

REGION 6
TECHNICALLY BASED LOCAL LIMITS
DEVELOPMENT GUIDANCE
July 28, 1987

FIRST REVISION: MAY 17, 1990
SECOND REVISION: OCTOBER 12, 1993

Background

The Federal categorical pretreatment standards, which are applicable to some classes of industries, establish technology based minimum requirements which those industries have to meet prior to discharging into publicly owned treatment works (POTWs). These categorical standards do not address problems which may result from industrial discharges into a specific wastewater treatment facility. POTWs are responsible for knowing the character and volume of pollutants being discharged into their wastewater treatment system in order to protect the treatment facility, receiving water quality, worker health and safety, and ensure that the sludge use and disposal practices are adequate to protect public health and the environment.

The General Pretreatment Regulations (40 CFR Part 403) require that each POTW with a pretreatment program develop and enforce local limits which will establish the maximum loading of pollutants that can be accepted by their treatment facilities. These limits were developed initially by POTWs in Region 6 as a prerequisite to pretreatment program approval. It is important that POTWs periodically reassess their local limits to ensure that they adequately protect the environment from any adverse effects related to non-domestic discharges into each specific treatment facility. This is also a requirement of the regulations published in the Federal Register October 17, 1988, (FR 40612; 40 CFR 403.8(f)(4), "The POTW shall develop local limits as required in 403.5(c)(1), or demonstrate that they are not necessary").

In order to establish or revise technically based local limits, POTWs must use the best available technical information to determine, for each pollutant of concern, the maximum loading that can be accepted by each treatment facility. This guidance will point out specific items and areas that should be considered in working through the process to arrive at technically based local limits. To verify that the interpretation of this guidance is as intended and to attempt to minimize the time and funds spent on sampling, analyses and development of the technically based local limits, a [sampling] plan should be submitted. The [sampling] plan will outline how the permittee will collect and analyze data to determine the appropriate local limits for their program. The [sampling] plan should be submitted thirty (30) days prior to the start of the data collection.

Each state has established State Water Quality Standards. These Standards must be incorporated into the data analyses when developing the appropriate local limits.

Setting technically based local limits is an ongoing process that must be reviewed periodically. For this reason a sampling regime must be established to support reviewing and updating local limits. This will include periodic sampling of influent, effluent and sludge, as well as monitoring of non-domestic users.

The purpose of this guidance is to elaborate on the August 5, 1985, guidance memorandum on local limits requirements for POTWs from EPA Headquarters and clarify what Region 6 will require from POTWs developing new or revised technically based local limits.

Minimum Data Collection Requirement

The first step towards developing technically based local limits is to gather an adequate data base. We would expect that, at a minimum, an influent pollutant scan of a 24-hour flow-proportioned composite sample be performed at each treatment facility to determine all pollutants being contributed to the system. The type of scan to be performed is the basic priority pollutant scan of the 125 pollutants (not including asbestos) plus any other additional pollutants designated in the applicable State Water Quality Standards. The scan should be performed no earlier than twelve months prior to the local limit development submission. This scan will determine the pollutants of concern for your facility. A definition for identifying a "pollutant of concern" is any pollutant found at or above 0.1 mg/l and any other pollutant the POTW and/or State may designate to be of concern.

A minimum of four grab samples, for each 24 hour sampling period, must be used for cyanide, total phenols, oil and grease, sulfide, and volatile organics, provided these pollutants are included in the influent pollutant scan. For all other pollutants, 24-hour composite samples must be obtained through flow weighted or time weighted composite sampling techniques, where feasible. If composite sampling is not feasible please provide an explanation.

Once the pollutants of concern have been identified, the second step is additional sampling to determine actual pollutant loading at the plant; from this sampling you will be able to determine your headworks loading. At a minimum, at least ~~six (6)~~ [EPA's *Local Limits Development Guidance*, July 2004, recommends at least seven (7) sampling events depending on the design capacity of the wastewater treatment plant. Please see the guidance manual for frequency recommended for your specific wastewater treatment plant(s)] monthly influent, effluent and sludge samples and analyses for cadmium, chromium, copper, lead, nickel, zinc, arsenic, cyanide, silver, mercury [EPA's *Local Limits Development Guidance*, July 2004, recommends adding

biochemical oxygen demand, ammonia, selenium, molybdenum, and total suspended solids], and any other pollutants of concern identified in the influent scan shall be performed. The ~~ten (10)~~ [EPA's *Local Limits Development Guidance*, July 2004, recommends fifteen (15)] specified pollutants must be sampled for, whether or not they were detected in the initial scan. In addition, facilities disposing of sludge by land application in accordance with 40 CFR Part 503, shall sample and analyze for molybdenum and selenium.

