

Water Quality Division Montana Pollutant Discharge Elimination System (MPDES) Fact Sheet for Produced Water General Permit

Permit Number:	MTG310000
Facility:	Oil and Natural Gas Production Operations Statewide Ephemeral Water Bodies of Montana
Receiving Water:	(Except Indian Reservations and the state waters in Rosebud Creek, Tongue, Powder, and Little Powder River watersheds)
Facility Contact:	Applicant
Fact Sheet Date:	April 2020

I. Permit Information

A. Permit Status

DEQ proposes to reissue the MPDES *Produced Water General Permit* (General Permit or PWGP), MTG310000. This Fact Sheet identifies changes from the 2015-General Permit and explains the legal requirements and technical rationale for the permit development process.

The PWGP was first issued by Montana DEQ April 1, 1990. This is the sixth reissuance of the PWGP, the most recent version became effective May 1, 2015 and expired April 30, 2020. Before expiration, DEQ administratively extended the PWGP on April 25, 2020.

B. Proposed Permit Changes

The major changes proposed with this renewal include:

- Applicants are required to include a consultation letter from the Montana Sage Grouse Habitat Conservation Program if the operation is in sage grouse core, general, or connectivity habitat.
- The monitoring frequency for effluent flow rate, oil and grease, total dissolved solids, electrical conductivity, and sulfate will be increased to quarterly.
- All applicants must submit a water quality analysis with the Notice of Intent package for it to be deemed complete. The special condition allowing applicants to submit the water quality analysis within 6 months of the Notice of Intent data submission will be discontinued.
- If the applicant is proposing a new well that has not discharged, DEQ will accept an anticipated water quality analysis from a nearby well or similar source with the NOI-31 form. Permittees will be required to submit a water quality analysis for new wells within 3 months of discharging produced water.

II. Coverage

A. Area of Coverage

This PWGP applies to all areas of the State of Montana except for Indian Lands, National Parks, and the state waters in Rosebud Creek, Tongue, Powder, and Little Powder River watersheds.

B. Overview

Produced water is separated process wastewater generated from oil or natural gas production. The raw product pumped from oil and gas production wells contains water and crude oil or entrained natural gas. Various methods can be used to separate the oil and gas from the produced water including heat treatment, gravity separation, emulsion breaking chemicals, and skim ponds. After the petroleum is separated from the raw product, the produced water is ready for disposal.

Because produced water is ground water held in formation with oil and gas, its chemical composition is determined by the type of hydrocarbon product, the geological host formation, and the ground water origin. Therefore, produced water quality falls along a wide spectrum, with some waters suitable for beneficial use with

minimal treatment, and others requiring intensive treatment. Produced water can contain high concentrations of oil and grease and total dissolved solids (salinity), which is primarily composed of minerals (salts) dissolved in water.

Federal regulations allow discharge of produced water from onshore oil and gas operation if the quality is good enough to be used for wildlife or livestock watering or other agricultural uses. DEQ does not consider produced water to be suitable for irrigation because waters high in salinity can impact soil structure and cause detriment to crops. Therefore, this General Permit has been developed in consideration of livestock and wildlife, which tolerate saline waters if concentrations are not too high. Because there are no other beneficial uses, this General Permit does not allow direct discharge to intermittent or perennial streams or discharge leading to the runoff of produced water into intermittent or perennial streams.

C. Allowed Operations/Discharges

This General Permit authorizes the disposal of produced water into ephemeral drainages and impoundments constructed in ephemeral drainages for beneficial uses only. Oil and gas production operations in Standard Industrial Classification 1311 and North American Industry Classification System 2111 may discharge produced water into state waters mentioned above. Allowed operations for this General Permit are as follows:

1. Discharge to Ephemeral Receiving Waters, ARM 17.30.602

An ephemeral stream flows only in direct response to precipitation in the immediate watershed or in response to the melting of snow and ice whose channel bottom is always above the local ground water table. This General Permit only authorizes produced water discharge that can be contained in ephemeral drainages and/or impoundments constructed in ephemeral drainages.

Discharge of produced water must be less than the storage volume of an ephemeral drainage or impoundment, and must not lead to produced water runoff into intermittent or perennial streams. It is the applicants' responsibility to ensure qualification for coverage under this General Permit by identifying available ephemeral drainages and/or impoundments and evaluating their capacity for containing produced water.

