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Effluent Guidelines Task Force
Report No. 5

Recommendations on Streamlining the Effluent Guidelines Development Process

Introduction

In early 1996, EPA and the Natural Resources Defense Council began discussions on the Effluent Guidelines Consent Decree (*NRDC et al v. EPA*) regarding promulgation deadlines for ongoing and future rulemaking projects. NRDC has expressed concern over EPA's current estimate of 8-1/2 years to issue a typical effluent guideline (1-1/2 years to award a consulting contract followed by 7 years for rule development). NRDC and EPA have asked the Effluent Guidelines Task Force to develop recommendations that would shorten the effluent guidelines development process. These recommendations were discussed and approved at Task Force meetings between 1996 and 1999.

1. Improvements in Questionnaire Surveys and Data Collection

Recommendation 1.1: Review Past Technical Surveys
[Approved by Task Force 1/28/97]

EPA should review its past engineering questionnaires. Common questionnaire elements should be extracted and refined for usefulness in future rule projects.

Discussion

This process may lead to shortened questionnaires and could save development time and shorten response times. It would probably require a team effort consisting of staff who have developed previous questionnaires. It is unclear whether this work could be done in time to have an impact on the Iron & Steel questionnaire. Shortened questionnaires might not save a lot of time in an overall rulemaking schedule, if EPA still needs answers to industry-specific questions. An industry-specific questionnaire would still need industry comment, public review, Office of Management and Budget (OMB) review, etc.

Recommendation 1.2: Utilize Existing POTW Information
[Approved 1/28/97]

EPA should gather existing industry information from sources including but not limited to POTWs to reduce need for questionnaire data. Cooperative agreements between EPA and organizations such as the Association of Metropolitan Sewerage Agencies (AMSA) and Water Environment Federation (WEF) may be an effective vehicle for joint data collection efforts.

Discussion

The Task Force made this recommendation in a previous report, but did not receive a formal response from EPA. EAD staff currently work with publicly owned treatment works (POTWs) to gather existing data on industries. This was done voluntarily for the Metal Products and Machinery (MP&M) Phase 1 rule and for the Textile Preliminary Study. However, POTWs typically collect effluent data, and thus only have limited data on influent/effluent quality, which is needed to calculate removal efficiencies. Raw waste, production, treatment and economic data may also not be available from POTWs. The MP&M Phase 2 project is directly surveying POTWs with an OMB-approved questionnaire; this is the first time EPA is surveying POTWs in this fashion.

Recommendation 1.3: Electronic Data Transmission
[Approved 1/28/97]

EPA should move towards exchanging data electronically, short of a full "electronic form" with respondent data entry.

Discussion

EAD would need to determine what data could be transmitted electronically (by e-mail or diskette), what authentication procedures are needed, etc. These procedures could be developed once for use in several projects. This could improve quality of data transmission to EPA, and might save some time on the follow-up calls typically required for completed questionnaires.

Recommendation 1.4: Direct Respondent Data Entry
[Approved 1/28/97]

EPA should explore direct respondent data entry, with the Agency doing quality control (QC) of the database rather than QC of completed hard copy forms.

2. Improvements in Sampling Visits and Laboratory Analysis

Recommendation 2.1: Use POTWs and States to Do Field and Lab Work
[Approved 5/21/97]

EAD should evaluate using universities, states, and POTWs to perform site visits, sampling and analysis to leverage its own resources and accelerate project schedules. EAD should also consolidate control of sampling and analytical services within EAD, to facilitate leveling of effort and reduced costs.

Discussion

Cooperative agreements with AMSA and WEF could be utilized to conduct site visits and field sampling with the caveat that EPA would still need to have staff in the field for coordination and education. It would effectively expand EPA's workforce, increasing the databases for rulemaking projects and potentially expediting the field sampling efforts.

For this approach to succeed, EAD and participants would develop a work plan specifying each party's roles and responsibilities, QA/QC procedures, data management, who would assume which costs, setting realistic deadlines, etc.

EAD should leverage its own resources by contracting with other agencies to conduct site visits, sampling and analysis, such as universities, stales, and POTWs. Centralizing sampling and analysis control within EAD may help to level demands for sampling and analysis, which could improve contract pricing and lab turnaround time. (See discussion Recommendation 4.0.)

