



Montana Pollutant Discharge Elimination System Disinfected Water & Hydrostatic Testing General Permit Fact Sheet ▪ MTG770000

I. Summary

The Department of Environmental Quality (DEQ) proposes to renew the Montana Pollutant Discharge Elimination System (MPDES) Disinfected Water and Hydrostatic Testing General Permit, MTG770000 (General Permit). This fact sheet documents the legal requirements and technical rationale that serve the decision-making process involved with developing effluent limits, monitoring and reporting requirements, and special conditions specific to disinfected water and hydrostatic testing discharges.

A. Permit Status

The General Permit for disinfected water and hydrostatic testing discharges was first issued in 1996 and was most recently renewed in January 2016. The 2016 General Permit expires December 31, 2020.

B. Proposed Permit Changes

For this permit renewal, DEQ proposes the following:

- If the activity is located in sage grouse habitat, consultation must be submitted with the Notice of Intent (NOI-77) form, before authorization under the General Permit.
- All effluent limits are set according to nondegradation criteria for determining nonsignificant changes in water quality as laid out in ARM 17.30.715
- Monitoring and reporting requirements for hydrostatic testing of equipment not associated with petroleum uses are modified to reflect pollutants of concern
- All discharges covered under this General Permit must monitor effluent flow, total residual chlorine, total suspended solids, and pH.
- Special conditions apply regarding best management practices and corrective actions to prevent streambank erosion and visual oil sheens

II. Description of Discharge and Discharging Facilities

A. Background Information

Discharges from both types of activities are usually intermittent and short-term (30 days or less).

Disinfected Water – Discharges originating from the flushing of fire hydrants, draining of water storage towers or tanks, and the emptying of public or private swimming pools. These sources typically use chlorine between 0.2 and 8.0 mg/L for disinfection and must be treated for total residual chlorine (TRC) before discharge.

Hydrostatic Testing – Discharges include water used to test the hydrostatic properties of new or existing pipes, tanks, vessels, boilers, and other similar equipment to ensure there will be no discharge of residual petroleum-containing wastes. This fact sheet considers the nature of the discharge to be different between hydrostatic testing of equipment previously associated with petroleum uses and equipment that is not.

Equipment previously associated with liquid petroleum products is required to be physically cleaned before testing. However, equipment may still contain residuals or tank bottom sludge, which must be disposed of separately and are not covered under this permit. Pollutants associated with hydrostatic testing of equipment previously associated with petroleum uses may include oil and grease, total suspended solids (TSS), and petroleum-related compounds such as BTEX (benzene, toluene, ethylbenzene, and total xylenes).

Testing of equipment that has not been previously associated with petroleum uses is not expected to have petroleum-containing residuals. Therefore, the pollutants of concern (POCs) for testing this equipment are the same as disinfected water activities.

B. Treatment Technologies

TRC Removal – The most appropriate treatment for removing TRC from wastewater is dehalogenation using sulfur dioxide, sodium sulfite, sodium metabisulfite, or sodium bisulfite. However, carbon adsorption, air sparging, or other DEQ approved technologies may also be used to remove or treat TRC.

Petroleum Waste Cleanup or Removal – Treatment technologies commonly used for removing petroleum-related pollutants include carbon adsorption in combination with oil/water separators and air stripping units. Air stripping is the process of moving air through contaminated water to remove volatile organic compounds (VOCs) by changing them from a liquid to a vapor. There are several methods of air stripping including diffused aeration, tray aerators, spray basins, and packed towers. The Environmental Protection Agency (EPA) estimates the potential removal efficiency of BTEX using an air stripper unit is 99.5 percent.

C. Existing Permit Requirements and Covered Facilities

Seventeen authorizations are effective under this General Permit: twelve disinfected water and five hydrostatic testing dischargers. The following tables list the most recent 2016-permit limits.

