



Tom Reid, DEQ
 Water Policy Interim Committee
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Montana Department of
ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

Agency Use
Permit No.:
Date Rec'd
Amount Rec'd
Check No.
Rec'd By

FORM
GW-1

**Ground Water Pollution Control System (MGWPCS)
 Domestic Wastewater – Permit Application**

This form must be accompanied by DEQ Form 1. Form GW-1 is to be used for facilities that discharge or propose to discharge domestic sewage to state ground water and fulfills the requirements of ARM 17.30.1023(4). Please read the attached instructions before completing this application. Do not leave blank spaces; if a question is not applicable put an 'NA' in the space provided. You must print or type legibly; applications that are not legible will be returned.

Section A – Facility/Site Information *(Must be the same as Form 1)*

Facility Name _____
 Facility Location _____
 Facility Contact / Title _____
 Mailing Address _____
 City, State, Zip _____
 Telephone Number(s) () _____

Vicinity Map:

The following information must be clearly labeled on a project vicinity map attached to this application. Please identify location and name of adjacent surface water, location and ownership of water supply wells, springs, and any ground water intake structures within 1 mile of the proposed or existing source(s).

Facility Site Plan:

Attach to this application a Facility Site Plan drawing(s) showing the topography of the area extending at least to the property lines of the facility. The map must show the outline of buildings, structures, parking areas, north arrow, scale and facilities directly pertinent to processes, structures and discharges to be covered by the permit that may be issued in response to this application. At minimum, the location of each of the existing and proposed structures must be clearly labeled on the map including but not limited to: wastewater collection and conveyance structures, wastewater treatment facilities, wastewater disposal structures/systems, and monitoring or supply well location(s). The required information must be clearly labeled on the Facility Site Plan. For facilities that cover larger land areas, specific portions of the Facility Plan may be included on separate drawing(s) at a smaller scale to provide necessary detail.

Section B – Application and Source Status *(Check all applicable boxes)*

Application Status

- New, no existing GWPCS Permit
- Permit Renewal
- Permit Modification
- Other: _____

Source Status

- New or Proposed
- Existing Source
- Other: _____

Section E – Treatment System Capacity

For *new* treatment works, provide hydraulic design capacity information; for *existing* systems, provide *both* design and measured information.

Parameter	Design Capacity	Measured Flow		
		Two Years Ago	Last Year	This Year
Average Daily Flow, gpd				
Maximum Daily Flow, gpd				

Flow Measurement Device(s):
 Manufacturer: _____
 Type: _____

Section F - Treatment System Description

(Describe the treatment system(s) or best management practices (BMP's) used to reduce pollutants. Attach additional sheets if necessary.)

What levels of treatment are provided? Check all that apply.

- Conventional Level II Primary Other (i.e., experimental) _____
 Nutrient Reduction System

Indicate the method of treatment for wastewater:

- None Intermittent Sand Filter Recirculating Sand Filter Recirculating Trickling Filter
 Aerobic Sewage Treatment Unit Chemical Nutrient Reduction Passive Nutrient Reduction
 Other (specify) _____

Indicate the following removal rates (as actual or estimated):

- Design BOD₅ or CBOD₅ Removal _____ % Design TSS Removal _____ %
 Design Total Phosphorus Removal _____ % Design Total Nitrogen Removal _____ %
 Design Pathogen Removal _____ % Other _____

Yes No Has effluent testing information been collected for the wastewater treatment system proposed?

If yes, submit effluent testing data for all parameters listed in Section M.

Method(s) of disinfection used for the effluent: _____

Line Drawing:

Attach a line drawing showing wastewater flow through the collection and treatment works. Indicate sources contributing wastewater to the system and treatment units. Construct a water balance on the line drawing showing design flow between treatment units, flow measurement location(s), sampling locations and outfalls. [See attached example]

Scheduled Improvements and Schedules of Implementation

Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality or design capacity of the treatment works.

- Yes No Are planned improvements or implementation schedules required by local, state or federal agencies?

List the outfall number for each outfall that is affected by this implementation schedule: _____

Section G – Engineering Report(s)

A. If there is any technical evaluation concerning your wastewater collection and treatment system, including engineering reports or pilot plant studies, check the appropriate box below.

- Report Available, copy attached No Report

B. Provide the name and location of any existing facilities which, to the best of your knowledge, resembles this production facility with respect to production processes, wastewater constituents, or wastewater collection & treatment.

Name: _____ Location: _____

C. Other Information

(Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.)

