

Region III Guidance for Setting Local Limits for a Pollutant Where the Domestic Loading Exceeds the Maximum Allowable Headworks Loading

INTRODUCTION

The General Pretreatment Regulations require that POTWs develop local limits to prevent pass through and interference. Pass through (as well as interference) is defined in terms of a violation of the POTW's NPDES permit, and therefore pass through of a given pollutant cannot occur where there is no limit for that pollutant in the POTW's NPDES permit. However, for calculation of limitations where no NPDES permit limit has been established, Region III **strongly** recommends that state water quality standards be used to determine the maximum allowable headworks loading for each pollutant. This will help to ensure that the local limits are protective of the receiving stream water quality and to facilitate continued compliance with any effluent limits in the permit. It will also help the POTW to avoid *future* NPDES limits for toxic pollutants by keeping the loading of these pollutants to the receiving stream below the levels of concern. Limitations developed in this manner should also remain relatively stable, and thus not require industrial users to redesign their treatment systems because the POTW's NPDES permit is reissued to include stringent water quality based effluent limits.

In several circumstances, local limitations calculated by POTWs based on NPDES permit limits or water quality standards using the methodology recommended in the EPA local limits development guidance have yielded **negative allowable industrial loadings**. Region III recognizes that a negative limit is impractical and that an alternative method of establishing local limits is necessary. At the same time, the calculation indicates that the POTW needs to take steps to reduce the loading of these pollutants received at the treatment plant.

The following is intended to provide POTWs with approaches to addressing situations where the allowable industrial loading is calculated to be negative, as well as establishing some guidelines on what the Region expects the POTWs to undertake. This *guidance* assumes that the NPDES permit limits are valid and that compliance is required. This guidance and the pretreatment program are not attempting to address issues related to permit issuance, water quality standards, or drinking water standards. If these issues are of concern to the POTW, they must be pursued through the appropriate offices of PADER and EPA. *Any violation of a NPDES permit limit could subject the POTW to an enforcement action*, and therefore the POTW may need to consider approaches not addressed in this guidance such as installation of additional treatment to achieve compliance, or investigation of the feasibility of local drinking water legislation.

GENERAL APPROACH

This guidance is intended to establish minimum guidelines for establishment of local limits where the calculated allowable industrial loading is negative. It is not intended to automatically broaden the scope of the pretreatment program in these situations. Generally, the action plan discussed in the guidance is **not** a prerequisite to approval of the limits and implementation of

the plan would not be formally tracked by EPA. The activities of a POTW implementation of any action plan should be discussed in the Annual Pretreatment Summary Report that POTWs are required to submit. However, the POTW is required to comply with its NPDES permit. If permit violations occur, the POTW could be subject to enforcement including the imposition of requirements to conduct activities similar to those contained in this guidance. It should also be noted that this guidance is not intended to be all inclusive of problems that may result in the negative industrial loadings nor is it intended to be a complete listing of possible solutions. The POTW should use its best judgement in evaluating each situation to arrive at the best solution.

A three step approach to addressing negative allowable industrial loadings is recommended in this guidance. The first step, short-term measures, provides suggestions that can be used to evaluate the data and methodology used in the local limits calculations to quickly assess the validity of the results. The data and methodology should “make sense”, and simple problems should be identified and corrected prior to attempting more difficult solutions.

Where the problem cannot be corrected using the short-term measures, the second step suggests that the POTW establish interim local limits which can be used while the POTW investigates other sources of pollutants and ways of controlling those sources. Since pass through is defined in terms of NPDES permit violations, establishment of the interim local limits may vary depending on whether the negative loading pollutant is based on an NPDES permit limit or on a water quality standard. This guidance establishes a position in which an industry’s discharge does not cause pass through if the discharge, adjusted for the POTW’s removal of that pollutant, does not exceed the POTW’s NPDES limit.

The third step consists of development and implementation of a long-term action plan. The action plan would address industrial users not normally covered by the pretreatment program or other non-industrial sources of the pollutants of concern. Upon completion of the implementation of the action plan, the POTW would reevaluate the local limits to determine whether a revision is appropriate.