Table 1: Effluent Limits for Disinfected Water Discharges				
Parameter	Units	Monthly Average	Daily Maximum	RRV ⁽¹⁾
Total Residual Chlorine ⁽¹⁾	mg/L	0.011	0.019	0.1
⁽¹⁾ Sampling of the effluent with an analytical result at or less than the Required Reporting Value (RRV) is considered in compliance with effluent limits.				

Table 2: Effluent Limits for Hydrostatic Testing Discharges				
Parameter	Units	Monthly Average	Daily Maximum	RRV ⁽¹⁾
Total Residual Chlorine ⁽¹⁾	mg/L	0.011	0.019	0.1
Benzene ⁽¹⁾	µg/L	--	0.5	0.6
Toluene ⁽¹⁾	µg/L	--	0.01	1
Ethylbenzene ⁽¹⁾	µg/L	--	0.002	1
Total Xylenes ⁽¹⁾	µg/L	--	0.5	3
Total Suspended Solids	mg/L	30	45	10
Oil and Grease	mg/L	--	10	1
	visual	no visible sheen		
⁽¹⁾ Sampling of the effluent with an analytical result at or less than the Required Reporting Values (RRV) is considered in compliance with the effluent limits.				

Additionally, dehalogenation chemicals are limited to 1.5 times the manufacturers' recommended dosage identified on the chemical package label and, if used, must be recorded in a discharge log.

III. Permit Applicability

A. Coverage Area

The General Permit applies to all areas of the State of Montana, except Indian Reservations.

B. Sources Eligible for Coverage

1. **Disinfected Water:** Discharges of water from fire hydrants, water storage towers or tanks, and public or private swimming pools.
2. **Hydrostatic Testing:** Discharges of water used to test the hydrostatic properties of new or existing pipes, tanks, vessels, boilers and other similar equipment that has been physically cleaned to ensure there will be no discharge of residual petroleum-containing or other wastes.

C. Sources Excluded from Coverage

DEQ may deny an application for discharge under the Disinfected Water and Hydrostatic Testing General Permit for the following:

1. The discharger is unable to comply with:
 - a. Effluent limits or other terms and conditions of the permit, including those listed in the Special Conditions;
 - b. Water quality standards; or
 - c. Discharges that the regional administrator has objected to in writing.
2. The discharge is different in degree or nature than those described in the General Permit.
3. The same operation has previously been denied or revoked an MPDES permit or authorization.
4. The discharge is also included within an application, or is subject to review, under the Major Facility Siting Act.
5. The proposed point sources are in an area of unique ecological or recreational significance. Such determinations are based upon:
 - a. Montana stream classifications;
 - b. Impacts on fishery resources;
 - c. Local conditions at proposed discharge sites; and
 - d. Areas designated wilderness or wild and scenic rivers.
6. The discharge is to waters classified as A-Closed, (these waters are typically used for drinking water).
7. The discharge is to impaired waterbodies and is inconsistent with approved Total Maximum Daily Loads (TMDLs) and/or assigned Waste Load Allocations (WLAs).
8. The discharge is from process wastewater regulated by federal effluent limit guidelines or new source performance standards. Process wastewater is defined as any water, which during manufacturing or processing, comes into direct contact with, or results from the production or use of, any raw material, intermediate product, finished product, byproduct, or waste product.
9. The discharge is from filter backwash (from cleaning and maintenance activities), tank bottom sludge, or residual material from tanks.

If a permittee is denied authorization under the general permit, they may apply for authorization under the individual MPDES permit requirements by submitting the required forms and fees.

D. Requirements for Authorization

Notice of Intent (NOI) Package – A complete NOI package includes a complete NOI-77 form, any supplemental information requested on the NOI-77 form, and applicable fees (specified in ARM 17.30.201).