Section H – Chemical Additions

List all chemical(s), product(s) used in facility maintenance. Attach additional pages where necessary. Submit a complete list of chemicals; include products used even on a temporary basis (Material Safety Data Sheets – MSDS – may be submitted in addition to the list).

Name(s): _____	Name(s): _____
Manufacture(s): _____	Manufacture(s): _____
Name(s): _____	Name(s): _____
Manufacture(s): _____	Manufacture(s): _____
Name(s): _____	Name(s): _____
Manufacture(s): _____	Manufacture(s): _____

Section I – Sewage Sludge

Indicate the method(s) used for disposal of sludge generated during wastewater treatment:

- Composting Facility Land application
- Disposal at WWTP Landfill (Municipal, Hazardous Waste)
- Other - Describe: _____

Transporter

Name _____

Address _____

Telephone _____

Treatment works facility

Name _____

Address _____

Telephone _____

Is this facility authorized to dispose of sewage sludge under an NPDES Permit? Yes No Permit No. _____

Section J – Disposal System

Indicate the method of wastewater disposal for this outfall. (Check one)

- Well injection Drainfield Rapid Infiltration Evapotranspiration Overland Flow
- Infiltration/Absorption Trenches Slow Infiltration Land Application (see form LA-1)
- Infiltration/Percolation
- Other(s) Explain: _____

Depth below ground surface _____ ft Distance above ground level _____ ft

Check all that may apply:

Is discharge: continuous intermittent seasonal

If seasonal indicate the month(s) the outfall discharges:

Jan Feb March April May June July Aug Sept Oct Nov Dec

Yes No Is the operator of the wastewater treatment system requesting a mixing zone pursuant to the Administrative Rule of Montana (ARM) Title 17, chapter 30, subchapter 5?

Standard Mixing Zone for Ground Water (ARM 17.30.517)

Source Specific Mixing Zone (ARM 17.30.518)

Yes No Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? If yes, provide the following information regarding the transporter and treatment works receiving the wastewater.

Transporter

Name _____

Address _____

Telephone _____

Treatment Works Facility

Name _____

Address _____

Telephone _____

Section K – Ground Water Characteristics (See Instructions)

Test	Units	Minimum Value	Maximum Value	Average Value	No. of Samples	Source of Data
Specific Conductivity	µS/cm					
Total Dissolved Solids (TDS)	mg/L					
pH	s.u.					
Chloride	mg/L					
Escherichia Coli*	No./100ml					
Kjeldahl Nitrogen, Total, as N	mg/L					
Nitrate + Nitrite, as N	mg/L					
Total Organic Carbon (TOC)	mg/L					
Other:						

*Fecal Coliform Bacteria will be accepted as substitute

Describe how the above estimates were obtained. Attach relevant supplemental information as necessary.

Section L – Local Hydrogeology and Mixing Zone Information

Depth to shallowest ground water _____ ft
 Depth to shallowest bedrock _____ ft
 Depth to shallowest impermeable geologic strata (if known) _____ ft
 Direction of ground water flow _____ (azimuth or bearing)

Describe how these values were obtained. Attach relevant supplemental information as necessary:

Name of all surface waters within 1 mile	Distance ¹	Direction ¹

¹ From Source (outfall)

Standard Mixing Zone - (Required Information*)

Hydraulic Gradient * (I) _____ ft/ft
 Hydraulic Conductivity * (K) _____ ft/day
 Maximum width of source perpendicular to the direction of ground water flow * _____ ft
 Depth of Mixing Zone _____ ft
 Width of Mixing Zone _____ ft
 Length of Mixing Zone _____ ft
 Distance from source to facility property boundary _____ ft
 Volume of ground water in Mixing Zone _____ cubic ft/day

Describe how these values were obtained. Attach relevant supplemental information as necessary:

Source Specific Mixing Zone ARM 17.30.518

If source specific mixing zone is being requested, provide justification in accordance with ARM 17.30.518. Submit all supplemental data documenting how hydraulic gradient, background concentrations, effluent concentrations and hydraulic conductivity were determined. This includes but is not limited to well logs, aquifer test methods and calculations, potentiometric maps and hydrogeologic reports of studies conducted in the area.