2. Produced Water from Oil and Gas Operations, 40 CFR 435.11

Produced water is the water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas. Produced water can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

3. Discharge for Wildlife Propagation, 40 CFR 435.51

The produced water must be of good enough quality to be used for wildlife or livestock watering or other agriculture uses. The produced water must also be put to actual use during periods of discharge. Therefore, drinking water quality requirements for livestock or wildlife must be considered when determining which specific produced waters are usable for beneficial uses. See **Section IX.B** of this fact sheet for additional discussion.

D. Prohibited Operations/Discharges

Facilities which do not qualify for coverage under the Produced Water General Permit must apply for a MPDES individual permit. The following are excluded from coverage under this General Permit, consistent with ARM 17.30.1341(4):

1. Applicants unable to comply with effluent limits or other terms and conditions of the permit, water quality standards, or any additional requirements that DEQ determines are necessary.
2. If an MPDES permit or authorization for the same operation has been previously denied or revoked.
3. Discharge different in degree or nature from the sources or activities described in the General Permit:
 - a. **Produced Water from Coal Bed Natural Gas Operations**
Coal bed natural gas operations involve depletion of shallow alluvial and coal bed ground water aquifers resulting in potentially large volumes of effluent for discharge, as well as potentially

different effluent quality from traditional oil and gas production. Therefore, coal bed natural gas discharges are excluded from coverage under the Produced Water General Permit, and must apply for individual MPDES permit coverage. Also, the national Effluent Limitation Guidelines specified in 40 CFR Part 435, Subpart E were promulgated for traditional oil and gas production, but not for coal bed natural gas production.

b. ***Discharge to Intermittent or Perennial Streams***

This General Permit does not allow produced water to be discharged to intermittent or perennial streams, which are subject to specific water quality standards set forth in ARM 17.30.620-670 and in Circular DEQ-7. Produced water must not lead to runoff into intermittent or perennial streams, so discharge exceeding the storage volume of an ephemeral drainage or impoundment is not allowed. It is the applicants' responsibility to identify available ephemeral drainages and/or impoundments and to evaluate their capacity for containing produced water volume to ensure qualification for coverage under this General Permit. No discharge to any other state waters besides ephemeral drainages is authorized by this permit.

c. ***Discharge to Rosebud Creek, Tongue, Powder, and Little Powder River Watersheds***

Facilities proposing to discharge produced water into the Rosebud Creek, Tongue, Powder, and Little Powder River watersheds are not eligible for coverage under this PWGP and must apply for coverage under a MPDES individual permit. ARM 17.30.670 specifies numeric water quality standards for electrical conductivity and sodium adsorption ratio in all tributaries and surface waters in these watersheds.

d. ***Discharge that Exceeds the Water Quality Requirements for Livestock and Wildlife***

Facilities are not eligible for PWGP coverage if the produced water discharge exceeds the water quality criteria for livestock and wildlife.

4. Discharges included within an application or is subject to review under the Major Facility Siting Act.
5. Point sources in an area of unique ecological or recreational significance, as determined by Montana stream classifications, impacts on fishery resources, local conditions at proposed discharge sites, designations of wilderness areas, or designations of wild and scenic rivers.

E. Obtaining Permit Coverage and Application Process

Facilities seeking coverage under this PWGP will need to apply to DEQ by submitting a complete Notice of Intent (NOI) Package. Once a complete NOI package is received, DEQ will review the application and decide whether to deny or issue a confirmation letter for coverage under the General permit, which is only valid when accompanied by the PWGP. Each authorization under the General Permit will be to a specific owner/operator of a gas or natural gas production facility. The operation will be allowed only in the area specified in the authorization letter, and discharge is only allowed via identified outfalls to specified receiving waters.

1. Requirements for Authorization – Notice of Intent Package

Planned produced water operations must submit a complete Notice of Intent (NOI) package to DEQ. A complete NOI package consists of the following:

- a. **Notice of Intent Form for Produced Water General Permit (NOI-31 form)**: The updated NOI-31 form is located on DEQ's website at <http://deq.mt.gov/Water/permits/Discharges>.
- b. **Livestock and Wildlife Drinking Water Criteria and Water Quality Analysis**: Applicants must submit a water quality analysis of the produced water proposed to be discharged for all parameters specified in **Section II.D** of the General Permit. Applicants will be ineligible for permit coverage if water quality does not meet Livestock and Wildlife Drinking Water Criteria.
 - The analysis must be done in accordance with EPA test procedures (40 CFR Part 136) and each parameter must meet the required reporting value (RRV) from the most recent Circular DEQ-7.
 - If the applicant is proposing a new well that has not discharged, DEQ will accept an anticipated water quality analysis from a nearby well or similar source with the NOI-31 form. Once discharge

commences, permittees are required to submit a water quality analysis for new wells within 3 months of initial discharge.

