PRETREATMENT Communicator

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Coordinator's Desk

We're Finally Back!! It's been over a year since we published the last *Pretreatment Communicator* due to the transfer of John Coates. Well, now we're back, fully staffed, and ready to provide you with relevant pretreatment information. I stated in the first *Pretreatment Communicator* back in 1996 that this is **YOUR** publication. By that I mean we want to provide information that will assist you in developing or implementing a pretreatment program. To accomplish that challenge, we need your input and help in putting together a quality newsletter. So feel free to provide us feedback about articles or features that you either like or dislike. We will not be offended, but instead we will try to adjust the publication to make an effective tool you can use.

Divina Ruiz started with the Department in May 1998. As a member of DEP's pretreatment program, she will be the editor-in-chief of the newsletter. I would like to thank Divina for taking on this added responsibility of publishing the *Pretreatment Communicator*. As we did before, we would like the pretreatment program coordinators or staff members to contribute articles or other newsworthy items for future issues. Divina may be contacting you for such an article. The *Pretreatment Communicator* will again be published quarterly. Anything you would like to have published should be sent to Divina

*(See **Coordinator,** page 2)*

LOCAL LIMITS IN FLORIDA

On April 27, 1999, Florida Department of Environmental Protection staff members, Robert Heilman and Divina Ruiz, presented a technical paper entitled "A Comparison of Local Sewer Discharge Limits in Florida" at the Florida Water Resources Conference in Tallahassee. One of the objectives in writing this paper was to compare all of Florida's pretreatment program local limits. Many of you have developed or will be developing local limits for your pretreatment program. This paper can be a helpful tool by providing an idea of actual local limit values around the state. The paper has been edited for presentation in this newsletter. The local limits for some of Florida's pretreatment programs are listed in tables in the following pages. Please note that the local limits of particular pretreatment programs were chosen at random to be presented in this newsletter. A complete set of local limits tables and an unedited version of the paper are available upon request. Please also note that many varying factors contribute to the calculation of technically defensible local limits.

Abstract

The industrial pretreatment program, under the requirements of Chapter 62-625, Florida Administrative Code (F.A.C.), requires cities and counties in the State of Florida to establish local sewer discharge limits, or determine they are not necessary, to protect their wastewater facilities. The need for local limits is four-fold. Local limits prevent toxic pollutants from passing through wastewater treatment facilities, reduce the frequency of interference of wastewater treatment processes, maintain the quality of the residuals for economical disposal, and protect worker and public health and safety. Most communities find that

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... ***Coordinator*** *(Continued from page 1)*
by the second month of the quarter to be published in that quarter's newsletter.

For those of you who have not met our newest pretreatment program staff member, I'd like to introduce Sal Resurreccion. Sal replaces John Coates and comes to us from Massachusetts, where he worked for the DEP in a similar capacity. Sal has several years experience and has been with us a little over nine months. I have assigned Sal most of the programs that John handled with a few exceptions. I know you will all come to know and depend on Sal for information and guidance.

In the last issue of the *Pretreatment Communicator*, I wrote about the proposed EPA streamlining of the pretreatment regulations and that DEP planned to open Chapter 62-625, Florida Administrative Code (F.A.C.), to incorporate the federal changes in late 1998 or early 1999. As you may have heard, EPA has been delayed in promulgating the streamlining regulations. Therefore, DEP has not initiated any rulemaking for Chapter 62-625, F.A.C. We will not be opening our rule until the federal changes are in place. At this writing, it is not clear when EPA will publish the proposed streamlined pretreatment regulations.

As we begin Fiscal Year 2000, we do not expect any significant changes to the pretreatment program. Of course we never know what might come down from EPA. If the pretreatment streamlining changes are published, we may open Chapter 62-625, F.A.C. Otherwise, keep your industrial users under control and we'll see you at your annual inspection or at coordinator's meetings. ↗

Robert E. Heilman

... Local Limits *(Continued from page 1)*
having local limits included in their sewer use ordinance is essential to ensure the protection of their wastewater facilities.

Background

The industrial pretreatment program was instituted as part of the Clean Water Act in the mid-1970s. The major thrust of the program is to protect publicly owned domestic wastewater facilities from the discharge of toxic pollutants from industries. At the federal level, discharge standards for particular industries are based on wastewater facility protection and available treatment technology. The standards are known as the categorical pretreatment standards and are still being developed for additional categories of industries.

