

Sampling Techniques

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Sampling techniques are very important to determine that the most accurate means of collection, preparation and analysis of samples are used to report the data required on the Discharge Monitoring Report (DMR) as per the NPDES permit.

The NPDES Permit specifies in the Standard Conditions of the Permit the following:

B. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Representative Sampling

“Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this permit. The effluent sampling point shall be the nearest accessible location just prior to discharge and after final treatment, unless otherwise specified in the permit.”

All data generated to be put on the DMR comes from testing of the samples collected or run on site as referenced above. Errors in sample collection may result in differing analytical results which can be tracked back to improper sampling techniques. Your samples may be representative of the discharge, but were proper techniques used? A study has shown that the amount of error may be as high as 80% due to variation in sampling. A sample should meet the sampling requirements and be handled in a way that it will not deteriorate or become contaminated before testing.

To insure proper sample collection, all systems should have a sampling plan in place. A sampling plan serves as a reference document to repeat the sampling process in the future. The collection of samples may also reduce variation, a source operators may use for training and a comparison of performance.

Sample bottle preparation is very important. Bottles should be prepared in a contaminant free area. Always use pre-cleaned containers where applicable. All sample containers should be pre-labeled.

A sampling plan should contain the following:

1. Location. A clearly marked sampling location with permanent identification.
2. When the sample is collected and frequency (usually same time of day, specified by the Permit for the required days.)
3. How the sample should be collected.
4. Is the sample collected identically by all persons involved in sampling?
5. Is the sample thoroughly mixed before collection and after each bottle is filled?
6. Is the proper container being used for the analysis to be performed on the sample? Standard Methods lists the type of containers that should be used for different analyses; i.e. glass, plastic, amber, etc.

In conclusion, if your lab results vary greatly each time for the analyses tested and your plant or system operates basically the same from day to day, a good place to check is in-house, starting with sampling techniques. This could mean the difference in violating the NPDES Permit, possible fines, a visit from ADEM and Consent Orders. 💧

