

Guidelines for Suspension of Surface Water Appropriation Permits

Revised: June 2019

Table of Contents

Introduction	2
Suspension Procedures	2
1. Limits on Surface Water Appropriations	2
2. Suspensions Implemented by Major Watershed	4
3. Suspension Considerations.....	4
4. Appropriations Directly From Main Stem Rivers.....	8
5. Suspensions on Individual Public Waters Basins.....	9
6. State Border Waters	10
7. Early Notice to Appropriators.....	10
8. Permit Suspension and Reinstatement Notices	10
9. Roles of DNR Ecological and Water Resources Personnel.....	11
Technical and Statutory Considerations	15
10. Determination of Consumptive Uses.....	15
11. Groundwater Appropriations Directly Affecting Surface Waters.....	16
12. Season of Water Appropriation.....	17
13. Water Conservation Requirements.....	17
14. Water Supply Plans for Municipal/Public Water Suppliers	18
15. Emergency Declaration by the Governor and Conservation of Public Supply	18
16. Allocation Plans for Watersheds	18
17. Guidelines for Surface Water Allocation Plans	18
Figures	
1. DNR Permitted Surface Water Use Locations	3
2. Designated Stream Flow Monitoring Sites	5
Tables	
1. Designated Stream Gages and Annual Q90 Flow Values	6
1.a. Designated Main Stem River Gages and Annual Q90 Flow Values	8
2. Summary of Suspension Procedures and Staff Roles	13
3. Water Use Types Not Suspended due to Type of Use	15

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 DNR Ecological and Water Resources Division Director, are also considered when determining what water appropriations should be suspended. These guidelines provide background on statutory requirements and the general criteria and internal process that is 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 have determined that the annual Q90 exceedance flow value should be used as the specified low flow value for suspending surface water appropriations. This value is in lieu of specific watershed or stream protected flows or specific protective water basin or lake levels.

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 2015. The annual Q90 exceedance flow values will be updated every five years using the available period of record for the gage. All subsequent references to Q90 exceedance flow values in this document are to the annual Q90 and will be referred to as "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.

