

Supplemental Instructions for Mine Facility (Non Coal) Groundwater Discharge Permit Application

Discharge Permits are required for a wide range of facilities that process, treat, store and/or dispose of wastewater, sludge, septage, leachate, contaminated soils, mine tailings, industrial waste, mine ore, waste rock, or other similar materials. For the purposes of this application form, the term “discharge” applies to any of these materials whether they are actually discharged or whether they represent only a potential discharge that could occur due to factors such as poor maintenance, improper installation, equipment failure or accidents.

Part I.A.1: Facility Information and Type of Facility

A “Facility” may be identified as:

- a treatment facility, such as a municipal wastewater treatment plant;
- the source of the discharge, such as a subdivision, or waste rock pile;
- a disposal facility or operation, such as for sludge or septage;
- the discharge location or end user of reclaimed wastewater, such as a golf course or cement plant;
- a storage and/or processing facility with off-site disposal;
- a collection of facilities, such as numerous comfort stations at a state park; or
- a project or operation, such as a construction project or a system to distribute reclaimed wastewater throughout a city.

Examples of a variety of facility types are categorized below. Please note, “Domestic” waste contains human excreta or originates from typical residential plumbing fixtures.

Mining Waste

- tailing impoundment
- mine dewatering
- waste rock stockpile
- smelter slag
- in-situ leach
- leach stockpile
- pipelines
- collection ponds
- concentrator – other beneficiation

Industrial Waste

- Manufacturing
- Power plant
- Military installation
- Vehicle/equipment wash
- Mortuary
- Hydrocarbon landfarm
- Groundwater remediation
- Ethanol plant
- Asphalt plant
- Remediation Systems

Domestic Waste

- Municipal wastewater treatment plant
- Septage disposal
- Sludge disposal
- Mobile home/RV park
- Campground/park
- School/educational facility
- Restaurant
- Subdivision/apartment complex
- Unincorporated community
- Lodging/resort/spa
- Residential facility
- Commercial/shopping complex
- Laundromat
- Facility using reclaimed domestic wastewater

Agricultural Waste

- Dairy
- Food processing
- Slaughter facility
- Nursery/greenhouse
- Manufacture/processing of agricultural chemicals
- Feedlot
- Livestock truck washout

This listing is only a guide, as there can be crossover between categories. For example, a golf course might use treated industrial wastewater for irrigation. The type of facility in that case is “golf course” and the type of waste is “industrial.” A mining operation may need a permit for its restroom and shower facilities. In that case, the type of facility is a “mining operation” and the type of discharge is “domestic waste.”

Part I.A.5: Discharge Quality for Administrative Completeness

Untreated wastewater entering a treatment facility (also referred to as “influent”) must be characterized so that the treatment process can be evaluated. It is not necessary to provide influent quality for systems providing minimal treatment prior to discharge or disposal, such as systems relying on crop uptake for treatment (e.g., dairies), septic tank – leachfield systems, storage/processing facilities or evaporative systems. The final quality of the waste or wastewater disposed of or discharged must be characterized for all facilities.

To comply with the discharge quality reporting requirements for mining operations, report concentrations of all constituents listed in 20.6.2.3103 NMAC for any mine waste discharge component to be covered as part of this application. For any industrial or domestic discharges being applied at the facility and to be covered as part of this DP application, report data associated with all facility-specific contaminants of potential concern (COPCs) as well as typical COPCs associated with the waste type. Typical COPCs related to industrial and mining sites include pH, metals, and organic compounds. Typical domestic waste COPCs include nitrate as nitrogen (NO₃-N), total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), and chloride (Cl); For domestic facilities with advanced treatment, additional COPCs include total suspended solids (TSS), biochemical oxygen demand (BOD₅), and fecal coliform bacteria.

Part I.A.6 and 7: Reporting Hydrologic Conditions beneath Facility for Administrative Completeness

The depth to groundwater beneath your facility and/or discharge site must be provided. This is true even if your facility or operation is intended to have no discharge. Discharge Permits are required for “no-discharge” lagoons, storage tanks, etc. because of the potential for a discharge to occur due to factors such as improper installation, poor maintenance, equipment failure or accidents.

