



Iowa Department of Natural Resources  
 Wastewater Section  
 Construction Permit Application  
**SCHEDULE H3, Mechanical Plant Reliability**

DNR USE ONLY  
 Project No. \_\_\_\_\_  
 Permit No. \_\_\_\_\_

Date Prepared _____	Project Identity
Date Revised _____	

- Where duplicate units are not provided, is there a properly located and arranged bypass structure provided so that each unit operation of the plant can be independently removed from services?  Yes  No
- Where duplicate units are provided, is there a central collection or distribution including proportional flow splitting provided for the wastewater flows before each unit operation?  Yes  No
- Where sludge return to a biological unit is utilized, is there a central collection and distribution point including proportional flow splitting provided for the return sludge flows?  Yes  No
- Where duplicate units are provided, is each unit operation designed such that, with the largest unit out of service, the hydraulic capacity of the remaining units and their interconnecting piping is capable of handling the peak hourly wet weather flow?  
 Yes  No
- Where duplicate units are provided, is there system flexibility to allow wastewater flows to bypass down units but still be distributed to the remaining in-service units?  Yes  No
- With the largest unit in a unit operation out of service, the remaining units have a design load capacity of at least what percent of the total design loading to that unit operation?

Unit Operation %	Unit Operation %
_____	_____
_____	_____
_____	_____

- The following concerns reliability of aeration equipment:
  - Diffused Aeration System**
    - Are the blowers provided in multiple units in such capacities so that the maximum air demand is met with the single largest blower out of service?  Yes  No
    - Bottom Diffusers  
 If the plant contains less than four aeration tanks, are removable diffusers incorporated so that they can be services and/or replaced without dewatering the tank?  Yes  No  
 Can the largest section of diffusers in a basin be isolated without losing more than 25% of the oxygen transfer capability in the system?  Yes  No  
  
Jet Diffusers  
 If only one aeration tank is provided, is a complete spare aeration system (pumps and aerators) provided onsite and capable of being installed with dewatering the tank?  Yes  No  
 If two or more tanks are provided, state the percent of oxygen transfer capability of the system with the largest aeration unit inoperable:  
 \_\_\_\_\_ %  
 If less than 75% is a spare aeration system (pumps and aerator) provided?  Yes  No
  - Mechanical Aeration System**
    - Is there a sufficient number of aerators to enable the design oxygen transfer of a particular basin to be maintained with the largest capacity unit in the basin out of service?  Yes  No  
 Is the backup unit  Installed or  Uninstalled
    - Are there at least two installed aerators per unit operation?  Yes  No
    - If only one aeration tank is provided, can aerator replacement be accomplished without dewatering the tank?  
 Yes  No