- c. If Constructing an Impoundment - Produced Water Storage Capacity Self Evaluation: Applicants must certify that the discharged produced water is less than the storage volume of an impoundment and does not lead to produced water runoff into intermittent or perennial streams. The updated evaluation requirements are part of the NOI-31 form located on DEQ's website at <http://deq.mt.gov/Water/permits/Discharges>.
- d. Sage Grouse Habitat Executive Order No. 12-2015: If the operation is in sage grouse core, general, or connectivity habitat, the applicant must include a consultation letter from the Sage Grouse Habitat Conservation Program, <https://sagegrouse.mt.gov/>.
- e. Analyses for New Sources: If the proposed discharge is to a new source or new authorization, applicants must obtain analyses from:
 - Montana National Heritage Program
 - Montana State Historic Preservation Office
- f. Required Fee: Fees are required under ARM 17.30.201 Schedule I.B, and determined by NOI-31 status:
 - New Application Fee: \$1,200
 - Renewal Application Fee: \$900

2. *New Authorization Under the 2020-General Permit*

The process for obtaining first time coverage under the General Permit is as follows:

- a. At least 30 days prior to operation, applicants must submit a complete NOI Package to DEQ.
- b. DEQ will review the NOI package for completeness.
 - If there are no deficiencies during the review, DEQ will issue an authorization letter.
 - If the NOI package is deficient, permit coverage will not be granted. DEQ will notify the applicant of required information.Applicants are not allowed to discharge without an authorization letter from DEQ.

3. *Continuing Authorization Under the 2020-General Permit*

Continued coverage applies to active permittees currently covered under the 2015-issued General Permit, unless they are excluded according to the conditions in **Section I.B** of the General Permit. DEQ will reissue authorization to existing permittees through the process outlined below:

- a. Eligible applicants with **current** general permit authorization (2015-issued General Permit) must submit a complete renewal request (NOI package) for continued coverage. The NOI package must be submitted **within 60 days of the effective date of the 2020-General Permit**.
- b. DEQ will review the NOI package for completeness.
 - If deficiencies are not found during the review, DEQ will issue an authorization letter.
 - If the NOI package is deficient, permit coverage will not be granted. DEQ will notify the applicant of required information.

4. *Terminating Authorization*

The options for terminating permit coverage are listed below:

- a. Permittees must complete and submit a Notice of Termination (NOT) form to DEQ.
 - The NOT form is available at <http://deq.mt.gov/water/resources/Forms>
 - Annual fees accrue until DEQ receives a Notice of Termination.
- b. Current permittees may request to be excluded from coverage under this General Permit by applying for and obtaining an individual MPDES permit.
 - If an individual MPDES permit is issued, coverage under this General Permit will be terminated on the effective date of the final individual MPDES permit.

5. Transferring Permit Coverage

DEQ may transfer authorization to a new owner or operator under the General Permit. A permit transfer constitutes written notice to DEQ under the Montana Water Quality Act that the new owner or operator assumes responsibility and liability for all the terms and conditions in the permit, including fees.

- The current owner and new owner must submit a completed Permit Transfer Notification (PTN) form to DEQ at least 30 days before the effective date of the proposed transfer. The PTN form is available at <http://deq.mt.gov/water/resources/Forms>
- The PTN form may not be used to transfer permit coverage to a new or different site location or to modify the terms and conditions of the permit.

6. Denied Authorizations

If a permittee is denied authorization to operate under the General Permit, DEQ will proceed to process the request for authorization through the individual MPDES permit requirements, unless the applicant withdraws the NOI or modifies the proposed discharge to meet the requirements of the General Permit. If the applicant withdraws the application, they must reapply with a full NOI package and applicable fees if they intend to seek future coverage under the General Permit.