The best way to determine the depth to water is to measure it in an on-site or nearby monitoring well. If a monitoring well is not available, the measurement may be from a water supply well. If there is a well but it is not possible to access it for a measurement, you could refer to the well log for that well and/or others in the vicinity. Well log information is available on the website of the State Engineer’s office: <http://www.ose.state.nm.us/>. Be aware that water levels have dropped in many areas of the state, so more recent well logs in those areas are more reliable.

There may be a significant discrepancy in the depth to water in different wells, even when falling water levels is not a factor. One reason for this is that a water supply well may rely on a deep aquifer rather than water in the “first” or most shallow aquifer. Discharge Permits are intended to protect all groundwater, so it is important to report the shallowest depth in the vicinity of your site.

The total dissolved solids (TDS) concentration of the groundwater prior to discharge must be provided. As explained for the depth to water, this is true even if your facility or operation is intended to have no discharge. The TDS value provides a general indication of the quality of the groundwater that could be affected by your operation.

The best way to obtain a pre-discharge TDS concentration is to sample an on-site or nearby well before your facility begins operating. It is better to sample a shallow rather than a deep well, if possible. It may be that a neighboring facility has existing analytical data for its Discharge Permit. (If so, be sure to obtain data from a non-impacted well.)

If there are no wells in your vicinity or it is not possible to sample them, you may find general TDS concentrations in reports available from sources such as a university, the State Engineer’s Office (<http://www.ose.state.nm.us/>) or the US Geological Survey (<http://nm.water.usgs.gov/>).

If you are renewing or modifying your Discharge Permit, you may refer to the TDS concentration previously determined if there was a sound basis for it. Monitoring data or other information obtained since the permit was issued, however, may warrant listing a different value.

Part II.C.1: Determination of Maximum Daily Discharge Volume(s)

Your Discharge Permit will allow for the treatment, processing and/or discharge of up to a specified volume, generally, a maximum number of gallons per day. The flow at your facility on any given day must not exceed this “maximum discharge volume.” It is determined based on the expected contributions from the sources you identify in **Part II.B**.

NMED will carefully review the basis of the maximum discharge volume you propose to verify whether the proposed or existing facility can handle the maximum discharge volume proposed. Show all your calculations and assumptions. Be specific in describing all sources: identify processes including beneficiation, tailing, waste rock, leach facilities, pipelines, ponds, catchments, booster stations, in-situ leach facilities.

You do not need to include solid wastes, hazardous wastes or discharges being managed under other permits; however, if applicable, these must be identified in **Part I.A.4** of this application.

Part II.D.1. Components of a Stormwater Management Plan

A **Stormwater Management Plan** shall be developed to manage impacted stormwater at the facility and to divert run-on of non-impacted stormwater, where practicable. In addition to providing a summary of existing surface water drainage conditions, the plan may also include proposals for one or more of the following activities: (1) the design, construction, and installation of stormwater run-on and run-off diversion structures, and (2) non-routine collection of impacted stormwater, and a description of existing surface water drainage conditions. Proposed activities should be based on:

- the amount, intensity, duration and frequency of precipitation;
- watershed characteristics including the size, topography, soils and vegetation of the watershed; and
- runoff characteristics including the peak rate, volumes and time distribution of runoff events

At a minimum, the **Stormwater Management Plan** shall include the following elements:

- A scaled map of the copper mine facility showing:
 - the property boundaries of the copper mine facility and the mining areas;
 - all existing and proposed structures;
 - existing and proposed final ground surface contours outside of the open pit surface drainage area (OPSDA) at appropriate vertical intervals; and
 - existing and proposed stormwater containment and conveyance structures, including construction materials, size, type, slope, capacity and inlet and invert elevation (or minimum and maximum slopes) of the structures, as applicable.
- Description of existing surface water drainage conditions.
- Description of any proposed post-development surface water drainage conditions.
- Supplemental information including:
 - hydrologic and hydraulic calculations for design storm events;
 - hydraulic calculations demonstrating the capacity of existing and proposed stormwater impoundments;
 - hydraulic calculations demonstrating the capacity of existing and proposed conveyance channels to divert stormwater or contain and transport runoff to stormwater impoundment(s); and

- a list of tools and references used to develop the hydrologic and hydraulic calculations such as computer software, documents, circulars, and manuals.

