

MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

FACT SHEET

Domestic Sewage Treatment Lagoons General Permit

FACILITY: Publicly- and Privately- Owned Treatment Works
PERMIT NUMBER: MTG580000
LOCATION: Statewide, except for *Indian Country*
CONTACT: Applicant
RECEIVING WATER: Statewide

I. Status of Permit

The Montana Pollutant Discharge Elimination System (MPDES) *Domestic Sewage Treatment Lagoons General Permit* (hereinafter referred to as the GP), permit number MTG580000, was first issued in March 1983 and was renewed approximately every five years through 1999. The most recent renewal of the GP became effective on October 1, 1999, and expired on September 30, 2004 (“1999-issued GP”). The Department of Environmental Quality (DEQ, or department) administratively extended the 1999-issued GP pursuant to Administrative Rules of Montana (ARM) 17.30.1313.

II. Description of Discharge and Discharging Facilities

Montana facilities eligible for coverage under this renewal of the GP (“2012-issued GP”) are facultative and aerated (including partial mix) domestic sewage treatment lagoon systems.

Domestic sewage treatment lagoon systems have different engineering designs based on the year of construction and/or modification. Montana requires facilities to submit an engineering report or facility plan for approval prior to construction or modification of all wastewater facilities. The September 1, 1981, Memorandum “Wastewater Treatment Pond Design Guidelines,” from Donald G. Willems, Administrator, Environmental Sciences Division of the Department of Health and Human Services contained requirements for facilities to meet specific design criteria listed in the 1978 Ten States Standards. Between 1995 and 1999, the “Circular WQB-2, Montana Department of Environmental Quality, Design Standards for Wastewater Facilities” contained the design criteria. The most recent “Circular DEQ-2, Montana Department of Environmental Quality, Design Standards for Wastewater Facilities” was issued in 1999, and an updated version is expected in late 2012. As a prerequisite for coverage under this GP, the facility must operate in accordance with their most recent Operation & Maintenance (O&M) Plan, which should reflect the criteria in place at the time of the facility’s construction or modification (see Part VII.C).

Design criteria and a summary of the receiving water classifications for the 25 facilities currently authorized under the 1999-issued GP are listed in Attachments A and B. The 25 facilities consist of

18 facultative, 6 aerated, and 1 partial-mix lagoons (ICIS, 2012). In addition, the ICIS database indicates that there are 54 additional lagoon facilities covered under individual MPDES permits with the potential for coverage under the 2012-issued GP. Of the 54 potential permittees, about half are facultative and half are aerated.

Facultative Lagoon Systems

Facultative lagoon systems are commonly employed by small rural communities (EPA Fact Sheet 832-F-02-014, "2002 EPA facultative fact sheet"). A facultative lagoon treatment system consists of two or more treatment ponds, usually constructed of earthen materials. Facultative lagoons are not mechanically mixed or aerated and are designed to provide long detention times. Montana has required 180 days detention for discharging facultative lagoons since the early 1980s.

Discharges of treated effluent from facultative lagoons may occur continuously or as a "batch." A "batch" is a controlled, hold and release periodic discharge strategy that is often seasonal in nature. Whether the system operates as a continuous discharger or a "batch" discharger (including a facility designed as a non-discharger that may discharge periodically) is a significant design element for lagoons.

According to the 2002 EPA facultative fact sheet and the *Principles of Design and Operations of Wastewater Treatment Pond Systems for Plant Operators, Engineers, and Managers*, EPA/600/R-11/088, August 2011, facultative lagoons provide significant pollutant reductions through passive aerobic/anaerobic treatment, as follows:

- Five-day biochemical oxygen demand (BOD₅): less than 30 milligrams per liter (mg/L) is a typical effluent concentration with up to 95% removal possible.
- Total suspended solids (TSS): effluent concentration range from less than 30 mg/L to greater than 100 mg/L depending on algal concentrations and design parameters.
- Ammonia removal: up to 80% removal is achievable; however this removal rate is not sustainable during colder months.
- Phosphorus removal: approximately 50% removal can be expected under high pH conditions.

Facultative Lagoon System (one- and two-cell)

There are currently three one-cell and five two-cell facultative systems covered under the 1999-issued GP. Data available to DEQ shows that these systems were installed between 1956 and 1974. The majority of these systems are either non-dischargers or batch-dischargers.

Facultative Lagoon Systems (three-cell)

Since the early 1980s, the design and construction of facultative lagoons was required to include three or more cells, although very small installations (0.025 mgd or less) were allowed two cells. The minimum detention time for facultative three-cell systems is 180 days. There are currently 10 three-cell facultative systems covered under the 1999-issued GP.

Aerated Lagoon System and Partial Mix Systems

Aerated lagoons have been widely used in the United States for 50 years (EPA Fact Sheet 832-F-02-008, “2002 EPA aerated fact sheet”). Aeration is provided by either mechanical surface aerators or submerged diffused aeration systems.

Aerated lagoons typically are classified by the amount of mixing provided. A partial mix system provides only enough aeration to satisfy the oxygen requirements of the system and does not provide energy to keep all TSS in suspension. Complete mix systems use approximately 10 times the amount of energy as partial mix systems.

There are currently six aerated lagoon systems and one partial mix lagoon system covered under the 1999-issued GP.

According to the 2002 EPA aerated fact sheet and the *Principles of Design and Operations of Wastewater Treatment Pond Systems for Plant Operators, Engineers, and Managers*, EPA/600/R-11/088, August 2011, aerated lagoons provide significant reductions, as follows:

- BOD₅: less than 30 mg/L is a typical effluent concentration with up to 95% removal expected.
- TSS: effluent concentrations range from 20 – 60 mg/L, and reliably able to achieve TSS of less than 30 mg/L if a settling pond is in place at the end of the system.
- Significant nitrification occurs during the summer if there is adequate Dissolved Oxygen (DO).
- Phosphorus removal: 15 – 25% expected.

Other Lagoon System Operations

Land Application

Land application is an increasingly popular method of handling treated effluent. Improperly designed and operated land application of wastewater has the potential to discharge pollutants to surface water through over-land flow from the application of wastewater in excess of the hydraulic capacity of the soils or from storm water runoff during precipitation events. Surface disposal of wastewater also has the potential to discharge pollutants to ground water through the ground water recharge processes of infiltration and percolation. However, facilities should be able to reduce the risk of runoff to surface water or infiltration to ground water by managing the quantity and quality of the land-applied effluent. Applying at agronomic rates in this manner will optimize plant nutrient uptake.

MPDES permitting is not required for lagoon systems unless is the facility has a discharge of treated effluent to state surface water. A permit is not required for land application since DEQ does not consider the use of treated effluent by a properly designed and operated land application system (i.e., in accordance with Circular DEQ-2) to be a discharge. However, facilities that are otherwise required to have a MPDES permit must comply with the land application requirements under the Special Conditions section of the 2012-issued GP, as discussed in Part VII.D of this Fact Sheet.

Effluent limits

The 1999-issued GP included the following numeric limits on effluent quality:

Table 1: Numeric Effluent Limits for “1999-Issued GP”			
Parameter	Units	7-Day Average	30-Day Average
5-day Biochemical Oxygen Demand (BOD ₅)	mg/L	45	30
BOD ₅ percent removal ⁽¹⁾	%	NA	85%
Total suspended solids (TSS)	mg/L	135	100
pH	s.u.	6.0 – 9.0	
Oil and grease (O&G)	mg/L	15 ⁽²⁾	NA
Footnote: (1) Monitoring was not required for % removal for BOD ₅ . (2) O&G effluent limit was an instantaneous maximum.			

2012-Issued GP

For this renewal, DEQ proposes to classify each domestic sewage treatment lagoon based on the following criteria:

A. Technology-Based Effluent Limits (TBELs)

All facilities will have TBELs in conformance with national secondary standards (NSS), including Treatment Equivalent to Secondary (TES) and Alternate State Requirements (ASR), as contained in 40 Code of Federal Regulations (CFR) 133. The development of TBELs is discussed in Part IV.

B. Water Quality-Based Effluent Limits (WQBELs)

All facilities under the 2012-issued GP will have the same WQBELs and monitoring requirements, with the exception of consideration for any Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA), as well as any previous site-specific effluent limits for facilities permitted under individual permits. The development of WQBELs is discussed in Part V.

Monitoring for WQBELs will include parameters with effluent limits, parameters requiring information for effluent limit development during the next permit cycle, and parameters of concern in impaired waterbodies.

III. Permit Coverage

A. Coverage Area

The 2012-issued GP applies to all areas of the State of Montana, except for Indian Reservations.

B. Authority

Discharge of pollutants to state water without a permit is a violation of Section 75-5-605, of the Montana Code Annotated (MCA). Section 75-5-402, MCA directs the department to issue permits to discharge sewage, industrial wastes, or other wastes into state waters consistent with rules made by the Board of Environmental Review (BER). The BER has adopted rules granting the department authority to issue general permits to domestic sewage lagoons as one of the specific categories of point sources deemed appropriate for general permitting under the MPDES program [ARM 17.30.1341(1)(h)].

The department will issue, deny, modify, suspend, or revoke all authorizations under the GP in accordance with ARM 17.30.1341. Pursuant to 40 CFR 122.28 and ARM 17.30.1341, general permits may be issued to dischargers that:

- Are the same or are substantially similar;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;
- Require the same or similar monitoring requirements; and
- Are more appropriately controlled under a general permit than under individual permits.

This will be implemented through this permit by having several subcategories for facilities, based on similar discharge and receiving water characteristics.

C. Criteria for Coverage

To be eligible for authorization under the 2012-issued GP, a facility must be a non-major facultative or aerated (including partial mix) domestic sewage treatment lagoon. This includes Publicly-Owned Treatment Works (POTW) and Privately-Owned Treatment Works [as defined in 17.30.1304] that treat domestic wastewater. The lagoon must have:

1. An average design flow less than 1.0 million gallons per day (mgd); and
2. No significant industrial contributors or indirect dischargers as defined by ARM Title 17, Chapter 30, Subchapter 14.

D. Criteria for Exclusion

1. The department may deny a general permit application for discharge under the general provisions of ARM 17.30.1341(4) for any of the following:
 - a. The specific source applying for authorization appears unable to comply with [ARM 17.30.1341(4)(a)]:

- effluent limitations or other terms and conditions of the permit;
 - water quality standards established pursuant to 75-5-301, MCA; or
 - prohibition of any discharges to which the regional administrator has objected in writing.
- b. The discharge is different in degree or nature from discharges reasonably expected from sources or activities within the category described in the General Permit [ARM 17.30.1341(4)(b)].
 - c. An MPDES permit or authorization for the same operation has previously been denied or revoked [ARM 17.30.1341(4)(c)].
 - d. The discharge to be authorized under a general MPDES permit is also included within an application or is subject to review under the Major Facility Siting Act, 75-20-101, *et seq.*, MCA [ARM 17.30.1341(4)(d)].
 - e. The point source will be located in an area of unique ecological or recreational significance. Such determination must be based upon considerations of Montana stream classifications adopted under 75-5-301, MCA, impacts on fishery resources, local conditions at proposed discharge sites, and designations of wilderness areas under 16 USC 1132 or of wild and scenic rivers under 16 USC 1274 [ARM 17.30.1341(4)(e)].
2. In addition, the following sources are excluded from coverage from this GP:
- a. Discharges to Outstanding Resource Waters [75-5-103, MCA], in consideration of the exclusion listed above [ARM 17.30.1341(4)(e)] or discharges to those waterbodies classified as A-1 or A-Closed waters, since the standards allow no change from naturally occurring background for dissolved oxygen (DO) or pH, or increase above background for turbidity, temperature, sediment or solids, color, or organic or inorganic materials [ARM 17.30.621(3) and 17.30.622(3)]. Discharge to these waters requires an individual MPDES permit.
 - b. The facility is a “new or increased source” that discharges to “high quality water,” as defined in the Nondegradation of Water Quality Subchapter 7 [75-5-103, MCA and ARM 17.30.701 *et seq.*].

E. Other Permitting Requirements

This permit does not address storm water discharges associated with construction activities. Authorization under the *General Permit for Storm Water Discharges Associated with Construction Activity* is required if there is any construction disturbance that exceeds one acre of total disturbance (or is a part of a common plan of development that exceeds one acre).

F. Existing Sources Covered Under the 1999-issued GP – Continuing Coverage

Part IV.D of the 1999-issued GP required permittees that wished to continue activity after the expiration of the permit to submit an application at least 180 days prior to the expiration date. All 25 facilities currently covered under the 1999-issued GP submitted a complete renewal application. Therefore, their coverage remains administratively continued under the 1999-issued GP until the effective date of the new 2012-issued GP, at which time the 1999-issued GP will expire [ARM 17.30.1341(6)].

