Section, Permits Unit and Field Staff) 5. Summary of climatic factors affecting flows (Climatology Staff)

Technical and Statutory Considerations

10. Determination of Consumptive Uses

A determination of consumptive and non-consumptive water use is required for each surface water appropriation permit because only consumptive water uses are subject to suspension.

Minnesota Statutes, section 103G.285, subdivision 2 directs the DNR to limit consumptive appropriations of surface water under certain low flow conditions:

If data are available, permits to appropriate water from natural and altered natural watercourses must be limited so that consumptive appropriations are not made from the watercourses during periods of specified low flows. The purpose of the limit is to safeguard water availability for instream uses and for downstream higher priority users located reasonably near the site of appropriation.

Minnesota Statutes, section 103G.261, which establishes water allocation priorities, defines consumptive use as:

...water withdrawn from a supply that is lost for immediate further use in the area.

Recodification of the statutes in 1990 added a similar definition under Minnesota Statutes, section 103G.005, subdivision 8:

Consumptive use means water that is withdrawn from its source for immediate further use in the area of the source and is not directly returned to the source.

Therefore, if all or some of the water that is appropriated is not returned to its source, it is considered consumptive. Water appropriations for irrigation are considered 100% consumptive, however, almost all of the water withdrawn for power plants that do not use cooling towers or recirculation ponds is returned to the source.

The "purpose" section of all new or amended non-irrigation surface water appropriation permits should indicate if all or part of the water appropriation is consumptive, and include an estimate of the percent or volume considered consumptive. Consumptive use data will be requested on annual water use reports.

Data relating to all issued water appropriation permits are entered in the State Water Use Data System (SWUDS). Water use codes can be used to help identify non-consumptive appropriations and higher priority uses. Permits with use codes listed in Table 3 may not be suspended, if the general "do not suspend" criteria are satisfied. However, final recommendations on suspension of a permit are made after a review of the file and any information requested to verify actual water uses.

Table 3. Water Use Codes

Use Code	Water Use	"Do Not Suspend" Criteria
211	Public water supply	Public health & welfare, first priority uses only
212	Private water works	Public health & welfare, first priority uses only
221	Hydropower	Non-consumptive uses only
222	Steam power cooling once-through	Non-consumptive uses only
233	Heat pump	Non-consumptive uses only
234	Coolant pumps	Non-consumptive uses only
242	Pulp & paper processing	Non-consumptive uses only
243 (Resource Code 6)	Mine processing (quarry)	Non-consumptive uses only
244 (Resource Code 5 & 6)	Sand & gravel washing from pits or quarries	Non-consumptive uses only
262	Mine dewatering	Contributes to surface water flows and levels
263	Quarry dewatering	Contributes to surface water flows and levels
264	Sand/gravel dewatering	Contributes to surface water flows and levels
266	Dewatering	Contributes to surface water flows and levels
269	Water level maintenance	Any uses, except augmentation of other surface water features
271	Pollution confinement	Public health & welfare
272	Aquaculture	Non-consumptive uses only
273	Snow/ice making	Outside the authorized season for appropriation
281 (Resource Code 5)	Golf course irrigation (pond or pit)	Only if the pond or pit is supplied by ground water
296	Wild rice	Outside the authorized season for appropriation

11. Ground Water Appropriations Directly Affecting Surface Waters

In accordance with Minnesota Rules, appropriations from dug pits and ground water sources that are hydrologically connected to surface water sources will be considered for suspension when the major watershed is suspended.

Minnesota Rules part 6115.0670, subpart 3C(4):

The commissioner shall limit the use of dug pits for appropriating water when such pits are so located that they may reasonably be expected to affect protected flows of watercourses or protection elevations of basins.

Minnesota Rules part 6115.0670, subpart 3C(2):

If the commissioner determines, based on substantial evidence, that a direct relationship of ground and surface waters exists such that there would be adverse impact on the surface waters through reduction of flows or levels below protected flows or protection elevations the amount and timing of the proposed appropriation from ground water shall be limited.