I. SHORT-TERM MEASURES

Before attempting a long term approach to reducing the influent loadings, there are several short-term actions that the POTW should evaluate to ensure that its efforts are not wasted.

- Are all mathematical calculations correct? A simple error could result in major problems.
- Is the data used based on actual sampling results, or is it data from the literature? Site-specific sampling data will yield a more accurate allowable headworks loading. Literature data should be avoided at all times except when actual data is impossible to obtain.
- What safety factor was used? As the industrial limits approach zero, it may be appropriate to reduce the safety factor used in the calculations. There is no requirement that the safety factor used in the calculations be the same for all pollutants.
- What flows were used? The calculations of the local limits should be based on current flows (domestic, industrial, etc.) and not design flows or projected future flows. This is to

ensure that the POTW can meet its discharge requirements now, rather than under certain hypothetical conditions.

- How many samples were used? If no data is available, national EPA guidance recommends that the POTW conduct five consecutive days of sampling to obtain a minimum number of analytical results. Some POTWs have suggested that a minimum of seven to twenty days of sampling is necessary for meaningful results and that sampling should be spaced rather than on consecutive days. In any case, the more sampling data that is available, the more reliable the local limits. The Region will not disapprove local limits where the minimum number of samples from the national guidance has been used. However, NPDES permits are beginning to require long-term sampling to obtain this data.
- Are the sample points for data collection correct? Treatment plant sampling must take into account the entire plant. Influent samples must be taken prior to any recycle flows, but should include loadings from any hauled wastes. Effluent samples must be taken after all treatment operations, including chlorination. Domestic sampling points should be reflective of the unregulated waste contributions to the POTW. Wastes that are not currently regulated by the POTW such as that from photo labs, dental offices, dry cleaners, or hauled wastes may contribute significant loadings of certain pollutants. The POTW should determine whether regulation of these users under the pretreatment program will help achieve compliance with permit limits and water quality standards. Where regulation of these users is undertaken, the domestic sampling points should not include these users. It would be possible to construct a local limits scheme where small users are regulated for some pollutants, but not others. Again, in this circumstance, the domestic sampling should be reflective of the regulatory scheme, and sampling for the different pollutants might need to be done at different locations.
- Are the times and dates of sampling appropriate? If samples are less than 24-hour composites, the result may reflect a peak or valley in the loadings and not represent a true daily loading. If wastewater characteristics are expected to vary during the year, sampling should be conducted during representative times of the year.
- How reliable is the data? Ensure that proper sampling, preservation, holding times, and analysis were followed, including proper quality assurance/quality control. Where pollutant levels are near the detection limit, the POTW should consider using “clean” sampling techniques to ensure that the samples are not contaminated.
- What test methods were used? The levels of some pollutants are often reported as non-detectable. The POTW should use the most sensitive **approved** test methods where necessary to obtain actual data.
- How were “non-detectable” results handled? Non-detectable results can have a major impact on the loadings obtained through the headworks analysis calculations because of the impact on the removal rate calculations and/or the “uncontrollable” loadings. The use of non-detectable results should be evaluated on a case-by-case basis. In addition, it may be possible to use spiked samples (a known amount of the pollutant is added to the sample prior to analysis and then subtracted from the result to provide an actual value) to

obtain sample results for given pollutants. However, it may also be possible to make a fairly accurate estimate of what a non-detect means based on the other data. If there are a large number of samples available, and only one or two are non-detects, it may be appropriate to discard the non-detects (Note: influent/effluent data should be discarded in pairs). This would eliminate the need to interpret the non-detectable result. Another alternative when the majority of the samples provide detectable results, but some non-detects are found is to use the detection limit as an estimate of the actual value. This is based on the assumption that where most results are detectable, the non-detects are probably near the detection limit. Where influent data is available but a large percentage of the effluent data is non-detectable, removal rates can be calculated for the metals using sludge data instead of effluent data. Where a significant portion of the sample results are non-detectable, but there are also a number of detectable results, use of half the detection limit may be appropriate. If all of the sample results are non-detectable, a value near zero might be appropriate, since the results are most likely well below the detection limit. However, where both influent and effluent results are all below the detection level, the POTW should evaluate whether a local limit is necessary for that pollutant. In addition, it may be possible to estimate non-detectable domestic values by subtracting the non-domestic loadings from the influent loadings (Note: care should be taken if this approach is used especially where limited data is available). If all else fails and the data is to be discarded in favor of literature data, check to ensure that the literature data is reflective of the conditions observed in the sampling results (e.g., if the domestic literature data is twice the detection limit, it is not appropriate to use this value in place of non-detect sampling results).

