



DEPARTMENT OF
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State of Washington

Guidance Manual for Developing Local Discharge Limits

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Guidance Manual for Developing Local Discharge Limits

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Section I: Intent and References

Intent

This document clarifies the Department of Ecology's (Ecology) expectations with respect to:

- Which municipalities must develop local limits.
- The minimum standards for developing defensible technically based local limits.
- The frequency and method for periodically re-assessing local limits.

Definition

Local limits are discharge standards for the control of conventional, nonconventional, and toxic pollutants. They are specific to the wastewater treatment facility for which they were developed. They are based on the analysis of site-specific information and reflect local decisions on how to allocate available pollutant loadings to non-domestic sources. They typically apply to both significant industrial users (SIUs) and minor industrial users (MIUs), but alternate limits may be set for smaller users and/or other categories of users.

Policy

Ecology's role in setting local limits

Because of the many judgment calls in developing local limits, Ecology requires municipalities responsible for their treatment plant's performance to also be responsible for setting the pollutant limits for their protection. This policy and guidance applies equally to both publicly owned treatment works (POTW) and other treatment works treating domestic sewage (TWTDS). The municipalities and their contributing jurisdictions must obtain Ecology approval for the limits they develop and then codify the limits so that the control authority can apply them. Ecology is the control authority outside of the service areas of the delegated pretreatment programs. Municipalities must adjust their limits as needed and defend their limits against challenges which may arise.

Delegated pretreatment programs

Federal rules require publicly owned treatment works (POTWs) that are developing delegated pretreatment programs to set local limits before they can be delegated pretreatment authorities. Pretreatment rules also require these POTWs to provide an annual summary report of their activities, including an assessment of whether their local limits are effectively protecting their POTW. Ecology would expect POTWs to reduce limits that are not protective. Ecology reviews their local limits as part of overseeing such programs (by reviewing annual reports and during compliance inspections and audits). A delegated POTW must follow the procedures described in 40 CFR part 403.18 for any new or changed local limits. These rules involve providing public notice before relaxing any limits and [under 403.8(b)] providing notice to affected users before establishing any new or more stringent limit.

Other treatment works that must develop limits

Ecology may ask municipalities that have not been delegated pretreatment permitting responsibilities to develop local limits to support Ecology's oversight of tributary non-domestic discharges. This is more commonly a requirement where such treatment works receive wastes from "significant industrial users" (defined at 403.3) or when they experience problems that appear attributable to industrial waste. In such cases, the municipality (NPDES or State Waste Discharge permittee) must develop local limits that identify and limit discharges of the pollutant(s) causing the problem.

Support for non-mandatory local limits

Ecology supports voluntary local limits development and periodic refinement of these limits. Where a municipality follows the processes described in this policy (especially with respect to technical merit, notification of affected users, and Ecology review), Ecology recognizes these as "local limits." According to 40 CFR 403.5(d) such "local limits" are pretreatment standards under section 307(d) of the Clean Water Act (CWA). Ecology is obliged to reinforce applicable pretreatment standards in Ecology permits.

Process for requiring limits

Ecology will require a municipality to develop local limits as needed to properly administer Ecology's pretreatment program. Such limits may be necessary for Ecology to write permits that protect the treatment works. Ecology will include requirements to do sampling and develop and codify local limits as a permit condition (NPDES or State Waste Discharge) or by Order.

Assistance in developing limits

Ecology provides technical assistance to POTWs developing local limits and reviews proposed local limits for technical merit. Where local limits have been properly developed and prior notice was provided to affected users, Ecology will reinforce the more stringent of local limits and other applicable pretreatment standards in permits for discharge to the POTW.

Minor industrial users

Since not all tributary users are significant enough to merit a state waste discharge permit, Ecology encourages local POTW programs to address such "minor industrial users" (MIUs) and set rules for MIUs in their local ordinance. Typical strategies include codifying mandatory best management practices (BMPs) or limits that apply at the end of a specific process (e.g., an oil-water separator or silver recovery unit). While Ecology endorses creative and well considered strategies for MIUs, such programs are beyond the scope of this guidance. They are mentioned here to clarify that POTWs have the flexibility to address them in other ways and do not need to make MIUs subject to the same local limits as SIUs.

Maintaining limits previously developed by Ecology for a POTW or TWTDS

Ecology no longer typically assumes the responsibility of developing limits to ensure the protection of the POTW. Ecology's *Permit Writers' Manual* previously suggested on p. XIII-32, section 2.1.4.3 that Ecology would develop local limits for non-delegated POTWs. This is now the exception rather than the rule. Where Ecology previously developed limits for a POTW, the

POTW should now assume responsibility for managing (maintaining and updating) its limits. Ecology will provide technical assistance by reviewing local limits analyses to concur as to whether or not the limits appear technically defensible. Municipal permit managers at Ecology will inform municipalities of their responsibilities in local limits development.