DEQ will send a letter to the 25 facilities that are currently covered under the 1999-issued GP as part of the Final Determination package for the 2012-issued GP. In the letter, DEQ will require each facility to submit one of the following within sixty (60) days:

1. a completed Notice of Intent (NOI) form, newly developed as part of the 2012-issued GP, requesting continued authorization under the 2012-issued GP for the facility and containing updated information (no fee will be required for this informational update package) [ARM 17.30.1341(4)];
2. a letter requesting termination under the GP, with certification from the Responsible Official [ARM 17.30.1323] that the facility is non-discharging (e.g., total retention systems and/or land application systems approved under the current Circular DEQ-2 are not considered discharges) [ARM 17.30.1341(9) and 1363(1)(d)]; or
3. a letter requesting termination under the GP, with submittal of the appropriate application requesting coverage under either an individual MPDES surface water or ground water discharge permit [ARM 17.30.1341(8)].

The 2012-issued GP will become effective approximately 90 days after the signature date for final issuance [ARM 17.30.1378(2)] to allow time for the renewing facilities to comply with the NOI information update request.

If no response is submitted to DEQ by the effective date of the 2012-issued GP, the facility's coverage under the Domestic Sewage Treatment Lagoon General Permit will expire and the facility will no longer have authorization to discharge. Any discharge to state waters without coverage under a current permit constitutes a violation of the Montana Water Quality Act [75-5-605, MCA]. DEQ will issue a letter to each unresponsive facility that they are no longer allowed to discharge into state surface waters unless a complete NOI package is submitted for coverage under the 2012 GP or an individual permit is applied for and received.

Within 30 days of receipt of a facility's NOI submittal package for renewal, DEQ will make a completeness determination and will notify the facility if their NOI package is incomplete. Pursuant to ARM 17.30.1341(4), once a complete NOI package is received the facility is automatically covered under the 2012-issued GP until DEQ either:

1. Issues a confirmation letter to the facility authorizing discharge under the 2012-issued GP, which includes criteria specific to the subcategories that the facility is assigned [ARM 17.30.1341(10)]; or
2. Notifies the applicant that the source does not qualify for authorization under the GP.

If the source is ineligible for coverage under the 2012-issued GP, DEQ shall proceed, unless the application is withdrawn, to process the application through the individual MPDES permit requirements under ARM, Chapter 17 Subchapter 13 [ARM 17.30.1341(5)]. The submittal of additional fees and information will be required by DEQ prior to the issuance of an individual permit.

Coverage under a MPDES permit, including a general permit, is renewable on a five-year basis. The permittee will be subject to the requirements contained in the 2012-issued GP from the effective date until either they renew, apply for individual permit coverage, or terminate their coverage. All dischargers authorized under the 2012- issued GP will have the same date of expiration, which will coincide with the expiration of the 2012-issued GP [ARM 17.30.1341(6)].

G. Existing Sources Previously Covered Under an Individual Permit Seeking Coverage Under the 2012-issued GP

If an existing facility that is covered under an individual permit desires coverage under this GP, they must submit a complete NOI package, including the NOI fee [ARM 17.30.201], and a termination request for their MPDES individual permit.

DEQ will make a completeness determination within 30 days of receipt of a facility's NOI submittal package and will notify the facility if their NOI package is incomplete. Pursuant to ARM 17.30.1341(4), once a complete NOI package is received the facility must continue to comply with their individual MPDES permit until DEQ either:

1. Issues a confirmation letter to the facility authorizing discharge under the 2012-issued GP, which includes criteria specific to the subcategories that the facility is assigned [ARM 17.30.1341(10)]. In order to comply with anti-backsliding requirements [40 CFR 122.44(l)], any existing permit requirements that were imposed on the facility through the individual permit will be included under the 2012-issued GP, unless the limits under the GP are more stringent. Upon a facility's coverage under this GP, DEQ shall terminate the facility's individual permit [ARM 17.30.1341(7) and (10)]; or
2. Notifies the applicant that the source does not qualify for authorization under the GP and that coverage under the individual MPDES permit will be maintained.

Coverage under a MPDES permit, including a general permit, is renewable on a five-year basis. The permittee will be subject to the requirements contained in the 2012-issued GP from the effective date until either they renew, apply for individual permit coverage, or terminate their coverage. All dischargers authorized under the 2012- issued GP will have the same date of expiration, which will coincide with the expiration of the 2012-issued GP [ARM 17.30.1341(6)].

H. New Sources Seeking Coverage Under the 2012-issued GP

A new discharger to an ephemeral waterbody may request coverage under this GP. New dischargers to waters other than ephemeral are not eligible for coverage under this GP since they will need to be evaluated for nondegradation through an individual permit process.

If a new discharger to an ephemeral waterbody desires coverage under this GP, they must submit a complete NOI package, including the NOI fee [ARM 17.30.201]. DEQ will make a completeness determination within 30 days of receipt of a facility's NOI submittal package and will notify the facility if their NOI package is incomplete. Pursuant to ARM 17.30.1341(4), once a complete NOI package is received, the facility is automatically covered under the 2012-issued GP until DEQ either:

1. Issues a confirmation letter to the facility authorizing discharge under the 2012-issued GP, which includes criteria specific to the subcategories that the facility is assigned [ARM 17.30.1341(10)]; or
2. Notifies the applicant that the source does not qualify for authorization under the GP.

If the source is ineligible for coverage under the 2012-issued GP, DEQ shall proceed, unless the application is withdrawn, to process the application through the individual MPDES permit requirements under ARM, Chapter 17 Subchapter 13 [ARM 17.30.1341(5)]. The submittal of additional fees and information will be required by DEQ prior to the issuance of an individual permit.

Coverage under a MPDES permit, including a general permit, is renewable on a five-year basis. The permittee will be subject to the requirements contained in the 2012-issued GP from the effective date until either they renew, apply for individual permit coverage, or terminate their coverage. All dischargers authorized under the 2012- issued GP will have the same date of expiration, which will coincide with the expiration of the 2012-issued GP [ARM 17.30.1341(6)].

I. Termination of Permit Coverage

Permittees are authorized to operate for the duration of the permit (five years or until the General Permit is again renewed) provided they pay the annual fee. Permit authorizations remain in effect, unless DEQ receives notice from the permittee that the activity will not be continued. This notice must be signed and certified in accordance with the signatory requirements in Part IV.O of the General Permit. The facility remains responsible for payment of all applicable fees. Failure to submit a termination request shall result in accrual of annual fees until such notice is received by DEQ.

In addition to the ability to request a termination, the owner or operator of a facility covered under the 2012-issued GP may request to be excluded from coverage under it by applying for and obtaining an individual MPDES permit pursuant to ARM Title 17, Chapter 30, Subchapter 13. If an individual MPDES permit is issued to the owner or operator of the facility, coverage under the 2012-issued GP is terminated on the effective date of the final individual MPDES permit.

J. Transfer of Coverage

DEQ may transfer the authorization to a new owner or operator in conformance with Part IV.R of the 2012-issued GP.

IV. Technology-based Effluent Limitations (TBELs)

A. TBEL - Concentration and Mass Limits

The BER has adopted by reference 40 CFR 133 which sets minimum treatment requirements for secondary treatment or equivalent for POTWs [ARM 17.30.1203]. There are no federal treatment requirements that apply specifically to privately-owned treatment works. When EPA has not promulgated a standard for an industry, permit limits may be based on best professional judgment (BPJ) [40 CFR 125.3(c) and ARM 17.30.1203(5)], taking into account the same statutory factors EPA would use in promulgating a national effluent guideline, but applied to the particular circumstances relating to the applicant. In this case, DEQ proposes to transfer the federal effluent limits for POTWs to privately-owned treatment works as BPJ. Privately-owned treatment works provide the same function and would not have any unique factors or significant technical differences from POTWs that would affect the information published in 49 Federal Register (FR) 37006, September 20, 1984. DEQ has determined that the TBELs for privately-owned treatment works in this permit are based on BPJ, and will be identical to the 40 CFR 133 requirements for POTWs.

Secondary treatment is defined in terms of effluent quality as typically measured by BOD₅, TSS, percent removal of BOD₅ and TSS, and pH. As defined on page 4 of this Fact Sheet, there are three levels of treatment contained in 40 CFR 133: National Secondary Standards (NSS), Treatment Equivalent-to-Secondary (TES), and Alternative State Requirements (ASR).

1. BOD₅ concentration-based limits

NSS are contained in 40 CFR 133.102. Since 1983, the Montana domestic sewage lagoon general permit has included the NSS effluent limits of 30 mg/L 30-day average and 45 mg/L 7-day average, with 85% removal for BOD₅. However, monitoring to demonstrate compliance with the 85% BOD₅ removal requirement was not previously required.

During this permit renewal, DEQ reviewed the 30-day average BOD₅ effluent concentrations for the 25 currently permitted and the additional “universe” of the 54 minor domestic sewage treatment lagoon facilities currently under individual permits. See Table 2:

Facility Type	# Facilities	Units	Min	Avg	95 th Percentile Range	Max
25 Existing Permittees						
Aerated (6) and partial mix (1)	7	mg/L	1.0	17	19-57	124
Facultative – Continuous Discharge	3	mg/L	1.7	16	15-36	68
Facultative – Batch Discharge	10	mg/L	2	16	19-50	56
Facultative – No Discharge	5	mg/L	NA	NA	NA	NA
Potential Permittees						
Sum Total of 54 Potential Permittees	54	mg/L	0.05	19	44	168

Both facultative and aerated lagoons *should* be able to achieve effluent BOD₅ concentrations less than 30 mg/L with good design and proper O&M. Therefore, to be protective of the beneficial uses of the receiving water, DEQ will continue to apply the NSS effluent limits of 30 mg/L 30-day average and 45 mg/L 7-day average for BOD₅. Alternatively, if the permittee requests to substitute the 5-day carbonaceous biochemical oxygen demand (CBOD₅) limits for the BOD₅ limits as part of the renewal process, DEQ will include the CBOD₅ limits in the confirmation letter. The CBOD₅ limits are 25 mg/L 30-day average and 40 mg/L 7-day average.

% BOD₅ Removal

In addition to the concentration limits, the 2012-issued GP will include the requirement for all facilities to demonstrate compliance with the BOD₅ (or, if appropriate, CBOD₅) percent removal requirement. A Special Condition allows time for every facility currently covered under the previous GP to demonstrate compliance with the 85% BOD₅ removal requirement, or apply for and receive an individual MPDES permit, by January 1, 2017.

Any existing facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP that had a % BOD₅ removal requirement will be subject to their existing BOD₅ removal and monitoring requirements until January 1, 2017, when they will be required to meet 85% removal.

2. TSS concentration-based limits

The 1999-issued GP included ASR effluent limits for all facilities of 100 mg/L TSS (30-day average) and 135 mg/L TSS (7-day average), without a TSS percent removal requirement. However, all applicable facilities, unless they demonstrate their eligibility to meet TES or ASR, are required to meet NSS effluent limits under federal requirements contained in 40 CFR 133.102. NSS includes TSS effluent limits of:

- 30 mg/L 30-day average;
- 45 mg/L 7-day average; and
- 85% removal.

During this permit renewal, DEQ reviewed the 30-day average (monthly) TSS effluent concentrations for the 25 currently permitted and the additional “universe” of 54 domestic sewage treatment lagoon facilities currently under individual permits. See Table 3:

Table 3: Five-Year Effluent TSS Monthly Concentrations Jan 1, 2007 – Feb 28, 2012						
Facility Type	# Facilities	Units	Min	Avg	95 th percentile Range	Max
25 Existing Permittees						
Aerated (6) and Partial Mix (1)	7	mg/L	1.0	19.5	16 – 57	68
Facultative – Continuous Discharge	3	mg/L	0.2	27	31 - 82	96
Facultative – Batch Discharge	10	mg/L	1.0	38	30 - 109	126
Facultative – No Discharge	5	mg/L	NA	NA	NA	NA
Potential Permittees						
Sum Total of 54 Potential Permittees	54	mg/L	0.1	25	70	174

Algal blooms and other potential design problems cause elevated TSS concentrations even with proper O&M. The TSS effluent data shows that 15 of the 25 facilities currently permitted under the 1999-issued GP are unable to meet NSS for TSS.