Pretreatment programs follow prescribed requirements based on federal regulations found in 40 CFR Part 403, which are implemented at the local government level to control industrial discharges. The United States Environmental Protection Agency (EPA) in Region IV, Atlanta, had the responsibility of overseeing the implementation of the approved pretreatment programs (control authorities) in Florida until May 1995. Following the delegation of the National Pollutant Discharge Elimination System (NPDES) permit program, which includes the pretreatment program, the State of Florida adopted its own rules for the development and implementation of approved pretreatment programs. Chapter 62-625, F.A.C., is modeled after 40 CFR Part 403 and serves as the state rule for all pretreatment program activity.

Fifty-two pretreatment programs are approved in Florida. Most programs have enforceable local limits for pollutants having the potential to adversely affect their wastewater facilities. Some of the programs have local limits, which were established prior to Florida's NPDES delegation.

Need for Local Limits

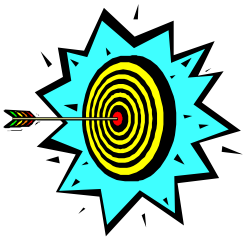
In general, domestic wastewater treatment facilities in Florida are not designed to treat industrial wastewater. In accordance with Rule 62-625.400(3) and (4), F.A.C., public utilities required to have an approved pretreatment program must develop and enforce specific local sewer discharge limits, if necessary to ensure compliance with its wastewater discharge permit and residuals reuse or disposal practices. Local limits shall not be developed or enforced without notice given to any person or group that requests an opportunity to respond to such development. Specific prohibitions and local limits developed to protect the

wastewater facilities are deemed pretreatment standards. Any prohibition or local limit has the same enforceability as the federal categorical pretreatment standards.

Local limits are based on the following criteria: 1) they must ensure that the wastewater treatment facility complies with water quality standards and/or permit limits, 2) they must protect the wastewater treatment processes from inhibition by toxic substances 3) they must preserve and enhance the quality of residuals to allow implementation of the least costly and environmentally sound disposal practices, and 4) they must protect worker and public health and safety. Local limits are selected based on the most stringent of the above criteria, which ensures that the local limits will achieve the goals of the three remaining criteria.
After developing local limits, they must be enforced through the utility's sewer use ordinance or industrial user permits or both. Periodic evaluation of the local limits is required to ensure that they remain protective of the wastewater facilities.
Situations that typically cause the re-evaluation of local limits include, but are not limited to, significant changes in industrial or domestic wastewater flows, wastewater treatment facility process modifications, changes in residual disposal options, changes in environmental criteria, or frequent violations of water quality standards or permit limits. Regardless of any of the above conditions, the adopted local limits must be evaluated at least every five years as part of the wastewater facility permit renewal application to ensure they remain protective of the wastewater facilities.

EPA Target Pollutants
In two policy memoranda, EPA identified ten pollutants that are of potential concern to all control authorities because of their widespread occurrence in wastewater influents and effluents and their possible adverse effects on wastewater treatment facilities or receiving waters. These pollutants are arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, and zinc. Most pretreatment programs have found that developing local limits for these pollutants is necessary. Table 1 is a list of some approved pretreatment programs and their local limits for nine heavy metals and cyanide.

Inorganic Pollutants
Some pretreatment programs have found detectable amounts of inorganic pollutants in their influent that are not removed in sufficient quantities to ensure compliance with their discharge permits. Therefore, developing local limits for those pollutants is necessary. Table 2 is a list of some approved pretreatment programs with local limits for some inorganic pollutants. The local limits listed in the table are for parameters which at least five pretreatment programs have established limits. Local limits, which are not listed in the table, were also developed for aluminum, ammonia, bismuth, bromate, bromine, hydrogen sulfide, lithium, radio nuclides, sodium, strontium, sulfate, sulfides, thallium, and titanium. Less than five pretreatment programs have local limits for each of these pollutants.