<u>Recommendation 2.2: Determine Analytical Method Objectives at Beginning of Project</u>
[Approved 5/21/97]

EAD should involve stakeholders at the outset of planning for a guideline, to provide advice on what chemicals or pollutants will be looked for, where to look, and how to analyze them.

<u>Discussion</u>

EAD currently determines analytical objectives in terms of parameters of interest and quantification levels required prior to selecting an analytical method. EPA does not necessarily consult with states and POTWs, but it selects the most cost-effective analytical method that meets its data quality objectives. However, this could be further evaluated or pursued.

It is critical to involve stakeholders at the outset of the guidelines development, including involving them in the planning process for sampling and analytical efforts. Stakeholders should be able to provide meaningful input into what chemicals end pollutants will be looked for, where they might be found, and how they are analyzed. By availing themselves of the considerable expertise contained in private industry, in states end municipalities, and in universities, EAD may improve the quality and quantity of in formation it uses to manage a guideline's development, possibly preventing technical disagreements between EPA and stakeholders at later stages in the process. Detection limits should be established at appropriate levels so that resources are not spent achieving a level of data quality that is unnecessary.

<u>Recommendation 2.3: Obtain Lab Results Faster</u>
[Approved 5/21/97]

EAD should minimize the number of contract labs it uses. and fully implement the improvements under way including, 1) automate more of the data review function, 2) evaluate specific analytes as opposed to looking for priority pollutants, 3) use results of screening tests to drive the next set of data decisions, 4) prepare the sampling and data validation plan as early as possible 5) use the special analytical services contract strategically. EAD should evaluate using university labs. Implementation of recommendation 2.1 may facilitate a leveling of demand, resulting in better laboratory performance.

Discussion

One area where real time savings could be realized is in sample turn-around time. The contract labs can be very tardy in returning sampling results to EPA. This can be further delayed by the sample control process. (EPA uses a contractor to run its "Sample Control Center", which coordinates the sampling activities of various laboratories, provides quality control, and standardizes computer data base development.) In the past, penalty provisions for late results have not been effective in improving turn-around time. This perhaps could be improved by better staging of sampling and/or other mechanisms to improve contractor performance.

Two things drive the data quality demanded of EAD's contract labs: legal requirements and EAD's experience in defending data. Without changing data quality objectives, the potential for improving lab turnaround time should focus on lab performance. This has been negatively affected by changes in the environmental laboratory market. Several labs under contract have merged, and some have left the market altogether. As a result, new learning curves for new labs and/or lab staff exist where they had not existed previously, slowing turnaround. At the same time, the amount of lab work needed by the Office of Water is less than in previous years. making it a smaller customer with less money to spend. This has affected the priority given to OW's work by their lab contractor. EAD staff report that their new contract labs are close to completing their learning curves, and expect turnaround to improve.

Minimizing the number of labs under contract would make the value of the contract more attractive to the lab contractor, end require less coordination. Lab contracts currently include both sanctions for nonperformance and incentives for good performance . EAD staff report that the contract structure is appropriate. The possibility of joining with another EPA media office to consolidate lab services and increase the value of a contract was judged to be impractical, because of the differences among media which would drive choices of analytical methods, and the different data quality objectives required by law.

Other strategies that may be productive include: 1) automate more of the data review; 2) evaluate specific analytes for an industrial category, as opposed to just looking for priority pollutants; 3) use results of screening tests to drive the next set of data decisions; 4) prepare the sampling and data validation plan as early as possible in order to more effectively coordinate sampling events; and 5) use the Special Analytical Services contract strategically.

3. Contracting Procedures and Laboratory Performance

Recommendation 3.0: Improvements in EPA Contracting Procedures and Laboratory Turnaround Time

[*Approved 5/21/97]

EPA should evaluate consolidating all sampling activities and placing them with the Analytical Methods Staff. EAD should also evaluate using an Indefinite Delivery/Indefinite Quantity contract that covers several guidelines. Reorganizing the Contracts Management Division to provide better focus on project needs should be supported. EAD and Contracts staff should be asked to explore the options that have been suggested, as well as to propose other ideas.