References

The method described here relies heavily on references to detailed technical guidance materials developed by the EPA. This document does not try to repeat the detailed technical discussions contained in EPA manuals. Rather, it establishes the typical process and the minimum standard for acceptable local limits. This policy references sections of the EPA guidance for further details. Prior to using this document, the reader should obtain the following Ecology and EPA guidance documents and computer programs:

- [Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program](#) (USEPA, 1987)
- [Supplemental Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program](#) (USEPA, 1991)
- *Local Limits Development Guidance*, (USEPA, 2004 EPA pub# 833-R-04-002A&B)
- [Guidance to Protect POTW Workers From Toxic and Reactive Gases and Vapors](#) (USEPA, 1992)
- [Guidance Manual: Using NEWLL11.xlsm to Develop Local Discharge Limitations](#) Spreadsheet and Guidance, Ecology, Water Quality Program, July, 2010
- [Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies](#) (Ecology, Environmental Assessment Program, July 2004, Ecology Pub.#04-03-030)

Section II: The Local Limits Development Process

A. Regulatory background

Federal pretreatment regulations

40 CFR 403.5(c) requires POTWs with a design flow of 5.0 million gallons per day (MGD) or more and receiving industrial wastewater to develop and periodically revisit local limits. This rule also requires smaller POTWs to develop local limits when they need to in order to prevent a recurrence of interference or pass through. By these rules, the process of developing local limits for POTWs must include notice to and opportunity for affected users to respond.

NPDES permit rules

In their NPDES Permit applications [according to federal rules at 122.21(j)(6)(E)] POTWs must identify all of their users subject to their local limits. Rules for NPDES permit contents at 122.44(j)(2)(ii) also requires POTWs that would be large enough to merit a pretreatment

program to provide a written technical evaluation of the need to revise local limits after their permit is issued if the permitting authority sees the need for it. These citations are included in Appendix B.

Ecology's delegated pretreatment program

In 1986 Ecology applied to EPA and received delegation of the authority to act as both the "approval authority" for delegation and oversight of POTW pretreatment programs and as the "control authority" where such programs did not exist. Ecology's delegated program procedures commit Ecology to include conditions in the NPDES permits for POTWs that have SIUs. These conditions include the ability to require, where necessary, a treatment works to develop and codify technically based local limits. Page 12: "In jurisdictions where local programs have not been developed, Ecology can still require local participation in pretreatment."

B. The purpose of local limits

Local limits are developed to implement the general and specific discharge prohibitions in 40 CFR 403.5(a)(1) and (b) and fulfill the objectives of the General Pretreatment Regulations to protect against the discharge of pollutants at a quantity or rate that may:

- Pass through the POTW at levels that violate WQ standards.
- Impair the beneficial sludge (biosolids) uses.
- Interfere with normal treatment operations and collection system functions.
- Threaten worker health and safety through toxic and reactive gases and vapors.
- Endanger the public from air emissions at the treatment plant and in the collection system.

Later sections describe in detail how to derive local limits to achieve these goals. The two main ways, however, are by (1) estimating the loading of a pollutant the treatment works can safely take and dividing the available capacity among non-domestic activities, and (2) establishing limits to prevent adverse effects at the point of discharge (such as for pH, explosivity, or vapor toxicity).

C. How local limits relate to other pretreatment standards

Local limits are one of four types of pretreatment standards. The others are categorical standards, AKART limits, and discharge prohibitions. Federal Regulations in 40 CFR 403.5(d) establish that local limits developed according to that section (technically based and with notice and opportunity for comment by affected industrial users) are Pretreatment Standards under section 307(d) of the Clean Water Act. They are analogous to limits protective of water quality standards for direct dischargers. This means that EPA or a state may take enforcement action for violations of such limits as violations of limits established under the CWA. Following is a brief discussion of the other types of limits and how they relate to local limits.

Categorical standards

Categorical pretreatment standards are developed and promulgated by EPA as reasonable and technologically achievable limits for discharge to a POTW for specific processes for specific industries. They apply to all covered industrial processes regardless of the POTW receiving the discharge. Categorical standards provide a nationally uniform degree of water pollution control, in essence a "level playing field". EPA's [*Guidance Manual for the Use of Production-Based Standards and the Combined Wastestream Formula*](#) (USEPA, 9/85) describes the method of combining more than one categorical standard to obtain an alternate or equivalent limit (the combined wastestream formula or CWF). Local limits do not enter into the CWF. Typically, the local limit is applied to all non-domestic flows at the "end of pipe" after application of categorical standards where all categorical, unregulated, and dilute processes enter the public sewer system.