- Does the data add up? The influent loadings to the plant should approximate the sum of the loadings from the various sources (e.g., industrial, domestic, hauled, etc.). If the sum of the loadings from the various sources is between 80% and 120% of the influent loading, it is generally considered a good mass balance. If the numbers do not add up, it may indicate that one or more sources were not considered or were incorrectly considered, or that some of the data is faulty.
- Is the “overloading” due to some other controllable source such as septage hauling or chemicals being added by the plant operators (in the plant or sewer system)? The POTW may need to reconsider acceptance of some types of wastewater such as septage to reduce the loadings of certain pollutants on the system. If the POTW is adding chemicals to control root growth or some other problem, it may need to consider alternatives which will not have an impact on the loadings of concern.
- Is the POTW in compliance with its NPDES permit limits? If the POTW is in compliance with its NPDES limits but the calculations based on that NPDES limit result in negative allowable industrial loadings, it may indicate a problem with the data used in the local limits development.

II. ESTABLISHING LIMITS

A. Local limits based on NPDES permit limits

Local limits must be developed, at a minimum, to prevent pass through and interference. In reviewing and approving local limits, one of EPA's main functions is to ensure, to the extent possible, that the limits enable the POTW to comply with its NPDES permit, and do not allow pass through and interference. EPA cannot approve limitations which will not prevent pass through and interference.

However, where local limits calculated based on NPDES permit limits result in negative allowable industrial loadings, EPA recognizes that it is impractical to attempt to impose a negative discharge limit, and that an alternative approach may be necessary. In these circumstances, Region III is willing to approve local limits where the POTW establishes interim local limitations while pursuing other long-term toxic reduction measures (see section III).

Remember, the POTW will be expected to achieve compliance immediately upon the effective date of final NPDES permit limits. In addition to establishing interim local limits, the POTW should require its industrial users to conduct toxic reduction evaluations and explore pollution prevention and other waste minimization alternatives, even where the user may be in compliance with the established interim local limits. This should result in industrial loadings which are as low as possible, and help the POTW achieve its ultimate toxic reduction goals.

Potential alternatives for establishing interim local limits include:

- Calculate interim local limits based on interim limits in the NPDES permit, if applicable. This method would only apply if the permit limit causing the negative allowable industrial loading will not become effective for a significant period of time. In addition, the POTW would need to establish a second set of limitations which provide for compliance with the final limits in the NPDES permit and for which compliance would be required on or before the POTW's final NPDES compliance date. The IU permits should reflect both the interim and final local limits. One of the options below would be acceptable for this second set of limits. Prior to the effective date of the second set of limits, the POTW could implement some or all of its long-term action plan activities to reduce other toxic loadings to the treatment plant. By doing this, the POTW might be able to revise the final limits in order to provide for a more reliable set of limits.
- Set interim local limits equal to the POTW's NPDES limits adjusted for the removal of each pollutant. Under this option, if the POTW removed 50% of a given pollutant, the interim local limit would be twice the NPDES limit ($\text{limit}/(1-R)$). The rationale is that if you could track a given "block" of wastewater from an industry, that "block" would not be the cause of a pass through if it did not exceed a level that, after reduction in the POTW, was not greater than the POTW's NPDES permit limit. This approach would be similar to the removal credits provision of 40 CFR 403.7. It would also require more sampling data to better quantify the removal rates.

- Set interim local limits equal to the POTW's NPDES limit. If the user is discharging at levels that are at or below the POTW's NPDES discharge limit, it would be difficult to argue that the user is causing pass through.
- Set interim local limits equal to the detection level for the most sensitive test method. This is the lowest limitation for which compliance can be shown.