Area Hydrologists, with assistance from the Inventory, Monitoring, and Analysis Section, are responsible for determining if appropriations from dug pits and ground water sources should be suspended due to adverse impacts on surface water flows and elevations. Appropriation permits subject to suspension should include suspension conditions and comply with all other permit requirements.

Decisions on suspension and reinstatement of permits authorizing appropriations from dug pits or ground water sources that reduce surface water flows or levels will be made on a case-by-case basis by the Director based on information and recommendations from Ecological and Water Resources staff.

12. Season of Appropriation

Most permits list the dates water appropriations are authorized each year. If the permit does not authorize water appropriations at the time suspensions take effect, then there is no need to suspend the permit. Permittees appropriating water during unauthorized times will be subject to enforcement actions.

The authorized irrigation season for most upland crops is May 1 to September 30. This is a conservatively long irrigation period, but it may be needed in dry years. During years of normal precipitation some crops do not require water after mid-August. An assessment of water requirements for crop irrigation may be appropriate late in the season. Permit suspensions may not be necessary, if water levels drop to suspension levels after crop irrigation is no longer needed. However, this may not be true for golf course irrigation permits that usually have an authorized season of April 15 to October 15 and typically irrigate until the end of the season.

13. Water Conservation Requirements

Users that are not subject to suspension are expected to comply with and may be reminded of the need to comply with Minnesota Rules, part 6115.0770, WATER CONSERVATION:

In order to maintain water conservation practices in the water appropriation and use regulatory program it is necessary that existing and proposed appropriators and users of waters of the state employ the best available means and practices based on economic considerations for assuring wise use and development of the waters of the state in the most practical and feasible manner possible to promote the efficient use of waters.

Based on data submitted by applicants and permittees and current information on best available water conservation technology and practice the commissioner, in cooperation with the owners of water supply systems, may analyze the water use practices and procedures and may require a more efficient use of water to be employed by the permittee or applicant, subject to notice and opportunity for hearing.

14. Public Water Supplier Water Supply Plans

Minnesota Statutes, section 103G.291, subdivision 3 requires every public water supplier serving over 1,000 people to submit a water supply plan to the DNR for approval, and update the plan on a 10-year basis. Plans must address water demand reduction measures and water allocation priorities, and must identify alternative sources of water for use in an emergency.

15. Emergency Declaration by the Governor and Conservation of Public Supply

Minnesota Statutes, section 103G.291, subdivision 1 directs public water suppliers to enforce water restrictions, if the Governor declares a critical water deficiency:

(a) If the governor determines and declares by executive order that there is a critical water deficiency, public water supply authorities appropriating water must adopt and enforce water conservation restrictions within their jurisdiction that are consistent with rules adopted by the commissioner.

(b) The restrictions must limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses, and have appropriate penalties for failure to comply with the restrictions.

In accordance with the state Drought Response Plan, the DNR will recommend to the Governor when and where a critical water deficiency should be declared. The Drought Response Plan identifies specific Mississippi River low flows that will trigger actions needed to maintain commercial navigation and minimal health and safety needs for drinking water supply and power generation in the Twin Cities.

16. Allocation Plans for Watersheds

Unique appropriation limits and permit suspension/reinstatement procedures may be developed for a specific watershed under a water allocation plan approved by the Director pursuant to Minnesota Rules, part 6115.0740. The watershed may be smaller than an entire major watershed. Approval of a water allocation plan in a specific watershed may require benefiting parties to pay for the installation and operation of one or more automated stream flow gages. A water allocation plan was developed for wild rice growers on the Clearwater River in northwestern Minnesota. Following are guidelines for development of local surface water allocation plans:

Guidelines for Surface Water Allocation Plans

Purpose of Allocation Planning

The purpose of allocation planning is to provide the maximum use of a limited water supply among competing water users, while protecting the resource and the rights of the public and other riparian landowners.