DNR Permitted Surface Water Use Locations

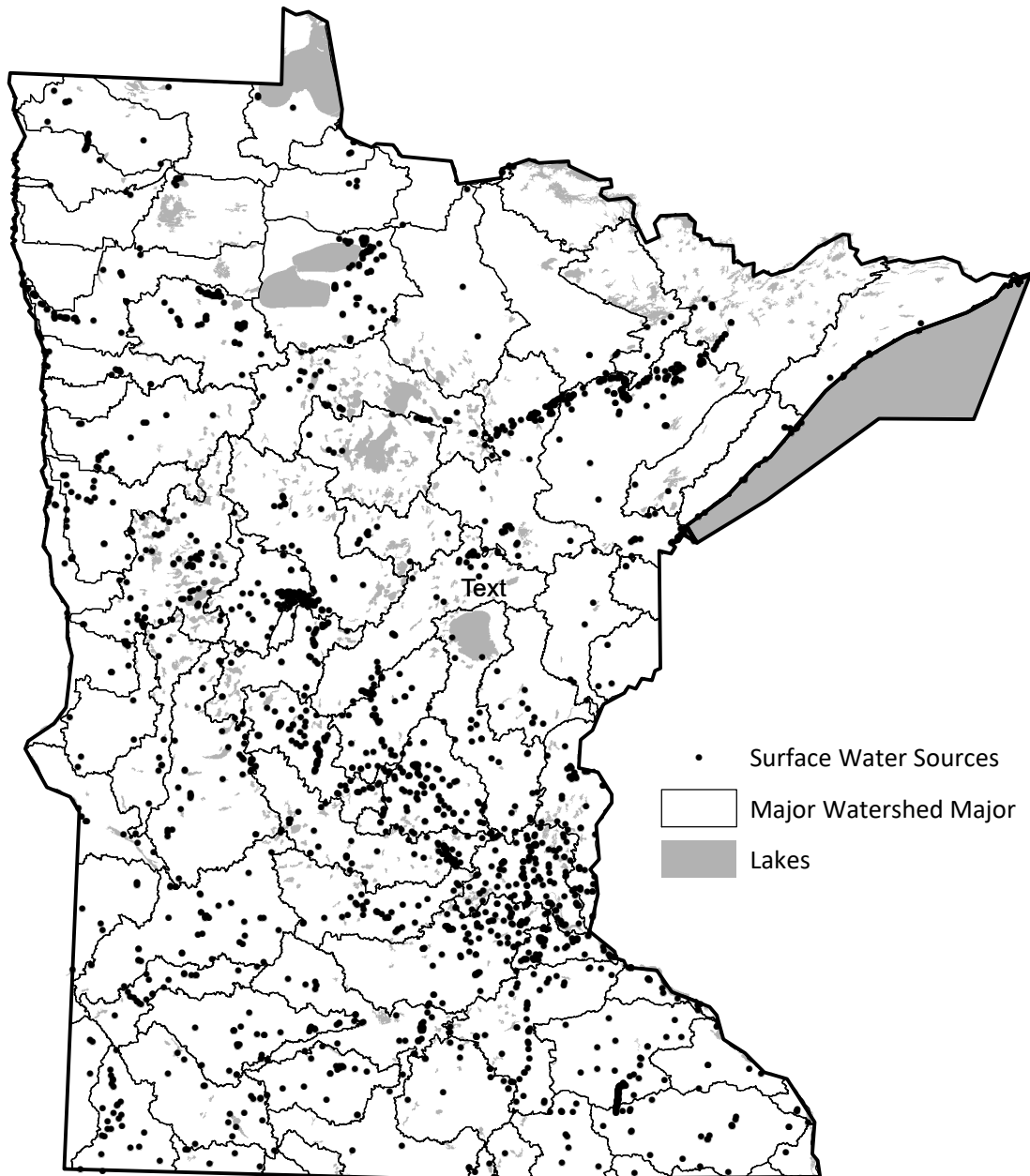


Figure 1

June 2019

2. Suspensions Implemented by Major Watershed

Suspensions of surface water appropriation permits are implemented on a watershed basis using 81 major watershed units throughout the state of Minnesota. 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 an adjacent major watershed.

The designated monitoring gages for the Marsh River (No. 59), Thief River (No. 65), and Snake River (No. 68) watersheds all have Q90 values of 0 cubic feet per second (cfs). This also affects the Grand Marais Creek (No. 67) and Tamarack River (No. 69) watersheds because the Snake River watershed gage is used as the reference gage for permit suspensions. 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 3.A.(2) & (3).

In major watershed No. 20, Mississippi River (Metro), the levels of Long Lake (Lake ID 62006700) in the city of New Brighton and Medicine Lake (Lake ID 27010400) in the city of Plymouth are used in conjunction with the flow at the Elm Creek gage (No. 20) 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 1.5 cfs. When flow at the Elm Creek gage is below 2.5 cfs, the DNR Ecological and Water Resources area hydrologist is responsible for monitoring the levels of Long Lake and Medicine Lake.