AKART

A second type of standard, AKART, represents "all known, available, and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington" (90.48.010 RCW). The process for determining AKART limits mimics, in an abbreviated fashion, EPA's methods for developing categorical standards, but on an individual permit basis. AKART limits are the state's method of minimizing pollution. Ecology supports POTWs developing and incorporating AKART-based limits both for their treatment works and in individual permits. AKART limits for discharge to a sewer system may include industry-specific limits such as a 5.0 mg/l limit on silver from photo processing waste treatment systems, a 50 mg/l total petroleum hydrocarbons (TPH) limit for vehicle service facilities, or a 100 mg/l limit for fats, oils, and grease (FOG) from food service establishments. Such limits reinforce reasonable treatment of specific wastestreams and, as such, are applicable at the end of the treatment system for such a waste.

Discharge prohibitions

National pretreatment prohibitions in 40 CFR 403.5(b), and state prohibitions in 173-216-060 WAC apply to indirect dischargers. There are a number of specific prohibitions such as discharges with a pH below 5.0 or above 11.0 or discharges that may be explosive or have toxic vapors. Properly developed local limits reinforce these prohibitions. For example, toluene, based on its Henry's number at normal temperature, can create an explosive environment at a concentration in water of 170 ppm. If we take EPA's recommendation to limit discharges to 10% of this lower explosive limit (LEL) a local limit of 17 ppm, applied at the point of discharge to the sewer, is warranted if any user may be discharging toluene. While local limits for metals are based on dividing up available "headworks loadings," local limit to reinforce prohibitions are applied at the point of discharge. As such, they don't require a headworks loading analysis. Reference #4 describes how to develop local limits to avoid explosive or toxic environments.

Tools for setting toxicity or explosivity limits

As an "end of pipe" standard for explosivity, Ecology promotes two methodologies: (1) establishing a 300 PPM hexane equivalent explosivity standard for the combined discharge as detailed by EPA in reference #4, or (2) limiting individual substances (taken separately) to 10% of their respective LELs. For vapor toxicity, similar equations must be used to protect against concentrations exceeding the exposure standard in the sewer. Vapor toxicity considers either the

threshold limit value as a time weighted average – (TLV-TWA) or the short term exposure limit – (STEL). The applicable formulas and tabulated results for a number of substances are included at the “Toxic-Explosive” tab of the local limits workbook. The workbook also includes (hidden tab) a copy of the state’s exposure standards (from WAC 296-62-07515). To see a hidden tab, right click on any tab in the workbook and click on “unhide”.

Summary

The full list of local limits includes: local limits reflective of AKART (e.g., TPH and FOG); local limits enforcing prohibitions (e.g. pH, toxic, or explosive substances); local limits developed by allocating available headworks’ loadings of conservative pollutants; and load allocations for conventional pollutants.

Section III: When to Develop Local Limits

Federal rules at 40 CFR §403.5 require POTWs to develop local limits or demonstrate they are not necessary when:

1. They are developing a POTW pretreatment program (§403.5) or have a program and are reapplying for their NPDES permit [§122.44(j)].
2. They receive wastewater from a Significant Industrial User [defined at 40 CFR §403.3(u)], or
3. They receive wastewater from any other non-domestic sources, and have had:
 - a. Pass through of pollutants.
 - b. Operational problems or interference.
 - c. Sludge pollutant levels limiting biosolids use or disposal.
 - d. Toxic gases, vapors, or fumes causing worker health and safety concerns.
 - e. Violations of their NPDES permit likely attributable to non-domestic users.

State rules give Ecology broad authority to include conditions in NPDES and State Waste Discharge Permits for treatment works which compel the POTW to participate in and support pretreatment requirements. Ecology will typically require the municipality operating either a POTW or other TWTDS to develop local limits when one of the above triggers is met. This requirement may be relayed to POTWs by Ecology through a written request, Order, or by existing permit language, (NPDES permits predominantly), that compels this work upon request by Ecology if a certain event occurs.

Section IV: How to Develop Local Limits

A. Identify pollutants for initial screening

General methodology

If the treatment works has a small proportion of non-domestic flow (2% or less) AND has not seen any adverse effects in the collection system or at the treatment plant that may have been caused by the non-domestic sources, you can skip this step and start at section IV.B. However, if

your treatment works has a larger industrial component or problems in the collection system or at the treatment works, you must start the process by deciding what pollutants to develop local limits for. To do this, the municipality first develops an inclusive list of all potential pollutants of concern, samples for these pollutants in the influent and effluent and then, based on the results, refines the list to the “pollutants of concern”. This section describes how to do this.