For the 2012-issued GP, DEQ will require all facilities to meet NSS for TSS unless they demonstrate their eligibility to meet TES or ASR as detailed below. DEQ will require applicants to indicate on the NOI update submittal (see Part III.F.) whether they are supplying supplemental TSS information with their NOI form to demonstrate their eligibility for either TES or ASR as opposed to the NSS.

a. TES

TES requirements are contained in 40 CFR 133.105, and allow facilities to meet limits that are slightly relaxed from the NSS. Specifically, facilities subject to TES have the following TSS effluent limits:

- 45 mg/L 30-day average;
- 65 mg/L 7-day average; and
- 65% removal.

To qualify for TES, a facility must be “eligible for treatment equivalent to secondary treatment (§133.101(g))” and must meet all of the following:

1. The TSS “effluent concentrations consistently achievable through proper O&M, as defined under 40 CFR 133.101(f) *exceeds* the minimum level of effluent quality set forth as NSS [40 CFR 133.101(g)(1)]. This criterion is satisfied if the 95th percentile value for the 30-day average TSS concentration in a period of two years is greater than 30 mg/L and proper O&M is conducted. Based on a review of the DMR data, all of the facultative and most of the aerated lagoons had a 95th percentile TSS effluent concentration that exceeded 30 mg/L during the five years from January 1, 2007 until February 28, 2012;
2. The facility uses a trickling filter or waste stabilization pond as the principle treatment process [40 CFR 133.101(g)(2)]. Waste stabilization ponds include both facultative and aerated lagoons. As this is a prerequisite of coverage under the 2012-issued GP this criteria is therefore satisfied; and
3. The facility provides significant biological treatment [40 CFR 133.101(g)(3)]. Significant biological treatment is defined as treatment that consistently achieves greater than 65% BOD₅ removal [40 CFR 133.101(k)]. As this GP requires that facilities meet 85% removal, this criteria is satisfied.

b. ASR

The general requirements for ASR are contained in 40 CFR 133.103(c) and 105(d). The Montana-specific ASR was published in the Federal Register on September 20, 1984 (49 FR 37005). Specifically, facilities subject to ASR have the following TSS effluent limits:

- 100 mg/L 30-day average;
- 135 mg/L 7-day average; and
- 65% removal (based on TES).

To qualify for ASR, a facility must meet both of the following [40 CFR 133.103(c)]:

1. Waste stabilization ponds are the principal process used for secondary treatment; and
2. O&M data indicate that the TES effluent limits for TSS (45 mg/L 30-day average and 65 mg/L 7-day average) cannot be met.

Based on review of DMR data for the 25 facilities currently permitted under the 1999-issued GP, the majority of the facultative and aerated lagoons had a 95th percentile TSS effluent concentration that exceeded 45 mg/L during the five years from January 1, 2007, until February 28, 2012. Similarly, the TSS 95th percentile value for the additional 54 facilities was over 70 mg/L, indicating that many of the lagoons that are currently permitted under individual permits would also have trouble meeting the NSS and TES limits.

If the 95th percentile of the 30-day average TSS concentration in the discharge from the treatment works exceeds the NSS limits (30 mg/L) or the TES limits (45 mg/L) with proper O&M, the applicant may request on the NOI form to be regulated under either TES or ASR limits, respectively. The applicant must supply at least two years worth of data with the NOI form demonstrating that the facility is not able to consistently (more than two consecutive months period per year) meet the more stringent limits. The applicant must also certify that O&M is properly performed on the facility.

% TSS Removal

In addition to the concentration limits, the 2012-issued GP will include the requirement for all facilities to demonstrate compliance with the new TSS percent removal requirement. A Special Condition allows time for every facility currently covered under the previous GP to demonstrate compliance with the 65% or 85% TSS removal requirement, or apply for and receive an individual MPDES permit, by January 1, 2017.

Any existing facility permitted under an individual MPDES permit that requests coverage under the 2012-issued GP that had a % TSS removal requirement will be subject to their existing TSS removal and monitoring requirements until being required to meet any more stringent removal requirements on January 1, 2017.

3. Mass-based Effluent Limits (BOD₅ and TSS)

State and federal guidelines require facilities to meet both concentration-based and mass-based limits [ARM 17.30.1345(8)(a) and 40 CFR 125.3]. Both 30-day and 7-day concentration and mass-based (load) limits for BOD₅ and TSS will be calculated individually for each facility, based on a facility's average daily design flow and the 30-day and 7-day average concentration limits using the following formula (*Equation 1*):

Equation 1- Mass-Based Load Limits Equation:

30-day average load (lb/day)

$$= \text{avg daily design flow (mgd)} \times \text{30-day avg concentration limit (mg/L)} \times 8.34 \text{ conversion}$$

7-day average load (lb/day)

$$= \text{avg daily design flow (mgd)} \times \text{7-day avg concentration limit (mg/L)} \times 8.34 \text{ conversion}$$

4. pH

The pH range must remain within the range of 6.0 – 9.0 s.u. for all facilities covered under the 2012-issued GP. Deviations outside of this range may be allowed if the facility demonstrates that inorganic chemicals are not added to the waste stream and that contributions from industrial sources do not cause a pH deviation [40 CFR 133.102(c)].

B. Nondegradation Allocated Loads

The provisions of ARM 17.30.701 *et seq.* (Nondegradation of Water Quality) apply to new or increased sources of pollution [ARM 17.30.702(18)]. Sources that are in compliance with the conditions of their permit and do not exceed the limitations established in the permit or determined from a permit previously issued by DEQ are not considered new or increased sources.

DEQ calculates nondegradation load allocations for parameters with numeric water quality standards where permit limitations were in place on April 29, 1993. The BOD₅ and TSS nondegradation allocations for each facility covered under the 2012-issued GP will be included with the implementation of this renewal. Nondegradation load allocations for all facilities will use the same equation used to calculate mass-loading (see *Equation 1*, Part IV.A.3), but will be based on the average daily design flow and monthly average BOD₅ and TSS concentration limits in 1993:

$$\text{Load Allocation (lb/day)} = \\ 1993 \text{ average daily design flow (mgd)} \times 30\text{-day avg concentration limit (mg/L)} \times 8.34$$

If a municipality has increased their average design flow since 1993 and the calculated 30-day average load allocation for 1993 is more restrictive than the facility's current BOD₅ and/or TSS 30-day average mass-based limits, the more stringent limit will be implemented.

Total nitrogen as N (TN) and total phosphorus as P (TP) nondegradation allocated loads were calculated for some of the 1999 authorizations. However, DEQ has determined that these TN and TP load allocations do not apply since they were calculated using the Department of Health and Environmental Sciences memorandum (DHES, October 1994), which was not based on the criteria in ARM 17.30.715 or on the water quality standards. Therefore, any TN or TP load allocations previously determined using the DHES memo will not be implemented with this renewal. TN and TP will be addressed as part of the WQBEL evaluation.

C. Proposed TBELs

All lagoons authorized under the 2012-issued GP must meet the NSS TBEL limits for BOD₅ and TSS unless they have demonstrated their eligibility to meet TES or ASR for TSS. DEQ will assign one of the following three TBEL subcategories to each facility as part of their renewal confirmation letter:

TBEL Group A – NSS (see Table 4)

TBEL Group B – NSS/TES (see Table 5)

TBEL Group C – NSS/ASR (see Table 6)

Table 4. TBEL Group A- Proposed NSS Technology-Based Effluent Limits ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
TSS ⁽⁵⁾	mg/L	30	45	40 CFR 133.102(b)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
pH ⁽⁶⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

1. See Definitions section at end of permit for explanation of terms.
2. CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
3. Mass-based limits will be calculated from Equation 1 as provided following Table 6.
4. The arithmetic mean of the values for effluent BOD₅ or TSS samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
5. Facilities that demonstrate 'eligibility to meet TES' for TSS will instead be subject to the effluent limits in Table 5. See Part IV.A.2.
6. Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation occurs due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

Table 5. TBEL Group B - Proposed NSS/TES Technology-Based Effluent Limits ⁽¹⁾

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
TSS ⁽⁵⁾	mg/L	45	65	40 CFR 133.105(b)
	lbs/day	<i>Equation 1</i>	<i>Equation 1</i>	
	% removal	65 ⁽⁶⁾	NA	
pH ⁽⁷⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

1. See Definitions section at end of permit for explanation of terms.
2. CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
3. Mass-based limits will be calculated from Equation 1 found as provided following Table 6.
4. The arithmetic mean of the values for effluent BOD₅ samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
5. Facilities that demonstrate 'eligibility to meet ASR' for TSS will instead be subject to the effluent limits in Table 6. See Part IV.A.2.
6. The arithmetic mean of the values for effluent TSS samples collected in a period of 30 consecutive days shall not exceed 35% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (65% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
7. Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation occurs due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

Table 6: TBEL Group C - Proposed NSS/ASR Technology-Based Effluent Limits ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	Equation 1 ⁽³⁾	Equation 1	
	% removal	85 ⁽⁴⁾	NA	
TSS	mg/L	100	135	40 CFR 133.103(c), 133.105(d), and 133.105(b)
	lbs/day	Equation 1	Equation 1	
	% removal	65 ⁽⁵⁾	NA	
pH ⁽⁶⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

- See Definitions section at end of permit for explanation of terms.
- CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
- Mass-based limits will be calculated from Equation 1 as provided following Table 6.
- The arithmetic mean of the values for effluent BOD₅ samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
- The arithmetic mean of the values for effluent TSS samples collected in a period of 30 consecutive days shall not exceed 35% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (65% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
- Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation is due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

Equation 1: Mass-based Load Limits (Tables 4 – 6)

30-day average load (lb/day) ⁽¹⁾

$$= \text{avg daily design flow (mgd)} \times \text{30-day avg concentration limit (mg/L)} \times 8.34 \text{ conversion}$$

7-day average load (lb/day)

$$= \text{avg daily design flow (mgd)} \times \text{7-day avg concentration limit (mg/L)} \times 8.34 \text{ conversion}$$

Footnote: (1) If a facility's nondegradation allocated load is more restrictive (for instance the average design flow for the facility in 1993 was lower than the current design flow), then the nondegradation allocated load for that facility will supersede the mass-based 30-day limit. Limiting each facility to the nondegradation monthly load allocation will ensure nonsignificance.

V. Water Quality-Based Effluent Limitations (WQBELs)

A. Description of Receiving Waters

Discharges from facilities covered under the 2012-issued GP may be to any state surface waters except for Outstanding Resource Waters or those classified as or A-1 or A-Closed waters (see Part III.D.2). The Montana Water Quality Act (WQA) defines 'state waters' as any body of water, irrigation system or drainage system either on the surface or underground. State waters do not include ponds or lagoons used solely for treating, transporting, or impounding pollutants; or irrigation waters or land application disposal waters when the waters are used up within the irrigation or land application disposal system and the waters are not returned to state waters [75-5-103, MCA]. State waters include ephemeral, intermittent, and perennial drainages, isolated ponds, lakes, ditches, wetlands, and other water bodies.

The purpose of this section is to provide a basis and rationale for establishing effluent limits, based on Montana water quality standards, that will protect designated uses of the receiving stream.

B. Applicable Standards

Surface water quality standards in Montana Surface Water Quality Standards and Procedures (ARM 17.30.601-670) and the specific water quality standards in Circular DEQ-7 (August 2010), as well as the general provisions of ARM 17.30.635 through 637, apply to all surface water discharges except as clarified for ephemeral streams. In addition to these standards, dischargers are also subject to ARM 17.30 Subchapter 5 (Mixing Zones) and Subchapter 7 (Nondegradation of Water Quality). All discharge, including to ephemeral waterbodies, must comply with the general prohibitions of ARM 17.30.637(1) which require that state waters, including mixing zones, must be free from substances which will:

- (i) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;
- (ii) 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;
- (iii) produce odors, colors, or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
- (iv) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life; and
- (v) create conditions which produce undesirable aquatic life.

ARM 17.30.635(4) requires that the design condition for disposal systems must be based on the seven day, ten year low flow conditions (7Q10). More restrictive requirements may be necessary due to specific mixing zone requirements. Aquatic life-chronic, aquatic life-acute and human health standards may not be exceeded outside of the mixing zone [ARM 17.30.507(1)(a)].

Ephemeral drainages

Ephemeral streams and seasonal lakes or ponds are not considered high quality waters [75-5-103(10), MCA] and as such are not required to meet the specific water quality standards of ARM 17.30.620 through 17.30.629 [ARM 17.30.637(6)]. However, treatment requirements for discharges to ephemeral streams are required to meet the minimum treatment requirements set forth in ARM 17.30.635(2). Furthermore, ephemeral streams are subject to the General Standards and Prohibitions specified in ARM 17.30.635 and 17.30.637, and the existing beneficial uses of the receiving water must be maintained pursuant to Montana Nondegradation Policies [75-5-303(1), MCA and ARM 17.30.705(2)(a)]. For the purposes of the 2012-issued GP, existing dischargers to ephemeral drainages will have the same permit requirements as dischargers to intermittent and perennial receiving water.