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

Designated Stream Flow Monitoring Sites

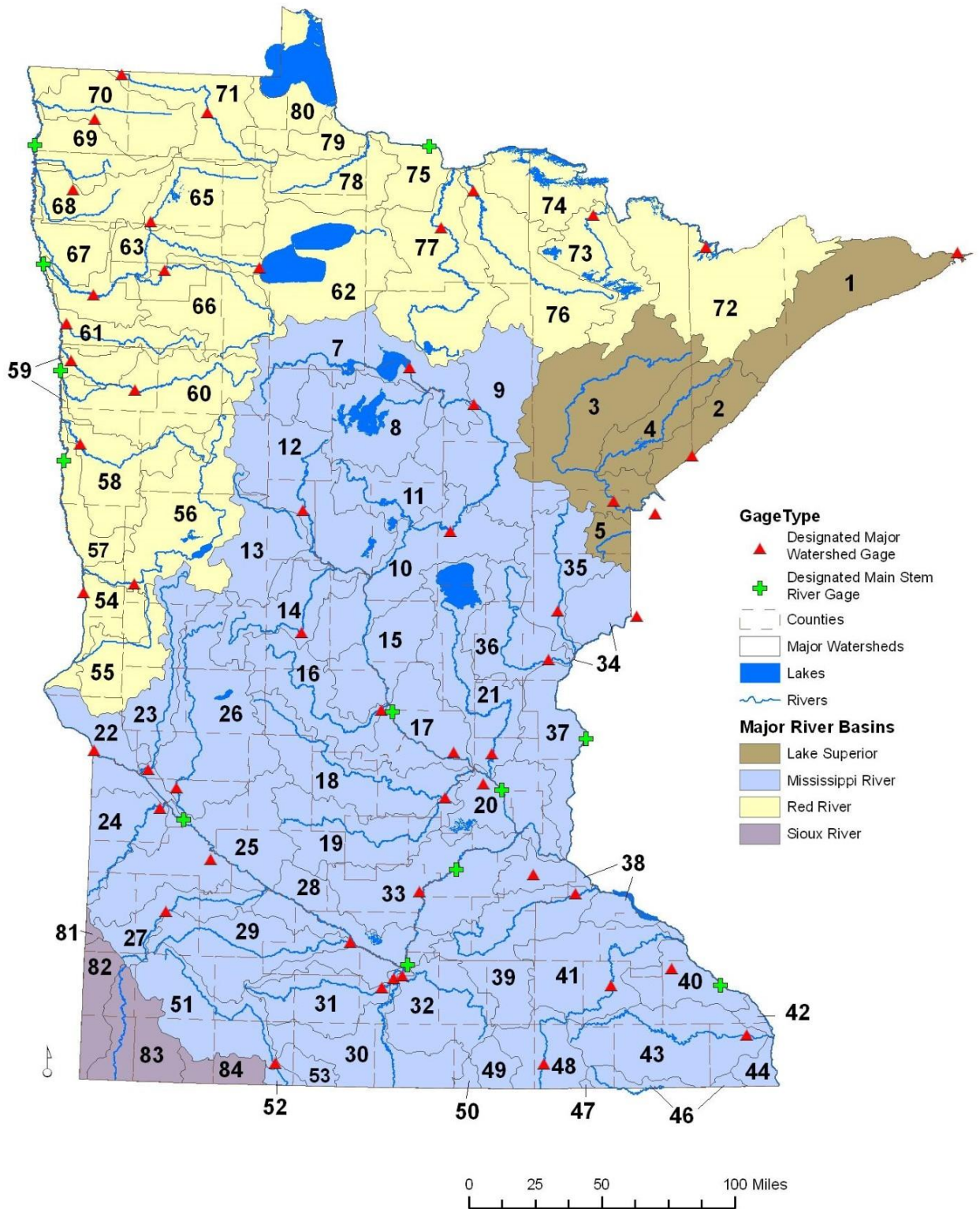


Figure 2

Table 1. Designated Stream Gages and Annual Q90 Flow Values

No.	Major Watershed	Name of Designated Watershed Monitoring Gage	USGS Station ID No. ¹	Annual Q90 Flow (in cfs)
1	Lake Superior – North	Pigeon River near Grand Portage	04010500	80
2	Lake Superior – South	Knife River near Two Harbors	04015330	4.4
3	St. Louis River	St. Louis River at Scanlon	04024000	624
4	Cloquet River	<i>Refer to gage for Watershed No. 3</i>		
5	Nemadji River	Nemadji River near South Superior, WI	04024430	54
6	unassigned number			
7	Mississippi River (Headwaters)	Lake Winnibigoshish Dam at Bena*	MNBM5 ²	100
8	Leech Lake River	<i>Refer to gage for Watershed No. 7</i>		
9	Mississippi River (Grand Rapids)	Mississippi River at Grand Rapids	05211000	302
10	Mississippi River (Brainerd)	Mississippi River at Aitkin	05227500	930
11	Pine River	<i>Refer to gage for Watershed No. 10</i>		
12	Crow Wing River	Crow Wing River at Nimrod	05244000	216
13	Redeye River (Leaf River)	<i>Refer to gage for Watershed No. 12</i>		
14	Long Prairie River	Long Prairie River at Long Prairie	05245100	35
15	Mississippi River (Sartell)	<i>Refer to gage for Watershed No. 16</i>		
16	Sauk River	Sauk River near St. Cloud	05270500	40
17	Mississippi River (St. Cloud)	Elk River near Big Lake	05275000	70
18	North Fork Crow River	Crow River at Rockford	05280000	42
19	South Fork Crow River	<i>Refer to gage for Watershed No. 18</i>		
20	Mississippi River (Metro)	Elm Creek near Champlin [also see Section 3 above]	05287890	1.5
21	Rum River	Rum River near St. Francis	05286000	120
22	Minnesota River (Headwaters)	Minnesota River at Ortonville	05292000	1.4
23	Pomme de Terre River	Pomme de Terre River at Appleton	05294000	8.4
24	Lac qui Parle River	Lac qui Parle River at Lac Qui Parle	05300000	0.9
25	Minnesota River (Granite Falls)	Yellow Medicine River near Granite Falls	05313500	2.7
26	Chippewa River	Chippewa River near Milan	05304500	20
27	Redwood River	Redwood River near Marshall	05315000	2.4
28	Minnesota River (Mankato)	<i>Refer to gage for Watershed No. 29</i>		
29	Cottonwood River	Cottonwood River near New Ulm	05317000	14
30	Blue Earth River	Blue Earth River near Rapidan	05320000	46
31	Watowwan River	Watowwan River near Garden City	05319500	14
32	Le Sueur River	Le Sueur River near Rapidan	05320500	18
33	Minnesota River (Shakopee)	High Island Creek near Henderson	05327000	2.2
34	St. Croix River (Upper)	St. Croix River at Danbury, WI	05333500	720
35	Kettle River	Kettle River below Sandstone	05336700	125
36	Snake River	Snake River near Pine City	05338500	83
37	St. Croix River (Stillwater)	<i>Refer to gage for Watershed No. 36</i>		