A water use conflict exists when the available supply of waters in a given area is limited to the extent that there are competing demands among existing and proposed users that exceed the reasonably available waters. Water use conflicts commonly occur during extended dry periods when surface water supplies are at low levels and demands for water are high. Minnesota Statutes section 103G.285 provides for the establishment of protection limits below which no appropriation can occur in order to protect the resource. These protection limits include protected flows for watercourses and protection elevations for water basins.

When water levels reach a protection limit, permitted appropriators are notified to cease water withdrawals. Suspension of appropriations continues until the level of the resource is above the protection limit plus the total draft of all authorized appropriations. However, with an approved allocation plan, appropriation could occur sooner, as long as the water level is above the protection limit. While this may not allow everyone to pump all the water they want, it would provide for the earliest reinstatement of limited water withdrawals.

In 1973 the Minnesota legislature established priorities of water use to be used in times of limited water availability. Minnesota Statutes section 103G.261 establishes the following water allocation priorities for the consumptive appropriation and use of water:

First priority, domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets contingency planning provisions of section 103G.285, subdivision 6;

Second priority, a use of water that involves consumption of less than 10,000 gallons of water per day;

Third priority, agricultural irrigation, and processing of agricultural products involving consumption in excess of 10,000 gallons per day;

Fourth priority, power production in excess of the use provided for in the contingency plan developed under section 103G.285, subdivision 6;

Fifth priority, uses, other than agricultural irrigation, processing of agricultural products, and power production, involving consumption in excess of 10,000 gallons per day; and

Sixth priority, nonessential uses.

These priorities become important in allocating available water above established protection limits. Highest priority water users are satisfied first and any remaining available water is allocated to succeeding priority water users. In a water use conflict water users are required to develop allocation plans that provide for an equitable distribution of available water within each priority class.

Benefits of Allocation Planning

One of the benefits of allocation planning is to let people know what to expect in water use conflict situations. This allows people to plan and prepare prior to implementation of allocation measures or before suspension of appropriations occurs.

Local water users develop allocation plans, however, the DNR will assist with the process. Because all water users must agree to the allocation plan to make it work, existing and proposed users are responsible for the actual development of allocation plans. This provides local participation in planning and resolution of water use conflicts to better serve local interests.

Minimum allocation plan requirements include the need for resource monitoring to determine the availability of water above the resource protection limit. Local monitoring of the resource can provide an early warning system to water users that allocation may be implemented. An early warning system could be used to trigger measures to conserve the resource or perhaps allow enough time for some users to investigate alternative water supplies.

An approved allocation plan can allow appropriation of water to occur as long as the resource is above the protection limit. This provides the earliest reinstatement of limited water withdrawals, but may not completely satisfy all demands. Without an allocation plan reinstatement could not occur until the resource recovered above the protection level plus the total draft of all authorized appropriations.

Some people maintain active permits even though they no longer appropriate water. In some cases this may be due to the misconception that new permits will no longer be obtainable in the future. A delay in reinstatement of suspended permits can occur when non-appropriators maintain active permits. This is because the DNR must consider all authorized withdrawals from a resource even though some operations may not be appropriating. An allocation plan could provide flexibility to address permittees that are not currently appropriating but want to keep their permits active. A plan could allow for non-appropriating permittees to submit agreements electing to be excluded for an allocation period. By excluding non-appropriating permittees the total withdrawal demand is reduced which increases the percentage of available water each users could receive during an allocation period.

Local participation in plan development and implementation, improved resource monitoring and earlier reinstatement of suspended appropriations are just some of the benefits of allocation planning. The end result is better water resource management, which benefits everyone.

Allocation Options

Any “approved” method of allocation can be used, if it is agreed upon by all appropriators within the same priority class using the resource. Scheduling methods such as odd/even pumping days, time of day limits or other viable methods to resolve water use conflicts are possible. The actual options used on each resource will be tailored to the needs/uses of the resource and each plan will be unique. An example of an allocation option based on the percentage of riparian land owned by each appropriator is given next.

Example of an Allocation Option

In a water use conflict appropriators are required to develop an allocation plan that will provide for

a proportionate distribution of the available water among all users within the same priority class.