C. Mixing Zones

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)]. No mixing zone will be granted that will impair beneficial uses [ARM 17.30.506(1)]. Mixing zones are granted on a parameter-by-parameter basis [ARM 17.30.505(1)(a)].

DEQ must determine the applicability of a mixing zone [ARM 17.30.505(1)]. Mixing zones allowed under a permit issued prior to April 29, 1993 will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses [ARM 17.30.505(1)(c)]. Neither the 1988-, nor June 1993-issued GP granted mixing zones for any parameters. Mixing zones were defined in many of the individual authorization letters for the 1999-issued GP; however there were no WQBELs for that permit cycle and TBELs need to be met prior to mixing, so the mixing zones were irrelevant.

DEQ has implemented WQBEL review and development as part of all recent permit actions. DEQ has determined that authorization under the 2012-issued GP must include a review of each currently permitted facility's effluent quality and receiving water quality for applicable parameters during this permit cycle. This data will be used to calculate Reasonable Potential (RP) during the next permit cycle. At that time the relevance of a mixing zone may be evaluated for dischargers to perennial receiving waterbodies, for various parameters including ammonia, metals, and nutrients.

The exception is that any individual permit-holder that requests coverage under the 2012-issued GP will automatically maintain their previously approved mixing zone, for the same parameters, as provided in their individual permit.

D. Basis for WQBELs

ARM 17.30.1345 requires the development of WQBELs for any pollutant for which there is RP that the discharge may cause or contribute to exceedences of instream numeric or narrative water quality standards. Parameters typically present in municipal wastewater that may cause or contribute to a violation of water quality standards include conventional pollutants such as biological material (as measured by BOD₅), TSS, pH, oil & grease, and pathogenic bacteria as measured by *Escherichia coli* bacteria. In addition, municipal wastewater may contain non-conventional pollutants such as total ammonia, the nutrients total nitrogen (TN) and total phosphorus as P (TP); nitrates and nitrites, and potentially, total residual chlorine (TRC), low levels of dissolved oxygen (DO), and metals.

WQBELs are required in MPDES permits when DEQ has determined that effluent limits more stringent than TBELs are necessary to maintain or achieve state water quality standards (40 CFR 122.44 and ARM 17.30.1344).

1. Conventional Pollutants

TSS, BOD₅, and pH - The facility will be required to provide a significant reduction in solids and biological material through the TSS and BOD₅ (or CBOD₅, if requested) TBELs (Section IV). In addition, the TBEL effluent limitation for pH of 6.0 – 9.0 s.u. is protective of the receiving water quality. No additional WQBELs are required for these parameters.

Oil and Grease (O&G) – There shall be no discharge which creates floating debris, scum, a visible oil sheen (or creates oil present in concentrations at or in excess of 10 mg/L), or globules of grease or other floating material in the receiving stream [ARM 17.30.637(1)(b)]. An instantaneous maximum O&G limit of 15 mg/L was placed on any effluent grab sample in the 1999-issued permit. However, the 1999-issued GP did not require the facilities to monitor for O&G.

Sewage treatment lagoons with the potential for coverage under this GP include non-major facilities, with < 1 mgd design average flow and no industrial pretreatment program. These facilities are not likely to discharge O&G in excess of the standard in Subchapter 6. Each facility will be required to monitor for O&G during this permit cycle in order to provide sufficient data for the future evaluation of RP for O&G to exceed the 10 mg/L water quality standard. Any facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP will remain subject to their current O&G limit, if their individual permit contains an O&G limit, in order to comply with anti-backsliding requirements [40 CFR 122.44(l)].

Escherichia coli (E. coli) Bacteria – Pathogen limits are defined in terms of *E. coli* bacteria standards which became effective February 1, 2006. The standards for *E. coli* bacteria are as follows [ARM 17.30 Subchapter 6 (17.30.623-.629)(2)(a)]:

- April 1 through October 31 of each year - the geometric mean number of *E. coli* must not exceed 126 colony forming units (cfu) per 100 milliliters (mL) and 10% of the total samples may not exceed 252 cfu per 100 mL during any 30-day period; and
- November 1 through March 31 of each year - the geometric mean number of *E. coli* must not exceed 630 cfu per 100 mL and 10% of the total samples may not exceed 1,260 cfu per 100 mL during any 30-day period.

The 1999-issued GP did not contain a pathogen bacteria effluent limit or a requirement for *E. coli* bacteria monitoring. The 1999-issued GP did require summer fecal coliform monitoring. In the past five years, fecal coliform counts during the summer months (July, August, and September) ranged between 0 and 57,333 #/100 mL, with a 95th percentile of 4,686 #/100 mL.

Since *E. coli* bacteria levels are expected to be present in the same order of magnitude as fecal coliform, DEQ has determined that there is RP for most, if not all, of the facilities covered under the 1999-issued GP to exceed the *E. coli* water quality standards. Therefore, the 2012-issued GP contains proposed *E. coli* effluent limits, as summarized in Table 7:

Parameter	Units	Average Monthly Limit	Average Weekly Limit
<i>E. coli</i> Bacteria ^(2,3)	cfu/100 mL	126	252
<i>E. coli</i> Bacteria ^(3,4)	cfu/100 mL	630	1,260

Footnote:
 1. See Definitions section at end of permit for explanation of terms.
 2. This limit applies during the period April 1 through October 31, annually.
 3. Report the geometric mean if more than one sample collected during the reporting period.
 4. This limit applies during the period November 1 through March 31, annually.

State surface water must be free from substances attributable to discharges that will create conditions harmful to human health (ARM 17.30.637). DEQ has determined that in order to protect human health, all discharges covered under this 2012-issued GP — including to ephemeral waterbodies — must meet the *E. coli* limit at the last point of control with no mixing zone allowed. This will ensure that downstream uses (such as recreational contact) are not impaired.

Only two of the 25 facilities currently authorized under the GP have any disinfection capabilities (one of which is only prior to seasonal land application). In order to provide time for permittees to evaluate the performance of their lagoons and to design and install any necessary treatment, DEQ will allow a four-year interim period until **January 1, 2017**. During this interim period the currently permitted GP lagoon systems must be evaluated and, if necessary, disinfection methods designed and installed.

The Milk River, in the vicinity of two of the 1999-issued GP permittees (Cherry Creek and Nashua), is the only relevant waterbody listed as impaired for *E. coli*. The source of the *E. coli* is listed as agriculture and/or dam or impoundment. A TMDL has not been developed. Since there is no TMDL or WLA, and the sources are existing sources, DEQ has determined that the above *E. Coli* effluent limits are protective of the impaired receiving water.

Any existing facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP will be subject to their current *E. coli* limits for the interim period, if their individual permit contains *E. coli* effluent limits, in order to comply with anti-backsliding requirements [40 CFR 122.44(l)]. If the individual MPDES permit did not contain *E. coli* limits, the existing facility will be provided the same interim period until January 1, 2017 as the current general permit holders.

By **January 1, 2017**, all discharges covered by the 2012-issued GP must meet the *E. coli* effluent limits at the last point of control. A mixing zone is not authorized for pathogens.

2. *Nonconventional Pollutants*

Total Residual Chlorine (TRC) - The chlorine chronic aquatic life standard is 0.011 mg/L and the acute aquatic life standard is 0.019 mg/L (Circular DEQ-7, 2010). None of the facilities currently under the 1999-issued GP disinfect their effluent with chlorine and there were no TRC effluent limits or monitoring required in the previous GP. Many of the facilities will need to install disinfection by January 1, 2017, in order to meet the proposed *E. coli* effluent limits. The most common disinfection systems are chlorine and ultraviolet (UV) disinfection.

If a facility chooses to install chlorine treatment, they will be expected to design and install this new system to meet the TRC effluent limits immediately. State surface water must be free from substances attributable to discharges that will create conditions harmful to human, animal, plant, or aquatic life (ARM 17.30.637). DEQ has determined that in order to protect downstream uses, all discharges covered under the 2012-issued GP — including to ephemeral waterbodies — must meet the TRC limits at the last point of control with no mixing zone allowed. Therefore, discharges to all receiving water bodies will be required to meet 0.011 mg/L average monthly limit (AML) and 0.019 mg/L maximum daily limit (MDL).

All facilities are required to meet their TRC effluent limits immediately upon the effective date of the 2012-issued GP. Approved analytical methods require that the TRC samples are analyzed immediately (40 CFR 136). The method must achieve a minimum detection level of 0.1 mg/L. The discharge is considered to be in compliance with permit limits if the analytical result of the chlorine sample is less than 0.1 mg/L.

Total Ammonia as Nitrogen (Ammonia) - The 1999-issued GP did not contain an ammonia effluent limit but did require monthly monitoring. The average ammonia effluent concentrations reported on the DMRs over the past five years ranged from 0.07 – 18.7 mg/L monthly average, with the 95th percentile at 15.9 mg/L.

Ammonia toxicity is dependent on ambient pH and water temperature data for the receiving water body as well as the type of fishery present. The 2012-issued GP requires each permittee to monitor the ambient pH and water temperature data during this permit cycle. In the future, the site-specific ammonia water quality standards applicable to each facility can be developed based on this ambient information using Circular DEQ-7.

All facilities will also be required to monitor the ammonia concentration upstream and in their effluent in order to provide necessary information to conduct the RP analysis and to develop an ammonia effluent limit during the next permit cycle for those facilities with RP.

The Clarks Fork of Yellowstone River, the receiving water for one 1999-issued GP permittee (the city of Fromberg), is listed as impaired for ammonia. A TMDL has not been developed and the source of the ammonia does not include municipal point source discharges. Since there is not a TMDL or a WLA and the facility is an existing source, DEQ has determined that Fromberg must collect data during this permit cycle in order to develop an effluent limit for the next permit cycle.

Any existing facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP that already has an ammonia limit will remain subject to their existing ammonia effluent limits and/or compliance schedule.

In summary, all facilities will be required to conduct monthly monitoring of the effluent ammonia concentration, as well as the receiving water pH, temperature, and ammonia concentration upstream from the discharge. All analysis must be performed using 40 CFR 136-approved methods. The ammonia method must currently be capable of obtaining 0.05 mg/L required reporting value (RRV) (Circular DEQ-7, August 2010).

Nitrate + Nitrite (NO₃+NO₂): The human health standard (HHS) for NO₃+NO₂ is 10 mg/L. The 1999-issued GP did not contain NO₃+NO₂ effluent limits but did require monthly monitoring. The average NO₃+NO₂ effluent concentrations reported on the DMRs over the past five years ranged from 0.01 to 4.6 mg/L, with the 95th percentile at 3.2 mg/L.

Domestic sewage lagoons do not typically have high NO₃ + NO₂ unless they employ nitrification to remove ammonia. This is supported by the low concentrations shown by the available effluent data.

The receiving water for two 1999-issued GP permittees are listed as impaired for NO₃ + NO₂ (Sandstone Creek, the receiving water for Baker; and Clarks Fork of Yellowstone River, the receiving water for Fromberg). A TMDL has not been developed for either waterbody. The source of the NO₃+NO₂ includes municipal point source discharges for Baker but does not include them for Clarks Fork. Since there has not been a TMDL or a WLA developed for either impaired waterbody and the facilities are existing sources, DEQ will continue to require NO₃ + NO₂ monitoring for these facilities during this permit cycle.

The 2012-issued GP requires each permittee to monitor the effluent and upstream NO₃ + NO₂ concentrations during this permit cycle in order to provide information necessary to conduct an RP analysis and to develop NO₃ + NO₂ effluent limits during a future permit cycle. All analysis must be performed using 40 CFR 136-approved methods. The NO₃ + NO₂ method must currently be capable of obtaining the RRV of 0.01 mg/L as listed in Circular DEQ-7, August 2010.

Any existing facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP that has a NO₃ + NO₂ effluent limit will remain subject to their existing NO₃ + NO₂ limits and/or compliance schedule.

Nutrients (TN and TP) - The state of Montana currently has narrative water quality standards that apply to nutrients. Nutrients, when present in excessive amounts, contribute to interferences with the beneficial uses of surface waters. Measurable effects of increased and excessive nutrient levels are elevated algae biomass (as measured by the presence of chlorophyll a) and the dominance of aquatic life communities by pollutant-tolerant species. Algae overgrowth can be esthetically displeasing, contribute to taste and odor problems, impede flow, and create harmful conditions for aquatic life.