Sections J, K, L, M must be completed for each outfall identified in Section C

Outfall #: _____

Section M – Effluent Characteristics (See Instructions)

Parameter	Maximum ¹		Average		No. of Samples	Type ²	Source of Estimate
	Concentration	Units	Concentration	Units			
Conventional Pollutants							
pH (Minimum), s.u.							
pH (Maximum), s.u.							
Total Suspended Solids (TSS)							
Biochemical Oxygen Demand (BOD ₅)							
Oil & Grease							
Chlorine, Total Residual (TRC)							
Escherichia Coli ³							
Ammonia, Total, as N							
Kjeldahl Nitrogen, Total, as N							
Nitrate + Nitrite, as N							
Phosphorus, Total, as P							
Total Dissolved Solids							
Specific Conductivity							
Chloride							
Use this space (or a separate sheet) to provide information on other pollutants known to be present in the effluent:							

¹ Except pH minimum – provide minimum value in the space indicated.

² Type: composite or grab samples

³ Fecal Coliform Bacteria will be accepted as a substitute

Section N - Alternative Water Supply and Alternate Disposal Methods

In the space provided below describe proposed measures to be taken to provide alternative water supplies, treatment and alternative disposal practices in the event any domestic, municipal, agricultural, or commercial/industrial well is adversely affected by the operation of the source.

Section O – Operation/Maintenance Performed by Contractor(s)

Yes No Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor?

If yes, list the name, address, telephone number, and status of each contractor; describe the contractor's responsibilities.

Name _____

Mailing Address _____

Telephone Number _____

Responsibilities of Contractor _____

Section P – Land Ownership

New sources or new applicants must submit a list of surface owners and leasees of land within 1 mile of the proposed source, as required by ARM 17.30.1023(4)(d).

CERTIFICATION

Section Q – Applicant Information: This application must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Applicants Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system or those persons directly responsible for gathering the information, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

A. Applicant Name (Owner/Operator) *(Must be the same as Form 1)*

B. Name and Official Title (Type or Print)

C. Phone No.

D. Signature

E. Date Signed

The Department will not process this application until all of the requested information is supplied, the application is complete, and the appropriate fees are paid. Return this application form [Form GW-1] along with DEQ Form 1 (and any supplemental information), and applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena MT 59620-0901

INSTRUCTIONS FOR

Form GW1 – Ground Water Pollution Control System (MGWPCS)

Who Must File Form GW-1

Form GW-1 must be completed in conjunction with DEQ Form 1. This form may be used by facilities which discharge or propose to discharge domestic sewage to state ground water through infiltration, percolation or other methods of subsurface disposal or are requesting a mixing zone pursuant to Title 17, Chapter 30, Subchapter 5 or a nonsignificance determination pursuant to Title 17, Chapter 30, Subchapter 7. Your application will not be considered complete unless you have answered every question on this form and Form 1. If an item does not apply to you, enter "NA" (for 'not applicable') to show that you considered the question.

The applicant shall keep records of all data used to complete permit applications and any supplemental information submitted under this application for a period of at least three years from the date the application is signed. ARM 17.30.1322(16)

Attaching Additional Information:

The applicant is required to provide the requested information in the space(s) provided. However, several sections of the application require the submittal of additional information, or for the applicant to attach additional information to clarify how the requested information was derived. Attachments should be clearly labeled as 'Attachment X.Y' where 'X' refers to the Section of the application where the material is requested, and 'Y' refers to the sequential number of the attachment determined by the applicant based on the number of attachments in a specific section.

For example: Section F states that additional sheets may be attached if necessary. This material would be labeled 'Attachment F.1', if included. A line drawing is also requested in this section (required material). This drawing should be labeled 'Attachment F.2', if supplemental treatment information is submitted or: 'Attachment F.1' if it is not submitted.

Section A - Facility/Site Information:

Enter Facility Name and other information as it appears on DEQ Form 1.

Section B - Application and Source Status:

Check the box that most accurately describes the category of the proposed permit application.

Section C - Outfall Location:

An outfall is the physical location where an effluent is discharged from the treatment works (disposal system). Provide the longitude and latitude to the nearest 15 seconds, and a brief description of the wastewater disposal method for each outfall. Outfalls should be numbered in consecutive order, starting with the lowest number. For example: 001, 002, 003 . . . See Section J for typical methods of disposal. List each outfall (drainfield, infiltration unit, injection system etc.) from which wastewater will be or is discharged. For systems utilizing multiple drainfields or similar structures as a method of disposal, list each drainfield as a separate outfall. Do not list replacement drainfields.

Section D - Collection System information:

List all sources of wastewater to the treatment system. You may estimate the flow contributed by each source if no data are available. For stormwater discharges you may estimate the average flow, but you must indicate the rainfall event upon which the estimate is based and the method of estimation. Include infiltration and inflow to the system.

