



**FORM R – PERMIT APPLICATION FOR LAND APPLICATION
 OF INDUSTRIAL WASTEWATER BIOSOLIDS AND RESIDUALS**

FOR AGENCY USE ONLY	
PERMIT NUMBER	MO - _____
DATE RECEIVED	_____

INSTRUCTIONS: FORMS A and C or F (CAFOs) (and D where applicable) must also be submitted for land application of industrial wastewater sludge biosolids or residuals. **Submit FORMS E and G** for land disturbance permit if construction areas total five acres or more.

Attach **FORM I**, if wastewater will be land applied or irrigated.

1.00 FACILITY INFORMATION

1.1 FACILITY NAME _____

- 1.2 Application for: Construction Permit (attach Engineering report, Plans and Specifications per 10 CSR 20-8.020)
 Operating Permit (if no construction permit, attach engineering documents)
 Date Land Application System Began Operation: _____
 Operating Permit Renewal

1.3 Months when the business or enterprise will operate or generate sludge or residuals:
 12 months per year Part of year (list Months): _____

1.4 List the Facility outfalls which will be applicable to the land application system from outfalls listed on Form A, C, D and F.
 Outfall Nos. _____

2.00 STORAGE BASINS

2.1 Number of storage basins: _____ Type of basin: Steel Concrete Fiberglass Earthen
 Earthen with membrane liner

2.2 Storage basin dimensions at inside top of berm (feet): Report freeboard as feet from top of berm to emergency spillway or overflow pipe.

(Complete Attachment A: Profile Sketch)

Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Berm Width _____ % Slope _____
 Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Berm Width _____ % Slope _____

2.2.1 Storage basin volumes (gallons): Permanent volume means two foot water depth for seal protection, and any required treatment volume capacity.

Basin #1: Gallons: _____ Permanent Volume + _____ Storage = _____ Total volume (gallons)
 Basin #2: Gallons: _____ Permanent Volume + _____ Storage = _____ Total volume (gallons)

2.3 Storage Basin operating levels (report as feet below emergency overflow level)

Basin #1: Maximum water level _____ ft. Minimum operating water level _____ ft.
 Basin #2: Maximum water level _____ ft. Minimum operating water level _____ ft.

2.4 Storage Basin design storage capacity: (storage between minimum and maximum operating levels for 1-in-10 year stormwater flows.)

Basin #1: _____ days Basin #2: _____ days Basin #3: _____ days

2.5 Attach Water Balance Test results to verify earthen basin seal in accordance with 10 CSR 20-8.020(13) and (16), when required by the department.

2.6 Attach a sludge management plan for materials that are not land applied.

2.7 Attach a closure plan for lagoons, storage basins and treatment units.

3.00 LAND APPLICATION SYSTEM

3.1 Number of application sites _____ Total Available Acres _____ Minimum & Maximum % field slopes _____

Location: _____ ¼ _____ ¼ _____ ¼ _____ Sec. _____ T _____ R _____ County _____ Acres
 Location: _____ ¼ _____ ¼ _____ ¼ _____ Sec. _____ T _____ R _____ County _____ Acres

Attach extra sheets as necessary.

3.1.1 Type of vegetation: Grass hay Pasture Timber Row crops Other (describe) _____
 Specific Crops and Yields/acre: _____ Goal: _____ Actual for last five years: _____

4.3 List of raw materials, chemicals, additives, products and by-products (Attach extra sheets as necessary.)

4.3.1 Attach the following forms for wastewater to be land applied.

FORM C or F is required for all applicants. Use Form F for CAFOs.

FORM D is required for those industries listed in the Form D instructions or when required by the department.

Use actual testing results within last 12 months. For new operations use testing results from other similar operations or from published literature.

4.3.2 Are there any listed hazardous wastes in the material to be land applied: YES NO (If YES, attach testing results)

4.4 A. Are any Pollutants listed in 40 CFR 268.40 believed to be present in detectable concentrations: YES NO

B. Are any Pollutants listed in 10 CSR 20-7.031 believed to be present in detectable concentrations: YES NO

C. Are any Pollutants listed in EPA Process Design Manual for Land Treatment of Municipal Wastewater publication EPA-625/1-81-013, Table 4-5 and Table 4-16 believed present in detectable concentrations: YES NO

(Attach a copy of testing results for any pollutants that may be present in detectable concentrations.)

4.5 Environmental Assessment. Do any of the pollutants detected exceed the criteria for pollutant concentrations of limitations contained in the publications referenced in Section 4.40 of this form?: YES NO

If YES, attach a copy of the Environmental Assessment as required in 10 CSR 20-8.020(3)(D).

5.00 SOIL TESTING RESULTS: Complete information for each pollutant listed and each land application site. Attach results of any other soil testing performed in the last 12 months. Soil sampling and testing should conform to University publication G9110, Sampling Your Soil for Testing; Soil Test Procedures for North Central Region (North Dakota Agricultural Experiment Bulletin 499-Revised); Methods of Soil Analysis, American Society of Agronomy, Inc.; Soil Testing and Plant Analysis, Soil Science Society of America; EPA Methods; or other methods approved by the department. Attach extra sheets as necessary.