Making the list for initial screening

The first step in developing local limits is to determine which pollutants may be a concern to the POTW. Pollutants of concern are those that might have a potential to violate the protections the pretreatment program intends to provide. Ecology recommends that your list of pollutants for initial screening include all of the following:

1. *All pollutants with water quality criteria.* From time to time EPA sets new water quality (WQ) criteria for pollutants that pose a threat to the environment. Ecology recommends that POTWs developing local limits screen for any pollutant with EPA-recommended WQ criteria. A current list is at: <http://www.epa.gov/waterscience/criteria/wqtable/>. If the treatment works is discharging to ground, applicable receiving environment criteria are in Chapter 173-200 WAC.
2. *Conventional pollutants for which the POTW may become organically overloaded.* BOD5, TSS, ammonia, (if treating for ammonia) and COD (carbonaceous oxygen demand) in the influent and effluent (to gauge the proportion of non-biodegradable organic pollutants that go through the POTW).
3. *Chemicals used by local industries.* This requires the treatment works survey all known industrial users and require that they provide a list of chemicals that they use. (See Ecology guidance on IU Surveys for more information). In addition, review permit applications from any users already permitted by Ecology. Compare chemicals used to pollutants listed in 40 CFR 122 Appendix D, tables 1-5. Add any pollutants that appear in both lists, would be a dangerous waste, or are flammable or toxic and are used in significant quantities.
4. *General chemistry compounds.* This includes total chlorides; total dissolved solids; nitrate; sulfide and sulfate; phosphate; pH; both total and petroleum based oil and grease; and any pollutants that are believed to have caused problems in the past (pass through, interference, degraded sludge quality, vapors).
5. *Pollutants the receiving water has a diminished capacity to accept.* Understanding what may be limited in the receiving environment requires reviewing prior ambient studies done by credible sources. If the data appear to indicate that high levels of a pollutant already exist, the treatment works may wish to first conduct “clean sampling” for that pollutant in the receiving environment.
6. *Pollutants possibly causing Whole Effluent Toxicity (WET).* Such tests show if the effluent has acute or chronic effects on fish or plants. If toxicity has been demonstrated by WET tests, the treatment works should try to ensure that the screening provides the

greatest utility possible in identifying the pollutant(s) causing or contributing to the toxicity.

Note: The above categories overlook entire classes of pollutants which are emerging as a concern to the environment. These include flame retardants, pharmaceuticals, surfactants, nano-materials, plasticizers, pesticides, biocides, radioactive substances, and endocrine disrupting chemicals to name a few. Ecology supports programs to reduce the discharges of such substances into the treatment works whether from industrial or more diffuse (commercial or residential) sources. However, until we establish “safe” levels for the environment, developing local limits to control such pollutants exceeds the scope of this guidance.

Conducting the initial screening

After compiling the list of potential pollutants of concern for initial screening, decide how to monitor for these pollutants and whether to monitor more than the influent and effluent (such as a trunk line from an industrial area or purely residential area). Sample each analyte using the proper collection method (e.g., grab or composite) and analysis method (use the most sensitive 40 CFR part 136 method where one exists for the analyte). Determine how to properly collect the samples (e.g. type of sample bottle; sample volume; head space; preservation; refrigeration; and chain of custody).

Additional information about sample types can be found in Chapter VII, Tables VII-3 and VII-4 of the Ecology's Permit Writer's Manual (reference 6). This includes recommended detection limits for priority pollutant analyses. You will need to find a laboratory that can provide the sensitivity that you need to decide whether each pollutant is a concern. You should choose to sample on a day you think industrial activity will be normal or above for the sampling. Time the sampling to capture any type of recurring disruption seen at the treatment works, and delay effluent sampling by one detention time after influent sampling begins.

Evaluating the Screening Sample Results

The next step is to evaluate the results, together with any other relevant influent and effluent sampling, to see which pollutants are present at concentrations that are a concern. One way to eliminate chemicals as “non-industrial” is to take a sample from a purely residential trunk line. Consider for “pollutants of concern” only pollutants that are significantly higher at either the headworks or in industrial area sample than they were in the “domestic only” sample.

B. Determine “pollutants of concern” for continued monitoring

After getting the results of sampling for potential pollutants of concern, you have to develop a much smaller list of actual “pollutants of concern” for which to do the more intensive monitoring sufficient to establish a loading allocation for industries.

Some compounds will need local limits, but not because of a load allocation strategy. These do not need to be included in the list of pollutants of concern for continuing monitoring. For example, EPA recommends POTWs develop limits for pH, oil and grease, and to protect against vapor toxicity and explosivity. Such limits all apply at the point of discharge, and thus treatment works do not need to include them in their sampling regime. Local limits for such substances

don't require knowing the available headworks loading, or how well the pollutant is removed across the treatment works.

In similar fashion, EPA-recommends control strategies for compatible organic pollutants (BOD, TSS, ammonia). But there is no need to take samples for these pollutants if the treatment works already routinely samples these compounds. POTWs typically have enough information already to establish their load allocation strategy for industrial users.