The plan must include proposals for allocating the water which address the following: possible reductions of appropriation so that each user would receive a proportionate amount of water for use; possible restrictions in the timing of withdrawals so that each user would be allowed to withdraw a proportionate share of water for use over certain periods of time; monitoring of resource levels; and implementation of allocation measures.

Any approved allocation method can be used. One method is to allocate the available water above the protection limit based on a percent of riparian land owned by each permittee within a water use priority class.

In a water use conflict involving different water use priority classifications the highest priority users receive the first allocation of available water above the protection limit. If the amount of available water is sufficient for all users in the highest priority classification they can appropriate up to their authorized rate. Any remaining available water is allocated to the next succeeding priority users, until no further water is available.

Allocation on a time or volume basis will be required if the available water is not sufficient to satisfy all users within a priority class. In general, allocation is easier on a percent of time basis. The percent of pumping time or volume of water each permittee receives could be based on the following formula:

$$\text{Percent of Total Allocation} = \frac{\text{Riparian Acres for a Permittee}}{\text{Total Riparian Acres for all Permittees in the same Priority Class within the Affected Watershed}} \times 100$$

Riparian land ownership is determined by DNR. Each appropriator in the allocation plan is required to provide DNR with proof of land ownership and additional information for the determination of riparian acreage. Proof of land ownership should include the legal description of the property and the number of acres owned.

The amount of water available is determined based on measured stream flows and prior pumping rates. If there has been no pumping, the available water is determined directly from stream gage data or field measurements. If appropriators are currently pumping, the available water is best determined by totaling the current pumping rates and adding the amount by which stream flow exceeds the protection limit.

Minimum Requirements of an Allocation Plan

- The plan must be developed and implemented by a local organization capable of administering the plan.
- An allocation plan must provide for a proportionate distribution of available water, above protection limits, among all appropriators within a water use priority class.
- The location of the area affected by the allocation plan must be accurately identified. Individual appropriators within the affected area also need to be identified.
- A monitoring plan is required to determine the amount of water available for allocation. A monitoring schedule and responsibility of monitoring must be included. Identification of

- additional monitoring sites may be necessary.
- There must be identification of resource levels, above the protection limits, that trigger implementation of procedures before allocation is necessary.
- There must be procedures to notify affected appropriators regarding allocation implementation and other requirements.
- A signed statement accepting the conditions of the allocation plan by all appropriators using the resource.
- The plan must be approved by the DNR and included as a condition in all permits for the affected resource.

Allocation Plan Development Process

Problem Identification

An allocation planning process can be initiated by request from appropriators or by DNR Ecological and Water Resources in response to a determination of need to efficiently allocate available surface water.

Technical Analysis

The scope of the analysis must include the boundaries of the area involved, hydrology of the watershed, establishment of applicable protection limits, and a stream gaging monitoring plan.

Identification and Notification of Appropriators

Appropriators will be identified based on the information obtained in the technical analysis process. Appropriators will be notified regarding the problem and the need for an informational meeting to determine what actions should be taken.

Fact Finding Meeting with Appropriators

The informational meeting will be conducted by the DNR Regional Manager with assistance from Central Office technical and program representatives. The purpose of this meeting will be to provide and solicit information and develop an action plan. A local sponsor and work group to develop and administer the plan must be identified. A timetable for development and implementation of the plan must be agreed upon. If a local sponsor or work group is not formalized to facilitate development and implementation of a plan the DNR will administer permits as if no plan existed.

Allocation Plan Development

The plan should address the triggering point(s) and procedures to be implemented when allocation of water is necessary. All affected appropriators must agree to the plan and all new permits issued within the affected area will include conditions to comply with the plan. The Regional Manager or Area Hydrologist will be the DNR representative to the work group for development of a plan. The Central Office will be available to provide further assistance upon request.

Plan Approval

The plan must be approved by the Director of DNR Ecological and Water Resources based on recommendations from the Regional Manager and Area Hydrologists and the adequacy of the plan to resolve the conflict.