

**Water Pollution Control Plant  
Design Development Report (DDR) Submittal**

**Common Problems List**  
5/31/06

**COMMON PROBLEMS**

(This is not a cookbook recipe for a DDR but is a list of the common problems we see that have to be resolved. By avoiding these problems, we hope to reduce the length of time it takes to get consensus between the submitter and EPD on what constitutes an acceptable DDR.)

1. DDR submitted out of sequence (see *Planning for Domestic Wastewater Systems*).
2. DDR not signed and sealed by an engineer registered in the State of Georgia.
3. Topographic map showing 100-year flood plain, proposed treatment plant, streams, drainage swales, wetlands and other features not provided.
4. Decision whether adequate fall exists for gravity flow or if pumping is required not explained.
5. Influent wastewater characterization (flow and constituent loading):
  - a. Inadequate characterization.
  - b. Characterization not consistent with existing plant data or otherwise supported.
  - c. Not consistent throughout document.
  - d. Peaking factor not established and/or supported
6. Influent flow measurement and/or sampling point located downstream of recycle flow or not identified.
7. Effluent flow or constituent loading does not match wasteload allocation.
8. Plant elevation and/or summer and winter operating temperatures not defined.
9. Flow diagram not provided.
10. Screening not included or screening equipment not defined.
11. Decision whether to include grit and grease removal equipment not explained and/or grit and grease removal equipment not defined.
12. Activated sludge process not adequately defined (MLSS, MLVSS, kinetic coefficients, HRT, SRT, food-to-mass ratio, etc.) or activated sludge equipment not defined.
13. BOD removal calculation not provided.
14. Nitrification calculation not provided.
15. Denitrification calculation not provided.
16. Determination as to whether biological phosphorus removal is required to meet the effluent phosphorus limit not made.
17. Biological phosphorus removal not quantified.
18. Clarifier solids loading and surface overflow rate not provided.
19. Estimate of secondary effluent BOD, ammonia, phosphorus (soluble and particulate), and TSS not provided when tertiary treatment processes are included.
20. RAS and WAS quantity not defined and/or not supported by calculations.

21. Aeration calculation not provided.
22. Insufficient aeration provided for treatment with the largest unit installed out of service.
23. Alkalinity not analyzed and/or the need for alkalinity control not addressed. Equipment required for alkalinity control not defined.
24. Chemical phosphorus removal:
  - a. Requirements not established.
  - b. Design not supported by calculations and/or pilot studies.
  - c. Chemicals not selected.
  - d. Chemical addition points not located.
  - e. Chemical storage and handling equipment not defined.
  - f. Volume of chemical sludge not calculated
25. Filter loading not provided and/or filter influent and effluent TSS and phosphorus not defined. Filter backwash not addressed.
26. Disinfection equipment not selected and/or supporting calculations or pilot studies not included.
27. Effluent flow measurement and/or sample point not identified or located after all treatment processes.
28. Calculations not provided or inadequate to determine if the proposed facility will be able to achieve the permit limits.
29. Solids mass balance not provided. Solids generation not calculated or does not include chemical sludge.
30. Design for sludge handling and disposal not provided.
31. Equalization basins
  - a. Purpose not discussed (inflow of X GPM is equalized to an outflow of Y GPM)
  - b. Supporting calculation not included
32. Equipment loading or sizing not within industry standards and not supported with alternate data.
33. Inadequate equipment reliability and redundancy (typically, but not exclusively, Class I Reliability is sufficient).
34. DDR does not adequately address emergency back-up power for all process equipment required to meet the permit.