"Pollutants of Concern" should include any toxic pollutant for which the treatment works has a permit limit. Also, include the EPA recommended minimum list of pollutants for all treatment works: arsenic, cadmium, chromium, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, and zinc. These pollutants are amenable to headworks loading allocation, and thus are amenable to such a monitoring protocol.

Chapter 3 of reference #3, *Local Limits Guidance Manual* (USEPA, 2004) is titled: "Determining Pollutants of Concern" and is an excellent reference on the methodology for screening for pollutants of concern. The question to ask is whether the concentration found during initial screening is high enough to warrant additional monitoring.

Section 3.4 of the EPA *Local Limits Guidance Manual* summarizes that pollutants should be considered pollutants of concern if they:

- Are on EPA's list of 15 pollutants that a POTW should assume to be of concern.
- Have a pre-existing local limit.
- Are limited by a permit or applicable environmental criteria.
- Have caused operational problems in the past.
- Have important implications for the protection of the treatment works, collection system, or the health and safety of POTW workers.

Other (prior) EPA guidance is also helpful, suggesting that when reviewing the initial screening include pollutants as "Pollutants of Concern" if that screening found:

- The maximum concentration of the pollutant in the POTW's effluent is more than one half the allowable effluent concentration required to meet water quality criteria/standards or the maximum sludge concentration is more than one half the applicable sludge criteria guidelines.
- The maximum concentration of the pollutant in a grab sample from the POTW's influent is more than half the inhibition threshold or the maximum concentration of the pollutant in a 24-hour composite sample from the POTW's influent is more than one fourth the inhibition threshold.
- The maximum concentration of the pollutant in the POTW's influent is more than 1/500th of the applicable sludge use criteria. (The use of a "1/500th" reference level is suggested based on a review of POTW data [Fate of Priority Pollutants in POTWs - EPA/440/1-

82/303]) indicating that a 500 fold concentration of pollutants can occur in digested sewage sludges as compared to the wastewater influent to the treatment plant).

- The concentration of the pollutant in the plant influent exceeds water quality criteria adjusted through a simple dilution analysis.

C. Monitor for the pollutants of concern

Once the treatment works decides on the pollutants of concern, the next step is to monitor to establish the pollutant levels and removal rates. Ecology recommends that you obtain at least two quantifiable samples on consecutive days for four quarters (eight valid sample results) as a minimum. While more data would be useful, Ecology believes this yields the minimum defensible data set for “technically based” local limits. Take two samples per quarter at the influent, primary clarifier effluent, and final effluent, and at least one sample per quarter of biosolids. Composite at least four grab samples for each final biosolids sample. Take this sample of biosolids after the final treatment step, but before any blending or composting step.

The suggested sample type, duration, and timing are discussed in the Permit Writers Manual in the POTW monitoring section, Chapter XIII, section 2. The minimum data set which Ecology suggests permit writers accept is described in section 2.1.4.3. This reinforces that local limits must be based on at least quarterly sampling for one year for all pollutants of concern at the influent, primary clarifier effluent, final effluent, and sludge. By comparison, section 2.5 of the EPA local limits manual suggests that any POTW developing local limits take at least five consecutive days of sampling for metals and organics to establish local limits, and that the POTW continue with monthly monitoring for metals thereafter (which would total 16 samples in the first year).

Note that collecting only four samples will leave considerable statistical variability in the data. A more statistically-defensible regime would be to take two samples per quarter on consecutive days for four consecutive quarters - a total of eight sample points. The permit writer and POTW should consider that reducing the variability of the data through collection of additional data points is typically to their mutual advantage. Ecology believes that eight samples for pollutants of concern is a good compromise between the sampling cost and the value of the additional data.

Monitoring starts with appropriate sample collection, preservation, and transport. Samples should be taken as flow-proportionate composite samples where a composite sampler is appropriate for the analyte. Otherwise a grab or a composite of at least four samples should be used. Samples should be collected and preserved as specified in 40 CFR part 136. Note the preservation method used on the chain of custody form. To calculate removal rates across the treatment works, you must link influent and effluent samples. To do this, start sampling the effluent (grab or composite) one hydraulic detention time after influent samples. The detention time equals the time it takes for the POTW to receive flow equal to the total volume of all treatment tanks online on the day of sampling. Include primary clarifiers, aeration basins, and secondary clarifiers. Do not include any sludge storage tanks.

After the lab analyzes the samples and reports the results to you, you will need to assess the quality of the data. Ecology recommends developing a Quality Assurance Project Plan (QAPP)

to minimize the potential for errors which might occur in each step. Ecology's guidance for QAPPs can be used to verify that the sample results meet the data quality objectives for accuracy, precision, and bias. Cities can download Ecology's guidance (Ecology Publication 04-03-030), from Ecology's web site. The QAPP helps the person doing the local limits evaluation evaluate the quality of the data collected.