Organic Pollutants
Establishing local limits for most organic pollutants is difficult due to their volatility and degradation in the collection and treatment system. However, EPA has some guidance for developing local limits for organic pollutants based on protecting wastewater collection system workers. Another problem with organic pollutants is that many of the analytical techniques are not sensitive enough to quantify the presence or the removal of these pollutants from the

wastewater treatment process. Nevertheless, some pretreatment programs have demonstrated the need for local limits for various organic pollutants. Table 3 is a list of some approved pretreatment programs having local limits for some organic pollutants. The local limits listed in the table are for parameters which at least five pretreatment programs have established limits. Local limits, which are not listed in the table, were also developed for many parameters from the different categories of organic pollutants, i.e., volatiles, acid compounds, base, neutrals, and pesticides. Less than five pretreatment programs have local limits for some pollutants from these categories.

Summary

In comparing the data, the limiting criteria (i.e., water quality or reuse standards, process inhibition, and residuals quality standards) used to determine local limits were not taken into account. However, when wastewater facilities discharge to surface water, usually the water quality standards are the limiting criteria. Even though meaningful statistical comparisons of the local limits did not result from this study, some general and parameter-specific observations of the local limits can be made.

Table 1

As EPA suggests, the nine heavy metals and cyanide are pollutants of concern for most pretreatment programs. Local limits for these parameters are needed to ensure protection of wastewater facilities because of their prevalence in wastewater influents and effluents.

Another observation is that prior to delegation, a few programs adopted the metal finishing categorical standards directly from 40 CFR 413 or 433. After re-evaluating local limits, many of the programs found that more stringent local limits are necessary to ensure wastewater facility protection. Also, with the recent (1995) elimination of chromium as a pollutant of concern in 40 CFR 503, local limits for chromium appear to be increasing and may possibly be eliminated in the future.

Table 2

Local limits for total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) are generally attributed to surcharge programs and based on the wastewater facility design. The local limits are usually the lower or starting limits at which the surcharge applies. In some cases, an upper local limit is established. Exceeding an upper local limit is considered a violation.

Many programs have local limits for total dissolved solids (TDS), boron, molybdenum, selenium, and chlorides because of reclaimed water considerations for irrigation purposes. Although boron is essential to plant growth, it is toxic at 1 mg/L to many sensitive plants such as citrus. At high levels, molybdenum is toxic to livestock if their food is grown in soils containing this pollutant. Selenium is toxic to plants at low concentrations and also to livestock if their food is grown in soils with low levels of this pollutant. Excessive salinity may damage some crops and specific ions, such as chloride, are toxic to some crops.

Table 3

Local limits for biochemical oxygen demand (BOD) and chemical oxygen demand (COD) are generally attributed to surcharge programs. Local limits for these parameters are usually based on the wastewater facility design and organic loading capabilities. Local limits are typically needed for oil and grease because of high contributions from restaurants. Build-up of oil and grease in the collection system, sometimes due to flat terrain, can cause problems in the collection system, at lift stations and eventually at the wastewater treatment facility. Many pretreatment programs have found it necessary to regulate discharges of oil and grease to minimize maintenance problems. This appears to be an increasing

trend in Florida due to the seasonal variation in population and restaurant traffic. The discharge of phenols has been regulated as a result of their widespread use and their toxicity to wastewater treatment systems. Phenols are weak acids widely used for their antiseptic and disinfectant properties. Some phenols are used as antioxidants in foods and a variety of other materials.

Frequently Asked Question ...

Q. When should a pretreatment program re-evaluate its local limits?

A. A pretreatment program should re-evaluate its local limits when a significant change occurs in the

- industrial or domestic wastewater flows and concentrations
- wastewater treatment facility process
- residuals or wastewater disposal options
- environmental criteria.

Local limits should be re-evaluated if frequent violations, incidents of pass-through or interference occur.

Local limits should also be re-evaluated for permit renewal.

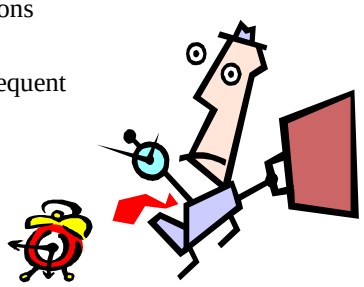


Table 1. Local Limits (mg/L) for the EPA Target Pollutants.