38	Mississippi River (Red Wing & Lake Pepin)	Vermillion River near Empire	05345000	18
39	Cannon River	Cannon River at Welch	05355200	110
40	Mississippi River (Winona)	Whitewater River near Beaver	H40016001 ³	102
41	Zumbro River	South Fork Zumbro River at Rochester	05372995	47
42	Mississippi River (La Crescent)	<i>Refer to gage for Watershed No. 43</i>		
43	Root River	Root River near Houston	5385000	270
44	Mississippi River (Reno)	<i>Refer to gage for Watershed No. 43</i>		
45	unassigned number			
46	Upper Iowa River	<i>Refer to gage for Watershed No. 43</i>		
47	Wapsipinican River	<i>Refer to gage for Watershed No. 43</i>		
48	Cedar River	Cedar River near Austin	05457000	46
49	Shell Rock River	<i>Refer to gage for Watershed No. 48</i>		
50	Winnebago River (Lime Creek)	<i>Refer to gage for Watershed No. 48</i>		
51	W. Fork Des Moines River (Headwaters)	Des Moines River at Jackson	05476000	4.9
52	W. Fork Des Moines River (Lower)	<i>Refer to gage for Watershed No. 51</i>		
53	E. Fork Des Moines River	<i>Refer to gage for Watershed No. 51</i>		
54	Bois de Sioux River	Bois de Sioux River near Doran	05051300	0.87
55	Mustinka River	<i>Refer to gage for Watershed No. 54</i>		
56	Otter Tail River	Otter Tail River near Fergus Falls	05046000	48
57	Red River of the North (Headwaters)	<i>Refer to gage for Watershed No. 58</i>		
58	Buffalo River	Buffalo River at Dilworth	05062000	11
59	Marsh River	Marsh River near Shelly	05067500	0
60	Wild Rice River	Wild Rice River at Twin Valley	05062500	18
61	Sand Hill River	Sand Hill River at Climax	05069000	9.9
62	Upper and Lower Red Lake River	Red Lake River at Red Lake	05074500	48
63	Red Lake River	Red Lake River at Crookston	05079000	129
64	Unassigned number			
65	Thief River	Thief River near Thief River Falls	05076000	0
66	Clearwater River	Clearwater River at Plummer	05078000	35
67	Grand Marais Creek	<i>Refer to gage for Watershed No. 68</i>		
68	Snake River	Middle River at Argyle	05087500	0
69	Tamarack River	<i>Refer to gage for Watershed No. 68</i>		
70	Two River	South Branch Two Rivers at Lake Bronson	05094000	1.0
71	Roseau River	Roseau River near Caribou	05112000	11
72	Rainy River (Headwaters)	Basswood River near Winton	05127500	354
73	Vermillion River	Vermilion River near Crane Lake	05129115	119
74	Rainy River (Rainy Lake)	<i>Refer to gage for Watershed No. 73</i>		
75	Rainy River (Manitou)	<i>Refer to gage for Watershed No. 77</i>		
76	Little Fork River	Little Fork River at Little Fork	05131500	88
77	Big Fork River	Big Fork River at Big Falls	05132000	85

78	Rapid River	Roseau River below South Fork near Malung	05104500	2.1
79	Rainy River (Baudette)	Refer to gage for Watershed No. 78		
80	Lake of the Woods	Refer to gage for Watershed No. 71		
81	Big Sioux River (Medary Creek)	Refer to gage for Watershed No. 83		
82	Big Sioux River (Pipestone)	Refer to gage for Watershed No. 83		
83	Rock River	Rock River at Rock Valley, IA	06483500	20
84	Little Sioux River	Refer to gage for Watershed No. 83		

¹MN DNR relies on USGS gaging stations for use on the MN DNR Cooperative Stream Gaging [website](https://www.dnr.state.mn.us/waters/csg/index.html) (<https://www.dnr.state.mn.us/waters/csg/index.html>).