For sampling

Clean sample methods, EPA Method 1669, should be used for sample collection and preservation for effluent and receiving water samples that are amenable to this method. Where a composite sample is taken, however, the method must be modified slightly, as it was designed for grab samples. Use clean sampling for influent, primary clarifier, and industry sampling until you can be sure that a less sensitive method will reliably quantify the pollutants of concern in these waste streams. The clean sample method guidance lists the sample analysis methods consistent with "clean sample" techniques.

Understand the costs and benefits of the sampling and analysis methods you choose. Less rigorous sample collection and analysis protocols will yield more variable data which may provide false-positive results (indicating problems that don't really exist) or inconclusive results. Use of a more sensitive method instead may cost more initially, but to show conclusively that no reasonable potential to exceed water quality standards exists tends to be cost-effective versus continued sampling for pollutants that may appear necessary when false-positive results are obtained. Use the most sensitive method possible during the initial screening to determine pollutants of concern, since the results will be used to delete pollutants from further analysis.

Collect monitoring data for all potential pollutants of concern (both conventional and toxic) in the POTW influent, primary clarifier effluent, final effluent, and sludge. Ecology may require that you provide all data to Ecology for Ecology's endorsement prior to the municipality adopting the local limits (codifying them in a local ordinance).

For those pollutants for which local limits are established by allocating available headworks loadings to industrial users, you may wish to use the freely available program developed by the Water Quality Program "NEWLL11.xls". This group of spreadsheets, called a "workbook" contains a spreadsheet "sampling.xls" specifically for entering sampling data. Concurrent with this policy and guidance, Ecology is publishing instructions for using the spreadsheet program under separate cover. This user's manual can be found by searching for "Local Limits" at Ecology's publication website. Whether or not you use this spreadsheet to calculate local limits it may be useful for some portion of the process, such as entering and compiling sampling data. This spreadsheet automates, to some degree, the data evaluation process and feeds summarized data to the local limits calculation program. Even so, it cannot replace experience and good judgment in assessing the quality of the data collected.

D. Analyze the data

If you developed a QAPP for the sampling, compare the data quality parameters to the data quality objectives in the QAPP. Then evaluate whether the sampling met your goal, and if not, whether to take more samples or proceed with the data analysis. The sampling, when completed, should allow you to calculate the existing pollutant loadings, removal efficiencies across various

processes, and the quantities of pollutants in the sludge and the plant effluent. The next section (E) and Appendix 3 describe Ecology's spreadsheet tool for evaluating the sampling data (and handling results below the detection levels).

If your data quality is acceptable, you will next need to process the raw data. Chapter 3 of the EPA local limits manual discusses the formulas used to derive local limits for conservative pollutants. These formulas are explained in greater detail in Appendix 3.

Developing local limits from headworks loadings involves four basic steps. First, calculate the maximum allowable headworks loading (MAHL) the treatment works can accept before risking operational, effluent, or sludge quality problems. Second, calculate the amount of the loading that the treatment works is receiving from domestic sources. Third, subtract this domestic loading from the MAHL. The result is the Maximum Allowable Industrial Loading (MAIL) and the reserve. Fourth, divide up the MAIL.

There are several options for dividing up the MAIL. The simplest (and most common) is to take the available loading allocation (maximum allowable headworks loading minus the domestic loading) and divide it by the known (or anticipated) industrial flow component to get a concentration-based limit that is applicable to all industrial users. EPA's local limits manuals refers to this as the "uniform allocation" method. Other methods may be equally or more effective in certain cases, though. Three other ways to set limits which you should be aware of include:

- **WYNIWYG:** Establish what each industry needs and provide only that loading, keeping the rest in reserve. This is known as the "What you need is what you get" (WYNIWYG) method, and has been used to good effect in a number of situations nationally. This promotes reduction in pollutants to the maximum extent practical.
- **MASS LIMITS:** Another method is to provide mass limits as opposed to concentration limits for pollutants. This provides an incentive for reducing flows, which in turn usually has the effect of reducing the overall loading and reducing the environmental hurdle of having to contend with a concentration-based limit that is more difficult to meet with a less dilute effluent flow volume. Other methods which are generally less applicable such as the "targeted reduction" method are included in the EPA manual on development of local limits referenced previously.
- **TARGETED REDUCTION:** If the treatment works is receiving more than its MAIL for a pollutant you may want to employ the "targeted reduction" approach, where you look to see where the pollutant can be reduced at the lowest cost. Some industries may have wastestreams that are highly concentrated. Others may be able to reduce a significant mass of the pollutant by product substitution. Use of this method requires you to know the sources of the pollutant and options for reducing the loadings from tributary industries.

If you know how the data is used to calculate limits, you are more likely to select good monitoring locations, monitoring frequencies, sample types, and data analysis methods. For this

reason, we suggest you understand the entire process of developing local limits before you monitor to develop local limits.