DEP District and Program	As	Cd	Cr	Cu	CN	Pb	Hg	Ni	Ag	Zn
Northwest (NW)										
Escambia County	0.8	0.5	2	0.2	0.2	3	0.0005	0.3	2	-
Ft. Walton Beach	0.10	0.02	1	0.5	0.2	0.1	0.005	1	0.1	1
Panama City	0.05	0.01	1	0.3	0.005	0.006	0.000025	0.10	0.00005	0.09
Northeast (NE)										
Clay County	0.12	0.065	2.4	0.73	-	0.33	0.0005	0.25	0.22	2.56
Gainesville	0.15	0.08	3	0.5	0.15	0.2	0.0002	0.8	0.1	2.5
St. Johns County	0.25	0.06	4.6	0.22	0.0015	0.15	0.0002	0.28	0.003	2.4
Central (C)										
Altamonte Springs	0.46	0.28	-	2	-	0.4	0.001	1	0.9	4
Port Orange	0.41	0.23	10	1.33	1	0.66	0.0001	1	0.34	4
Seminole County	0.18	0.12	4.66	1.69	1.74	0.91	0.05	1.41	4.66	3.97
Southwest (SW)										
Manatee County	0.1	0.05	16.1	2.1	0.98	0.43	0.03	0.86	4.05	0.98
Pinellas County	0.1	0.2	2.6	1	1	0.6	0.1	2	2	2
St. Petersburg	0.3	0.12	1.51	1.17	0.2	0.66	0.07	1.12	0.72	3.09
Southeast (SE)										
Boca Raton	0.1	0.3	4.7	2	0.01	0.37	0.0005	0.1	0.6	3.72
Ft. Pierce	0.29	0.31	40	2.5	2.4	1.9	0.15	3.6	2.1	3.2
Vero Beach	0.2	0.1	3.8	0.4	0.1	0.8	0.0002	0.4	0.5	4

Table 2. Local Limits (mg/L) for Inorganic Pollutants.

Program and DEP District	Sb	Ba	Be	B	Chlorides	Co	F_2	Fe	Mn	Mo	Se	Sn	TDS	TN	TP	TSS
Escambia County - NW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ft. Walton Beach - NW	-	2	-	1	-	-	4	5	-	-	0.02	-	-	-	-	-
Panama City - NW	0.2	-	-	-	-	-	5	2	-	-	0.05	-	-	22	3	300
Clay County - NE	-	-	-	-	-	-	-	-	-	0.24	0.23	-	-	-	-	-
Gainesville - NE	-	0.15	-	-	-	-	20	100	-	0.35	0.15	-	-	-	-	-
St. Johns County - NE	-	-	-	-	-	-	-	-	-	0.21	0.13	-	-	-	-	1000
Altamonte Springs - C	-	-	-	-	-	-	-	-	-	4.5	0.5	-	-	-	-	-
Port Orange - C	-	1	0.005	1	-	-	-	5	1	0.22	0.8	-	-	35	10	250
Seminole County - C	-	-	-	-	-	-	-	-	-	0.35	0.35	-	-	-	-	800
Manatee County - SW	-	-	-	-	250	-	-	-	-	0.04	0.12	-	-	-	-	1146
Pinellas County- SW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	650
St. Petersburg- SW	-	-	-	3.32	1350	-	-	-	-	-	0.27	-	-	-	-	-
Boca Raton - SE	-	-	-	-	600	-	-	21	-	-	-	-	2000	-	-	400
Ft. Pierce- SE	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-
Vero Beach- SE	-	-	-	10	-	-	-	30		0.1	0.4	-	-	-	-	-

Table 3. Local Limits (mg/L) for Organic Pollutants.

Program and DEP District	Benzene	BOD	COD	Oil and Grease	Phenols	Phenolic Compounds	TTO
Escambia County - NW	-	-	-	-	-	-	-
Ft. Walton Beach - NW	-	-	-	-	-	-	-
Panama City - NW	0.1	300	-	60	0.08	-	-
Clay County - NE	-	-	-	-	-	-	-
Gainesville - NE	-	-	-	100	-	-	-
St. Johns County - NE	-	-	-	-	-	-	-
Altamonte Springs - C	-	-	-	-	-	-	-
Port Orange - C	-	-	-	-	-	-	-
Seminole County - C	-	-	-	-	-	-	-
Manatee County - SW	-	9993	-	180	-	-	-
Pinellas County- SW	-	450	-	150	5	-	-
St. Petersburg- SW	-	10000	10000	-	-	-	-
Boca Raton - SE	-	400	800	100	0.2	-	-
Ft. Pierce- SE	-	-	-	-	-	-	-
Vero Beach- SE	-	-	-	-	-	-	-

Technical Tips

What About Them Bugs?