The 1999-issued GP did not contain nutrient effluent limits but did require monitoring. The following summarizes the concentrations reported on the DMRs over the past five years:

- Total Nitrogen (TN): The average TN effluent concentrations ranged from 1.6 – 23 mg/L, with the 95th percentile at 19.6 mg/L.
- Total Phosphorus (TP): The average TP effluent concentrations ranged from 0.7 – 5.3 mg/L, with the 95th percentile at 4.1 mg/L.

Although the nutrient water quality standards are currently narrative, DEQ is proposing base numeric nutrient standards and a corresponding nutrient variance program under the draft “Nutrient Standards Rules” and “Department Circular DEQ-12, Parts A and B” (Circular DEQ-12). This will implement 75-5-313, MCA, “*Nutrient standards variances -- individual, general, and alternative,*” published December 2011. The new law recognizes that the requirement to treat wastewater to base numeric nutrient standards would result in substantial and widespread economic impacts on a statewide basis, and therefore sets the framework for a 20-year general nutrient standards variance process.

Once the numeric nutrient standards in Circular DEQ-12 are finalized, any lagoon that discharges to a waterbody with a base numeric standard, and is unable to meet that standard, may request a variance. However, facilities permitted under the 2012-issued GP before the numeric nutrient standards are final will not be subject to these requirements during this permit term. Once Circular DEQ-12 is finalized and approved, future GP renewals will include relevant nutrient requirements. Most of the lagoons systems that discharge to streams and rivers will be subject to the numeric nutrient standards and the variance options for the summer growing season (approximately mid-June through end of September).

In order to obtain nutrient effluent information, this 2012-issued permit renewal will require all facilities to conduct summertime TN and TP effluent monitoring in order to establish the “current performance” of the lagoon. Monitoring for TN and TP must be conducted annually during the six (6) warmer months of May, June, July, August, September, and October to ensure sufficient data is collected. In addition, upstream monitoring to obtain ambient TN and TP concentrations must be conducted for two (2) summer months per year.

Additional TN and TP requirements:

a. Facilities that discharge into 303(d) listed waterbodies with a TMDL - Drummond:

Drummond is the only facility that discharges into a 303(d) listed waterbody with a TMDL for TN and/or TP. The upper and middle Clark Fork River mainstems are the only receiving waters that have numeric water quality standards for TN and TP (ARM 17.30.631). For the stream segment where Drummond is located, these standards are 0.3 mg/L TN and 0.02 mg/L TP.

The Clark Fork River has a TMDL that is based on the Voluntary Nutrient Reduction Program completed August 1998. This was a voluntary agreement between the major sources contributing to the Clark Fork River and did not consider the impacts of minor sources, including Drummond. Therefore, the Clark Fork River TMDL does not assign a waste load allocation (WLA) for Drummond. Furthermore, since Drummond has not reported a discharge since 2003, there is no available TN and TP monitoring data and it is unknown whether the discharge from Drummond has the potential to impact the water quality of the Clark Fork River. Monitoring of the effluent for TN and TP will be required in order to evaluate RP and determine future effluent limits.

b. Facilities that discharge into 303(d) listed waterbodies without a TMDL:

Five (5) facilities [Plentywood, Saco, and Lavina (TN & TP); Baker (TN); and Fromberg (TP)] discharge to receiving waters listed as impaired for TN and/or TP without a TMDL or WLA. Monitoring for TN and TP is required for those facilities discharging into a waterbody listed as impaired for TN and/or TP. See Attachment B.

Dissolved Oxygen (DO) - Freshwater aquatic life standards for DO are characterized by the type of fishery (salmonid or non-salmonid) and by the presence or absence of fish in early life stages (Circular DEQ-7, August 2010).

Wastewater discharged into waterbodies may decrease DO levels. Typically, facilities that provide significant removal of organic material, as measured by BOD₅, do not require effluent limits for DO. Furthermore, this 2012-issued GP renewal includes only minor sources (< 1 mgd), with no significant

industrial compositions. These facilities are not expected to have a significant impact on the DO level of the receiving waterbody. DEQ will not impose DO effluent limits or monitoring as part of this permit renewal.

303(d) Listed Parameters – Seventeen (17) of the 25 facilities currently permitted under the 1999-issued GP discharge to waterbodies that are listed as impaired on the 2012 303(d) list and 15 were listed as impaired on the 1996 303(d) list (see Attachment B). Of the 17 currently-impaired waterways, five have TMDLs addressing some, or all, of the impairments. Of those five with TMDLs, only three facilities have a WLA, as follows:

1. Fairfield WWTF – the TMDL plan for Freezeout Lake (Sun River, December 2004) includes Total Dissolved Solids (TDS), and Selenium (Se). The TMDL concluded that:

- The WWTF is not a significant source of TDS and that monitoring for TDS/Specific Conductance (SC) is appropriate; and
- DEQ did not have sufficient selenium (Se) data from the WWTF and that two effluent samples would be conducted during the next permit cycle.

The 2012-issued GP will require all facilities with WLA, including Fairfield, to comply with the specific terms of the TMDL. The 2012-issued GP confirmation letter for Fairfield will reference this requirement.

2. Darby WWTF – although the receiving waterbody segment for Darby is not listed as impaired for temperature, the approved TMDL for the Bitterroot River downstream (August 2011) includes a temperature WLA for Darby. It requires continuous effluent temperature monitoring by the WWTF between May 1st and September 15th for the first year of the permit renewal, and limits the discharge rate to twice the actual peak flow or to the peak design flow rate (whichever is greater). The 2012-issued GP will require all facilities with WLA, including Darby, to comply with the specific terms of the TMDL. The 2012-issued GP confirmation letter for Darby will reference this requirement.

3. Eureka WWTF – the TMDL plan for the Tobacco River (September 2011) provided a TSS WLA at the design capacity of the WWTF, which equates to 34.2 tons per year. There were no additional effluent limits or monitoring requirements for the WWTF, so no additional requirements are necessary in the 2012-issued GP.

In addition, the two facilities that discharge to receiving waters that have TMDLs without WLAs and the 12 remaining facilities that discharge to receiving waters without a TMDL do not have any further requirements at this time. This is supported by the fact that these are minor facilities with no industrial contributions, and the facilities have TBELs that are protective of the waterbodies.

Additionally, 10 of the 54 potential permittees that currently have individual MPDES permits have a WLA listed in a TMDL developed to address the impairments (see Attachment C). Any existing facility permitted under an individual MPDES permit that requests coverage under the 2012-issued GP will remain subject to any existing WLA limits and monitoring.

Whole Effluent Toxicity (WET) - The 1999-issued GP included a narrative limit stating “There shall be no acute toxicity in the effluent discharged by the facility and no chronic toxicity outside the boundaries of the mixing zone.” Facilities that maintain authorization to discharge under the 2012-issued GP do not require WET limits or testing due to the following:

- No industrial users and indirect dischargers contributing to the influent;
- The requirement that facilities have flows of less than 1 mgd; and
- Other applicable effluent limits contained in this permit.

VI. Effluent Limits

The limits for each facility authorized under the 2012-issued GP are comprised of the appropriate TBELs and WQBELs. These limits and the outfall location for each facility are identified in a confirmation letter. The effluent limits include:

A. TBELs:

As described in Part IV of this Fact Sheet, each facility is assigned to one of the following three TBEL groups and required to meet the corresponding effluent limits:

- TBEL Group A – NSS (see Table 8)
- TBEL Group B – NSS/TES (see Table 9)
- TBEL Group C – NSS/ASR (see Table 10)

DEQ will provide each facility with specific mass-based effluent limits in the confirmation letter. The mass-based limits will be derived from *Equation 1*:

Equation 1: Mass-based Load Limits

30-day average load (lb/day) ⁽¹⁾

= avg daily design flow (mgd) x 30-day avg concentration limit (mg/L) x 8.34 conversion

7-day average load (lb/day)

= avg daily design flow (mgd) x 7-day avg concentration limit (mg/L) x 8.34 conversion

Footnote: (1) If a facility's nondegradation allocated load is more restrictive (for instance the average design flow for the facility in 1993 was lower than the current design flow), then the nondegradation allocated load for that facility will supersede the mass-based 30-day limit. Limiting each facility to the nondegradation monthly load allocation will ensure nonsignificance.

a. TBEL Group A – NSS

Each facility assigned to Group A must meet the following effluent limits listed in Table 8, beginning on the effective date of the permit and lasting until the end of the permit term:

Table 8. TBEL Group A- Proposed NSS Technology-Based Effluent Limits ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
TSS ⁽⁵⁾	mg/L	30	45	40 CFR 133.102(b)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
pH ⁽⁶⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

- See Definitions section at end of permit for explanation of terms.
- CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
- Mass-based limits (lb/day) will be calculated from Equation 1 as provided in Part IV.A.
- The arithmetic mean of the values for effluent BOD₅ or TSS samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
- Facilities that demonstrate 'eligibility to meet TES' for TSS will instead be subject to the effluent limits in Table 9. See Part IV.A.2.
- Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation occurs due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

b. TBEL Group B – NSS/TES

Each facility assigned to Group B must meet the following effluent limits listed in Table 9, beginning on the effective date of the permit and lasting until the end of the permit term:

Table 9. TBEL Group B - Proposed NSS/TES Technology-Based Effluent Limits ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
TSS ⁽⁵⁾	mg/L	45	65	40 CFR 133.105(b)
	lbs/day	<i>Equation 1</i>	<i>Equation 1</i>	
	% removal	65 ⁽⁶⁾	NA	
pH ⁽⁷⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

1. See Definitions section at end of permit for explanation of terms.
2. CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
3. Mass-based limits (lb/day) will be calculated from Equation 1 as provided in Part IV.A.
4. The arithmetic mean of the values for effluent BOD₅ samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
5. Facilities that demonstrate 'eligibility to meet ASR' for TSS will instead be subject to the effluent limits in Table 10. See Part IV.A.2.
6. The arithmetic mean of the values for effluent TSS samples collected in a period of 30 consecutive days shall not exceed 35% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (65% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
7. Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation occurs due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

c. TBEL Group C – NSS/ASR

Each facility assigned to Group C must meet the following effluent limits listed in Table 10, beginning on the effective date of the permit and lasting until the end of the permit term:

Table 10: TBEL Group C - Proposed NSS/ASR Technology-Based Effluent Limits ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Rationale
BOD ₅ ⁽²⁾	mg/L	30	45	40 CFR 133.102(a)
	lbs/day	<i>Equation 1</i> ⁽³⁾	<i>Equation 1</i>	
	% removal	85 ⁽⁴⁾	NA	
TSS	mg/L	100	135	40 CFR 133.103(c), 133.105(d), and 133.105(b)
	lbs/day	<i>Equation 1</i>	<i>Equation 1</i>	
	% removal	65 ⁽⁵⁾	NA	
pH ⁽⁶⁾	s.u.	6.0-9.0 (instantaneous)		40 CFR 133.102(c)

Footnotes:

1. See Definitions section at end of permit for explanation of terms.
2. CBOD₅ limits contained in 40 CFR 133.102(a)(4) may replace BOD₅ limits for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
3. Mass-based limits (lb/day) will be calculated from Equation 1 as provided in Part IV.A.
4. The arithmetic mean of the values for effluent BOD₅ samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (85% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
5. The arithmetic mean of the values for effluent TSS samples collected in a period of 30 consecutive days shall not exceed 35% of the arithmetic mean of the values for influent samples collected at approximately the same time during the same period (65% removal). Monitoring for this requirement will become effective **January 1, 2017** for facilities renewing the 1999-issued GP.
6. Effluent pH shall remain between 6.0 and 9.0 unless the facility demonstrates that a variation is due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

B. WQBEL:

In addition to the TBEL limits, each facility is also subject to interim and final WQBELs.

Interim WQBELs

Beginning on the effective date of the permit and ending on midnight December 31, 2016, facilities are subject to the following interim effluent limits:

Table 11. Interim WQBEL ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Total Residual Chlorine (TRC) ⁽²⁾	mg/L	0.011	--	0.019
Additional Limits				
<i>E. coli</i> bacteria	cfu/100 mL	(3)	(3)	--
Ammonia, as N	mg/L	(3)	--	(3)
Nitrate + Nitrite, as N	mg/L	(3)	--	(3)
Total Nitrogen, as N (TN) ⁽⁴⁾	mg/L	(3)	--	--
Total Phosphorus, P (TP)	mg/L	(3)	--	--
Other Parameters (WLA and other previous permit limits)	mg/L	(3)	--	(3)
Footnotes:				
1. See Definitions section at end of permit for explanation of terms.				
2. An approved sampling method for TRC is required if chlorine is used for disinfection. Analytical results of less than 0.1 mg/L are considered in compliance with the TRC limit.				
3. Any facility with an existing WLA or effluent limit will be required to continue to meet these limits. The additional requirements will be specified in the confirmation letter to the facility.				
4. TN is calculated as the sum of Nitrate + Nitrite as N and Total Kjeldahl Nitrogen (TKN) concentrations.				