Discussion

Eighteen months is about the best that can be expected with the current Agency contracting policies which include notices in *Commerce Business Daily*, proposal preparation, and pre-audits by the Department of Defense before proposals can be accepted. Pre-audits are done on the basis of priority.

The contracting system does not work well because it takes too long to execute a contract. In addition, because of the specialized nature of the work and the very small number of potential vendors, the process is not resulting in increased competitiveness, or in meeting the social goals of small, disadvantaged, minority or women-owned business participation.

Because of the limited knowledge that Task Force members have of the legal and administrative requirements that exist to address goals such as equal access, accountability and avoidance of conflict of interests, we are unable to recommend specific changes that could be made to speed up the process.

Identifying policies and procedures that can be waived or modified if someone with enough authority wants to, may provide information on streamlining opportunities.

EAD staff have been exploring, with the contracts office, the use of broader-scope contracts and the implication of current multi-award contract requirements on the ability of the Agency to direct specific industry work assignments consistently to the same contractor. If new contracts could be arranged so that one contract could serve several regulations, then significant time savings could be realized. The current arrangement/organization is not working to produce contracts in a timely manner. Therefore, changes should be made to the contracting cycle.

The Office of Air and Radiation awarded an Indefinite Delivery, Indefinite Quantity (IDIQ) contract in October 1996, but as of May 1997, it has not yet issued any delivery orders. Since this involves buying a product instead of hours in a level of effort contract, the specifications are being changed. EAD may be able to learn from the Air office experience. Since the IDIQ approach is new to EAD, staff will need to spend time understanding how to be effective with it. The time spent learning may mean that any time savings or efficiency gains will be realized several years in the future.

The reorganization of the Contracts Management Division in Cincinnati holds promise. Dedicating Contracts staff to OW should provide en opportunity for staff to develop expertise in OW's issues. This should shorten some of the contracting sequences.

In addition to the functional contracts for statistics and economics, EAD should centralize the sampling function under a single contract. Placing this responsibility with the Analytical Methods Staff makes at least nominal sense, since they are responsible for sample analysis, and their Sample Control Center contract already includes sampling tasks. Consolidation should help level the demand for sampling activity which should lead to improved data turnaround times. It may also have the added benefit of reducing data collection costs. Consolidation would add some additional elements to the coordination between the Analytical Methods staff and the other branches, but should not change the field work; EAD engineering staff would continue to participate in, and where appropriate, direct the field work and make on-site decisions.

Recognizing that continuity of expertise is important in guideline development and that guideline knowledge must be stewarded, each guideline should continue to use a separate, guideline-specific contract. Or, several guidelines could be made part of a single IDIQ contract as separate delivery orders.

EAD staff believe it is unrealistic to do more work in-house and rely less on contractors, given Federal personnel rules and the uncertainty of annual budgeting cycles. A recent attempt by EAD to expand staff through an Agency-wide "contractor conversion" effort took a great deal of time and was not successful at acquiring staff for all of the specialized positions. Since it is unlikely that EAD will ever have the staff resources to produce a rule on its own, contractor support will continue to be a fixture in the Division. This may be a benefit because using contractors instead of permanent staff provides flexibility to acquire varying types of expertise that may be impossible to achieve if relying solely on permanent staff. EAD should, however, make filling staff vacancies a priority, so that they have the benefit of their authorized staffing level.

4. Reviewing the Overall Effluent Guidelines Development Process

Recommendation 4.1: Systems Analysis of Sub-Processes
[Approved 1/29/97]

EPA should do a systems analysis of the sub-processes that the EAD staff undertake throughout a rule project: contract management, budget planning, collecting information, follow-up with industry respondents, POTWS, laboratories, etc. This analysis should evaluate the efficiency, work and information flow, and work structure of these subprocesses, as well as how these subprocesses support the purpose and statutory requirements for the overall effluent guidelines development process.