Dischargers seeking continued coverage must submit a complete renewal request (NOI package) within 30 days of the effective date of this permit including:

- Disinfected Water and Hydrostatic Testing Notice of Intent Form (NOI-77);
- Renewal fee;
- Topographic map extending at least one mile beyond the property boundaries or operation sites;

- A copy of the dehalogenation chemical package label stating the dosage rate, if applicable; and
- A Montana Sage Grouse Habitat Conservation Program consultation letter, if applicable.

New sources seeking coverage must submit an NOI package at least 30 days prior to discharge, which includes:

- Disinfected Water and Hydrostatic Testing Notice of Intent Form (NOI-77);
- Application fee;
- Topographic map extending at least one mile beyond the property boundaries or operation sites;
- A copy of the dehalogenation chemical package label stating the dosage rate, if applicable;
- A Montana Sage Grouse Habitat Conservation Program consultation letter, if applicable;
- For hydrostatic testing activities, an analysis from consultation with both the Montana Natural Heritage Program and the Montana State Historic Preservation Office.

Permittees requesting a modification must submit an NOI package including:

- Disinfected Water and Hydrostatic Testing Notice of Intent Form (NOI-77);
- Modification fee; and
- Any additional information regarding, or effected by, the modification request.

Facilities eligible for coverage will be issued a letter of authorization to the owner or operator. If the facility does not qualify for coverage, DEQ will notify the applicant. The applicant may then apply for an individual permit or modify the operation and re-apply for coverage under the General Permit.

E. Terminating Authorization

Authorizations remain in effect unless DEQ receives a written request for termination, or a Notice of Termination (NOT) form, from the permittee. This notice must be signed and certified according to the signatory requirements in III.N. of the permit and all applicable fees must be paid. Failure to submit a written notice of termination shall result in accrual of annual fees.

F. Transferring Permit Coverage

Permit coverage may be transferred to a new owner or operator in conformance with Part III.O.3. of the general permit. A Permit Transfer Notification (PTN) form and the applicable minor modification fee must be submitted to the department at least 30 days prior to the anticipated date of transfer.

IV. Proposed Effluent Limitations

The Montana Board of Environmental Review (BER) has adopted general treatment requirements that establish the degree of wastewater treatment required to restore and maintain the quality of surface waters. This rule states that the degree of wastewater treatment is based on the surface water quality standards; the State's nondegradation policy; present and anticipated beneficial uses of the receiving water; the quality and flow of the receiving water; the quantity and quality of sewage; industrial wastes and other wastes to be treated; and the presence or absence of other sources of pollution in the same watershed.

A. Technology-Based Effluent Limits (TBELs)

Applicable Guidelines – Technology-based effluent limits represent the minimum treatment requirements implemented in MPDES permits. TBELs are derived from national Effluent Limitation Guidelines (ELGs), standards established by EPA, and/or the permit writer using best professional judgement on a case-by-case basis. ELGs have not been promulgated for discharges of disinfected water or hydrostatic testing. However, DEQ previously established TBELs for hydrostatic testing dischargers based on limits commonly used for other wastewater treatment and industrial permits, as described below.

Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associated with Petroleum Uses – The TSS TBEL shown below in 3a. comes from federal secondary treatment standards that are applied to wastewater treatment facilities.

Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses– The TSS TBEL from federal secondary treatment standards applies to all hydrostatic testing activities. Additionally, EPA has established BTEX as the indicator parameter in possible petroleum release sites and has published TBELs based on BPJ for benzene, BTEX, and pH, as shown below in 3b.

