



**STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



Clean Water Fund Memorandum (CWFM - 4)

May 2, 2002

To: All Connecticut Municipalities and Consultants

Re: Thirty percent (30%) Grant for construction costs related to BNR removal

The following list outlines the processes and their maximum eligibility for 30% grant monies required by the latest changes to Section 22a-478 (c) of the General Statutes of Connecticut for BNR construction projects:

1. Preliminary treatment zero %
2. Primary treatment zero %
3. Secondary treatment:
  - a. Methanol feed systems 100 %
  - b. Baffles - Anoxic zones 100 %
  - c. Recycle pumps, VFDs, & associated piping 100 %
  - d. Anoxic zone mixers 100 %
  - e. Additional tankage or an increase in size of tankage - increased costs associated with BNR to be evaluated using TR-16.  
If a facility is already designed to operate in year-round nitrification mode no additional grant will be provided. If a facility is already designed to operate in a seasonal nitrification mode the additional tankage required to meet year-round nitrification and denitrification will be eligible.
  - f. Blowers, piping, diffuser grids, & associated equipment - increased costs associated with BNR to be evaluated based on the increase in oxygen needed at 20 year average daily design flow. Increased oxygen needed for nit/denit is approximately:  
  
 Secondary:  $1.1 \text{ ppm} \times \text{lbs BOD} = 1.1 \text{ ppm} \times (200 \text{ ppm} \times 0.65) = 1193 \text{ lb/MG}$   
 Nit:  $4.6 \text{ ppm} \times \text{TKN} = 4.6 \text{ ppm} \times 25 \times 8.34 = 960 \text{ lb/MG}$   
 Nit/denit:  $(4.6 \text{ ppm} \times \text{TKN} - 2.9 \text{ ppm} \times \text{NO}_3) \times 8.34 = 960 - (2.9 \text{ ppm} \times 20 \times 8.34) = 960 - 484 = 476 \text{ lb/MG}$   
  
 This shows an 80% increase needed over secondary for nitrification only and a 40% increase over secondary needed for nit/denit.  
  
 Facilities with O<sub>2</sub>, TKN and/or NO<sub>3</sub> values that differ significantly from the above values will be required to supply appropriate backup information to justify a departure to the above assumptions.
  - g. Return sludge pumps - increased costs associated with BNR to be evaluated using TR-16.
  - h. High biomass - increased costs associated with BNR to be evaluated using TR-16. If the high biomass is necessary only for nit/denit it would be eligible. If the biomass is to alleviate capacity problems as well as nit/denit the eligible amount will be prorated.

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4. Secondary clarifiers:
- a. Density current baffles 100%
  - b. Additional tankage - increased costs associated with BNR to be evaluated using a maximum SOR of 1200 gpd/sf for straight secondary and 800 gpd/sf for AWT.
5. Denitrification Filters 100%
6. Intermediate pumping - If necessary for hydraulic profile due to added BNR facilities 100%
7. Laboratory nutrient testing equipment - not to include autoanalyzers 100%
8. Solids handling/processing zero%
9. Sitework:
- a. Demolition, dewatering, & piles - if required to construct BNR facilities 100%
  - b. Other - piping, bedding, restoration, . . . to be determined with the following formula:  

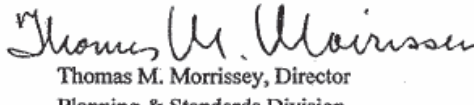
$$\frac{\text{Construction costs eligible for 30\% BNR grant} \times [\text{CWF eligible site work costs - demolition}]}{\text{CWF eligible construction costs}}$$
10. Electrical - to be determined with the following formula:  

$$\frac{\text{Construction costs eligible for 30\% BNR grant} \times [\text{CWF eligible electrical costs}]}{\text{CWF eligible construction costs}}$$
11. Plant water system - Only those costs related to aeration system foam sprays.
12. Engineering services - to be determined with the following formula:  

$$\frac{\text{Construction costs eligible for 30\% BNR grant} \times [\text{CWF eligible design and construction engineering costs}]}{\text{CWF eligible construction costs}}$$
13. Construction Contingency - to be determined with the following formula:  

$$\frac{\text{Construction costs eligible for 30\% BNR grant} \times [\text{reasonable CWF eligible construction costs}]}{\text{CWF eligible construction costs}}$$

Very truly yours,

  
 Thomas M. Morrissey, Director  
 Planning & Standards Division  
 Bureau of Water Management