Many of you may need to know how to develop a local limit for biochemical oxygen demand (BOD). Publicly owned treatment works sometimes set a BOD limit on industrial users to collect surcharge fees, which are applied to recover costs associated with treating excessive BOD. Typical BOD surcharge limits begin from 250 to 400 mg/L. Surcharges for excessive conventional pollutants generally have a starting concentration and should have a range with an upper limit (maximum), which if exceeded would be a violation. The surcharge limit may or may not be the same value as the local limit. A local limit is calculated based on the wastewater treatment facility design capacity for BOD. The expected BOD loading from the non-industrial users is subtracted from the BOD loading that the wastewater treatment facility is designed to handle. The remaining allowable BOD loading can then be allocated to the industrial users. This value is converted to a concentration-based local limit. Exceeding the local limit is a violation because of the potential to cause interference or pass-through.

The following is an example of a BOD local limit calculation:

Given:

Q_{ni} = 12.5 mgd => non-industrial flow to the wastewater facility
Q_{ind} = 1 mgd => industrial flow to the wastewater facility
Q_{BOD} = 20,000 lb/d => wastewater facility flow design capacity for BOD
C_{ni_BOD} = 150 mg/L => non-industrial contribution of BOD
CF = 8.34 => conversion factor for mg/L to lb/d

Find: The allowable industrial contribution of BOD, C_{ind_BOD} in mg/L.

Solution:

1) Convert the non-industrial contribution of BOD from a concentration-based flow, C_{ni_BOD} in mg/L to a mass-based flow, Q_{ni_BOD} in lb/d.

$Q_{ni\_BOD} = (C_{ni\_BOD})(Q_{ni})(CF)$ = (150 mg/L)(12.5mgd)(8.34)
= 15,638 lb/d

2) Determine the allowable flow of BOD that can be allocated to the industrial users.

$Q_{ind\_BOD} = Q_{BOD} - Q_{ni\_BOD}$ = 20,000 lb/d – 15,638 lb/d
= 4,362 lb/d

3) Convert the allowable industrial contribution of BOD from a mass-based flow, Q_{ind_BOD} in lb/d to a concentration-based flow, C_{ind_BOD} in mg/L. The concentration-based flow is the local limit for BOD.

$C_{ind\_BOD} = Q_{ind\_BOD}/(Q_{ind} \cdot CF)$ = 4,362 lb/d / [(1 mgd)(8.34)]
= **523 mg/L**

Note: This procedure can be applied to developing local limits for other conventional pollutants such as total suspended solids. ↗

Reminders ...

Annual Report Checklist

Is your pretreatment program annual report ready for final submission?

- ❒ Is the certification statement on the cover sheet signed?
- ❒ Are the influent, effluent, and residuals monitoring data included in the report?
- ❒ Are all incidents of pass-through and interference reported?
- ❒ Is a narrative on pretreatment program funding and staffing provided?
- ❒ Are the anticipated program modifications and pollution prevention activities described?
- ❒ Is the industrial user information up-to-date?
- ❒ Are the sampling/inspection events and industrial user violations reported?
- ❒ Is a copy of the SNC newspaper publication included? ↗

Regulatory Updat

The Environmental Protection Agency (EPA) issued an important policy decision regarding pollutant discharges from industrial laundries. EPA is withdrawing a 1997 proposed rule and will **not** establish new regulations for this industry. EPA's primary basis for this conclusion is that the indirect discharges from industrial laundries contain very small amounts of toxic pollutants that are not removed by publicly-owned treatment works.

For a fact sheet on the announcement, visit the following website:
http://www.epa.gov/OST/guide ↗

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The **Pretreatment Communicator** encourages participation from its readers and any other individuals interested in pretreatment in the State of Florida. Please submit your letters, information, or articles to Pretreatment Communicator, Domestic Wastewater Section, Florida Department of Environmental Protection, 2600 Blair Stone Road MS 3540, Tallahassee, Florida 32399-2400. The **Pretreatment Communicator** reserves full editorial rights to all submissions.

Anyone with questions or comments about this newsletter or wanting to be included on the mailing list should contact the pretreatment program staff at (850) 488-4524. The Department of Environmental Protection assumes no responsibility for the statements or opinions expressed in this newsletter. Views and information contained in this newsletter are those of the authors and do not necessarily reflect those of the Department.

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