III. Effluent Characteristics and Discharging Facilities

A. Previous Permit Limits

Parameter	Units	Average Monthly Limit	Maximum Daily Limit
Oil and Grease	mg/L	-	10
Total Dissolved Solids (TDS)	mg/L	5,000	-

B. Effluent Characteristics

The 2015-PWGP required semiannual monitoring for basis for several parameters. **Table 2** summarizes effluent quality as reported on discharge monitoring reports through NetDMR during the period of record. For conductivity and sulfate, the minimum, maximum, and average values are the reported monthly minimum average, monthly maximum, and average of the reported monthly average values, respectively. Flow rate and TDS values are taken from reported monthly averages, and oil and grease values are based on the reported monthly maximum.

Parameter	Units	Min	Max	Average	Sample Size	Permit Limit Exceedances
Effluent Flow Rate	gal/min	0.03	117	19.2	155	no limit
Oil and Grease	mg/L	0	29	3.9	118	6
Total Dissolved Solids	mg/L	0	10,127	3,249	148	6
Sulfate	mg/L	0	6,510	805.4	145	(1)
Electrical Conductivity (EC)	µS/cm	0	13,100	4,834	147	(1)

(1) No permit limit.

A special condition of the 2015-General Permit required permittees to submit a water quality analysis with the Notice of Intent package. This analysis was compared to livestock and wildlife drinking water quality requirements that were established and updated in previous permit cycles using recommendations from industry research and publications. Applicants whose discharge exceeded the water quality requirement were allowed to conduct additional sampling until they could demonstrate their ability to comply with the criteria.

Table 3 summarizes the water quality analyses submitted by applicants in the period of record. Of the 30 permitted facilities, 23 submitted complete a complete water quality analysis, 5 submitted an incomplete analysis, and 7 did not submit. In the renewed General Permit, DEQ will not grant permit coverage without a complete and updated water quality analysis that meets drinking water criteria.

Table 3. Wildlife and Livestock Drinking Water Quality Analyses 2015-2019							
Parameter	Units	Min	Max	Average	Sample Size	Criteria	Exceedances
Arsenic	mg/L	0.001	0.013	0.3	23	0.5	4
Boron	mg/L	0.26	6.1	1.7	26	5.0	6
Copper	mg/L	0.001	0.024	0.005	23	0.5	0
Electrical Conductivity (EC)	µS/cm	1690	9430	5403	27	11,000	2
Fluoride	mg/L	0.1	5.3	2.4	24	3.0	7
Lead	mg/L	0.0003	0.03	0.005	23	0.1	0
Nitrate	mg/L	0.01	0.41	0.061	19	100	0
Nitrite	mg/L	0.01	0.11	0.026	18	10	0
Oil and Grease	mg/L	0.6	30	3.4	29	10	1
pH	s.u.	7.0	9.0	8.3	25	6.0 - 9.0	0
Selenium	mg/L	0.001	0.025	0.006	23	0.05	0
Sodium	mg/L	36	2037	1140	24	2,250	0
Sodium Absorption Ratio (SAR)	-	0.46	83.3	41.1	23	NA	NA
Sulfate	mg/L	43	2730	712	27	2,500	1
Total Dissolved Solids (TDS)	mg/L	690	6280	3270	25	5,000	2
Zinc	mg/L	0.008	5.82	0.330	23	25	0

C. Current Permitted Facilities

There are currently 30 permittees authorized under the 2015-PWGP. Some of the permittees reported “Operation Shutdown” or “No discharge” intermittently. The renewed permit will increase the required monitoring frequency from biannual to quarterly.

IV. Technology Based Effluent Limits

Technology-based effluent limits (TBELs) represent the minimum level of treatment or control and are based on implementing available treatment technologies to reduce pollutants. TBELs are based on currently available treatment technologies and allow the permittee the discretion to choose applicable controls to meet those standards.

A. ELGs for Oil and Gas Extraction Point Source Category, 40 CFR Part 435:

Dischargers other than publicly-owned treatment works are held to effluent limitation guidelines (ELGs), which are defined in 40 CFR Subchapter N. ELGs are national regulatory standards based on the performance of treatment and control technologies.

B. Agricultural and Wildlife Water Use Subcategory, 40 CFR Part 435 Subpart E:

The effluent limits in this Produced Water General Permit represent the degree of effluent reduction attainable by the application of **best practicable control technology currently available (BPT)** in produced water for agriculture or wildlife beneficial uses.

- a. There shall be no discharge of waste pollutants into navigable waters from any source (other than produced water) associated with production, field exploration, drilling, well completion, or well treatment (i.e., drilling muds, drilling cuttings, and produced sands).
- b. Produced water discharge shall not exceed the following daily maximum limitation:
 - Oil and Grease: 35 mg/L.