For most current information go to the USGS [website](https://waterdata.usgs.gov/mn/nwis/) (<https://waterdata.usgs.gov/mn/nwis/>).

²Army Corp of Engineers gaging station.

³MN DNR gaging station in cooperation with the Minnesota Pollution Control Agency and the National Weather Service.

⁴ The stream flows at this site may be impacted by the dam control structure near the gaging site.

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	USGS Station ID No. ¹	Q90 Flow (in cfs)
	Mississippi River		
7	Lake Winnibigoshish Dam at Bena ²	MNBM5 ³	100
9	Mississippi R. at Grand Rapids	05211000	302
10	Mississippi River at Aitkin	05227500	930
20	Mississippi River near Brooklyn Park	05288500	2290
40	Mississippi River at Winona	05378500	10200
	Minnesota River		
25	Minnesota River at Montevideo	05311000	41
28	Minnesota River at Mankato	05325000	215
33	Minnesota River near Jordan	05330000	369
	St. Croix River		
37	St. Croix River at St. Croix Falls	05340500	1600
	Red River of the North		

57	Red River at Fargo	05054000	50
59	Red River at Halstad	05064500	262
67	Red River at Grand Forks	05082500	320
69	Red River at Drayton	05092000	550
	Rainy River		
75	Rainy River at Manitou Rapids ²	05133500	4960

¹ MN DNR relies on USGS gaging stations for use on the MN DNR Cooperative Stream Gaging [website](https://www.dnr.state.mn.us/waters/csg/index.html) (<https://www.dnr.state.mn.us/waters/csg/index.html>). For most current information go to the USGS [website](https://waterdata.usgs.gov/mn/nwis/) (<https://waterdata.usgs.gov/mn/nwis/>).

²The stream flows at these sites may be impacted by dams near the gaging sites.

³Army Corp of Engineers gaging station.

Using Current Q90 Values

The Q90 values listed in this document are current based on an update by the DNR Water Monitoring and Surveys Unit in 2015. They are updated by DNR every 5 years. You can view the current stream flows by looking up the individual Station Number (Gage ID) at the DNR Cooperative Stream Gaging site here:

<https://www.dnr.state.mn.us/waters/csg/index.html>.

The DNR utilizes USGS stream gaging sites throughout the state to cooperatively monitor stream flows. You can access the USGS gaging sites from the DNR Cooperative Stream gaging website.

The Q90 values in the table above may not represent the currently used Q90 values. For the most current Q90 values see the DNR weekly stream flow report on the following DNR website:

https://www.dnr.state.mn.us/waters/surfacewater_section/stream_hydro/streamflow_weekly.html.

5. Suspensions on Individual Public Waters Basins

Water appropriations from individual public waters basins will be subject to suspension, if the major watershed unit that they are located within is below the Q90 and the DNR Ecological and Water Resources Division Director has decided permitted use within that watershed will be 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 a specified protection elevation in applicable permits. The EWR Division Director will make decisions on suspension and reinstatement of permits authorizing appropriation from individual basins based on information and recommendations from DNR EWR staff.

Minnesota Statutes 103G.285, subdivision 3(b) states a protection elevation 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, and any statistical analysis of lake elevation records of sufficient quality and length.

If a protection elevation is required for a basin and not 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 (i.e., landlocked basins), the protection elevation for permit suspension will be 1.5 feet below the OHW.

The EWR Division Director must approve any and all exceptions to this effort.

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 the EWR Division Management Team in making decisions on border waters appropriations.

7. Early Notice to Appropriators

The DNR EWR Conservation Assistance and Regulation (CAR) 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 the 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 or alternate sources of water. Notice may also be given by radio, television, newspaper, or email. Prior to sending an early notice, the CAR Section and Water Regulations Unit (WRU) staff will connect with the Area Hydrologists and/or permit leads to review the water use permits that would receive an early notice. This is an important step to verify the actual water use prior to communicating with the permittee about a potential permit suspension. The EWR Division Director will consult with the CAR Section Manager, the appropriate Regional Manager(s), the Inventory, Monitoring, and Analysis Section Manager, and other field and/or technical staff prior to sending these notices.

In addition, DNR EWR Area Hydrologists and/or permit leads may be assigned to make courtesy contacts with legislators, county offices, watershed districts, and other local government staff in the affected watershed. Additionally staff may be required to develop and distribute a news release, as necessary.