In lieu of monthly data, we will accept ~~six~~ [EPA's *Local Limits Development Guidance*, July 2004, recommends seven (7)] consecutive days of 24-hour influent and effluent flow weighted or time weighted composite samples and analyses. Similar to the sampling during influent scan, analyses for cyanide, total phenols, oil and grease, sulfide, and volatile organics shall be sampled for four (4) grab samples each day for six consecutive days. Additionally, one sludge sample prior to ultimate reuse/disposal shall be analyzed during the same sampling period.

For POTWs that are landfilling sludge, a Toxicity Characteristic Leaching Procedure (TCLP) test must also be performed and the results submitted. Sampling must also be conducted to determine domestic/unregulated commercial loading. This may be accomplished by isolating and sampling an area of the collection system known to only receive domestic/unregulated commercial waste. A minimum of ~~six (6)~~ [EPA's *Local Limits Development Guidance* recommends at least seven (7)] sampling events depending on the design capacity of the wastewater treatment plant. Please see the guidance manual for frequency recommended for your specific wastewater treatment plant(s)] representative samples should be collected and tested for the same set of pollutants of concern used in the influent/effluent/sludge monitoring above.

POTWs that reuse/dispose of sludge by land application, surface disposal, and incineration shall evaluate the loading limits based on 40 CFR Part 503 or the applicable state criteria (whichever is more stringent). POTWs that dispose of sludge on a landfill can not use the TCLP data to calculate the local limits. However, measured TCLP levels shall be compared with the influent/effluent data and the TCLP ceiling concentration levels. Based on these evaluations influent loading can be controlled to assure passing the TCLP test.

The results of the laboratory analyses can be averaged within an acceptable limit of data variation. If a pollutant is found below the Minimum Quantification Level (MQL) this may be averaged in at half the MQL or the POTW might want to consider a more conservative approach by using the MQLS (MQLs list enclosed). Whichever method is chosen a justification should be presented. When sampling for influent and effluent the lag time for treating wastewater should be considered (plant retention time). The purpose is to try to sample the influent and then the effluent and be sampling approximately the same event. Influent sampling should be prior to recirculating flows.

The required data shall be gathered for each of your treatment facilities.

Treatment facilities receiving only domestic wastewater (conventional pollutants only) will be exempt only if the POTW will certify in writing that upon review of the treatment facility records, only domestic wastewater is received. This will mean that, prior to accepting any industrial user into the exempted system, EPA [Approval Authority] must be notified and technically based local limits be developed.

All grab samples shall be preserved or analyzed at the time of collection. Oil and grease samples shall be analyzed as individual grab samples. Cyanide and phenols can be analyzed as grab composites after collection and preservation. Volatile organic compounds can be analyzed as composite samples in the laboratory prior to analyses.

All sample collection, preservation and analyses shall be performed in accordance with the procedures established in 40 CFR Part 136 and 40 CFR Part 403 Appendix E and be of such quality as to be legally defensible. Sludge sampling and analyses for evaluation of 40 CFR Part 503 criteria shall be performed in accordance with 40 CFR Part 503.8. Chain of custody, Quality Assurance and Quality Control procedures must be followed and documented. Any deviation from the MQLs must be justified. If the justification for deviation from the MQLs is not provided, or is not adequate, resampling and testing may be required.

Other Information Required

The next step towards local limit development is gathering information which will be used to determine the maximum allowable plant loading of each pollutant of concern. All of the following data must be submitted with the local limits package:

1. Pieces of information necessary to establish protection against interference and pass through are the NPDES permit final effluent limitations and the design criteria for each treatment facility. The information should include plant diagrams, narrative explanations of the treatment processes, sampling locations for influent, effluent and sludge; and design capacity and actual average flows. If hauled waste is accepted, a discussion of the handling procedures and the qualities and quantities of hauled waste must be provided.
2. To protect the water quality of the receiving stream, it is essential to know the State water quality standard applicable to the receiving water and/or basin for each pollutant of concern. Equally important is the determination of the allowable effluent concentration that will protect receiving water (low flow or critical dilution). This will be the lowest 7-day average flow in a 2-year period (7Q2) for Texas and Oklahoma, or in a 10-year period (7Q10) for Louisiana, and the lowest 4-day average flow in a 3-year period (4Q3) for New Mexico.

Information that should be obtained from the state in order to determine

the appropriate water quality standard will include: pH and hardness of receiving water, designated use and criteria, and whether the segment or basin is designated for acute or chronic protection. POTWs in Texas should contact the Texas ~~Natural Resource Conservation~~ Commission [on Environmental Quality(TCEQ)] for a 'TEXTOX' printout which incorporates this information.