Part II.D.2: Components of a Material Characterization and Handling Plan

The **Material Characterization and Handling Plan** shall include, at a minimum, the following elements:

- The geologic, mineralogical, physical, and geochemical characteristics of the material stored, deposited or disposed of at the copper mine facility.
- A sampling and analysis plan to provide representative samples of the entire range of material stored, deposited or disposed of at the copper mine facility. The plan shall include quality assurance/quality control procedures to be implemented to ensure the validity of the sample results. The plan shall consider the following factors in collecting and establishing representative samples.
 - lithological variations;
 - particle size distribution of each lithology;
 - hydraulic conductivity, water content and matric suction relationship for each lithology;
 - mineralogical and textural variations;
 - the nature and extent of sulfide mineralization;
 - color variation;
 - degree and nature of fracturing;
 - variations in oxidation and reducing conditions; and
 - the nature and extent of secondary mineralization.
- A static testing program using, at a minimum, acid/base accounting, or a Department-approved equivalent testing method, to evaluate the acid generation and neutralization potential of the material; and meteoric water mobility procedure or other Department-approved method for whole rock testing to determine water contaminant leaching potential.
 - If the results of static testing indicate that a material may be acid generating or may generate a leachate containing water contaminants, a kinetic testing program shall be proposed to evaluate reaction rates, provide data to estimate drainage quality, the lag time to acidification of the material, and primary weathering and secondary mineral precipitation/dissolution as it may affect acidification, neutralization and drainage quality. The length of and means of determining when kinetic tests will be discontinued shall be approved by the Department prior to implementation of the kinetic testing program.
 - If the results of the static testing or kinetic testing indicate that the material will be acid generating or generate water contaminants, and the materials will be placed outside of an open pit surface drainage area, a plan shall be submitted to the Department to evaluate whether discharges of leachate from the stockpile may cause an exceedance of applicable standards, including an evaluation of the geology and hydrology of the area where the material is to be placed. The plan may include either a Department-approved model or other Department-approved demonstration.
 - If an acceptable interceptor system [20.6.7.21.B NMAC] or liner system [20.6.7.17.C.1 NMAC] is proposed for storage or disposal of waste rock, the kinetic testing program *is not required*.

If the results of the material characterization components indicate that any manage waste rock may generate or release water contaminants, then the **Material Characterization and Handling Plan** shall ***also include*** a facility plan on how these leachate(s) will be handled by providing the following additional information:

- segregation of acid generating materials and materials that may generate or release water contaminants and the method for handling, storage or disposal of the materials in a manner designed to prevent an exceedance of applicable standards;

- stockpiling of non-acid generating materials for potential use in neutralizing acid generating materials or in reclamation;
- blending or layering of material types to maximize the benefit of acid neutralizing material;
- any chemical amendments of the waste rock;
- a description of any proposed containment system(s) proposed.

Part II.D.3.b: Past Groundwater Monitoring Results and Refinement of COPCs

A complete list of numeric groundwater standards and recognized toxic pollutants can be found in 20.6.2.3103 NMAC. Pursuant to 20.6.7.11.I NMAC, all mine-related facility discharges must be evaluated for all constituents listed in this section.

Basis for determining a more refined list of COPCs for the facility is provided to the Department as part of the facility **Material Characterization and Handling Plan (Part II.D.2)**. Once approved, this list of COPCs can be incorporated in the development of the **Facility Monitoring Plan (Part II.D.3)**. For example, some groundwater in the state has TDS or chloride concentrations that naturally exceed the published standards. In these instances, the standard may represent the naturally occurring level; however, documentation must be provided of such elevated natural conditions, such as analytical results from a non-impacted well, to make a case for a specific facility.

Part II.D.5: Components of an Interim Emergency Fluid Management Plan

An **Interim Emergency Fluid Management Plan** shall include process water flow charts depicting the following facility operations: electrical system requirements, pump operations, seepage collection, interceptor well systems along with details of all applicable operation and maintenance requirements. The **Interim Emergency Fluid Management Plan** shall be maintained on site and available for Department review and shall be updated, as required, when major process water system changes occur that would affect the execution of the plan.