Until January 1, 2017, facilities previously permitted under the 1999-issued GP that are continuing coverage under the 2012-issued GP are not subject to any WQBELs, other than TRC if chlorine is used as a disinfectant. However, an existing facility permitted under an individual MPDES permit that requests and receives coverage under the 2012-issued GP will remain subject to their existing effluent limits in addition to TRC, as specified in their confirmation letter.

Final Limits

Beginning on January 1, 2017, and lasting the duration of this GP term, facilities are subject to the following final effluent limits:

Table 12. Final WQBEL ⁽¹⁾				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
<i>E. coli</i> bacteria - summer ^(2,3)	cfu/100 mL	126	252	--
<i>E. coli</i> bacteria - winter ^(3,4)	cfu/100 mL	630	1,260	--
Total Residual Chlorine (TRC) ⁽⁵⁾	mg/L	0.011	--	0.019
Additional Limits				
Ammonia, as N	mg/L	⁽⁶⁾	--	⁽⁶⁾
Nitrate + Nitrite, as N	mg/L	⁽⁶⁾	--	⁽⁶⁾
Total Nitrogen, as N (TN) ⁽⁷⁾	mg/L	⁽⁶⁾	--	--
Total Phosphorus, P (TP)	mg/L	⁽⁶⁾	--	--
Other Parameters (WLA and other previous permit limits)	mg/L	⁽⁶⁾	--	⁽⁶⁾
Footnotes:				
1. See Definitions section at end of permit for explanation of terms.				
2. After January 1, 2017 , all facilities are required to comply with this limit from April 1 through October 31 on an annual basis.				
3. Report the geometric mean if more than one sample collected during the reporting period.				
4. After January 1, 2017 , all facilities are required to comply with this limit from November 1 through March 31 on an annual basis.				
5. An approved sampling method for TRC is required if chlorine is used for disinfection. Analytical results of less than 0.1 mg/L are considered in compliance with the TRC limit.				
6. Any facility with an existing WLA or effluent limit will be required to continue to meet these limits. The additional requirements will be specified in the confirmation letter to the facility.				
7. TN is calculated as the sum of Nitrate + Nitrite as N and TKN concentrations.				

VII. Monitoring and Reporting Requirements

A. Effluent Monitoring

The self-monitoring frequency for each facility is based on their type of designed discharge frequency. The two main types are:

1. Continuous dischargers are facilities that discharge on a continuous basis or discharge 270 continuous days or greater per calendar year (e.g., discharge for 10 months and then hold for two months during the annual turnover of the lagoon system).
2. Batch discharge facilities operate with periodic, controlled, or seasonal discharges. This includes non-discharging facilities that desire coverage under the 2012-issued GP. When a discharge is occurring at a batch discharge facility, the monitored parameters are the same as for continuous discharge facilities but with a different monitoring frequency, as discussed below.

Discharge monitoring must take place at the last point of control before the discharge leaving the treatment system enters the receiving water. By no later than January 1, 2017, all facilities under the 2012-issued GP must ensure flow monitoring is representative of the nature and volume of the discharge. DEQ requires monitoring to occur on a calendar basis (i.e., calendar week, calendar month, calendar quarter).

Samples shall be collected, preserved and analyzed in accordance with approved procedures listed in 40 CFR 136. Samples must be representative of the volume and quality of the effluent, and the analysis must meet any Required Reporting Values (RRVs) listed in the most recent Circular DEQ-7 unless a different minimum level (ML) is specified.

Reporting frequency shall be monthly (or quarterly where applicable) and must be reported by the 28th of the following month. Results shall be reported on a Discharge Monitoring Report (DMR) Form (EPA 3320-1) or equivalent. When monitoring frequency is more often than once per month, the permittee will be expected to report 30-day average and maximum daily values on the DMR. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

1. Continuous Discharge Monitoring

DEQ anticipates less variability in effluent quality in continuous discharges than periodic discharges. Therefore, monitoring for continuous dischargers is at a fixed frequency, based on the size of the facility:

1a. Small Continuous: Design average flow rate for this type of facility is less than 0.1 mgd. The design for one of the 25 facilities currently covered under the 1999-issued GP would be considered "small continuous." (See Table 13 for self-monitoring requirements.)

1b. Large Continuous: Design average flow rate for this type of facility is between 0.1 – 1.0 mgd. Five of the 25 facilities currently covered under the 1999-issued GP will be categorized as "large continuous." (See Table 14 for self-monitoring requirements.)

Table 13: Self-Monitoring Requirements for Small Continuous Dischargers ⁽¹⁾

Parameter	Unit	Monitoring Location	Sample Frequency ⁽²⁾	Sample Type
Flow	mgd	Effluent	1/Week	⁽³⁾
5-Day Biochemical Oxygen Demand (BOD ₅) (or CBOD ₅ if appropriate ⁽⁶⁾)	mg/L	Influent	1/Quarter ⁽⁴⁾	Composite
	mg/L	Effluent	1/Month	Composite ⁽⁵⁾
	% Removal	Effluent	1/Quarter ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
Total Suspended Solids (TSS)	mg/L	Influent	1/Quarter ⁽⁴⁾	Composite
	mg/L	Effluent	1/Month	Composite ⁽⁵⁾
	% Removal	Effluent	1/Quarter ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
pH	s.u.	Effluent	1/Month	Instantaneous
Oil and Grease ⁽⁷⁾	mg/L	Effluent	1/Year	Grab
<i>E. coli</i> Bacteria	cfu/100 mL	Effluent	1/Month	Grab
Total Residual Chlorine (TRC) ⁽⁸⁾	mg/L	Effluent	3/Week	Grab
Ammonia as N	mg/L	Effluent	1/Quarter	Composite ⁽⁵⁾
Nitrate + Nitrite as N (NO ₃ + NO ₂)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
Total Kjeldahl Nitrogen (TKN)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
Total Nitrogen as N (TN) ⁽¹⁰⁾	mg/L	Effluent	1/Month ⁽⁹⁾	Calculated
	lb/day	Effluent	1/Month ⁽⁹⁾	Calculated
Total Phosphorus as P (TP)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
	lb/day	Effluent	1/Month ⁽⁹⁾	Calculated
Additional Monitoring ⁽¹¹⁾				
WQBELs/WLA	As specified	Effluent	As specified	As specified

Footnotes:

- See Definition section at end of permit for explanation of terms.
- Monitoring only required during periods of discharge. Frequency is based on calendar week, calendar month, etc.
- By no later than **January 1, 2017**, all facilities under the 2012-issued GP must ensure flow monitoring is representative of the nature and volume of the discharge.
- Beginning on **January 1, 2017**, facilities will be required to monitor influent BOD₅ and TSS composite samples for reporting % removal. Influent monitoring is required only if a discharge occurs during that reporting period.
- Effluent composite samples are 24-hour composite samples, using a minimum of four grab samples. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period greater than 24 hours. This will be specified in the confirmation letter.
- CBOD₅ limits and monitoring may replace BOD₅ for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
- Use EPA Method 1664, Revision A: N-Hexane Extractable Material (HEM), or equivalent.
- TRC monitoring is required if chlorine is used for disinfection during the reporting period. Otherwise report "NA" on the DMR. An approved sampling method must be performed whenever chlorine is utilized for disinfection. Analytical results of less than 0.1 mg/L are considered in compliance with the chlorine limit.
- Monitoring of nutrients, including NO₃ + NO₂, is required monthly for the six warmer months of May through October.
- TN is calculated as the sum of Nitrate + Nitrite as N and TKN concentrations.
- Any existing effluent limits or monitoring requirements specified in an existing permit will be maintained. The requirements will be specified in the acknowledgement letter issued after receipt of a complete NOI.

Table 14: Self-Monitoring Requirements for Large Continuous Dischargers ⁽¹⁾

Parameter	Unit	Monitoring Location	Sample Frequency ⁽²⁾	Sample Type
Flow ⁽³⁾	mgd	Effluent	1/Week	⁽³⁾
5-Day Biochemical Oxygen Demand (BOD ₅) (or CBOD ₅ if appropriate) ⁽⁶⁾	mg/L	Influent	1/Month ⁽⁴⁾	Composite
	mg/L	Effluent	1/Week	Composite ⁽⁵⁾
	% Removal	Effluent	1/Month ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
Total Suspended Solids (TSS)	mg/L	Influent	1/Month ⁽⁴⁾	Composite
	mg/L	Effluent	1/Week	Composite ⁽⁵⁾
	% Removal	Effluent	1/Month ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
pH	s.u.	Effluent	1/Week	Instantaneous
Oil and Grease ⁽⁷⁾	mg/L	Effluent	1/Year	Grab
<i>E. coli</i> Bacteria	cfu/100 mL	Effluent	1/Week	Grab
Total Residual Chlorine ⁽⁸⁾	mg/L	Effluent	5/Week	Grab
Ammonia as N	mg/L	Effluent	1/Month	Composite ⁽⁵⁾
Nitrate + Nitrite as N (NO ₃ + NO ₂)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
Total Kjeldahl Nitrogen (TKN)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
Total Nitrogen as N (TN) ⁽¹⁰⁾	mg/L	Effluent	1/Month ⁽⁹⁾	Calculated
	lb/day	Effluent	1/Month ⁽⁹⁾	Calculated
Total Phosphorus as P (TP)	mg/L	Effluent	1/Month ⁽⁹⁾	Composite ⁽⁵⁾
	lb/day	Effluent	1/Month ⁽⁹⁾	Calculated
Additional Monitoring ⁽¹¹⁾				
WQBELs/WLA	As specified	Effluent	As specified	As specified

Footnotes:

1. See Definition section at end of permit for explanation of terms.
2. Monitoring only required during periods of discharge. Frequency is based on calendar week, calendar month, etc.
3. By no later than **January 1, 2017**, all facilities under the 2012-issued GP must ensure flow monitoring is representative of the nature and volume of the discharge.
4. Beginning on **January 1, 2017**, facilities will be required to monitor influent BOD₅ and TSS composite samples for reporting %removal. Influent monitoring is required only if a discharge occurs during that reporting period.
5. Effluent composite samples are 24-hour composite samples, using a minimum of four grab samples. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period greater than 24 hours. This will be specified in the confirmation letter.
6. CBOD₅ limits and monitoring may replace BOD₅ for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
7. Use EPA Method 1664, Revision A: N-Hexane Extractable Material (HEM), or equivalent.
8. TRC monitoring is required if chlorine is used for disinfection during the reporting period. Otherwise report "NA" on the DMR. An approved sampling method must be performed whenever chlorine is utilized for disinfection. Analytical results of less than 0.1 mg/L are considered in compliance with the chlorine limit.
9. Monitoring of nutrients, including NO₃ + NO₂, is required monthly for the six warmer months of May through October.
10. TN is calculated as the sum of Nitrate + Nitrite as N and TKN concentrations.
11. Any existing effluent limits or monitoring requirements specified in an existing permit will be maintained. The requirements will be specified in the acknowledgement letter issued after receipt of a complete NOI.

2. Batch (Periodic, Intermittent, Controlled, Seasonal) Discharge Monitoring:

Batch facilities are designed to operate with periodic, controlled, or seasonal discharges. This includes non-discharging facilities that desire coverage under the 2012-issued GP. DEQ anticipates greater variability in periodic discharges than continuous discharges. Therefore, monitoring for batch dischargers is at an increased frequency. Table 15 presents the self-monitoring requirements for batch facilities, which are made up of the following universe:

Small Batch: Eleven of the 25 facilities currently covered by the 1999-issued GP are batch facilities with design flow less than 0.1 mgd (including five facilities that have reported “no discharge” during the POR).

Large Batch: Six of the 25 facilities are batch facilities with design flow between 0.1 and 1.0 mgd.

DEQ recommends that all batch facilities monitor TBELs prior to discharge. Pre-discharge monitoring for BOD₅, TSS, and pH should be collected between the hours of 11 AM and 4 PM in order to minimize pH variations due to photosynthesis. A representative from the facility should review the analytical results and authorize the discharge if the concentrations meet the facility’s effluent limits provided in the confirmation letter. DEQ does not require facilities to provide pre-monitoring notification.