Besides self-analysis and review, the following, at a minimum, should be utilized in this analysis: review of the suggestions of the previous Task Force recommendations on pollution prevention opportunities ("Fostering Pollution Prevention and Incorporating Multi-Media Considerations Into Effluent Guidelines Development", 1994), and benchmarking of analogous air and solid waste regulatory programs. Consideration should be given to benchmarking the subprocesses with analogous industrial subprocesses and state and local government regulatory processes. EPA should use the results of this analysis to improve the effluent guidelines development process and regularly report the progress and results of this analysis to the Task Force.

Discussion

The constant "juggling" of many different tasks by a small number of EAD staff generates many small delays which accumulate to a large delay over the life of a project. Each project sequence varies, depending on the industry and data collection, as well as who in charge of the project. Although done informally to identify large obstacles, EAD should pursue a formalized discussion and evaluation of which projects and/or project schedules proceeded the fastest to see if there are efficiencies which can be applied to future projects.

Recommendation 4.2: Development of "Conceptual" Effluent Guidelines
[Approved 9/21/99]

For an upcoming guideline, EPA should propose a "conceptual guideline" for public consideration within one year of selecting the category for a guideline.

a. The conceptual guideline should be based on information that EPA has or that it can readily acquire and still meet the one-year proposal target.

b. In developing the conceptual guideline, EPA should review existing guidelines with common pollutants or processes, and incorporate appropriate technology performance assumptions that can be tested as guideline development proceeds.

c. EPA should modify its public participation approach to provide additional open forums for discussion of the conceptual guideline and to facilitate a more participative information exchange, building on its recent experience with the Iron and Steel guideline.

Discussion

This recommendation rests on the premise that the pace of effluent guidelines development could be improved if EPA receives data that facilitates earlier selection of model treatment technologies and that meets its data quality objectives earlier in the guideline development process. To this end, EPA may choose to implement a more collaborative development process which encourages stakeholders to provide EPA with useful and more timely information. One way EPA can achieve this result is to publicly assume a reasoned position earlier in the process to provide the stakeholder community with an idea of the direction EPA may take on a given guideline, with the information it has at hand.

The Task Force examined the origin and application of the Universal Treatment Standard (UTS) under the Resource Conservation and Recovery Act and the Presumptive Maximum Available Control Technology (MACT) rulemaking process under the Clean Air Act, and it was determined that both processes offer the effluent guidelines program new ways to engage stakeholders earlier in the guideline development process. By producing a “straw man” proposal or a “conceptual guideline” relatively early in the development process to focus participants’ efforts, EPA may be able to supplement and accelerate its traditional data gathering procedures with shorter development schedules as the result. Both approaches have limited applicability in the context of a promulgated effluent guidelines rule, however, primarily because of statutory requirements in the CWA for industry-specific guidelines that consider economic achievability.

See Appendix A of this report, "Analysis of the Applicability of Using Universal Treatment Standard and Presumptive Rule Approaches in the Development of an Effluent Guideline" for background and additional discussion.

Recommendation 4.3: Evaluation of "Conceptual" Effluent Guidelines
[Approved 9/21/99]

EPA should evaluate its experience with the approach in Recommendation 4.2 and determine whether to incorporate it wholly or in part into other guideline development efforts by, at a minimum, answering the following questions. Did the conceptual guideline approach:

a. Serve to focus the data gathering and analytical efforts earlier in the development process?

b. Result in enhanced public and stakeholder participation opportunities?

c. Improve public and stakeholder participation?

d. Enable EPA to produce a timelier list of alternatives to subject to a complete technical and economic evaluation?

e. Result in reducing the total cycle time leading to final proposal?

Discussion
See the discussion for Recommendation 4.2.

Appendix A. Analysis of the Applicability of Using Universal Treatment Standard and Presumptive Rule Approaches in the Development of an Effluent Guideline

Summary and Recommendations

At its May 20-21, 1997, meeting, staff from EPA's Office of Air Quality Planning and Standards, and the Office of Solid Waste, Hazardous Waste Minimization and Management Division, made presentations to the Effluent Guidelines Task Force (Task Force) on two standards setting frameworks: the Universal Treatment Standard (UTS) under the Resource Conservation and Recovery Act (RCRA) and the Presumptive Maximum Available Control Technology (Presumptive MACT) under the Clean Air Act (CAA). Several Task Force members observed that both frameworks contained elements that might be useful in the development of effluent guidelines. These two frameworks and their potential were again discussed with EPA's Assistant Administrator for Water, Robert Perciasepe, at the September 10-11, 1997, Task Force meeting. Mr. Perciasepe asked the Task Force to continue to evaluate these two approaches to setting standards within the context of the effluent guidelines program, and a work group was subsequently formed to develop formal recommendations.