Provide a brief description and the four-digit Standard Industrial Classification (SIC) Code of any commercial or business operations contributing wastewater to the collection system. Use the code which describes the principle products or services provided. SIC code information is available from the Standard Industrial Classification Manual (GPO, Washington D.C.) or on-line at: <http://www.osha.gov/index.html> . For example, SIC code 5812 Eating Places, includes restaurants, coffee shops, fast food stores, pizzerias, etc; it does not include bars, taverna, etc (SIC 5813).

The collection system must not receive process wastewater or wastewater subject to a federal effluent limit guideline or pretreatment standard (40 CFR Subpart N). Process wastewater means any water which during the process of manufacturing or processing, comes into direct contact with or results from the production of any raw material, intermediate product, finished product, byproduct, or waste product. Process wastewater does not include noncontact cooling water or wastewater from commercial operations not subject to the above requirements. Facilities which collect and treat process wastewater or industrial wastes must use Form GW-2.

Section E - Treatment System Capacity:

Provide the hydraulic design capacity of the treatment system. The design average flow is the average of the daily volumes to be received for a continuous 12-month period expressed as a volume per unit time (gallons per day). However, the design average flow for facilities having critical seasonal high hydraulic loading periods must be based on the daily average flow during the seasonal period. The design maximum daily flow is the largest volume of flow to be received during a continuous 24-hour period expressed as a volume per unit time. For an existing system, provide the measured volume of wastewater contributed to the treatment system. List the type of flow measuring devices employed, manufacturer and model of flow measurement device and the frequency at which it is calibrated. If no measurement device is employed, provide a description of how flows are estimated.

Section F - Treatment System Description:

Use the space provided to describe the treatment system or best management practice used to reduce pollutant loads prior to discharge. Also attach a line drawing showing the route taken by water in your facility from intake to discharge. The water balance should show the design flow of the system [Section E]. Show all significant losses of water to products, atmosphere, and discharge. Also, complete the information regarding wastewater treatment methods and efficiencies. An example of an acceptable line drawing appears in Figure 1 to these instructions.

Section G - Engineering Reports:

Attach the requested information or describe in space provided. If no report(s) are available, check the applicable box.

Section H - Chemical Additions:

List all chemical(s), product(s) used in industrial process or facility maintenance. Attach additional pages where necessary. Submit a complete list of chemicals; include products used even on a temporary basis (Material Safety Data Sheets – MSDS – may be submitted in addition to the list).

Section I - Sewage Sludge:

Indicate how any sludge or treatment byproducts will be disposed. This includes screenings, grit, solids or semi-solid wastes. "Sewage Sludge" means any solid, semi-solid or liquid residue generated during the treatment of domestic sewage and/or a combination of domestic sewage and industrial waste of a liquid nature in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the incineration of sewage sludge or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

Sections J, K, L, M must be completed for each outfall identified in Section C

Section J - Disposal System:

Indicate the method and frequency of discharge. A discharge is intermittent unless it occurs without interruption, except for infrequent shutdowns for maintenance, process changes or other similar activities. A discharge is seasonal if it occurs only during certain parts of the year.

A mixing zone is a limited area of a surface water body or a portion of an aquifer where initial dilution of a discharge takes place and where water quality changes may occur and where certain water quality standards may be exceeded. A person applying for a mixing zone must specify the type of mixing zone and provide the applicable information required by the Department. Mixing zones are described in Title 17, Chapter 30, Subchapter 5 of the Administrative Rules of Montana (ARM). A mixing zone may or may not be granted by the Department based on the criteria established in this rule.

Section K - Ground Water Characteristics:

ARM 17.30.1023(5)(a) requires that the applicant provide information describing the local groundwater characteristics. In the space provided, record the analytical results for the parameters listed for the (hydrogeological) ground water to which the discharge will be discharged (receiving water). Samples must be collected from an upgradient source (well) or from a portion of the receiving ground water unaffected by the discharge (for existing source). The upgradient well or other source must be within 1,000 feet of the disposal system and be representative of the first 15 feet of the saturated zone, unless otherwise approved by the Department. This approval must be in writing and submitted prior to submittal of the application. A minimum of three samples must be collected within the two year period prior to date of submittal of the application. Samples must be collected during separate calendar quarters (e.g. between January 1 and March 31, etc) and at least one sample collected during a quarter containing the seasonal high ground water level based on measurement of static water levels (SWL) in the vicinity of the source. Montana water use classifications are based on the natural specific conductance of the receiving water ARM 17.30.1005(4).

