

**Table 28. Typical pathogen levels in unstabilized and anaerobically digested liquid sludges.<sup>a</sup>**

Pathogen	Typical Concentration in Unstabilized Sludge (No./100 milliliters)	Typical Concentration in Anaerobically Digested Sludge (No./100 milliliters)
Virus	2,500-70,000	100-1,000
Fecal Coliform Bacteria <sup>b</sup>	1,000,000,000	30,000-6,000,000
Salmonella	8,000	3-62
<i>Ascaris lumricoides</i> -Helminth	200-1,000	0-1,000

<sup>a</sup> Adapted from Stein (1994).

<sup>b</sup> Although not pathogenic, they are frequently used as indicators

The Georgia Environmental Partnership suggests the development of a state supported systematic program to classify biosolids around the state to determine class ranking of EQ, A, B, or C. Such a program would do the samplings and the initial assessments for each POTW.

Typical characterization data that will be gathered include:

- Appearance
- Total Solids Content
- Free Liquid
- pH
- Nitrogen
- Phosphate
- Potassium
- Metals Content
- Pathogen Reduction
- Soluble Metals

The data collected would be available to all wastewater facilities and law makers as part of an ongoing database. This information can be used as a benchmark of comparison when facilities receive technological upgrades. Such information would be beneficial as a decision making tool for municipalities and law makers when incentive programs are developed.

## 11.0 PRETREATMENT PROGRAM

Included in almost every wastewater treatment facilities inflow is a portion of waste derived from some type of industry. In larger metropolitan areas, the percentage of industrial waste can be up to 25% or more of the facilities flow. Industrial waste suppliers can range from food processors to metal finishers with different concentrations and flows of high strength wastes (wastes with parameter concentrations above normal sanitary wastes) going to the POTW. In order to be able to handle the flow, some amount of pretreatment of the waste prior to the POTW

is often required and monitored by either a local industrial pretreatment program or by the EPD. The strength of the waste derived from industry can and does have a direct effect on the quality of biosolids that result from the processes used to clean the wastewater. Concerns about disposal of this industrial based biosolids waste is founded when discussion of land application arises. In an effort to explain the importance of the pretreatment program and the work it performs, this section focuses on the standards set by the program and the duties of pretreatment coordinators.

It may be necessary to provide definitions for key words used in this industry. Two words that are often mistakenly used interchangeably are surcharge and fines. A surcharge is a fee paid by a commercial or industrial customer that discharges waste at a greater concentration than traditional sanitary waste. The fee is designed to recover additional cost incurred by the POTW for the treatment of the high strength waste and is not to be confused with a violation fine. A violation fine is given when a commercial discharger exceeds an upper level concentration limit. Continued violations are subject to escalating enforcement actions ranging from notice of violations (NOV) to fines and ultimately discontinuation of service.

An example of surcharges and fines is as follows: BOD is used as an example.

BOD (Biochemical Oxygen Demand) limits:

< 250 mg/L	-This would be a sanitary limit that commercial or industrial companies would be allowed to discharge without incurring any additional surcharges fees.
250-800 mg/L	-Any discharge that falls into this range is subject to a surcharge. POTWs are saying that they can treat this waste level discharge by a commercial customer, but the POTW needs to recover the costs associated with this additional service. This surcharge is usually based on a per pound basis that can vary from plant to plant. Surcharge limits also vary on available loading capacity of the plant.
800+ mg/L	-Anything over the upper limit would be considered a violation and is subject to escalating enforcement action.

Many local water systems operate a state approved industrial pretreatment program that is responsible for working with commercial and industrial customers that discharge non-sanitary wastewater to the public sewer systems. The duties of pretreatment programs are extensive and a brief synopsis of the responsibilities are included. In the case of rural areas, the Georgia EPD fills the role of the pretreatment program coordinator issuing permits and monitoring industries for local POTW's. This section also demonstrates the extent and necessity of pretreatment programs.

- 1) To periodically conduct industrial sewer use surveys to identify new commercial and industrial non sanitary wastewater dischargers for possible permitting.
- 2) To evaluate commercial and industrial dischargers under established federal guidelines to determine level of permitting required. These levels are as follows:
  - A. Categorical Users - Commercial or industrial customers that fall within established EPA guidelines for specific industrial categories. Limits for categorical users are the same regardless of location in the USA. Examples are metal finishers, pulp and paper, textile mills, and timber products processing.
  - B. SIU (Significant Industrial User). A SIU includes:
    - All categorical industrial users
    - Any non categorical industrial user that
      - a. Discharges 25,000 gallons per day or more of process wastewater, or
      - b. Contributes a process waste stream which makes up five percent or more of the average dry weather hydraulic or organic (BOD, TSS) capacity of a treatment plant, or
      - c. Has a reasonable potential, in the opinion of the Control or Approval Authority, to adversely affect the POTW treatment plant (inhibition, pass-through of pollutants, sludge contamination, or endangerment of POTW workers.)
  - C. Other Dischargers - Pretreatment Coordinators keep records on all established businesses that don't fit into A or B. The periodical survey will determine if they move into A or B. This group is often called "Non Permitted."
- 3) To calculate and establish permit limits for each SIU based on the POTW's NPDES/LAS discharge permit limits. Each SIU is given specific permit limits based on local sewer use ordinance limits, categorical limits, loading and hydraulic capacity of the POTW.
- 4) To establish procedures for self monitoring programs for each SIU and look for violations of this program.

- 5) To oversee the periodic physical inspections of each SIU and unannounced samplings to verify the self monitoring information provided by the commercial or industrial discharger.
- 6) To educate SIUs to potential pollution prevention (P<sup>2</sup>) opportunities specific to their industry through technology transfer and by providing opportunities for attendance of state level training seminars.

For the most part, large commercial and industrial dischargers are aware of pretreatment requirements and have programs in place to accommodate them. Routine monitoring and slight adjustments by the pretreatment coordinator is the norm. One of the greatest concern of wastewater plant operators is not large industries but rather small “Mom & Pop” operations that send very high strength waste in smaller volumes to the POTW. Examples of such small business include dry cleaners and industrial clothes and rag washers. Focus on the smaller dischargers that for one reason or another may “fall between the cracks” needs to be of high importance to pretreatment coordinators. On one hand it could be argued that they do not produce high enough volumes to really warrant the effort to develop and implement extensive pretreatment plans. On the other hand, many small “insignificant” operations that each produce strong waste can lead to a synergistic loading effect at the POTW.

In an effort to promote a win-win situation, pretreatment coordinators work hard to help industries meet and exceed standards that not only prevent downstream problems but can in turn add to the bottom line for the industry. There are presently 49 state approved industrial pretreatment programs working directly with industries in an effort to meet regulations and reduce pollution. A contact list of these coordinators is included in Appendix E.