V. Water Quality Based Effluent Limits

Permits are required to include Water Quality-Based Effluent Limits (WQBELs) when TBELs are not adequate to protect state water quality standards. WQBELs are developed for each parameter demonstrating reasonable potential to cause or contribute to an excursion from any water quality standard, including narrative criteria.

A. Scope and Authority

The Montana Water Quality Act states that a permit may only be issued if DEQ finds that it will not result in pollution of any state waters. No wastes may be discharged that can reasonably be expected to violate any state water quality standards. Montana water quality standards define water use classifications for all state waters and numeric and narrative standards that protect those designated uses.

B. Receiving Waters: Ephemeral

This General Permit authorizes produced water discharges that can be contained in ephemeral drainages and/or impoundments constructed in ephemeral drainages. An ephemeral stream flows only in direct response to precipitation in the immediate watershed or in response to melting of snow and ice whose channel bottom is always above the local ground water table. State waters means any body of water, irrigation system, or drainage system, either surface or underground. This definition includes lakes and ponds, both natural and man-made, and ephemeral drainages.

Discharges into the Rosebud Creek, Tongue, Powder, and Little Powder River watersheds are not eligible for coverage under this PWGP. ARM 17.30.670 specifies numeric water quality standards for electrical conductivity and sodium adsorption ratio in all tributaries and surface waters in these watersheds.

Discharge of produced water must be less than the storage volume of an ephemeral drainage or impoundment, and must not lead to produced water runoff into intermittent or perennial streams. It is the applicant's responsibility to:

- Identify available ephemeral drainages and/or impoundments
- Evaluate capacity for containing produced water volume

C. Beneficial Use: Wildlife or Livestock Watering

The Produced Water General Permit only authorizes discharge of produced water for the specific beneficial use of wildlife or livestock watering. DEQ does not consider produced water to be suitable for irrigation because waters high in total dissolved solids/salinity can impact soil structure and cause detriment to crops. Because there are no other beneficial uses, this General Permit does not allow discharge to lead to the runoff of produced water to intermittent or perennial streams. Irrigation with produced water to agricultural fields or rangeland is not considered a beneficial use of produced water.

D. Applicable Water Quality Standards

Discharges to state waters are subject to specific water quality standards. Water quality standards apply to all state waters, meaning a body of water, irrigation system, or drainage system either on the surface or underground. State waters include ephemeral and intermittent drainages, isolated ponds, lakes, and other water bodies.

1. Standards Applicable to Ephemeral Waters

Treatment requirements for discharges to ephemeral streams must be no less than the minimum treatment requirements set forth in ARM 17.30.1203. Ephemeral streams are subject to ARM 17.30.635 through 17.30.637, 17.30.640, 17.30.641, 17.30.645, and 17.30.646 but not to the specific water quality standards of ARM 17.30.620 through 17.30.629.

2. General Prohibitions

Produced water discharges must comply with general prohibitions (narrative standards) which require that state waters 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 mg/L), or globules of grease or other floating materials

- c. Produce odors, colors, or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish flesh 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.

Discharges into all classified waters are not allowed to cause an increase above naturally occurring concentrations of sediment or suspended sediment, settleable solids, oils, or floating solids, which are likely to create a nuisance or render the waters harmful to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife.

3. ***Drinking Water Requirements for Wildlife and Livestock***

DEQ updated the water quality criteria for livestock and wildlife using guidelines from National Research Council (NRC), Canadian Council of Ministries of the Environment (CCME), and the National Academy of Sciences (NAS). The requirements are for minerals that are most likely to reach toxic levels in natural water supplies, and consider that animal tolerance depends on many variables, such as type of dissolved minerals, type of animal, climate, feed, and metabolic demands. Some minerals are essential for animal health and productivity, but all minerals can have adverse effect on animals when amounts become excessive. Naturally occurring minerals in water typically do not result in acute toxicosis, but lead to chronic conditions of poor animal performance or increased health problems.

- The Special Condition to submit a prerequisite water quality analysis with the Notice of Intent Package will be continued. See **Section IX.B** of this Fact Sheet.