In the blank rows, provide additional information for any parameters for which the applicant is requesting a mixing zone (See ARM 17.30.501, et seq) or believes would provide useful information to characterize the receiving water.

The location of the wells or other source used to obtain this information must be shown on vicinity or site map requested in Section A. A well log must be submitted for each well monitored for this section. Attach copies of the analytical data sheets or other source of estimates information. Sample collection methods, sample preservation, and analytical methods must be in accordance with ARM 17.30.1007.

Section L - Local Hydrogeology and Mixing Zone Information:

ARM 17.30.1023(5) requires that the applicant provide a description of local hydrogeologic conditions; additional information may be necessary if a mixing zone is necessary. Provide, at minimum, the required information for a standard mixing zone. If a source specific mixing zone is requested, the applicant must provide the information described in ARM 17.30.518 as an attachment to this application form.

Hydraulic gradient is a measure of the slope of the water table determined by the change in static head per unit distance in a given direction. Three applicable methods for acquiring this data are: static water elevations measured in onsite/near-site wells, published water table or potentiometric maps of the shallowest aquifer, or calculation of one-third of regional topographic slope. The most accurate method to determine the hydraulic gradient in a horizontal direction is to measure the static water elevations in a minimum of three wells in accordance with the following procedures:

A minimum of three wells (not oriented in a straight line in map view) will be required to define the plane of the ground water table. Each well will be screened in the same aquifer (i.e., shallowest ground water beneath the site) using the minimal length of screen (10 feet) plus any additional screen length to allow for seasonal ground water level fluctuations. The elevation of the measuring point of each well (top of casing) shall be surveyed to the nearest 0.01 foot. All static water levels shall be measured to the nearest 0.01 foot, on the same day to minimize the potential for variable external factors (e.g., weather, irrigation). The wells shall be located on a USGS topographic map or suitable scaled site map to construct the ground water flow map.

Section M - Effluent Characteristics:

ARM 17.30.1023(5) requires the applicant to provide the chemical and physical characteristics of the wastewater. All pollutant levels must be reported as concentration or as total mass (except for discharge flow, pH, specific conductance and temperature). Total mass is the total weight of pollutants discharged over a day. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Grab samples must be used for pH, temperature, total residual chlorine, oil and grease, and fecal coliform. For pathogens, either fecal coliform or E. coli results may be provided. For all other pollutants, 24-hour composite samples must be used. The applicant need not submit data which has been previously reported to the Department on Discharge Monitoring Report (DMR) forms. Use the blank spaces to provide additional information on pollutants that are known by the applicant to be present in the wastewater that may cause or contribute to an exceedance of water quality standards. Samples must be collected at the last point of control prior to mixing with state waters. Any further questions on sampling or analysis should be directed to the Department.

1. Existing Sources

You are required to provide at least one analysis for each pollutant or parameter listed by filling in the requested information under the applicable column. Data reported must be representative of the facility's current operation (average daily value over the previous 365 days should be reported). Do not include data which was collected more than 3 years from the submittal date of this application.

2. New Dischargers

You are required to provide an estimated maximum daily and average daily value for each pollutant or parameter (exceptions noted on the form). Please note that follow-up testing and reporting are required no later than 2 years after the facility starts to discharge. Sampling and analysis are not required at this time. If, however, data from such analyses are available, then such data should be reported. The source of the estimates is also required. Base your determination of whether a pollutant will be present in your discharge on your knowledge of the proposed facility's use of maintenance chemicals, and any analyses of your effluent or of any similar effluent. In providing the estimates, use the codes in the following table to indicate the source of such information.

<u>Engineering Study</u>	<u>Code</u>
Actual data from pilot plants	1
Estimates from other engineering studies	2
Data from other similar plants	3
Best professional estimates	4
Others	specify on the form

Section N - Alternative Water Supply and Alternate Disposal:

ARM 17.30.1023(5)(c) requires that the applicant's proposed measures to be taken provide alternative water supplies or treatment in the event any domestic, municipal, agricultural, or commercial/industrial well is adversely affected by the operation of the source.

Section O - Operation/Maintenance Performed by Contractor(s):

This information is optional. The owner or operator of the wastewater system, as identified on Form 1, is responsible for proper operation and maintenance of the system, and is responsible for submittal of all reports, fees or other information required by the permit.

Section P - Land Ownership:

New sources or new applicants must submit a list of surface owners and leasees of land within 1 mile of the proposed source, as required by ARM 17.30.1023(4)(d).

Attachment 1 - Line Drawing of Example Village Wastewater Treatment System