The origin and application of the UTS under RCRA and the Presumptive MACT in the CAA were examined, and it was determined that both offer the effluent guidelines program new ways to engage stakeholders earlier in the guideline development process. By producing a "straw man" proposal or a "conceptual guideline" relatively early in the development process to focus participants' efforts, EPA may be able to supplement and accelerate its traditional data gathering procedures with shorter development schedules as the result. Both approaches have limited applicability in the context of a promulgated rule, however, primarily because of statutory requirements in the CWA for industry-specific guidelines that consider economic achievability.

This report is divided into four parts. Part I describes how UTS is implemented under RCRA, and discusses its potential applicability to effluent guidelines. Part II discusses how the presumptive rule operates under Section 112 of the CAA, and examines its potential applicability to effluent guidelines. Part III suggests several means of evaluating the potential uses of the UTS presumptive rule approaches in the development of effluent guidelines and also addresses risk factors. Part IV contains the conclusion and recommendations.

Introduction

This report rests on the premise that the pace of effluent guideline development could be improved if EPA receives data that facilitates earlier selection of model treatment technologies and that meets its data quality objectives earlier in the guideline development process. To this end, EPA may choose to implement a more collaborative development process which encourages stakeholders to provide EPA with useful and more timely information. One way EPA can achieve this result is to publicly assume a reasoned position earlier in the process to provide the stakeholder community with an idea of the direction EPA may take on a given guideline, with the information it has at hand. This report explores the applicability of using RCRA's UTS approach and the CAA presumptive rule model as means to achieve the goal of timely and appropriate regulation of industrial point sources.

I. Universal Treatment Standard (UTS)

A. Background

Under RCRA, hazardous constituents other than those that cause a waste to exhibit a characteristic may cause a waste to require treatment. These constituents are referred to as "underlying hazardous constituents" and are defined in the Phase II land disposal restriction (LDR) rule as "any constituent listed in §268.48...Universal Treatment Standards, except zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific UTS treatment standard [§268.2(I)]." The rule required these underlying constituents to be treated to meet both the organic and metal/inorganic UTS before waste can be land disposed.

Concentration-based standards previously promulgated for listed wastes specified concentration limits for hazardous constituents of concern for each waste. Historically, EPA issued treatment standards on a waste code-by-waste code basis. This sometimes resulted in different treatment standards for the same constituent, depending on the source (and code) of the waste. For example, the previously promulgated treatment standard for benzene in spent non-halogenated solvent non-wastewaters (F005) was 3.7 mg/kg. In contrast the non-wastewater treatment standard benzene for petroleum refinery primary separation sludge (F037) was 14 mg/kg.

Not only was this nonconformity in treatment standards among different wastes logically inconsistent, it confused generators and owners/operators of hazardous waste treatment, storage and disposal facilities when shipping and or treating different types of wastes or several wastes mixed together. To minimize the confusion, EPA promulgated a set of UTS's in the Phase II LDR that are applicable to almost all characteristic and listed wastes. Under this concept, the treatment standard for each constituent is consistent for all wastes or mixtures of wastes, regardless of the hazardous waste codes involved. This system simplifies treatment options as well as compliance monitoring and enforcement efforts.

With a few exceptions, UTS's are established for all previously regulated organic and metal/inorganic constituents that can be analyzed consistently in treatment residues. For listed wastes, however, the UTS requires treatment of only those hazardous constituents that are regulated under previously promulgated standards. For example, seven constituents were previously regulated F007 wastes. While the concentration limits have changed for most of these seven constituents to make them consistent with the UTS, no new constituents are regulated in the F007 wastes. As with the previously promulgated concentration-based standards, any technology (other than impermissible dilution) can be used to meet the UTS levels.