8. Permit Suspension and Reinstatement Notices

The EWR Division Director will consider suspension of surface water appropriation permits when the 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. When the EWR Division 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.

DNR area hydrologists and permit leads will contact affected appropriators by phone to inform them that a suspension decision has been made. Suspension notices are sent through the Minnesota Permitting and Reporting System (MPARS) after the EWR Division Director has made the permit suspension decision. The WRU within the CAR Section will send certified-mail letters about the permit suspension to the affected appropriators.

Reinstatement of suspended permits will be considered when average daily flow at the designated gage exceeds, for at least 72 hours, the Q90 plus the cumulative instantaneous total of all suspended

appropriations from contributing surface water sources within the watershed. Once the permit reinstatement decision is made by the EWR Division Director, area hydrologists or permit leads will contact suspended permit holders to inform them of the water flows or water levels and the permit reinstatement process. The WRU staff within the CAR Section will reinstate the permits in MPARS and mail paper copies of the reinstatement letters to all affected 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 (CAR) 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' area hydrologists, permit leads and permit holders. Area hydrologists will be provided with a list from MPARS of all surface water permits within a watershed that are subject to suspension. Area hydrologists will have an opportunity to review and comment on the permits being considered for suspension prior to suspensions being ordered by the EWR Division Director.

The Inventory, Monitoring, and Analysis (IMA) Section will monitor stream flow conditions and provide DNR EWR staff with a weekly [Stream Flow Report](#) from April through September of each year. The primary sources of stream flow information are derived from the automated stream flow gages maintained by the U.S. Geological Survey, the Army Corps of Engineers, and the DNR Ecological and Water Resources Division. Currently, about 29 of the state's 81 major watershed units do not contain an automated stream flow gage or one with sufficient record, so data from neighboring watersheds are used to estimate stream flow conditions. Field verification of the discharge rate is needed prior to any permit suspensions due to low flows or water levels.

Field measurements are often necessary to verify actual flows and stage discharge relationships because of the following issues:

- 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.

The IMA Section staff will coordinate with the U.S. Geological Survey, DNR Ecological and Water Resources area hydrologists and permit leads, and other agencies and local units of government in verifying flows during low flow periods.

After consultation with the appropriate EWR Division section managers, the Division **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.

Table 2 summarizes the DNR EWR Division suspension procedures and the roles of EWR Division personnel.

Table 2. Summary of DNR Surface Water Appropriation Suspension Procedures

Stream Flow or Basin Water Level	Phase	DNR Ecological and Water Resources' Actions in Affected Watersheds
Normal to below normal	Monitor	<p>Inventory, Monitoring, and Analysis Section:</p> <ol style="list-style-type: none"> 1. Weekly stream flow report by remote methods and lake gaging program. 2. Weekly and seasonal precipitation reporting. 3. Monthly statewide hydrologic report.
Extended period of time below normal	Monitor more closely	<p>Inventory, Monitoring, and Analysis Section:</p> <ol style="list-style-type: none"> 1. Ask National Weather Service 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	Continue to monitor closely	<p>Inventory, Monitoring, and Analysis Section:</p> <ol style="list-style-type: none"> 1. Arrange for field staff assistance in obtaining field data. 2. Seek additional assistance from the USGS, local governments, and other agencies in obtaining field data. 3. Provide precipitation information to include in early notices to permittees.
At or below Q90 or basin protection elevation	Verify	<p>Inventory, Monitoring, and Analysis Section and Field Hydrologists:</p> <ol style="list-style-type: none"> 1. Verify flows and basin water elevations in field. 2. WMS Unit staff send current Q90 values following the weekly streamflow report for an up-to-date information delivery. Provide update on gage accuracy to WRU, as needed. 3. Review Quantitative Precipitation Forecast (QPF) from NWS and consider potential changes to flows and water levels in affected watershed. <p>Conservation Assistance and Regulation Section:</p> <ol style="list-style-type: none"> 1. Utilize MPARS permit suspension module to generate a list of water appropriation permits in affected watersheds below Q90 values. 2. Share the list of permits in the affected watersheds with Regional area hydrologists and permit leads to review and report on the specifics for each permit prior to making a suspension decision. 3. Regional staff and managers, CAR Section, and the WRU review the area hydrologist reports prior to making suspension decisions.