Part II.E.1.a: Components of a CQA/CQC Plan

The **CQA/CQC Plan** shall include the following elements:

- Identity of persons responsible for overseeing the CQA/CQC program. The person responsible for overseeing the **CQA/CQC Plan** shall be a licensed New Mexico professional engineer with experience in liner system construction and installation;
- an inspection protocol;
- identification of field and laboratory testing equipment and facilities proposed to be used, and calibration methods;
- procedures for observing and testing the liner, subgrade, liner bedding, and other liner system construction material;
- protocol for verification of any manufacturers' quality control testing and procedures;
- procedures for reviewing inspection test results and laboratory and field sampling test results;
- actions to be taken to replace or repair liner material, subgrade, liner bedding, or other liner system construction materials should deficiencies be identified;
- procedures for seaming synthetic liners;
- reporting procedures for all inspections and test data; and
- submission of a CQA/CQC report.

Part II.E.1.b: Contents of a Design Report Required for New Construction of a Storage or Impoundment Feature

A Design Report for proposed new construction of a mine-related storage or impoundment feature (i.e., tailings impoundment, waste rock stockpile) shall include the following elements:

- The annual volumes and daily maximum design rates of discharge approved by the Department to be transferred to the unit
- The topography of the site where the unit will be located
- The geology of the site
- The design footprint and configuration of the unit
- The design of seepage collection systems to be proposed based on consideration of site-specific conditions
- The design of stormwater diversion structures to minimize contact between stormwater run-on and the unit material. The design shall consider the amount, intensity, duration and frequency of precipitation; watershed characteristics including the area, topography, geomorphology, soils and vegetation of the watershed; and run-off characteristics of the watershed including the peak rate, volumes and time distribution of run-off events
- An aquifer evaluation to determine the potential nature and extent of impacts on groundwater from the unit based on the proposed unit design. The aquifer evaluation shall include a complete description of aquifer characteristics and hydrogeologic controls on movement of impacted material drainage and groundwater
- If appropriate (based on the aquifer evaluation), a proposal for the installation of an interceptor system for containment and capture of groundwater impacted by the unit. The interceptor system shall be designed to maximize capture of impacted groundwater and minimize the extent of groundwater impacted by the unit. The proposal shall include, at a minimum, construction drawings and interceptor system performance information, recommended equipment including pumps and meters, recommended pump settings and pumping rates, methods for data collection, and a demonstration that the applicant has adequate water rights to operate the system as designed. A demonstration that the proposed interceptor system design will capture groundwater impacted by the unit such that applicable standards will not be exceeded at monitoring well locations specified by 20.6.7.28 NMAC shall also be included.

Part II.F: Final Design and CQA/CQC Plan Required for Closure

Pursuant to 20.6.7.34.F NMAC and 20.6.7.34.B NMAC, a **Final Design** and **Closure CQA/CQC Plan** must be submitted to the Department for approval at least 60 days prior to construction, including commencement of surface shaping activities, of any area subject to a **Closure Plan (Part II.F)** including, but not limited to: tailing impoundments, waste rock piles, leach stockpiles, and any other area where cover is required under the Department-approved **Closure Plan** and within 180 days of submission of a notice of intent to implement the Department-approved **Closure Plan**. Both the **Final Design** and the **Closure CQA/CQC Plan** must bear the signature and seal of a licensed professional engineer in accordance with 20.6.7.17.A NMAC.

The **Final Design** covers all installation and design aspects of surface regrading and application of cover system activities to be implemented as part of facility closure. The **Closure CQA/CQC Plan** provides the methods and procedures to ensure that closure and post-closure activities will be completed according to the approved **Final Design**.

At a minimum, the **Closure CQA/CQC Plan** must include the following, as applicable:

- detailed engineering designs for stormwater management structures and associated conveyance systems,
- cover design specifications,
- a cover material suitability assessment,
- a borrow source location,
- a rip rap suitability assessment, a rip rap source location,
- a post-reclamation stormwater management plan,
- description of best management practices (BMPs) to be applied during both facility closure and site reclamation to address erosion and stormwater in a manner that meets the requirements of the Water Quality Act and WQCC regulations; and
- a schedule for closure completion.