What to do if you don't have all the data I need: It is always preferable for a POTW to use site specific data for estimating its domestic contribution and removal rates across the treatment process. In some cases, however, this information may not be available. Where you must derive local limits absent this information, you will have to presume something. For such cases, Ecology has included additional guidance in the instructions for Ecology's spreadsheet that describe how to use some built in tools to do this when necessary.

Section V: Electronic Tools

Analyzing data with Ecology's Excel® Workbook

Ecology developed a workbook in response to requests for a tool to automate the local limits development process. The last EPA spreadsheet tool (PRELIM5, USEPA) was published in 1996. Not only is it obsolete, but it did not display the calculations being performed on the data and thus the results could not be verified. Nor was it possible to update the formulas to incorporate the equations used by EPA in their Technical Support Document for WQ Based Limits. Ecology developed a spreadsheet in the mid 1990s to fill the need for an electronic tool that would make this task easier and foster consistency. Ecology uses this tool and shares it upon request. It is available to cities for their use in developing local limits.

Instructions for the use of this tool are included in Appendix C. This workbook provides some basic tools for management of conventional pollutant loadings to support EPA's position that such capacity management is part of the pretreatment program (See 2004 update to EPA's Local Limits Guidance Manual). It also provides a spreadsheet of examples of how to calculate limits protective of toxic and reactive gases and vapors. While by no means exhaustive, it does provide far more guidance than was previously available on this subject.

One area that is sometimes problematic for those attempting to automate the local limits development process is calculating limits for non-conservative pollutants. The presumption for conservative pollutants, such as metals, is that what does not go out in the effluent goes into the sludges, and the sum equals what enters the plant. This "removal rate" or partitioning allows for a ready double-check of the data quality (mass coming in must equal mass leaving). Because non-conservative pollutants not only partition to the sludge or effluent but also degrade or volatilize in the treatment process, this presumption doesn't hold true, and one must collect enough data to estimate the biodegradation rate.

Ecology's workbook includes a spreadsheet that describes how to use the program for non-conservative pollutants. For this task, you will need to collect a bit more information. You will need to collect good data on the influent, primary clarifier, activated sludge, effluent, and biosolids.

Section VI: How to Apply and Maintain Local Limits

A. Implementing local limits

After you develop local limits for conservative pollutants (using the spreadsheet tool or other method), you will need to compile them with any other local limits, such as described in section II.C.

These include limits for non-conservative pollutants, limits designed to reinforce AKART, limits for protection against vapor toxicity, explosivity, or other prohibitions, and conventional pollutant limits (or control strategies). For example:

Basis of Limit	Pollutant	Limit (example)
Conservative Pollutants	Arsenic (T)	
	Cadmium (T)	
	Chromium (T)	
	Copper (T)	
	Lead (T)	
	Mercury (T)	
	Molybdenum (T)	
	Mercury (T)	
	Nickel (T)	
	Selenium (T)	
	Silver (T)	
Non-conservative pollutants	Cyanide (total)	
AKART	Total Fats, Oils, and Greases	100 mg/l
	Total Petroleum Hydrocarbons	50 mg/l
Specific prohibitions	(pH) pH	5.0<pH<11.0
	(explosivity) Gasoline	0.5 mg/l
	(explosivity) Benzene	20 mg/l
	(explosivity) Toluene	17 mg/l
	(vapor toxicity) Gluteraldehyde	18 mg/l
	(vapor toxicity) Chloroform	0.4 mg/l
	Conventional pollutants	BOD (applies at > 1 lb/d)
(Limits apply until a capacity contract signed)	TSS (applies at > 1.5 lb/d)	300 mg/l
	Ammonia (applies at >.2 lb/d)	50 mg/l

After compiling all applicable local limits, the municipality must provide affected users notice of the proposed (or revised) limits, and opportunity to comment on the limits. Since the ordinance adoption process is usually a public forum, this might suffice (consult your legal representative to be sure).

Some municipalities have chosen to cite their local limits by reference in local ordinance. Should you choose not to codify your local limits in local ordinance (e.g. the ordinance alludes to limits kept by the Director), you will still need to provide notice to affected users, publish the limits, and the municipality's legal representation will need to endorse the local limits as legally defensible before Ecology can accept them. You will need to include this analysis and endorsement with the local limits submittal provided to Ecology.

After addressing industry concerns about the local limits, they must be given legal standing. This is done when a local jurisdiction codifies them by adopting the limits in a local sewer use or pretreatment ordinance. Ecology has a model sewer use ordinance for this purpose that provides language for clarifying several important points about the local limits, such as:

- Where the local limits apply*
- Who the local limits apply to – especially FOG/TPH
- How compatible pollutants (BOD, TSS, and Ammonia) are regulated
- How to assess compliance with the pH limits.
- When a mass limit applies instead of a concentration limit
- When alternative limits apply to a specific process.
- When compliance with BMPs is considered compliance with the local limits.
- How certification statements are used (including format and frequency).
- What monitoring records must be kept, and for how long.