Flows and/or water levels are at or below Q90 or basin protection elevation	Consult and prepare for decision	<p>Inventory, Monitoring, and Analysis Section:</p> <ol style="list-style-type: none"> 1. When field verification of water flows and/or levels are completed, the WMS Unit Supervisor informs the IMA Section Manager and CAR Section Manager. CAR and IMA Section Managers inform EWR Division Director that water monitoring equipment is accurate and working correctly.
Flows \leq Q90, or water level \leq basin protection elevation, for at least 120 hours	Verify Flows and Water Levels	<p>Inventory, Monitoring and Analysis Section:</p> <ol style="list-style-type: none"> 1. WMS Unit confirm water flows and water levels are at or below Q90 for at least 120 hours. 2. WMS Unit notifies the WRU and CAR Section flows and water levels are at or below Q90 for at least 120 hours. 3. Review Quantitative Precipitation Forecast (QPF) from NWS and consider potential changes to flows and water levels in affected watershed. 4. CAR Section Manager informs EWR Division Director that flows and water levels are at or below Q90 for at least 120 hours.
Flows \leq Q90, or water level \leq basin protection elevation, for at least 120 hours	Suspension Decision	<p>EWR Division Director:</p> <ol style="list-style-type: none"> 1. Director considers to suspend permits following 120 hours at or below the Q90 value(s) and verification by WMS Unit of gage readings and equipment. 2. Consults with CAR Section, WRU, IMA Section, & WMS Unit to identify a date for permit suspension. 3. Division Director determines a date for permit suspension and notifies Commissioner's Office, Deputy Director, Regional Managers and Supervisors, CAR Section Manager and IMA Section Manager.
Flow \leq Q90, or water level \leq basin protection elevation, for at least 120 hours	Suspend Permits	<ol style="list-style-type: none"> 1. Utilize MPARS suspension module to suspend permits on appropriate suspension date (Water Regulations Unit, CAR Section). 2. Email notification with a letter attached is sent to the permittee through MPARS and the permit suspension becomes effective as of the date of notification. 3. Send a copy of the letter from MPARS via certified-mail to the permittee via USPS mail (Water Regulations Unit, CAR Section). 4. Email notification of permit suspension from MPARS also includes a notification to appropriate DNR staff in EWR, Enforcement, and Fish and Wildlife Divisions. 5. Area hydrologists or permit leads contact permittees directly via a phone call about permit suspension and communications from MPARS.

<p>Flow returns to greater than Q90 plus the sum of all suspended appropriations pumping rates, and/or greater than water level basin protection elevation, for at least 72 hours</p>	<p>Reinstate Permits</p>	<ol style="list-style-type: none"> 1. WMS Unit informs WRU and area hydrologists and permit leads that flows and water levels are at or above Q90 values. 2. WRU calculates the sum of pump rates for all suspended appropriations within the affected watershed. To reinstate a permit, the flow rate at the monitoring gage site must exceed the Q90 value plus the calculated value of permitted pumping rates. 3. Reinstate suspended water appropriation permits in the MPARS permit suspension module (WRU, CAR Section). 4. Email notification is sent to permittees from MPARS that permits are re-instated with a date when appropriation can commence. WRU will mail a copy of the re-instatement letter for permittees that do not have a MPARS user account (WRU, CAR Section). 5. Area hydrologists or permit leads make a phone call to permittees that permit(s) are re-instated as of the date indicated from the MPARS and mailed letter notice (phone call, if necessary). 6. The email notification of permit re-instatement from MPARS will notify the DNR EWR, Enforcement, and Fish and Wildlife Divisions (as necessary).
---	--------------------------	--

Timeframes are not included in this table recognizing that some action items may overlap, hydrologic conditions within a given watershed can change rapidly, and actual field conditions and water use may not be as obvious as initially perceived.

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 following table lists the water use types for permitted appropriations that will likely not be suspended due to the type of appropriation. This is one of the first steps to evaluating whether a permitted use could be suspended or not. An example of non-consumptive uses is where the water is appropriated and passed through a facility or process and discharged to the same surface water resource downstream without being consumed (i.e., the same volume of water appropriated is discharged to the same surface water). Table 3 also lists other factors that determine why a permitted use would not be suspended due to low water levels or flows in a surface water.