Table 3a. TBELs Specific to Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associated with Petroleum Uses.			
Parameter	Units	Effluent Limits	
		Monthly Average	Daily Maximum
Total Suspended Solids	mg/L	30	45
Table 3b. TBELs Specific to Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses			
Total Suspended Solids	mg/L	30	45
Benzene	µg/L	5	5
Total BTEX ⁽¹⁾	µg/L	100	100
pH	s.u.	6.0 – 9.0 (instantaneous)	
⁽¹⁾ The sum of benzene, toluene, ethylbenzene, and xylene (meta, ortho and para) isomers			

B. Water Quality-Based Effluent Limits (WQBELs)

Applicable Guidelines – The Montana Water Quality Act states that a permit may only be issued if DEQ finds it will not result in pollution of state waters. MPDES permits shall include limitations on all pollutants which will cause, or have reasonable potential to cause, an excursion of any numeric or narrative water quality standard. WQBELs are designed to protect these standards and are required when TBELs are not adequately protective. The purpose of this section is to provide a basis and rationale for establishing effluent limits that will protect designated uses of the receiving water based on Montana water quality standards and water use classifications.

Mixing Zones – No mixing zones are authorized under this General Permit. All effluent limits must be met at the end of the discharge pipe before the effluent reaches state waters.

Applicable Water Quality Standards & Pollutants of Concern – Discharges from disinfected water and hydrostatic testing activities must comply with general prohibitions (narrative standards) which require that state waters, including mixing zones, must be free from substances which will:

- (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;
- (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter), or globules of grease or other floating materials;
- (c) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
- (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and
- (e) create conditions which produce undesirable aquatic life.

WQBELs are evaluated for POCs based on water quality standards applicable to the receiving water at the point of discharge. The applicable standards and nondegradation criteria for POCs at disinfected water and hydrostatic testing sites are summarized in Table 4. Because the testing of equipment not previously associated with petroleum uses is not expected to have petroleum-containing residuals, the POCs for hydrostatic testing of this equipment are the same as disinfected water activities.

Table 4a. Water Quality Standards Specific to Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associate with Petroleum Uses							
Parameter	Units	Category	Acute Aquatic Life Standard	Chronic Aquatic Life Standard	Human Health Standard	Nondegradation Criteria	RRV
Total Residual Chlorine	mg/L	Toxic	0.019	0.011	4	0.002	0.1
Table 4b. Water Quality Standards Specific to Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses							
Total Residual Chlorine	mg/L	Toxic	0.019	0.011	4	0.002	0.1
Benzene	µg/L	Carcinogen	N/A		5	0	0.6
Toluene	µg/L	Toxic	N/A		57	9	1
Ethylbenzene	µg/L	Toxic	N/A		68	10	1
Total Xylenes	µg/L	Toxic	N/A		10,000	1,500	3
Oil and Grease	mg/L	Narrative	10			4	1

Nondegradation – The Montana Water Quality Act includes a nondegradation policy that prohibits degradation of state waters and applies to any new activity resulting in a change to existing water quality. The nondegradation values in Table 4 are calculated using rules set forth in ARM 17.30.715 based on the category of the pollutant.

TRC, Toluene, Ethylbenzene, and Xylenes – The criterion for toxic parameters states that the resulting concentration from a discharge cannot exceed fifteen percent of the lowest applicable standard.

Benzene - The nondegradation criterion for carcinogenic parameters is “...less than or equal to the concentrations of those parameters in the receiving water” or no increase above background. Since benzene is not considered a natural background parameter, the nondegradation criterion is zero (0).

Oil and Grease – Changes in water quality for any narrative standards must not have a measurable effect on existing or anticipated uses, or cause measurable changes in aquatic life or ecological integrity. The nondegradation value for oil and grease is set at 4.0 mg/L, or 40% of the standard.

Based on these nondegradation criteria and their implementation in developing limits, DEQ determined discharges under this General Permit are nonsignificant.

V. Final Effluent Limitations

Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associated with Petroleum Uses:

Total Residual Chlorine – The limit for chlorine is set at the nondegradation value of 2 µg/L. However, sampling of the effluent with analytical results less than or equal to the required reporting value of 0.1 mg/L is considered in compliance with the TRC limit.

TSS & pH – The technology-based limits for these parameters are sufficiently protective of water quality and will apply to both types of dischargers. No additional WQBELs are required.

Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses:

Total Residual Chlorine – The limit for chlorine is set at the nondegradation value of 2 µg/L. However, sampling of the effluent with analytical results less than or equal to the required reporting value of 0.1 mg/L is considered in compliance with the TRC limit.

TSS & pH – The technology-based limits for these parameters are sufficiently protective of water quality and will apply to both types of dischargers. No additional WQBELs are required.

BTEX – The technology-based 100 µg/L BTEX limit (as a sum of the constituents) creates potential for toluene, and ethylbenzene water quality standards to be exceeded. Therefore, the permit will require the parameters of concern to be reported separately. Limits are set at the more stringent of the nondegradation and 2016-permit values. Sampling of the effluent with analytical results less than or equal to the required reporting value for each parameter is considered in compliance with the limit.

Oil and Grease – The oil and grease effluent limit of 4.0 mg/L, based on narrative standards and nondegradation criteria, is set in this permit. Daily visual monitoring will also be required for periods of discharge. If visual monitoring indicates the presence of oil and grease, additional samples must be submitted for analysis and discharge must cease if the concentration is found to be greater than 4.0 mg/L.

Dehalogenation Chemicals – Excessive dehalogenation chemicals may deplete oxygen concentrations in receiving waters. For this reason, the quantity of dehalogenation reagent allowed from discharges is limited to 1.5 times the manufacturers’ recommended dosage on the chemical package label.

Average monthly limits are not established in this permit as they may not comply with the maximum daily nondegradation criteria. The following table summarizes the final effluents discussed above:

Table 5a. Final Effluent Limits for Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associated with Petroleum Uses		
Parameter	Units	Maximum Daily Limit ⁽¹⁾
Total Residual Chlorine	mg/L	0.002 ⁽²⁾
Total Suspended Solids	mg/L	45
pH	s.u.	6.0 – 9.0
Table 5b. Final Effluent Limits for Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses		
Total Residual Chlorine	mg/L	0.002 ⁽²⁾
Total Suspended Solids	mg/L	45
pH	s.u.	6.0 – 9.0
Benzene	µg/L	0 ⁽²⁾
Toluene	µg/L	0.01 ⁽²⁾
Ethylbenzene	µg/L	0.002 ⁽²⁾
Total Xylenes	µg/L	0.5 ⁽²⁾
Oil and Grease	mg/L	4
⁽¹⁾ The maximum value allowed in any single sample		
⁽²⁾ Reporting non-detect with analysis that meets the RRV (shown in Table 6a and 6b) is considered in compliance with the limit		

Dehalogenation chemicals are limited to 1.5 times the manufacturer’s recommended dosage identified on the chemical package label and, if used, must be recorded in the discharge log as required by section II.C. of the General Permit.

There shall also be no discharge of floating solid or visible foam other than in trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving water.

There shall be no discharge that settles to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines.

VI. Self-Monitoring and Reporting Requirements

Monitoring will start with the date of the authorization letter and is required during periods of discharge. All analytical procedures must comply with the specifications of 40 CFR Part 136. All dischargers must submit NetDMR results for each month by the 28th of the following month, beginning with the first month of authorization. Permittees shall monitor the effluent quality at the end of the discharge pipe before it enters state waters. The monitored parameters and frequency requirements are presented in Table 6. If no discharge occurs during the reported period, “no discharge” shall be reported through NetDMR. The samples collected and analyzed must be representative of the volume and nature of the facility’s discharge. The RRV is DEQ’s best determination of a level of analysis that can be achieved using EPA-approved methods or methods approved by DEQ.

