



## *Suggested Practices for Wastewater Treatment Lagoon Systems*

The Water Quality Control Division (the Division) at the Colorado Department of Public Health and Environment regulates the discharge of wastewater from lagoon treatment systems in Colorado. Under Regulation No. 61, *Colorado Discharge Permit System Regulations*, owners or operators of lagoon treatment systems are required obtain a wastewater discharge permit from the WQCD. Discharge permit application forms are available for download at: <http://www.cdphe.state.co.us/wq/PermitsUnit/landD/index.html>.

This guidance document provides suggested practices for properly operating and maintaining lagoon treatment systems in order to comply with typical requirements of a discharge permit. The document is not all inclusive and should be used only as a guide in meeting the Division's compliance expectations.

### **Suggested Practices:**

- Properly operate and manage the wastewater treatment facility at no greater than its maximum treatment capability. Ensure that the total average influent flow to the lagoon does not exceed system's design "average influent daily flow." Ensure the organic load does not exceed the system's design "organic loading capacity" (in terms of BOD<sub>5</sub> per day). Keep a logbook to demonstrate the average and maximum daily flows and the average and maximum organic loadings for each month of operation.
- Maintain a logbook to demonstrate proper operation and maintenance of all facilities and systems of treatment and control.
- The facility is to be operated by a certified Class "D" operator per Section 100.5.2 of the Water and Wastewater Facility Operators Certification Requirements.
- Conduct daily checks of the water levels in each pond. At a minimum, take water level readings in the pond on a weekly basis. Maintain a logbook of water level readings.
- Maintain no less than one foot of freeboard in each pond.
- Manage water levels in the pond so that there is adequate prevention against overflows or bypasses. Any time that the embankments are overtopped this is regarded as an illegal discharge; it is not regarded as an "upset". An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. A spill or an unanticipated bypass shall be reported orally within twenty four (24) hours from the time the permittee becomes aware of the circumstances, and a written report mailed within five (5) days of the time the permittee becomes aware of the circumstances.
- To ensure pond integrity, make a weekly inspection of the pond to check for embankment erosion, rodent holes and plant growth. Plants and trash are to be eliminated from the pond surface and embankments. Note any of these situations and perform the necessary corrective action. Inspect the structural integrity of the fence around the pond to prevent animals or children wandering into the cells. Ensure that warning signs are posted at the required interval of 200 feet. Maintain a log of any repair/maintenance work performed on the fence.

- Make every effort is made to prevent hazardous waste, toxic waste or septage from entering the wastewater treatment facility.
- Inspect the sludge level in the clarifier and the ditch in order to know when to waste sludge.
- If the treatment system has a grease trap, properly inspect and maintain the trap. Grease coming from a kitchen in a restaurant or cafeteria is not allowed to flow directly into the oxidation ditch. The discharge from a garbage disposal should not pass through a grease trap.
- Do NOT send the flow from roof drains, foundation drains or other sources of drainage to the oxidation ditch or ponds.
- Inspect manholes on a periodic basis to ensure that snowmelt and sheet flow from rainstorms is not flowing into the manhole. Maintain a log of the inspection dates and person performing the inspections.
- If the facility has a lift station, the operator is to perform an inspection on a routine basis of the lift station and the pumps contained therein. The operator is to make note of any problems and note what repairs have been made and what date the repairs were made and by whom. Enter this information into the logbook.
- Calibrate the flow measuring device (and sensor) on an annual basis. Maintain a "report form" to present the results of the flow accuracy verification testing. The report form may be required to be submitted to the Division within twenty-eight days after accuracy testing/verification. It is suggested that the report form provide the date and name of the person(s) making the accuracy Check/Calculation for the influent/effluent flow meter. The report form is to contain the date and time of the test, the air and water temperatures, the method of measuring actual flow into/out of the facility, the amount of gallons measured by meter, plus a calculation or a computer print out demonstrating conformance to the "within 10% of actual flow" requirement. Perform a minimum of one annual on-site flow verification during one of the winter months, when the outside temperature is at or near freezing. During the next year, perform a minimum of one annual on-site flow verification during the summer months, when the temperature is near/above 90 degrees F. Maintain flow accuracy verification on alternating years and alternating seasons.
- It is suggested that the operator maintain a log to document the description of any operational problems with the facility during the year, such as power outages, failures of mechanical components, overflows, flow meter problems, lagoon fences, etc. Such description shall also include preventive maintenance activities undertaken during the year such as removal of sludge from the ditch, the clarifier and the ponds, plus any repairs made to the facility.
- Verify the elevation of measuring mark on the monitoring wells. The elevations are to be referenced to local benchmarks. The Division may request drawings illustrating the location and elevation of the bench mark(s) plus the elevation of the measuring mark on each of the monitoring wells be submitted after completion of the survey. The elevation of the measuring marks for each monitoring well should be re-surveyed on an annual basis or after any mishap/alteration that would result in an elevation change at the measuring mark. Include all of this information a logbook.
- Proper and timely completion and submission of the Discharge Monitoring Reporting Forms (DMR) should be done on a monthly/quarterly basis, or as required in the permit. Keep a logbook with all required Discharge Monitoring Report (DMR) forms required under the permit.