The UTS concentration limits for organics in wastewater are generally the same as for the previously promulgated F039 standards. These standards are based on residue concentrations achievable using conventional wastewater treatment technologies, such as biological treatment.

The UTS for metals contained in wastewaters (other than cyanide) were developed based on chemical precipitation as a best demonstrated available technology (BDAT). The final standards are generally in conformance with effluent guidelines from the metal finishing industry. EPA believes that the levels are achievable for metals in all RCRA-listed wastewaters.

In general, UTS's replace all previously promulgated LDR treatment standards. UTS's generally do not apply to wastes for which treatment methods have already been promulgated, and for toxicity characteristic metal wastes (D004-D011).

EPA noted in the preamble to the final Phase II LDR that the major objection from commenters on the UTS was that they were based on concentrations attainable by existing treatment technologies (BDAT), as opposed to risk-based standards. EPA responded that its preference is to develop risk-based levels that "...truly minimize threats to both human health and the environment [and which] would cap the extent of hazardous waste treatment [in accordance with] RCRA section 3004(m)(1) [59 FR 47986]."

EPA is working to determine risk-based concentration levels for hazardous constituents below which a waste is no longer considered hazardous under Subtitle C. Such "exit" criteria will be a fundamental aspect of EPA's hazardous waste identification rule. EPA noted that these exit criteria, or some other risk-based values, could also serve as "minimize threat" standards for the LDR program. At the time of proposal, EPA indicated that until it, the states, the regulated community and environmental advocacy groups could reach consensus on the methodologies used to develop standards based on risk, EPA had no choice but to establish treatment levels based on concentrations achievable by available technologies. It should also be noted that if EPA does not set a land disposal restriction by its statutory due date, land disposal of that material is prohibited.

B. UTS Applicability to an Effluent Guideline

Many effluent guidelines have established different discharge standards for the same pollutant. Tables 1 and 2 compare the performance results and limitations from several effluent guidelines using similar technology bases related to metals industries and demonstrates the disparity between limitations. These tables identify the long term mean concentrations in the effluents of the various Best Available Technologies (BAT) and the BAT and Pretreatment Standards for Existing Sources (PSES) daily maximum limitations. The variation is due to several factors, including a statutory requirement for EPA to consider the economic impact of a proposed limit on the industry in question. Each effluent limit is based on the demonstrated performance of a model treatment technology. Choosing different model treatment technologies for different industrial sectors results in different effluent limits for the same pollutant.

Table 1. Metals Limits Comparison: Best Available Technology Daily Maximum Limits

Pollutant Parameter	Metal Finishing 40 CFR 433	Iron and Steel Manufacturing - 40 CFR 420**				Combined Metal Data Base	Nonferrous Metals Manufacturing 40 CFR 421*/**	
		Filtration calculated	Filtration for EGL (rounded)	Clarification/ Sedimentation calculated	Clarification/ Sedimentation for EGL (rounded)		Subcategories (except Ge & Ga) based on LS&F	Ge & Ga Subcategories L&S
Aluminum							6.11 mg/L	6.11 mg/L
Antimony							1.93 mg/L	1.93 mg/L
Arsenic							1.39 mg/L	2.09 mg/L
Beryllium							0.82 mg/L	0.82 mg/L
Cadmium	0.69 mg/L					0.34 mg/L	0.20 mg/L	0.20 mg/L
Chromium	2.77 mg/L	0.12 mg/L	0.30 mg/L	0.12 mg/L	0.30 mg/L	0.44 mg/L	0.37mg/L	0.37 mg/L
Cobalt							0.14 mg/L	0.14 mg/L
Copper	3.38 mg/L	0.12 mg/L	0.30 mg/L	0.12 mg/L	0.30 mg/L	1.90 mg/L	1.28 mg/L	1.28 mg/L
Fluoride							35.00 mg/L	35.00 mg/L
Iron						1.20 mg/L	1.20 mg/L	1.20 mg/L
Lead	0.69 mg/L	0.24 mg/L	0.30 mg/L	0.30 mg/L	0.45 mg/L	0.42 mg/L	0.28 mg/L	0.42 mg/L
Manganese						0.68 mg/L	0.30 mg/L	0.30 mg/L
Mercury							0.15 mg/L	0.15 mg/L
Nickel	3.98 mg/L	0.16 mg/L	0.30 mg/L	0.45 mg/L	0.60 mg/L	1.92	0.55 mg/L	0.55 mg/L
Selenium							0.82 mg/L	0.82 mg/L
Silver	0.43 mg/L						0.29 mg/L	0.29 mg/L
Zinc	2.61 mg/L	0.40 mg/L	0.45 mg/L	0.15 mg/L	0.30 mg/L	1.46 mg/L	1.02 mg/L	1.46 mg/L
TSS		38.2 mg/L	40 mg/L	64.3 mg/L	70 mg/L	41.0 mg/L	15.00 mg/L	15.00 mg/L