E. General Permit Pollutant Analysis

1. ***Oil and Grease:*** Montana regulations require that state waters be free from substances attributable to industrial discharges that will result in concentrations of oil and grease at or in excess of 10 mg/L. This limit will be included in the permit renewal, and is consistent with the 2015-PWGP.
2. ***Total Dissolved Solids (TDS):*** TDS (salinity) measures the concentration of dissolved organic and inorganic substances but does not specify the specific dissolved solids present. Because TDS is composed primarily of dissolved minerals (salts), it is often referred to as salinity. TDS does not identify the specific minerals present in produced water, but instead is useful as a general water quality indicator. Also, concentrations above 5,000 mg/L are not safe for growing, pregnant, or lactating animals. TDS also affects palatability, with high levels causing a decrease in consumption, and ultimately performance.
 - The effluent limit of 5,000 mg/L will be continued.
 - Monitoring will be required quarterly.
3. ***Electrical Conductivity (EC):*** Electrical conductivity is an indirect method for estimating TDS, as cations and anions from dissolved minerals conduct electricity. Sudden increases in EC can alert the permittee of increased concentrations of inorganic dissolved solids without extensive water quality testing, so the monitoring requirement for EC will be continued. However, the prerequisite water quality criteria will be removed to reduce redundancy, as there is a requirement for TDS.
 - Monitoring will be required quarterly.
4. ***Sulfate:*** There was no limit for sulfate in the 2015 permit, but monitoring for this parameter was required, as it is a common pollutant in produced waters that can easily exceed concentrations of 1,000 mg/L. The monitoring requirement will be continued.
 - Monitoring will be required quarterly.

VI. Final Effluent Limits

Beginning on the effective date of this permit and lasting through the duration of the permit, the quality of effluent discharged at all outfalls must, at a minimum, meet the effluent limits presented below and in **Table 4**. All limits are applicable at the end of the pipe, prior to discharge impoundments or ephemeral drainages.

Table 4: Final Effluent Limits – All Outfalls ⁽¹⁾			
Parameter	Units	Average Monthly Limit	Maximum Daily Limit
Oil and Grease	mg/L	-	10
Total Dissolved Solids (TDS)	mg/L	5,000	-
⁽¹⁾ See Definition section at the end of the permit for explanation of terms.			

There shall be no discharge of waste pollutants into state waters other than ephemeral drainages from any source (other than produced water) associated with production, field exploration, drilling, well completion, or well treatment (including but not limited to drilling muds, drilling cuttings, and produced sands.)

There shall be no discharge of floating solids or visible foam in other than 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.

VII. Nondegradation Analysis

For all state waters, existing and anticipated uses and the water quality necessary to protect those uses must be maintained and protected. DEQ has determined that produced water operations that comply with the PWGP will result in nonsignificant changes in water quality for the following reasons:

- There is low potential for harm to human health or the environment.
- The PWGP imposes pollutant effluent limits to ensure that water quality is protective of the beneficial use of receiving waters.
- The PWGP includes monitoring and reporting requirements to establish, confirm, and maintain compliance with the permit limits.

VIII. Monitoring and Reporting Requirements

A. Requirement to Monitor and Report

All permittees must monitor their effluent. The samples collected and analyzed must be representative of the volume and nature of the facility's discharge. The Required Reporting Value (RRV) is DEQ's best determination of a level of analysis that can be achieved by the majority of commercial, university, or governmental laboratories using EPA-approved methods or methods approved by DEQ, unless another reporting level is specified by DEQ, in writing.

- Monitoring will start with the effective date of the permit and last for the duration of the permit cycle.
- All analytical procedures must comply with the specifications of 40 CFR Part 136.
- Permittees must submit monitoring results electronically through NetDMR.
- Monitoring must meet the requirements with sample type, frequency, and required reporting values (RRVs) as presented in **Table 5**.

B. Monitoring Locations, Frequency, and Sampling

- Monitoring of the effluent must be representative of the volume and nature of the discharge.
- Effluent quality must be monitored at the discharge location (outfall) after all treatment has occurred and prior to entering the receiving ephemeral drainage and/or impoundment.
- Monitoring is required twice per year during periods of discharge. Permittees must collect sampling at least 5 months apart.
- If there is an anticipated shutdown that would prevent sampling during part of the year, permittees must sample prior to shut down and submit documentation of the activity to DEQ.
- DEQ may adjust monitoring frequency for parameters on a case-by-case basis. Changes will be specified in the permittee's authorization letter.