Total area sampled is ____ acres. Each composite sample covers ____ acres. Each composite consists of ____ subsamples.

Sample depth: 0-6 inches 0-12 inches Other (describe) ____

Pollutant	Concentration (mg/kg or ppm)			Pounds/ Acre	No. Composite Samples	Sample Period
	Minimum	Maximum	Average			
Organic Nitrogen as N						
Ammonia Nitrogen as N						
Nitrate Nitrogen as N						
Phosphorus as P (Bray 1P)						
Exchangeable Sodium %						
Organic Matter (percent)						
Cation Exchange Capacity						
pH (standard units)						

Other pollutants present in the material to be land applied: (Attach extra sheets as necessary)

6.00 LAND LIMITING CONSTITUENTS FOR LAND APPLICATION

6.1 Metals of Concern for Land Application. Complete information for each pollutant listed.

Analysis results must be for "Total Metals". (Do **not** use TCLP, dissolved, total recoverable or other extraction methods.

Include all test results for the last five years and a minimum of four separate samples.

Pollutant (total metals)	Concentration (mg/kg dry weight)			Design LBS/ Acre/Year	Type of Samples	Number Samples	Sample Location	Sample Period
	Minimum	Maximum	Average					
Aluminum								
Arsenic								
Beryllium								
Cadium								
Chromium								
Copper								
Fluoride								
Lead								
Manganese								
Mercury								
Molybdenum								
Nickel								
Selenium								
Silver								
Tin								
Zinc								

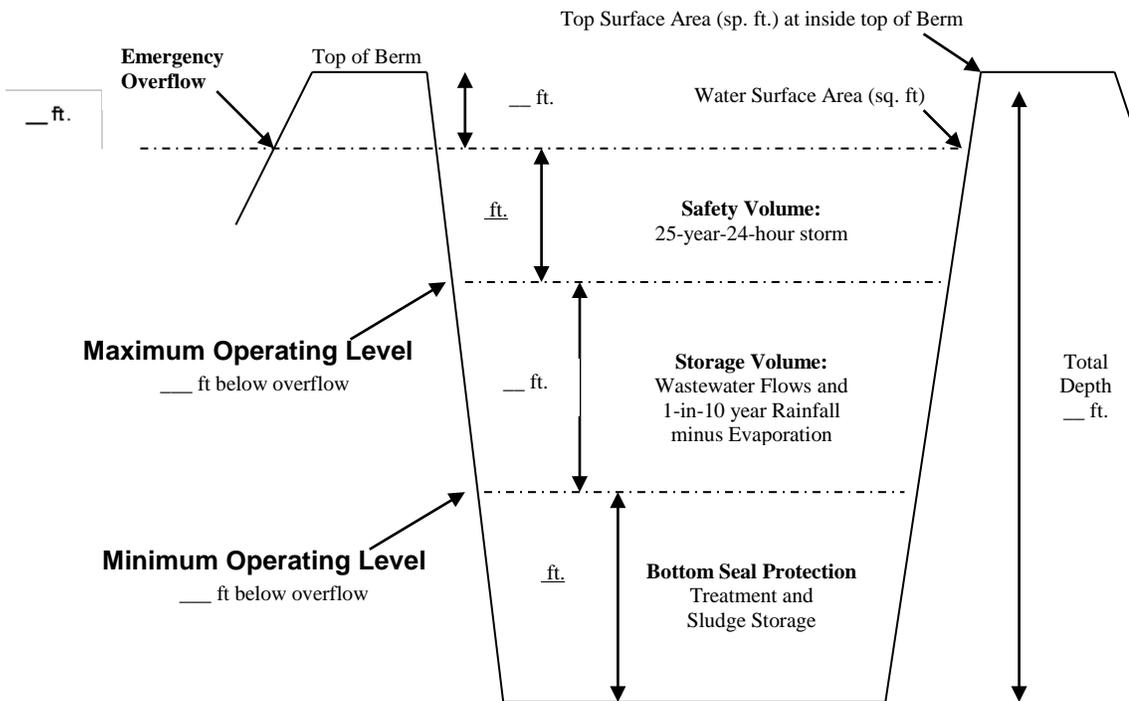
6.2 Major Pollutants of Concern for Land Application. Complete information for each pollutant listed. Include any other pollutants that are most limiting for determining land application rates. Attach extra sheets as necessary.

Organic Nitrogen as N								
Ammonia Nitrogen as N								
Nitrate Nitrogen as N								
Total Nitrogen as N								
Plant Available Nitrogen (PAN)								
Total Phosphorus as P								
Boron								
Chlorides								
Sodium								
COD								
TPH								
Total Suspended Solids								
Oil and Grease								
Sodium Absorption Ration (SAR)								
pH (standard units)								

ATTACHMENT A

(To be included with Form I and Form R)

Lagoon or Storage Basin PROFILE SKETCH



Definition of Terms (Refer to the profile sketch above.)

- Freeboard is depth from top of berm to emergency spillway (minimum 1 foot).
- Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot).
- Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
- Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.
The minimum operating level may be greater than 2 feet when additional treatment volume is included.
- Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
- Total Depth is from top of berm to bottom of basin including freeboard.