The above listing is not meant to be all inclusive of options available to POTWs for establishing the interim local limits where the allowable industrial loadings are calculated to be negative. However, no interim local limits will be approved under these circumstances which are less stringent than the POTW's NPDES permit adjusted for the POTW removal. Limits which are less restrictive than this are not considered adequate to prevent pass through and interference. **In addition, it is intended that the POTW pursue options for reducing the contribution of non-industrial sources to its influent loading of these pollutants. EPA cannot provide any "no enforcement" guarantees where the POTW violates an NPDES permit limit.**

B. Local limits based on water quality standards (no permit limit) or other basis

Where there is no NPDES permit limit on a given pollutant, but based on water quality standards the local limit is still calculated to be negative, POTWs and EPA have considerably more flexibility in developing and approving limits. Region III still recommends that interim local limits be established in conjunction with a long-term (see section III) plan of action for reduction of toxic pollutants and toxic reduction evaluations by industrial users. However, the need to implement the action items in a relatively short period of time is not as great, since compliance with NPDES permit limits is not an issue.

The Region is also more willing to allow greater flexibility on the part of the POTW in establishing interim local limits.

While the options listed above can be considered, the Region is also willing to consider less stringent interim local limits including establishing interim local limits based on sludge or interference, whichever is most stringent, but in no case should the industrial limits allow for exceedance of the current influent loading to the treatment plant for that pollutant.

III. LONG-TERM MEASURES

Where negative allowable industrial loadings have been verified using short-term measures such as those suggested above, the POTW should look at additional long-term measures to verify the calculations and identify means of reducing the non-industrial toxic loadings. Long-term measures could include activities such as those listed below. Any and all such measures should be included in the POTWs' Annual Pretreatment Summary Report submitted to EPA.

- All industries discharging non-domestic wastes should be required to conduct toxic reduction evaluations. These evaluations should include pollution prevention measures that could reduce or eliminate the discharge. Information on pollution prevention opportunities for various industries is available through the Pollution Prevention Information Clearinghouse (202-260-1023). Information on conducting industrial toxic

reduction evaluations should be available through the local office of DER or through EPA.

- To re-verify the data used in the calculations, additional sampling should be conducted at least once per month for a twelve month period. The greater the number of samples, the more reliable the results will be. The POTW is encouraged to continue the sampling program over a longer period of time to better characterize the system. The sampling should include the original sample points (assuming these were valid sample points) as well as additional points for domestic sources to better characterize the system loadings. By sampling over an extended period of time, the POTW may also be able to determine whether there are seasonal loadings. This may point to a specific problem and help in developing a solution.
- Conduct sampling, or obtain sample results, for the drinking water source(s) that serve the sewered area. This data should help determine whether the source of the pollutants is the drinking water supply, the domestic wastewater, or small commercial users, and help to establish an approach. The water companies may have this data available over a fairly significant period of time. Where more than one water company supplies the service area, data should be obtained from all of the water companies since the results may be significantly different.
- The POTW should characterize discharges to the system which were previously unregulated by the pretreatment program. Users such as photo developers, doctors and dental offices, dry cleaners, or funeral homes may contribute small quantities of a particular pollutant, but when added together they may contribute a significant loading. This can be especially true where water quality limits are tight. If these users are contributing a significant loading, they should be regulated under the pretreatment program. It is possible to place the same requirements on these users as are placed on the significant users, or a second tier of regulatory requirements can be established. The POTW should evaluate which regulatory scheme would accomplish the greatest strides toward the toxic reduction goals.
- If the source appears to be, at least in part, the water supply, the POTW should approach the water company to develop a possible solution. The water company may be adding treatment chemicals (e.g., copper sulfate, zinc polyphosphate, etc.) which significantly increase the loadings of the pollutant of concern. It may be possible to change chemicals to one that will not cause an unwanted impact on the POTW. If this is not feasible, additional treatment may be possible at the water supply or POTW. Please note that if the solution results in higher costs to the water company, the POTW may need to assume all or part of these costs, unless the POTW has the authority to establish local drinking water requirements.
- If the pollutants appear to be added at the household, the POTW should also develop a program to address these pollutants. It may be possible to control copper from piping through a corrosion control program at the water supply. Pollutants that may be added by people disposing of wastes in the sewer might be addressed through a public outreach program and/or establishing alternative disposal methods such as hazardous waste collection days.