IOWA DEPARTMENT OF NATURAL RESOURCES

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Iowa Wastewater Facilities Design Standards Update

Chapter 14 – Wastewater Treatment Works

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Ch. 14 - Proposed Changes

- **Section 14.1.3.2 - Definitions**
  - **Innovative Technology**
  - **Outfall**
  - **Professional Engineer**
  - **Public Use Area**
  - **Raw Wastewater**
  - **Technology Not Fully Developed**
  - **Treatment Works**
  - **Viable**

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- **Section 14.2.4 - Anaerobic Wastewater Treatment Lagoons**
  - **1,250 feet from residences or public use areas (100,000 gpd or less)**
  - **1,875 from residences or public use areas (greater than 100,000 gpd)**

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- **Section 14.2.5 - Separation Distance Exceptions**
  - **Remote Pumping Station**
  - **Remote Subsurface Wet Weather Equalization Basin**
  - **Office or Laboratory Buildings**
  - **Wetted Disposal Area for Land Application (per Chapter 21)**

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- **Section 14.2.5 - Separation Distance Exceptions (continued)**
  - **Wastewater Facilities for Water Treatment Plants**
  - **Boiler or Cooling Tower Blow Down Holding or Flow Regulating Basins**
  - **(These Exceptions do not apply to Stripping Towers for Wastewater Treatment)**

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- **Section 14.2.6 - Flood Protection**
  - **Protect structures and electrical equipment to the 100 year flood elevation plus 1 foot**
- **Section 14.4.1.3 - Prohibited Wastes**
  - **Any waste with a closed cup flashpoint of less than 140 degrees**
- **Section 14.4.2 - Pre-Design Meeting**
  - **Appendix 14-C (Mechanical Treatment Facilities)**

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- **Section 14.4.3 - New Process, Equipment and Application Evaluation and Contingency Plan**
  - **Criteria for the Review of an Innovative Technology**
  - **If Necessary, Protocol for Appropriate Testing**
  - **Contingency Plan (Perhaps if Less than 3 Full Scale Facilities)**

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- **Section 14.4.5.1 - Critical Flow Conditions, Municipal**
  - **Maximum Seven Day Wet Weather (MSDWW) flow**
- **Section 14.4.5.2 - Existing System, Municipal**
  - **At least 5 years of Flow Data Recommended**

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- **Section 14.4.5.5 - Wet Weather Flow Equalization**
  - **Return Flows to the Treatment Plant in a Timely Manner During Off-Peak Periods**
  - **Where feasible, a plant hydraulic capacity equal to or exceeding the wettest 7 days of record is recommended**
  - **In no case, shall the plant hydraulic capacity be less than the AWW flow**

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- **Section 14.4.6.1 Domestic Loadings**
  - **TKN Design Loadings for Incremental Growth**

- **Section 14.4.6.2 - Industrial Loadings**
  - **Discussion on variability of organic loadings, especially small plants and periodic processes**

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- **Section 14.4.6.3 - Other Loadings**
  - **Identify**
- **Section 14.4.8.8 - Sludge Disposal During Construction**
  - **Present Acceptable Plan**

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- **Section 14.5.1 - Facility Reliability Classes**
  - **Updated descriptions of the receiving streams based on current use designations**
- **Section 14.5.2.2 - Unit Process Reliability Criteria B**
  - **Two stage nitrification includes intermediate clarification**

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- **Section 14.5.3 - Power Source Reliability**
  - **Recommendation to use an emergency generator where both substations may lose power**
  - **If natural gas is proposed, an emergency generator that can run on multiple fuel supplies should be considered**
  - **Exception for aerated lagoons to not provide backup power for disinfection has been eliminated**

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- **Section 14.6.1 - Discharge Impact Control**
    - **Cascade Aeration**
    - **Limited or across-stream dispersion**

- **Section 14.6.3 – Sampling**
    - **Effluent Sampling Prior to Disinfection is Required, except UV Disinfection**

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- **Section 14.6.4 - Effluent Diffuser System**
  - **May be considered to eliminate acutely toxic conditions in the receiving stream**
  - **The treatment plant should be designed to meet average effluent limits at any time**
  - **Pumping is required to ensure adequate head**

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- **Section 14.6.4 - Effluent Diffuser System (continued)**
  - **The orifice velocity should be 10 feet per second if the risers may become covered with sand and mud**
  - **Recommendations are provided for port sizing and location**
  - **Risers shall discharge below the low water surface of the receiving stream**

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- **Section 14.6.4 - Effluent Diffuser System (continued)**
  - **Reliability shall be considered**
  - **Manifolds must be placed below the natural stream bed**
  - **Location of the diffuser in the river shall be posted**

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- **Section 14.7.2 - Flow Measurement**
  - **Where continuous flow measurement is provided, the design should record the maximum hourly flow during any 24 hour period and the peak instantaneous flow every minute**
  - **“H” flume recommended for flow measurement at small systems**

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- **Section 14.7.2 - Flow Measurement (continued)**
  - **Extra flow measurement will be required if influent and effluent flows are different (such as sequencing batch reactors or plants with excess storage or flow equalization)**
  - **Magnetic flow meters will be accepted**
  - **Elapsed time meters will be limited to systems serving 500 PE or less**

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- **Section 14.7.3 - Sampling Equipment**
  - **Provide as necessary to meet Discharge and Influent Monitoring Requirements**
  - **Influent Sampling shall be at the Plant**
  - **Composite Samplers shall meet the Electrical Requirements of Section 13.4.7**
  - **Include Provisions to report the amount and rate of Septage**

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- **Appendix 14A - Recommended Process Pipe Color Coding (updated)**

- **Appendix 14B - Recommended Laboratory Guidelines**
    - **Additional laboratory monitoring may be required on a case by case basis**
    - **Delete mention of Asbestos Floor Surfaces**

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- **Appendix 14B - Recommended Laboratory Guidelines (continued)**
    - **Air Intake and Exhaust should maintain positive air pressure in the Laboratory**
    - **Microscope (added)**
    - **Balance and Table (added)**
- **Appendix 14C – Mechanical Treatment Facilities**
    - **Summary of Section 14.5**