Table 3. Water Use Types that Will Not be Suspended due to the type of Water Appropriation

Reason to Not Suspend Permit	Water Use Type
Public health & welfare, first priority uses only	Public water supply
Public health & welfare, first priority uses only	Private water supply
Public health & welfare	Pollution Containment
Non-consumptive uses only	Hydropower
Non-consumptive uses only	Steam power cooling once-through

Non-consumptive uses only	Heat pump
Non-consumptive uses only	Coolant pumps
Non-consumptive uses only	Pulp & paper processing
Non-consumptive uses only	Mine processing (quarry)
Non-consumptive uses only	Sand & gravel washing from pits or quarries
Non-consumptive uses only	Aquaculture
Contributes to surface water flows and levels	Mine dewatering
Contributes to surface water flows and levels	Quarry dewatering
Contributes to surface water flows and levels	Sand/gravel dewatering
Contributes to surface water flows and levels	Dewatering
Water use is groundwater after dug pit or pond is created as a source for irrigation	Golf course irrigation (pond or pit)
Low flows typically occur outside the season for appropriation	Snow/ice making*
Since these activities typically provide water for basins and watercourses; the exception is for water level maintenance from one surface water to another	Water level maintenance

*Most snow and ice-making water appropriations occur during the winter rather than the typical growing season when surface water permit suspensions generally occur. However, the DNR may establish a protected flow for a stream where a snow making operation is appropriating during the winter season and that use may be subject to suspension during the authorized season of appropriation (winter) for that type of water use.

Similarly, wild rice operations typically flood their fields in the spring and occasionally in the fall which is outside the normal period when surface water permit suspensions occur. However, if flows are below the Q90 during the time of appropriation for wild rice operations then those water use types would be subject to permit suspension. Low flows typically occur in mid to late summer and that period of time is when wild rice operations are usually harvesting rather than flooding their fields.

11. Groundwater Appropriations Directly Affecting Surface Waters

In accordance with Minnesota Rules, appropriations from dug pits and groundwater 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 3.C.(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 3.C.(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 IMA Section Groundwater Technical Analysis Unit, are responsible for determining if appropriations from dug pits and groundwater sources should be suspended due to adverse impacts on surface water flows and elevations. Surface water appropriation permits subject to suspension should include permit conditions that address the likelihood of suspension due to low flows or water levels and comply with all other permit requirements.

Where the IMA Section Groundwater Technical Analysis Unit has determined that the proposed appropriation will impact flows or water levels of a surface water(s) due to groundwater appropriation, the area hydrologist or permit lead will need to select a checkbox in the 'Water Use Administration' section of MPARS for the particular application or permit file. This checkbox allows the groundwater permits to be included when the Water Regulations Unit staff identify permits for potential suspension during low flows or water levels within a particular watershed.

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

12. Season of Water Appropriation

Seasonal dates of water appropriation have been removed from water appropriation permits since water use has changed for many types of activities throughout the state. For example, the DNR Water Regulations Unit has removed dates of appropriation from all agricultural irrigation permits through the issuance of a general permit that states no seasonal dates are needed.

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. While dates for season of appropriation for specific use types for most water use permits have been removed, DNR staff will consider whether a permit suspension late in the season is still a reasonable and effective strategy. This will likely depend upon whether a permitted user intends to irrigate at the end of the typical growing season. Coordination and communication with the permittee will be important to this decision-making.

13. Water Conservation Requirements

Some permitted water users have consumptive use, but are not subject to suspension (e.g., public and private water suppliers, and pollution containment, among others). The reason for this is because of public health and welfare reasons (see Table 3). Some water uses, such as drinking water from public water supplies and pumping for pollution containment, are necessary even during times of low water flows and water levels. However, these permitted water users 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. Water Supply Plans for Municipal/Public Water Suppliers

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 every 10 years. 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 [Minnesota Statewide Drought Plan \(https://files.dnr.state.mn.us/natural_resources/climate/drought/drought_plan_matrix.pdf\)](https://files.dnr.state.mn.us/natural_resources/climate/drought/drought_plan_matrix.pdf), the DNR will recommend to the Governor when and where a critical water deficiency should be declared. The Statewide Drought 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 Metropolitan Area.

16. Allocation Plans for Watersheds

Water appropriation limits and permit suspension and reinstatement procedures may be developed for a specific watershed under a water allocation plan approved by the Division Director as stated in Minnesota Rules, part 6115.0740. An allocation plan may not coincide with the typical major watershed size. Approval of a water allocation plan in a specific watershed may require water users to pay for the installation and operation of one or more automated stream flow gages. One example of a water allocation plan involved wild rice growers on the Clearwater River in northwestern Minnesota.

Water users with an approved water allocation plan are still subject to the permit suspension procedures outlined above that relies on Q90 stream flow values.

17. Guidelines for Surface Water Allocation Plans

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 protective 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 water use 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. 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.

Minnesota Statutes section 103G.261 outlines 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 MS § 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 MS § 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.