**Section 370.915 Rotating Biological Contactors**

a) General

Wastewater treatment facilities that propose to use rotating biological contactors (RBCs) shall submit to the Agency for review field experience and operational data that demonstrates that observed problems with the process have been solved at similar full scale installations. The Agency will review the claimed field experience against known field conditions and the operational history of observed problems at similar facilities.

b) Mechanical Reliability and Structural Integrity

1) The mechanical and structural reliability of the shafts and media subjected to cyclic stress reversals must be demonstrated relative to the design life of the plant and the known weight of the machines based on field experience.

2) The design must show that film thickness will be effectively controlled throughout all parts of the media pack to prevent excessive film weight and water pickup weight due to plugging restrictions. The equipment design must include load cells to warn of the need for film thickness control and to demonstrate the effectiveness of the proposed film thickness control practices.

c) Process Reliability

1) Process reliability must be demonstrated, including proven operational control procedures relative to design organic loadings for the unit media area or volume, which satisfactorily insure that the applicable effluent standards are met. The process design shall also include proven operational control procedures that will prevent process functional deficiencies and media plugging that cause the weight to exceed shaft and media structural capabilities during the design life of the plant.

2) The design must show that adequate void clearance (as distinguished from void ratio) is provided to insure that the biological film, including any grease and fats that may accumulate, will not interefere with the flow of liquid and air in the media pack. The Agency will compare the RBC designs under review to past experience with designs used for plastic trickling filter media to accomplish adequate void clearance.

3) The design shall provide for maintaining a minimum of 2.0 mg/l dissolved oxygen in the basin liquor. The effectiveness of the proposed method for maintaining adequate dissolved oxygen will be evaluated based on field experience at similar full scale installations.

4) If pilot testing is proposed, the size of the RBC pilot plant unit and the scope and duration of the testing program on the specific waste that will be treated must be thoroughly documented. The proposed pilot testing program should be submitted to the Agency for comment prior to the initiation of testing. The RBC pilot units must be of prototype scale. Because of differential seasonal weight and plugging field problems, the test period must cover the four seasons, to allow the Agency to evaluate the proposed design against the experience of existing full scale plants.

5) The process design must include provisions for meeting applicable effluent limits with some units out of service for unit repair, biofilm thickness control, out-of-balance correction and other operational problems. Added units for standby credit will be required to insure compliance with effluent limitations and to prevent mechanical or structural failures during periods of unit outage for maintenance, repair, or process control purposes.

(Source: Added at 21 Ill. Reg. 12444, effective August 28, 1997)