

21 APR 92

MEMORANDUM
STATE WATER CONTROL BOARD
P.O. BOX 11143 RICHMOND, VIRGINIA 23230

SUBJECT: OWRM Program Guidance Memorandum No. 92-013
Reporting of BOD₅ Results For VPDES Monitoring

TO: Regional Directors

FROM: Larry G. Lawson, Director 

DATE: April 21, 1992

COPIES: Bob Burnley, Martin Ferguson, Jack Vanderland, Fred Cunningham, Ron Gregory, Water Resources Managers, Technical Services Managers, John Roland, Inspector Supervisors

In the past we have instructed permittees and laboratory personnel performing BOD₅ (or CBOD₅) analyses to discard data that did not satisfy the "2 - 1" criteria. The 2 - 1 criteria states that any dilution which does not deplete at least 2 mg/l dissolved oxygen and that does not contain at least 1 mg/l dissolved oxygen at the end of the incubation period does not produce a valid result and therefore should not be used for VPDES reporting. The exception being for facilities producing a high quality effluent, which in the highest sample concentration, does not contain sufficient oxygen demanding material to deplete 2 mg/l. Facilities in this category should report their results.

Laboratories should set up BOD₅ dilution series that cover a wide enough range to produce at least one dilution that satisfies the 2 - 1 criteria. A situation recently arose at an industrial facility that had several days in which all their BOD₅ dilutions depleted to <1 mg/l. Based on past guidance the facility did not include these results in DMR calculations. Had the facility included all analytical results in their DMR calculations, monthly loading violations would have resulted. Therefore, in the future when no dilutions satisfy the 2 - 1 criteria the "most correct" dilution shall be selected for inclusion in discharge monitoring. In addition, a letter of explanation shall accompany the DMR which details corrective action to prevent future occurrences.

For samples that deplete to <1 mg/l select the highest dilution and report it as a greater than value. For example, a dilution series of 5%, 7.5% and 10% was run and all dilutions depleted to 0.5 mg/l dissolved oxygen. Select the 5% dilution to report. If the initial dissolved oxygen was 8.5 mg/l then the reported value would be >160 mg/l. If none of the samples deplete the minimum, select the dilution which depletes closest to 2 mg/l to report.

Effluents which exhibit toxicity in the BOD₅ procedure should also be reported. Toxicity is demonstrated when increasing dilutions show increasing delta D.O.s. Since the least amount of toxicity is being exerted on the most dilute sample, select the highest dilution for effluent monitoring. A letter of explanation should accompany the DMR detailing the problem and any actions taken. If the effluent BOD₅ toxicity is a chronic problem then steps should be taken to either develop an acclimatized seed or eliminate the source of toxicity. The facility coordinator should also be made aware when effluent BOD₅ toxicity is discovered.

If during the course of a laboratory inspection it is determined that DMRs have not been completed as outlined in this guidance thought should be given to requiring the permittee to resubmit back DMRs. The decision to resubmit past DMRs should be made on a case by case basis.

Implement this guidance on all future inspections. Document the proper data handling procedures in the inspection report and review it with the appropriate personnel. It is suggested that the regions contact major contract laboratories and permittees who monitor high strength discharges and notify them of this guidance.