* Nonferrous Metals Manufacturing - BAT includes several pretreatment steps in addition to Lime, Settle & Filtration (LS&F) or Lime & Settle (L&S). This table does not include exotic metals that are regulated in certain subcategories of the Nonferrous Metals Manufacturing rule, 40 CFR 421. Ge is Germanium, Ga is Gallium.

** Concentration basis used in conjunction with flow and production to set production-based mass limitations.

Table 2. Metals Limits Comparison: Long Term Means (LTMs)

Pollutant Parameter	Metal Finishing 40 CFR 433	Iron and Steel Manufacturing 40 CFR 420**		Combined Metal Data Base	Nonferrous Metals Manufacturing 40 CFR 421*/**	
		Filtration	Clarification / Sedimentation		Subcategories (except Ge & Ga) based on LS&F	Ge & Ga Subcategories L&S
Aluminum					1.49 mg/L	1.49 mg/L
Antimony					0.47 mg/L	0.47 mg/L
Arsenic					0.34 mg/L	0.51 mg/L
Beryllium					0.20. Mg/L	0.20. Mg/L
Cadmium	0.13 mg/L			0.079.mg/L	0.049.mg/L	0.049.mg/L
Chromium	0572. mg/L	0.03 mg/L	0.04 mg/L	0.084 mg/L	0.07 mg/L	0.07 mg/L
Cobalt					0.034 mg/L	0.034 mg/L
Copper	0.815 mg/L	0.03 mg/L	0.04 mg/L	0.58 mg/L	0.39 mg/L	0.39 mg/L
Fluoride					14.50 mg/L	14.50 mg/L
Iron				0.41 mg/L	0.28 mg/L	0.28 mg/L
Lead	0.20 mg/L	0.06 mg/L	0.10 mg/L	0.12 mg/L	0.08 mg/L	0.12 mg/L
Manganese				0.16 mg/L	0.14 mg/L	0.14 mg/L
Mercury					0.036 mg/L	0.036 mg/L
Nickel	0.942 mg/L	0.04 mg/L	0.15 mg/L	0.74 mg/L	0.22 mg/L	0.22 mg/L
Selenium					0.20 mg/L	0.20 mg/L
Silver	0.096 mg/L				0.07 mg/L	0.07 mg/L
Zinc	0.549 mg/L	0.10 mg/L	0.05 mg/L	0.33 mg/L	0.23 mg/L	0.23 mg/L
TSS		9.8 mg/L	23.8 mg/L	12.0 mg/L	2.60 mg/L	2.60 mg/L

* Nonferrous Manufacturing - BAT includes several pretreatment steps in addition to Lime, Settle & Filtration (LS&F) or Lime & Settle (L&S). This table does not include exotic metals that are regulated in certain subcategories on the Nonferrous Manufacturing rule. Ge is Germanium, Ga is Gallium.

** Concentration basis used in conjunction with flow and production to set production based mass limitations.

Under the UTS concept, EPA could develop a single or universal effluent limit for a given pollutant by assuming the same model treatment technology across industrial sectors. This determination would be based on the agency's existing knowledge of available technologies, technical literature and data gathered from stakeholder communities including local industrial pretreatment programs, state NPDES programs, trade associations and environmental advocacy groups. There are, however, significant analytical issues which would need to be addressed:

1. The treatability of the matrix and resultant analytical differences resulting in different practical quantitation levels (PQLs) between industry discharges must be considered.