Table 5: Outfall Monitoring Requirements ⁽¹⁾				
Parameter	Units	Frequency	Sample Type ⁽¹⁾	RRV ⁽²⁾
Effluent Flow	gal/min	Quarterly	Instantaneous	1
Oil and Grease	mg/L	Quarterly	Grab	1
Total Dissolved Solids (TDS)	mg/L	Quarterly	Grab	5
Sulfate	mg/L	Quarterly	Grab	0.1
Electrical Conductivity (EC)	µS/cm ⁽³⁾	Quarterly	Instantaneous	10
⁽¹⁾ See Definition section at the end of the permit for explanation of terms. ⁽²⁾ See Circular DEQ-7 for minimum RRVs. ⁽³⁾ microSiemens/cm				

IX. Special Conditions

Special conditions in MPDES permits supplement effluent limits and require activities designed to reduce the potential for discharge of pollutants. Special conditions also serve the purpose of collecting information that could be used to determine future permit requirements. The applicant must meet the following prerequisites to be authorized to discharge under the Produced Water General Permit:

A. Produced Water Storage Capacity Self-Evaluation

If discharging to an impoundment, permittees must demonstrate that the discharged produced water is less than the storage volume of an impoundment and does not lead to produced water runoff into intermittent or perennial streams.

- All applicants must complete a storage capacity self-evaluation and submit the results on DEQ Form PW-1 with the Notice of Intent package.

B. Water Quality Analysis

Applicants must demonstrate the produced water is of high enough quality for beneficial use. A water quality analysis is a prerequisite for permit coverage, and the produced water discharge must meet the maximum allowable concentrations for the pollutants of concern in **Table 6**.

- The Special Condition to submit a prerequisite water quality analysis (using 40 CFR methods and Circular DEQ-7 Required Reporting Values) with the Notice of Intent Package will be continued.
- If a parameter is reported as not detected, the RRV or lower must be achieved.
- Produced waters which do not meet the wildlife and livestock drinking water criteria are excluded from PWGP coverage.
- If the permittee cannot demonstrate with a single sample that the wildlife and livestock drinking water criteria are achieved, the permittee may collect additional samples, and demonstrate to DEQ that the average value will not exceed water quality criteria.

Parameter ⁽¹⁾	Units	RRV ⁽²⁾	Criteria
Total Dissolved Solids (TDS) ⁽³⁾	mg/L	5	5000
Oil and Grease ⁽⁴⁾	mg/L	1	10
pH ⁽⁴⁾	s.u.	0.1	6.0 – 9.0
Arsenic, Total Recoverable ⁽⁵⁾⁽⁶⁾	µg/L	1	500
Cadmium, Total Recoverable ⁽⁷⁾	µg/L	0.03	80
Chromium, Total Recoverable ⁽³⁾⁽⁶⁾	µg/L	10	1000
Cobalt, Total Recoverable ⁽³⁾⁽⁶⁾⁽⁷⁾	µg/L	50	1000
Copper, Total Recoverable ⁽³⁾⁽⁶⁾⁽⁷⁾	µg/L	2	500
Fluoride ⁽³⁾⁽⁶⁾⁽⁷⁾	µg/L	200	2000
Lead, Total Recoverable ⁽³⁾⁽⁶⁾⁽⁷⁾	µg/L	0.3	100
Nitrate as N ⁽⁶⁾⁽⁷⁾	mg/L	0.02	100
Nitrite as N ⁽⁶⁾⁽⁷⁾	mg/L	0.01	10
Selenium, Total Recoverable ⁽⁷⁾	µg/L	1	50
Sulfate ⁽⁶⁾⁽⁷⁾	mg/L	100	2500
Zinc, Total Recoverable ⁽³⁾⁽⁶⁾	mg/L	0.008	25

⁽¹⁾ Sample type for all parameters is grab. See Definition section at the end of the permit for explanation of terms.
⁽²⁾ Required Reporting Value. See Circular DEQ-7 for minimum RRVs. If a parameter is reported as not detected, then the RRV or lower must be achieved.
⁽³⁾ National Academy of Sciences
⁽⁴⁾ Administrative Rules of Montana, 17.30 Subchapter 6
⁽⁵⁾ Canadian Council of Ministries of the Environment, 1987; Best Professional Judgement
⁽⁶⁾ National Research Council, 2005
⁽⁷⁾ Canadian Council of Ministries of the Environment, 1997

X. Information Sources

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