DEQ requires effluent monitoring on a calendar week for TBELs and *E. coli* bacteria. **The last weekly sample for these parameters must be taken on the last day of discharge.** DEQ also requires influent and WQBEL monitoring for other parameters on a calendar basis, as specified in Table 15.

All of the effluent samples collected as part of the required monitoring are used to determine the averages for the reporting period. If only one sample is collected during that period then it is considered to be the average for that period. The permittee has the option of collecting additional samples and results, if appropriate.

Table 15: Self-Monitoring Requirements for Batch Dischargers ⁽¹⁾

Parameter	Units	Monitoring Location	Sample Frequency ⁽²⁾	Sample Type
Flow/TBELs				
Flow	mgd	Effluent	1/Day	⁽³⁾
	days	Effluent	1/Day	Calculated
5-Day Biochemical Oxygen Demand (BOD ₅) (or CBOD ₅ if appropriate) ⁽⁷⁾	mg/L	Influent	1/Month ⁽⁴⁾	Composite
	mg/L	Effluent	1/Week ⁽⁵⁾	Composite ⁽⁶⁾
	% removal	Effluent	1/Month ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
Total Suspended Solids (TSS)	mg/L	Influent	1/Month ⁽⁴⁾	Composite
	mg/L	Effluent	1/Week ⁽⁵⁾	Composite ⁽⁶⁾
	% removal	Effluent	1/Month ⁽⁴⁾	Calculated
	lb/day	Effluent	1/Month	Calculated
pH	s.u.	Effluent	1/Week ⁽⁵⁾	Instantaneous
WQBEL				
Oil and Grease ⁽⁸⁾	mg/L	Effluent	1/Year	Grab
<i>E. coli</i> Bacteria	cfu/100 mL	Effluent	1/Week ⁽⁵⁾	Grab
Total Residual Chlorine (TRC)	mg/L	Effluent	5/Week ⁽⁹⁾	Grab
Ammonia as N	mg/L	Effluent	2/Month	Composite ⁽⁶⁾
Nitrate + Nitrite as N (NO ₃ + NO ₂)	mg/L	Effluent	1/Month ⁽¹⁰⁾	Composite ⁽⁶⁾
Total Kjeldahl Nitrogen (TKN)	mg/L	Effluent	1/Month ⁽¹⁰⁾	Composite ⁽⁶⁾
Total Nitrogen as N (TN) ⁽¹¹⁾	mg/L	Effluent	1/Month ⁽¹⁰⁾	Calculated
	lb/day	Effluent	1/Month ⁽¹⁰⁾	Calculated
Total Phosphorus as P (TP)	mg/L	Effluent	1/Month ⁽¹⁰⁾	Composite ⁽⁶⁾
	lb/day	Effluent	1/Month ⁽¹⁰⁾	Calculated

Footnotes:

1. See Definition section at end of permit for explanation of terms.
2. Monitoring only required during periods of discharge. Frequency is based on calendar week, calendar month, etc.
3. By no later than **January 1, 2017**, all facilities under the 2012-issued GP must ensure flow monitoring is representative of the nature and volume of the discharge.
4. Beginning on **January 1, 2017**, facilities will be required to monitor influent BOD₅ and TSS composite samples for reporting %removal. Influent monitoring is required only if a discharge occurs during that reporting period.
5. The last weekly sample for these parameters must be taken on the last day of discharge.
6. Effluent composite samples are 24-hour composite samples, using a minimum of four grab samples. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period greater than 24 hours. This will be specified in the confirmation letter.
7. CBOD₅ limits and monitoring may replace BOD₅ for the term of the permit if requested by the permittee during the renewal application process and approved by DEQ.
8. Use EPA Method 1664, Revision A: N- HEM or equivalent.
9. TRC monitoring only required if chlorine is used to disinfect during the reporting period. If not, report "NA" on the DMR. The approved sampling method must be performed whenever chlorine is utilized for disinfection. Analytical results less than 0.1 mg/L will be considered in compliance with the chlorine limit.
10. Monitoring of nutrients, including NO₃ + NO₂, is required monthly for the six warmer months of May through October.
11. TN is calculated as the sum of Nitrate + Nitrite as N and TKN concentrations.

Table 15 con't: Additional Self-Monitoring Requirements for Batch Discharges ⁽¹⁾

Parameter	Units	Monitoring Location	Sample Frequency ⁽²⁾	Sample Type
Additional Monitoring ⁽³⁾				
WQBELs/WLA	As specified	Effluent	As specified	As specified
Footnotes:				
1. See Definition section at end of permit for explanation of terms.				
2. Monitoring only required during periods of discharge.				
3. Any existing effluent limits or monitoring requirements specified in an existing permit will be maintained. The requirements will be specified in the acknowledgement letter issued after receipt of a complete NOI.				

B. Upstream Monitoring

Each facility will be required to monitor for the following parameters at a location in the receiving water upstream from their discharge point for three years (second, third and fourth year of coverage) during the permit term:

Table 16: Upstream Monitoring Requirements ⁽¹⁾

Parameter	Units	Frequency ⁽²⁾	Type
Nitrate + Nitrite, as N	mg/L	Quarterly	Grab
Ammonia, as N	mg/L	Quarterly	Grab
Total Kjeldahl Nitrogen (TKN)	mg/L	Quarterly	Grab
Total Nitrogen, as N (TN) ⁽³⁾	mg/L	Quarterly	Calculated
Total Phosphorus, as P (TP)	mg/L	Quarterly	Grab
pH	s.u.	Monthly	Instantaneous
Temperature	deg C	Monthly	Instantaneous
Footnote:			
1. See Definition section at end of permit for explanation of terms.			
2. Samples to be taken for three years of the facility's permit coverage (second, third, and fourth year of coverage) , regardless of whether the facility is discharging.			
3. TN is calculated as the sum of Nitrate + Nitrite as N and TKN concentrations.			

DEQ will include the upstream monitoring requirements for each facility in the confirmation letter. Upstream monitoring must be conducted according to the above schedule regardless of whether or not the facility discharges during that reporting period. The reporting limit that is sufficient for upstream monitoring is equivalent to the RRV as listed in the most recent Circular DEQ-7 unless otherwise provided in the confirmation letter.

C. Special Conditions/Compliance Schedule**1. Compliance Schedule**

- a. By no later than **January 1, 2017**, each facility shall comply with the *E. Coli* bacteria effluent limits or have applied for coverage under an individual permit.

Until the final compliance date, each facility must submit an annual report summarizing their progress towards meeting the effluent limits to DEQ. The annual report must be post-marked no later than January 28th of each year. The report must include actions taken in the previous year and planned actions for the upcoming year, including a review of the facility's current *E. Coli* bacteria effluent concentrations; identification of potential options; and selection, design, and implementation of the selected option.

2. Special Conditions

- a. By no later than **January 1, 2017**, each facility shall begin monitoring to demonstrate compliance with the % removal monitoring requirements (both BOD₅ and TSS) or have applied for coverage under an individual permit.

Until the final date, each facility must submit an annual report summarizing their progress towards meeting this requirement to DEQ. The annual report must be post-marked no later than January 28th of each year. The report must include actions taken in the previous year and planned actions for the upcoming year for each parameter, including any influent monitoring improvements, evaluation of percent removal capabilities, identification of potential options, and implementation of the selected option.

- b. By no later than **January 1, 2017**, all facilities must ensure that the facility is capable of effluent flow monitoring such that the measured flow is representative of the nature and volume of the actual flow. DEQ recommends the use a weir, flume, and/or meter with an effluent recording device, or totalizer). Each facility must identify, in writing, their method(s) used for monitoring effluent flow, including any operating and maintenance procedures and calibration.

Until the final date, each facility must submit an annual report summarizing their progress. The annual report must be post-marked no later than January 28th of each year. The report must include actions taken in the previous year and planned actions for the upcoming year, including identification of potential options, design, and installation of the selected option.

D. Lagoon O&M Requirements

ARM 17.30.1342(5) states that a permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. As such, DEQ proposes to include O&M requirements in the 2012-issued GP.

A lagoon treatment system should have an O&M manual developed at the time of construction and/or upgrade. These manuals normally include checklists for O&M inspections with schedules for observation and maintenance of valves, pipes, manholes, and associated equipment such effluent multi-level draw off structures and flow meters. The inspections are designed to assure the facility is maintained and functioning as designed.

The 2012-issued GP includes the requirement for each permitted facility to:

1. Maintain an up-to-date O&M manual for the domestic sewage treatment lagoon system;
2. Follow the procedures in the O&M manual;
3. Conduct inspections at least monthly to ensure the O&M procedures are being followed and are working; and
4. Maintain records of the routine inspections and any follow-up. Records from the routine inspections must be maintained for at least three (3) years, and available for an inspector upon request. At a minimum, the records shall include:
 - a. Date and time of inspection;
 - b. Name of the inspector(s);
 - c. Weather conditions during inspection;
 - d. Visual observation of lagoon conditions, including wastewater observations (water level, odor, and visible appearance) and dike condition (signs of leakage, erosion, rodents burrowing, and/or vegetation growth);
 - e. Discharge flow rate, if occurring;
 - f. Identification of O&M problems;
 - g. Recommendations, as appropriate, to rectify identified O&M problems;
 - h. A brief description of any actions taken with regards to identified problems; and
 - i. Other information, as appropriate (e.g., effluent sample and measurement location).

E. Seasonal Land Application of Treated Effluent

DEQ is adding a planning requirement for those facilities that land-apply treated effluent. Land application of wastewater has the potential to discharge pollutants to surface water through over-land flow from application of wastewater in excess of the hydraulic capacity of the soils or from storm water runoff during precipitation events. Surface disposal of wastewater also has the potential to discharge pollutants to ground water through infiltration or percolation (ground water recharge). O&M procedures for the irrigation system is included as part of the plan and specification approval by DEQ, and shall be incorporated into the treatment system's final O&M manual.

Land Application – Planning Requirements [Authority: ARM 17.30.1344(2)(b)]

Each facility permitted under the 2012-issued GP shall develop and implement a Nutrient Management Plan (NMP) for land application systems, to prevent or minimize the generation and potential for release of pollutants to state waters. The plan shall achieve the objective to manage the quantity and quality of the land-applied effluent to optimize nutrient uptake and eliminate the risk of runoff to surface water or ground water infiltration/percolation.

Each facility shall maintain land application records for three (3) years and make them available for inspection by DEQ personnel upon request.

F. Inflow/Infiltration

All facilities with a design average discharge rate at or above 0.1 mgd are required to complete an evaluation of the influences from infiltration/inflow (I/I) to their treatment works by January 1, 2017. The evaluation shall provide an estimate of the amount and sources of I/I into the collection system and a summary of work accomplished and additional work planned to reduce this I/I. A summary of the facility I/I review must be submitted to DEQ by no later than January 28th 2017.

VIII. Nondegradation

Existing facilities permitted prior to April 29, 1993 are not subject to the nondegradation requirements unless production capacity is increased after that date. New or increased sources, as defined by the Nondegradation Rules (ARM 17.30.702), must meet the requirements of ARM 17.30.715-718. A new or increased source is not eligible for coverage under the 2012-issued GP and must apply for an individual MPDES permit.

Nondegradation thresholds will be calculated and specified with the confirmation letter sent as part of this renewal. In the event that an authorization under the 2012-issued GP is issued to a facility previously covered by an individual permit, the nondegradation allocations from the individual permit will apply. Nondegradation threshold load values establish the baseline for an increased source as defined by ARM 17.30.701, *et seq.*

IX. TMDL

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary TMDLs under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, et al., CV 97-35-M-DWM, District of Montana, Missoula Division.

DEQ finds that the renewal and re-issuance of the GP does not conflict with the order, because it is not a new permit and it does not allow any increases in permitted discharges.

X. Information Sources

1. Montana Code Annotated Title 75 - Chapter 5 - Water Quality, December 2011.
2. Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
 - a. Subchapter 2 - Water Quality Permit and Application Fees, June 2011.
 - b. Subchapter 5 - Mixing Zones in Surface and Ground Water, September 2010.
 - c. Subchapter 6 - Montana Surface Water Quality Standards and Procedures, September 2010.
 - d. Subchapter 7- Nondegradation of Water Quality, September 2010.
 - e. Subchapter 11 - Storm Water Discharges, April 2004
 - f. Subchapter 12 - MPDES Standards, December 2011.