Table 6a. Monitoring and Reporting Requirements for Disinfected Water Activities & Hydrostatic Testing of Equipment Not Previously Associated with Petroleum Uses ⁽¹⁾				
Parameter	Units	Sample Type ⁽²⁾	Minimum Frequency ⁽³⁾	RRV ⁽⁴⁾
Effluent Flow	mgd	Instantaneous	1/Day	--
Total Residual Chlorine	mg/L	Instantaneous	1/Day	0.1
Total Suspended Solids	mg/L	Grab	1/Week	10
pH	s.u.	Instantaneous	1/Day	0.1
Table 6b. Monitoring and Reporting Requirements for Hydrostatic Testing of Equipment Previously Associated with Petroleum Uses ⁽¹⁾				
Effluent Flow	mgd	Instantaneous	1/Day	--
Total Residual Chlorine	mg/L	Instantaneous	1/Day	0.1
Total Suspended Solids	mg/L	Grab	1/Week	10
pH	s.u.	Instantaneous	1/Day	0.1
Benzene	µg/L	Grab	1/Week	0.6
Toluene	µg/L	Grab	1/Week	1.0
Ethylbenzene	µg/L	Grab	1/Week	1.0
Total Xylenes	µg/L	Grab	1/Week	3.0
Oil and Grease ⁽⁵⁾	yes/no	Visual ⁽⁶⁾	1/Day	--
	mg/L	Grab	1/Week	1.0
⁽¹⁾ All parameters must be reported as daily maximum ⁽²⁾ See definition section at the end of permit for explanation of terms ⁽³⁾ Monitoring is required only for any calendar period where there is discharge ⁽⁴⁾ Required Reporting Value. If reporting non-detect, analysis must achieve these, or lower, RRVs ⁽⁵⁾ Use Method 1664A or Method 1664B and specify the SGT-HEM procedure ⁽⁶⁾ If visual monitoring indicates the presence of hydrocarbons, by sheen, odor, or other sign, the permittee is required to take corrective action as specified under the Special Conditions of this permit, including analyzing an additional grab sample under 40 CFR 136.				

VII. Special Conditions

Maintaining a Discharge Log – Permittees are required to maintain a log to establish a chronological record of events concerning operation of the activity during the term of the permit. The log must be available for review during an inspection, and shall contain the following:

- The amount of dehalogenation chemical used each month with the manufacturer’s recommended dosage, if applicable;

- Date of observations;
- Flow information and data;
- Sample results;
- Records of visual observations; and
- A description of changes in the operation or physical arrangement of the activity, if applicable.

Best Management Practices – Discharge flow must not cause erosion or sedimentation to receiving streambeds or banks. If necessary, best management practices (BMPs), such as flow dissipation devices or rip rap, must be installed to reduce/control erosion.

Corrective Action – Upon visual observation of an oil sheen or inadequate BMPs leading to erosion or sedimentation, the following steps must be conducted:

- Take a grab sample for analysis if there is an observation of oil and grease.
- Cease discharge until the issue is resolved.
- Conduct a site-wide inspection to observe operating conditions and BMP maintenance.
- Address any failures or inadequate BMPs
- Document the issues in writing to DEQ

VIII. Information Sources

Administrative Rules of Montana Title 17 Chapter 30 – Water Quality

- Subchapter 2 – *Water Quality Permit and Application Fees*
- Subchapter 6 – *Montana Surface Water Quality Standards and Procedures*
- Subchapter 7 – *Nondegradation of Water Quality*
- Subchapter 12 – *Montana Pollutant Discharge Elimination (MPDES) Standards*
- Subchapter 13 – *Montana Pollutant Discharge Elimination (MPDES) Permits*

EPA. Fact Sheet for Model NPDES Permit for Discharges Resulting from the Cleanup of Gasoline Released from Underground Storage Tanks. June 1989.

Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387, October 18, 1972, as amended 1973-1983, 1987, 1988, 1990-1992, 1994, 1995 and 1996.

Montana Code Annotated (MCA), Title 75-5-101, *et seq.*, “Montana Water Quality Act.”

Montana DEQ. 2019. *Department Circular DEQ-7, Montana Numeric Water Quality Standards.*

Montana DEQ. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MTG770000 Administrative Record. February 2020.

US Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, & 136.