* Where pollutant loadings are closely managed, limits might apply at different points.

Municipalities can choose to divide their available pollutant loadings across only the flows from sources that may have that specific pollutant. This “contributing flows” method requires limits to be applied to the recognized contributing flows and to limit all other users to essentially domestic levels. Where limits are based on dividing available loadings only over the industrial flows, they would apply at the end of each process or activity identified as contributing the pollutant. In the latter case, all other industrial flows should be limited to the presumed “domestic” concentration of the pollutant. The pretreatment ordinance that codifies the limits must establish the intended point of compliance.

After the municipality that owns the treatment works codifies its local limits, it must ensure that it has enforceable “inter-jurisdictional” agreements with all tributary collection systems. The minimum content that such agreements must address is described in EPA’s manual *Multijurisdictional Pretreatment Programs – Guidance Manual* (USEPA, June 1994). Such agreements must describe who is responsible for carrying out each aspect of the program in the contributing jurisdiction. For example, the responsible party for locating industries, ensuring they do not discharge until they have a permit, issuing permits, sampling, and taking enforcement. The regional pretreatment engineers can provide this manual on request.

After local limits are codified, they must then be applied to each discharger subject to the limits. This is the responsibility of the "control authority". The control authority is the delegated pretreatment POTW, or Ecology's Regional Water Quality Program offices if the POTW has not been delegated the authority by Ecology to issue permits.

The Control Authority issues or modifies permits with local limits for businesses that merit a permit. The permit should apply limits for any pollutant for which the raw wastewater concentration (prior to treatment) might exceed the local limit. The Control Authority should require at least one sample analysis to make this determination (a baseline monitoring report is required for categorical industries). Where an existing permit already limits the pollutant to a less stringent standard, the Control Authority must update the permit to the more stringent limits as quickly as practicable.

Ecology's Permit Writer's Manual (Reference 6) contains the procedures Ecology applies in writing permits, and all delegated pretreatment programs have approved procedures for permit writing.

B. Updating local limits

A variety of factors can change the presumptions upon which your local limits are based. These include new or changed standards, changes in the volume or proportion of industrial flow, new mixing zone ratios, and new information from sampling. Treatment plants with local limits must periodically revisit them to confirm they are still protective in light of such new information.

Pretreatment POTWs: Ecology policy is to require all delegated POTWs to evaluate the adequacy of their local limits once a year as part of their annual report. Federal NPDES permit program rules are somewhat vague, requiring delegated POTWs to submit a written technical evaluation of the need to revise their local limits following permit issuance or reissuance.

Non-delegated treatment works: If your municipality doesn't have a delegated pretreatment program, you need to include an evaluation of the adequacy of your local limits in your permit application (every five years). If you find that a more stringent limit is required to prevent problems at the plant, you will need to promptly develop it. Please be proactive in this task. All treatment works are held responsible for meeting their permit limits, even if they haven't been required to develop local limits and don't issue the permits to tributary users.

All treatment works must obtain approval from Ecology prior to relaxing their local limits. Ecology will expect to see a technical basis (as described in prior sections) for any proposed changes. Pretreatment POTWs will also need to follow the procedures of 40 CFR 403.18(b) and (c) for significant pretreatment program modifications if the new limit is less stringent. These procedures require public notice when less stringent local limits are proposed, and that affected users are notified in advance of any new or more stringent limit.

If you are the Control Authority, you will need to implement any newly-promulgated more stringent limits for existing permits as soon as practicable. Where the new local limit is less stringent than the previous local limits, you may opt to wait until the next permit cycle to update

the permit unless this causes a hardship for an industry. Unlike direct discharge standards, the anti-backsliding rule does not apply to local limits because they are not “effluent limits” but indirect discharge standards. Local Limits were specifically exempted from the anti-backsliding provisions of the Clean Water Act.

Section VII: Where to Find Additional Information

For additional guidance on developing local limits, municipalities should consult the references listed in Section I of this document and also discuss the subject with the contact person at Ecology for their wastewater treatment plant permit. If unknown, the Regional Pretreatment Specialists can put you in touch with this person and provide currently available tools for this task, such as the most current version of any Ecology guidance for IU Surveys or Local Limits development. Ecology staff should consult their Regional Pretreatment Specialist for this purpose as well. As of the writing of this document the regional pretreatment staff:

Northwest Regional Office:	Doug Knutson	425-649-7025
Southwest Regional Office:	Dave Knight	360-407-6277
Eastern Regional Office:	Scott Mallery	509-329-3473
Central Regional Office:	Dean Smith	509-454-7846