It is important that local limits will ensure that no toxic pollutants in toxic amounts be discharged. Therefore, in order to protect against in-stream toxicity, the EPA Water Quality Criteria dated May 1, 1986, (Gold Book, EPA 440/5-86-001) values should be considered for those pollutants for which a State water quality standard does not exist.

3. Another important piece of information to submit is the selected sludge disposal option. This includes the sludge management plan and any applicable Federal or State regulations and requirements.
4. All chain of custody information and lab data sheets/reports showing results for each sampling event must be available for EPA [Approval Authority] review. All sampling data must be tabulated and submitted.
5. Industrial sampling data and average flow for each industry must be submitted. Indicate whether flow data are measured or estimated, and if estimated, the basis of the estimate.
6. An explanation must be included concerning why a limit was not set for any pollutant which appears in the initial influent scan in concentrations greater than or equal to 0.1 mg/l.
7. An explanation must be included of any decisions made that may deviate from the guidance.
8. Removal efficiencies must be calculated, tabulated and submitted for each influent and effluent sampling event.
9. The attached table may be used to summarize the sampling data and other information.
10. Supply an explanation for all abbreviations used on data sheets and in calculations.
11. ~~If PRELIM is used, send all PRELIM data sheets. [PRELIM is no longer supported by EPA]~~

Technically Based Local Limit Calculation

Once the data collection portion of the local limits development is completed, the next step is data analysis. The ~~December 1987 Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program~~ [EPA's *Local Limits Development Guidance*] provides guidance on calculating technically based local limits.

Maximum allowable headworks loadings (MAHLs) must be calculated for each pollutant of concern. When calculating limits for protection of different factors (i.e. treatment process, sludge and water quality), different influent loading values for the same pollutant may result. For instance, the loading limit calculated for protection of sludge quality may be higher or lower than the loading limit calculated for protection of water quality. The most stringent of these will determine the MAHL limit to be used for that pollutant.

Use actual flow (last 12 month average) rather than design flow in all calculations.

We strongly encourage POTWs to apply a safety factor to the calculated maximum allowable loadings and to reserve some capacity for industrial expansion when setting local limits. An explanation must be provided for whatever safety factor is set: the ~~1987 guidance~~ [EPA's *Local Limits Development Guidance*] manual provides support for safety factors.

Pretreatment programs have usually been associated with the control of toxic pollutants. However, it is important to note that the most commonly documented industry-related cause of treatment facility permit effluent violations is the discharge of excessive conventional pollutants (BOD, TSS, and O&G). Therefore, we strongly recommend that while undertaking sampling, analysis and calculation efforts for developing local limits, you consider the conventional pollutants as well, especially if acceptable headworks loadings have not previously been determined.

When calculating local limits you may either hand calculate the limits or use PRELIM (the computer program). ~~PRELIM is not necessary to calculate local limits.~~ In either case all information used to derive the limits should be submitted. ~~For those that choose to use PRELIM, it [It] is further required that a hand calculation of one limit be submitted demonstrating step by step how the limits were developed for each facility. This one pollutant should be present in the influent and effluent at a quantifiable level. (PRELIM is not appropriate for conventional and other nonconservative pollutants.)~~

Allocation of Pollutant Loadings to Industry

The allocation of maximum allowable pollutant loadings is strictly a local

decision. However, the procedure by which this will be accomplished needs to ensure that the maximum allowable pollutant loadings will not be exceeded at any time at the treatment facility headworks. Therefore, a clear description of these procedures will need to be submitted with your local limit development package. The ~~December 1987~~ *Guidance* [EPA's *Local Limits Development Guidance*] contains several allocation options.

Local Limit Approval Request Package

The items discussed throughout this Guidance must be submitted to the Approval Authority (i.e. EPA or NPDES delegated State) by the authorized signatory official for the POTW. While we will discuss the methods and procedures in the early stages of technically based local limit development, we are only going to accept for review completely developed limit packages. Enclosed is a copy of a certification statement that should be signed by the NPDES signatory authority and included in the local limit package. This certification statement demonstrates that each POTW has taken adequate measures to assure that the limits submitted are correctly done.

Upon receipt of written notification that the submission is approvable you need to enact the revised ordinance incorporating the new local limits and submit a copy of the enacted ordinance to the Approval Authority. The ordinance should state that it will not be effective until receiving formal approval by the Approval Authority.

Although the local limits must be included in the ordinance, the procedures by which local limits are allocated to industry do not need to be included there. However, they need to be submitted as a proposed modification of the pretreatment program along with the local limits approval request package.

As you begin to reassess your local limits, we recommend that you discuss your sampling and other activities with the Approval Authority and submit a plan. This will help avoid misinterpretations and may assure an approvable local limit development package.

Signed: (Signed by MOK) Date: 10/12/93
 Myron O. Knudson, P.E.
 Director
 Water Management Division
 U.S. E.P.A. Region 6