

NEBRASKA

DEPT. OF ENVIRONMENT AND ENERGY

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Guidance for Land Application Discharges of Treated Domestic Wastewater

Land application sites and effluent meeting the requirements, limitations, prohibitions or conditions set in Nebraska Administrative Code *Title 119, Chapter 12* are eligible to land apply under the Authorization by Rule provided all of the requirements, conditions, limitations and prohibitions contained in the chapter or any other regulation contained in Title 119 pertaining to the land application itself, the land application site and the aforementioned land application materials are observed. The requirements of Title 119, Chapter 12 are available on the Department website [here](#).

Please review and verify the following requirements prior to land applying treated effluent:

A. Facultative Wastewater Lagoons

- The lagoon system has at least two cells.

B. Setbacks and Buffer Zones

- There are no public drinking water wells within 500 feet of the application area.
- There are no private drinking water wells within 100 feet of the application area.
- Effluent is not applied to sites less than 100 feet from any inhabited dwellings.
- Land application sites are not located within or adjacent to residential areas.
- Effluent is not allowed to exceed the land application site boundaries.
- Effluent application, runoff, or spray is not allowed on public roadways.

C. Soil and Crop Criteria

- Treated effluent will be land applied at an agronomic rate. Agronomic rate is defined as the application rate of nitrogen to meet the estimated nitrogen requirements of the crop being produced based on past or projected yields. In determining the agronomic rate, the permittee shall consider the nitrogen content of the wastewater, available nitrogen in the soil, and the amount of nitrogen from commercial fertilizer. Any laboratory testing or other documentation regarding the determination of agronomic rate for the land application site shall be retained by the permittee. Documentation shall be made available immediately upon request to NDEE (see 'Agronomic Rate Analysis' below).
- Treated wastewater will not be applied to crops that are intended for distribution in their raw form for direct human consumption (e.g. fresh produce).

D. Land Application Site Prohibitions

- Land application will not be conducted when the ground is frozen or saturated.
- Land application sites have a slope of 12% or less.
- Surface runoff of effluent is prohibited. Application of wastewater will cease immediately if ponding or runoff occurs.
- Land application sites are free of perennial or intermittent streams, ponds, lakes, or wetlands.

E. Groundwater Criteria

- There shall be no impairment to the beneficial uses of ground water. Any substance introduced directly or indirectly by human activity shall not be allowed to exceed the applicable standards for ground water as set forth in [NAC Title 118, Chapter 4](#).
- The distance of land surface to the seasonal high groundwater level as specified either by a soil survey map or well logs is, at a minimum, greater than 4 feet.
- Where the potential for ground water contamination is a concern, NDEE may require monitoring wells to be installed and ground water monitoring to be conducted.

F. If Applying to Public Access Sites

- Public access to the land application site is prohibited during the actual land application event.
- Signage is located at the land application site(s) containing language prohibiting public access during a land application event and informing the public that effluent is used on the site(s).
- The treated effluent is disinfected prior to land application in an unrestricted public access area. If chlorine or a chlorine compound is used as the disinfection agent, the treated effluent is dechlorinated prior to land application.

G. Limitations

- The total hydraulic application rate (flow) shall be based on weekly local crop uptake values. The total hydraulic application rate shall not exceed 2 inches per acre (54,304 gallons) per week. Crop uptake information may be obtained through the County Extension Office or the Natural Resource District.
- Effluent that is land applied to unrestricted public access sites shall not exceed limits for fecal coliform bacteria of 200 CFUs / 100 ml for a monthly average and within a month, no more than 10% of the samples shall exceed 400 CFU/100 mL. The monthly average shall be calculated as the geometric mean. Invalid test results for fecal coliform colonies, such as "too numerous to count" (TNTC), will not be accepted and the permittee must retest within 24 hours after obtaining invalid results. The Department shall be notified within 24 hours of a TNTC or other invalid result. The results of the laboratory analysis shall be recorded in the log. A copy of the laboratory analysis shall be attached to the land application log entry.
- Treated effluent shall be land applied at an agronomic rate. Agronomic rate is defined as the application rate of nitrogen to meet the estimated nitrogen requirements of the crop being produced based on past or projected yields. In determining the agronomic rate, the permittee shall consider the nitrogen content of the wastewater, available nitrogen in the soil, and the amount of nitrogen from commercial fertilizer. Any laboratory testing or other documentation regarding the determination of agronomic rate for the land application site shall be retained by the permittee. Documentation shall be made available immediately upon request to the Department.

- NDEE recommends working with a crop consultant or agronomist to determine the agronomic rate. Soil sampling may be required before the crop is planted and before the application of any commercial fertilizers to determine the amount of available nitrogen already in the soil and the nitrogen requirements of different crop or vegetation types. A copy of your consultation or agronomic report shall be attached to the land application log entry.

H. Monitoring Frequency and Other Information

- The monitoring frequency for restricted public access sites shall be, at a minimum, annually. Restricted public access sites refer to areas where public access can be controlled such as crop and pasture land. The effluent shall be sampled on the first day of land application.
- The monitoring frequency for unrestricted public access sites shall be, at a minimum, once during the first week of the initial land application (irrigation) event and once every month thereafter for all parameters except flow. Unrestricted public access sites refer to areas where public access is not restricted such as parks and playgrounds.
- The effluent shall be monitored for the following parameters:
 - Flow
 - pH
 - Total Kjeldahl Nitrogen
 - Nitrate as Nitrogen
 - Ammonia as Nitrogen
 - Fecal coliform (for unrestricted public access sites)
 - Total Dissolved Solids
 - Chloride
 - Phosphorus
 - Sodium Adsorption Ratio (SAR)
- Ensure the monitoring information includes:
 - The date(s), exact place, time, and methods of sampling or measurements
 - The individual(s) who performed the sampling or measurements
 - The date(s) analyses were performed
 - The individual(s) who performed the analyses, or the lab who performed the analyses
 - The analytical techniques or methods used
 - The results of the analyses

NDEE NPDES Treated Domestic Wastewater Land Application Log

Fill out one form for each land application site.

Land Application			
Site Address and/or Parcel ID			
Legal Description			
Acres			
Total Volume Water Applied (gal)		Days Water Applied (# of days)	
Site Access: <input type="checkbox"/> Restricted public access <input type="checkbox"/> Unrestricted public access (disinfection is required)			
If disinfection required, type of disinfection			
Date(s) discharge initiated			
Date(s) discharge ended			
Inches per acre per week of application			
Total Nitrogen Application Requirements			
Crop at Site (type)		Yield (bushels)	
1. Crop Total Nitrogen Requirement (lbs/acre)		1.	
2. Wastewater N Application (lbs/acre)		2.	
3. Solids N Application (lbs/acre)		3.	
4. Other N Sources / Commercial Appl (lbs/acre)		4.	
Total Nitrogen Balance (lbs/acre)		*	
*This cell is the result of subtracting cells 2-4 from cell 1 (Total of Cells 2-4 are Total N Credits)			
Attachments to be kept in application record			
<input type="checkbox"/> Copy of laboratory analysis			
<input type="checkbox"/> Copy of agronomic consultation or agronomic report (if required)			
Other Information from Land Application Event			