- g. Subchapter 13 - MPDES Permits, March 2006.
3. Montana Department of Environmental Quality Circular DEQ-2, Design Standards for Wastewater Facilities, September 1999.
 4. Montana Department of Environmental Quality Circular DEQ-7, Montana Numeric Water Quality Standards, August 2010.
 5. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MTG580000: Administrative Record.
 6. 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.
 7. Federal Water Pollution Control Act (Clean Water Act), § 303(d), 33 USC 1313(d) Montana List of Waterbodies in Need of Total Maximum Daily Load Development, 1996 and 2012.
 8. Federal Register, 49 FR 37005 Alternative State Requirements for Montana, September 20, 1984.
 9. US Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, & 136.
 10. US Code of Federal Regulations, 40 CFR Part 403 – General Pretreatment Regulations for Existing and New Sources of Pollution.
 11. US Code of Federal Regulations, 40 CFR Part 503 – Standards for the Use or Disposal of Sewage Sludge.
 12. US Department of the Interior US Geological Survey, Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002, Scientific Investigations Report 2004-5266, 2004.
 13. US EPA. Office of Water. Design Manual for Municipal Wastewater Stabilization Ponds, EPA 625-1-83-015. October 1983.
 14. US EPA. Principles of Design and Operations of Wastewater Treatment Pond Systems for Plant Operators, Engineers, and Managers, EPA/600/R-11/088, August 2011.
 15. US EPA Fact Sheet 832-F-02-014, September 2002
 16. US EPA Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-30-001, March 1991.
 17. US EPA NPDES Permit Writers' Manual, EPA 833-K-10-001, September 2010.
 18. US EPA "Applicability of Effluent Guidelines and Categorical Pretreatment Standards to Biodiesel Manufacturing," August 11, 2008.

Completed by: Christine Weaver, August 2012

Attachment A - 1999-Issued GP Permittees Facility Design Info

Facility	Permit number	Lagoon Type	Year Constructed /Modified	Pop. (2000 census)	Design Flow (mgd)	Actual Flow (mgd)	Discharge Method
DRUMMOND- TOWN OF	MTG580002	facultative	1961	318	0.075	0	Controlled (no dischg)
FAIRFIELD- TOWN OF	MTG580003	facultative	1956	659	0.11	0.092	Controlled (9 mos flow)
MONTANA STATE HOSPITAL- WARM SP	MTG580004	facultative		500	0.19	0.2	Continuous
PARK CITY COUNTY WATER & SEWER DIST.	MTG580007	aerated	1968/ mod 2003	870	0.136	0.083	Continuous
PLENTYWOOD- CITY OF	MTG580008	facultative	1974	2061	0.42	0.27	Controlled (2 mos)
DARBY- TOWN OF	MTG580011	facultative	1979	710	0.15	0.06	Controlled (4 mos)
SACO- TOWN OF	MTG580012	facultative	1965	224	0.067	0.05	Controlled (1 mos)
LAVINA- TOWN OF	MTG580013	facultative	1953/2002	209	0.0216		Continuous
BROADUS- TOWN OF	MTG580015	facultative	1967	451	0.1	0.04	Controlled (2 mos)
GERALDINE- TOWN OF	MTG580016	facultative	?/2002	400	0.116	0.037	Controlled
TERRY- TOWN OF	MTG580017	facultative	pre-1989	611	0.171	0.06	Controlled (1X/mo)
COLUMBUS- TOWN OF	MTG580018	aerated	upgrade 1999	1748	0.25	0.21	Controlled (6 mos)
FORT PECK- TOWN OF	MTG580019	facultative	upgrade 1997 1959/ 1998	240	0.0475	0.017	Controlled (2 mos)
TOWNSEND- CITY OF	MTG580020	aerated	upgrade 1948/last	1867	0.6	0.29	Continuous
BRADY County Water/Sewer District	MTG580022	facultative	upgrade 2010	145	0.02	0	Non-Discharge
MEDICINE LAKE- TOWN OF	MTG580024	facultative	1971	269	0.045	0	Non-Discharge
FALLON SEWER DISTRICT	MTG580025	facultative	1970	138	0.03	0	Non-Discharge
OUTLOOK County Sewer & Water District	MTG580026	facultative	1983	93	0.0119	0	Non-Discharge
CHERRY CREEK WATER USERS ASSOC	MTG580027	facultative	1965	177	0.043	0	Non-Discharge
FROID- TOWN OF	MTG580028	facultative	1993 upgr	195	0.04	0	Controlled (< 1/yr)
BAKER- CITY OF	MTG580029	facultative	1983	1800	0.35	0.04	Controlled (2 mos)
EUREKA- TOWN OF	MTG580032	aerated	upgr 2000	1017	0.35	0.2	Controlled (2 mos)
FROMBERG- TOWN OF	MTG580033	aerated	1990 upgr pre-1979, 2003	486	0.072	0.049	Controlled (< 1/yr)
NASHUA- TOWN OF	MTG580034	facultative	upgr	325	0.05	0.04	Controlled (2 mos)
THOMPSON FALLS- CITY OF	MTG580035	aerated	1999 upgr	421	0.144		Continuous

Attachment B - 1999-issued GP Permittees Receiving Water Information

Facility	Permit number	Receiving water	Waterbody ID	Water Use		2012 303(d)	TMDL	TMDL-WLA
				Classif				
DRUMMOND- TOWN OF	MTG580002	CLARK FORK RIVER	MT76G001_010	B-1	Nutrients, Metals	TN, TP, As, Cu, Pb, Zn	TN, TP (VNP)	Not considered in TMDL
FAIRFIELD- TOWN OF	MTG580003	Drainage Ditch (~1.5 miles) to FREEZOUT LAKE	MT41K004_030	B-1	Metals, Salinity	Se, Sulfates, TDS, TP	Se, Sulfates, TDS	YES
MONTANA STATE HOSPITAL- WARM SP	MTG580004	WARM SPRINGS CREEK (~1.4 miles) to CLARK FORK RIVER	MT76G002_012	B-1	Metals, Siltation	As, Cd, Pb, Cu, Fe, Zn	As, Cd, Pb, Cu, Fe, Zn	Not considered in TMDL
PARK CITY COUNTY WATER & SEWER DIST.	MTG580007	Old Mill Ditch/Vanderbury Drain (~3 miles) to YELLOWSTONE RIVER	MT43F001_012	B-1	None	None	NA	NA
PLENTYWOOD- CITY OF	MTG580008	BIG MUDDY CREEK	MT40R001_020	C-3	Nutrients, Siltation, and Suspended Solids	Cu, Pb, Hg, Zn, TN & TP	No	NA
DARBY- TOWN OF	MTG580011	Side Channel (~ 0.1 mile) to BITTERROOT RIVER	MT76H001_010	B-1	None	Cu	Yes (temp) No(Cu)	Yes - temp
SACO- TOWN OF	MTG580012	BEAVER CREEK	MT40M001_020	B-3	Nutrients, Salinity, Suspended Solids	TN, TP, uranium	No	NA
LAVINA- TOWN OF	MTG580013	MUSSELSHELL RIVER	MT40A001_020	C-3	Nutrients, Siltation	TN, TP, Sediment	No	NA
BROADUS- TOWN OF	MTG580015	Old Channel (Wetlands) to POWDER RIVER	MT42J001_010	C-3	None	Salinity	No	NA
GERALDINE- TOWN OF	MTG580016	Manmade ditch (~0.2 miles) to Unnamed Drainage (~2.8 miles) to FLAT CREEK to Dammel Reservoir	NA	C-3	None	None	NA	NA
TERRY- TOWN OF	MTG580017	Buffalo Rapids Irrigation Ditch (~0.2 mile) to YELLOWSTONE RIVER	MT42M001_012	B-3	Nutrients, Metals, Pathogens, pH, salinity, suspended solids	None	NA	NA
COLUMBUS- TOWN OF	MTG580018	Discharge ditch (0.35 miles) to Side Channel of YELLOWSTONE RIVER	MT43F001_012	B-1	None	None	NA	NA
FORT PECK- TOWN OF	MTG580019	MISSOURI RIVER **National Wildlife Range	MT40S001_011	B-2	None	Temp	No	NA
TOWNSEND- CITY OF	MTG580020	Side Channel (~0.35 miles) of MISSOURI RIVER, then ~ 2 miles to Canyon Ferry Lake	MT41I001_012	B-1	Nutrients, suspended solids, thermal modifications	Cd, Cu, Pb, Sediment	No	NA
BRADY County Water/Sewer District	MTG580022	~0.25 miles to Brady Coulee, then ~2 miles to SOUTH PONDERA COULEE, then ~ 10 miles to Pondera Coulee	NA (Pondera Coulee: MT41P002_030)	B-2	None	None	NA	NA
MEDICINE LAKE- TOWN OF	MTG580024	BIG MUDDY CREEK DIVERSION DITCH (~1.2 miles) to Medicine Lake **National Wildlife Refuge	MT40R003_010 (Medicine Lake)	C-3	Nutrients, salinity/TDS, suspended solids (Medicine Lake)	Cd, Pb, Hg (Medicine Lake)	No	NA

Attachment B - 1999-issued GP Permittes Receiving Water Information

Facility	Permit number	Receiving water	Waterbody ID	Water Use			TMDL	TMDL-WLA
				Classif	1996 303(d)	2012 303(d)		
FALLON SEWER DISTRICT	MTG580025	Buffalo Rapids IRRIGATION DITCH (~1.2 miles) to Yellowstone River	MT42M001_012	B-3	Nutrients, Metals, Pathogens, pH, salinity, suspended solids	None	No	NA
OUTLOOK County Sewer & Water District	MTG580026	PLENTYWOOD CREEK	NA	C-3	None	None	No	NA
CHERRY CREEK WATER USERS ASSOC	MTG580027	Ditch (not dedicated to POTW) ~0.6 miles to MILK RIVER	MT400001_010	B-3	Nutrients, other inorganics, salinity/TDS, suspended solids	E. Coli, Pb, Hg	No	NA
FROID- TOWN OF	MTG580028	SHEEP CREEK to (~ 5.0 miles) Homestead Lake	MT40R003_020 (Homestead Lake)	C-3	None	None	NA	NA
BAKER- CITY OF	MTG580029	SANDSTONE CREEK	MT42L001_020	C-3	Other inorganics, salinity/TDS, suspended solids	NO3+NO2, and TN	No	NA
EUREKA- TOWN OF	MTG580032	TOBACCO RIVER (~ 3 miles to Lake Koozanusa/Kootenai River)	MT76D004_010	B-1	Siltation	Sedimentation/ Siltation	Yes	YES - TSS 34.2 tons/year
FROMBERG- TOWN OF	MTG580033	CLARKS FORK OF THE YELLOWSTONE RIVER	MT43D001_011	B-2	None	Cu, Fe, Pb, Hg, Ammonia, N+N, TN, TP, Solids, Temp	No	NA
NASHUA- TOWN OF	MTG580034	MILK RIVER	MT400001_010	B-3	Nutrients, other inorganics, salinity/TDS, suspended solids	E. Coli, Pb, Hg	No	NA
THOMPSON FALLS- CITY OF	MTG580035	one mile to CLARK FORK RIVER	MT76N001_010	B-1	Thermal modification	Cd	No	NA

Attachment C: Lagoons with Wasteload Allocations (WLA)

<u>MPDES ID</u>	<u>Facility</u>	<u>TMDL Watershed</u>	<u>Parameters</u>	<u>WWTF WLA</u>
MT0020052	CHOTEAU SEWAGE TREATMENT PONDS	Teton River	Sediment	TSS @ 100 mg/L or 250 lb/day, TN and TP monitoring
MT0020133	WHITEHALL WWTF	Upper Jefferson	Sediment	17.1 TPY TSS
MT0020753	BIG TIMBER	Boulder River	Cu, Pb, Fe	Cu @ 0.009 lb/day; Pb @ 0.002 lb/day, Fe @ 3.26 lb/day
MT0021440	VAUGHN WWTF	Sun River	TN, TP	TN, TP
MT0021571	TOWN OF BELT - WWTP	Missouri-Cascade and Belt	Metals	Equation
MT0022098	SHERIDAN WWTF	Ruby River	Temperature, TSS	Do not exceed 0.7 cfs at an estim daily max of 88 deg F; TSS permit limits
MT0022560	EAST HELENA WWTF	Lake Helena	Temp, TN, TP, Metals	Temp monitoring
MT0022713	STEVENSVILLE WWTP	Bitterroot	Temperature	Do not discharge more than 2X current peak hourly discharge or peak hourly design capacity whichever is greater. Monitor effluent temperature June - Sept first year of permit.
MT0028665	SUN PRAIRIE VILLAGE WWTP	Sun River	TN, TP	TN, TP
MT0030091	TOWN OF STOCKETT WWTP	Missouri-Cascade and Belt	Metals	Equation