MECS Application Supplement

Part I.A.2.b: Primary Facility Contacts (Continued)

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____			
Name	_____	Title	_____
Mailing Address	_____		
	City _____	State _____	Zip _____
Contact Information	Office Number _____	Fax Number _____	
	Cell Number _____	E-mail _____	
	Cell Number _____	E-mail _____	
Certification Level (as applicable):			

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____			
Name	_____	Title	_____
Mailing Address	_____		
	City _____	State _____	Zip _____
Contact Information	Office Number _____	Fax Number _____	
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Certification Level (as applicable):			

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____			
Name	_____	Title	_____
Mailing Address	_____		
	City _____	State _____	Zip _____
Contact Information	Office Number _____	Fax Number _____	
	Cell Number _____	E-mail _____	
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Certification Level (as applicable):			

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____				
Name	_____		Title	_____
Mailing Address	_____			
	City	_____	State	_____ Zip
Contact Information	Office Number	_____	Fax Number	_____
	Cell Number	_____	E-mail	_____
	Cell Number	_____	E-mail	_____
Certification Level (as applicable):				

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____				
Name	_____		Title	_____
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	City	_____	State	_____ Zip
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	City	_____	State	_____ Zip
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Certification Level (as applicable):				

Contact Information for: ☐ Facility Manager ☐ Facility Operator ☐ Independent Consultant/Contractor (check all that apply) ☐ Permit Contact ☐ Other (List) _____				
Name	_____		Title	_____
Mailing Address	_____			
	City	_____	State	_____ Zip
Contact Information	Office Number	_____	Fax Number	_____
	Cell Number	_____	E-mail	_____
	Cell Number	_____	E-mail	_____
Certification Level (as applicable):				

Part I.A.7: Pre-Discharge Total Dissolved Solids [TDS] Concentration in Groundwater
(Continued)

(1) Groundwater System 5: (Name/ID; e.g., "Shallow-1")_____

- Pre-discharge TDS concentration in groundwater: _____ mg/L (ppm)
☐ Attached – Copy of laboratory analysis report (*required for copper mine facilities*)
- From what source(s) was the sample(s) collected (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the facility)?

_____ The location(s) of this source(s) is identified on the following map (Name): _____

(2) Groundwater System 6: (Name/ID; e.g., "Shallow-2")_____

- Pre-discharge TDS concentration in groundwater: _____ mg/L (ppm)
☐ Attached – Copy of laboratory analysis report (*required for copper mine facilities*)
- From what source(s) was the sample(s) collected (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the facility)?

_____ The location(s) of this source(s) is identified on the following map (Name): _____

(3) Groundwater System 7: (Name/ID; e.g., "Intermediate")_____

- Pre-discharge TDS concentration in groundwater: _____ mg/L (ppm)
☐ Attached – Copy of laboratory analysis report (*required for copper mine facilities*)
- From what source(s) was the sample(s) collected (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the facility)?

_____ The location(s) of this source(s) is identified on the following map (Name): _____

(4) Groundwater System 8: (Name/ID; e.g., "Deep")_____

- Pre-discharge TDS concentration in groundwater: _____ mg/L (ppm)
☐ Attached – Copy of laboratory analysis report (*required for copper mine facilities*)
- From what source(s) was the sample(s) collected (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the facility)?

_____ The location(s) of this source(s) is identified on the following map (Name): _____

Part I.C: Facility Ownership and Real Property Agreements (Continued)

Contact Information for: ☐ Facility Owner/Co-owner ☐ Corporate Partner ☐ Property Owner (check all that apply) ☐ State Land ☐ Federal Land ☐ Other (List) _____	
Name _____	Title _____
Mailing Address _____	
City _____	State _____ Zip _____
Contact Information	Office Number _____ Fax Number _____
	Cell Number _____ E-mail _____
Owns	☐ The facility ☐ A discharge site ☐ Attached – lease (or other authorized use) agreement <i>Label as “Attachment IC-1”</i>

Contact Information for: ☐ Facility Owner/Co-owner ☐ Corporate Partner ☐ Property Owner (check all that apply) ☐ State Land ☐ Federal Land ☐ Other (List) _____	
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