2. The specific UTS numerical value for a given substance may be established based on maximum loading value. This value may be modified for a given industrial segment by defining a variability factor that recognizes differences in PQLs from the specific industrial sample matrix.

3. Temporal variations in the discharge must be accounted for, e.g., monthly average, 24-hour composite, instantaneous, composite, a one-day-in-30 maximum.

The primary purpose of applying the UTS concept to effluent guidelines is to rapidly develop guidelines for industry sectors not currently regulated by establishing a uniform effluent limit for a pollutant (or pollutants) that would apply across several industrial categories. It is anticipated that most of such sectors will be smaller companies that are also indirect dischargers. Furthermore, it is recognized that little available industry-specific economic or process information exists for these sectors. Accordingly, economic impact analyses would not be conducted when promulgating UTS values. EPA could conduct economic impact evaluations on a sector-by-sector basis using the economic guidelines that EPA developed for currently regulated sources.

A true industrial wastewater universal treatment standard would necessarily become a "lowest common denominator" standard to accommodate multiple industry sectors. An industry sector that could "afford" to install more costly but more effective treatment would receive a higher limit than it would otherwise be required to meet. This effect might be mitigated somewhat by considering exempting subcategories for a portion of the industry. The standard might not be the lowest common denominator, and each industry sector might designate subcategories to address economic (matrix chemistry) concerns. This outcome should be compared, however, to the benefit of regulating more sources in less time. By regulating more sources sooner albeit with higher limits, the aggregate pollution load should decrease. If the net reduction in pollutant loading is positive within a reasonable time frame, this approach should be considered.

Several arguments can be made for and against using a UTS approach to produce an actual numeric effluent limit. Some of the arguments supporting the development of at least one UTS to include in a future guideline are:

1. Instead of building a new database for each new (or revised) industrial category, existing guidelines could provide the substance for technology transfer under existing authorities in the CWA. Common sets of limits could be established for given sets of pollutants and model technology combinations (e.g., heavy metals with hydroxide precipitation; organic priority pollutants with activated sludge, etc.). This may be an

efficient means to establish technology-based discharge limits for a group of small industrial categories not currently covered by a guideline.

2. It may be that the time and resources required to develop a UTS-type guideline for a group of industrial categories are less than the total time and resources to develop individual guidelines for each member of the same group of industrial categories, making this a cost-effective approach for EPA as well as stakeholders.

3. The approach is universal and moves several industrial categories at once towards demonstrated control technologies, reducing the time each category needs to investigate and implement controls.

4. If the approach results in faster promulgation, more sources would be controlled sooner than they would otherwise have been, and pollution levels would drop quicker. This assumes that achieving a smaller reduction sooner results in an aggregate reduction that exceeds what would have occurred had the conventional guideline development process been followed.

There are also numerous arguments against establishing a UTS as a numeric limit in new guidelines. Some of these include:

1. Industry-specific factors under section 304(b) of the CWA cannot be addressed.

2. This approach could result in "least common denominator" result, which by definition, should be used. This could result in less stringent limits for a substantial number of dischargers, in newly regulated categories with the effect that aggregate loadings would not decrease to otherwise possible levels.

3. The approach may preclude incorporating pollution prevention provisions into the guidelines because pollution prevention is almost always industrial process-specific.

4. The approach may preclude the development of production-based (e.g., kg pollutant discharge per 1000 kg product) limitations which are product-process-specific.

5. It may be more difficult to reach consensus among members of diverse industrial categories and associated stakeholder groups, because of a limited number of factors in common.

6. The list of pollutants regulated may be longer if applied to a group of industrial categories unless category-specific sampling is conducted. This would remove some of the efficiencies gained by treating somewhat diverse members of a group the same.

7. A UTS could not account for different wastewater pollutant matrices that significantly affect treatability, the complexity of which varies widely between industrial categories.

8. It will be difficult to identify appropriate "model" treatment technology, or train of technologies required without having characterized a specific industry's wastewater, thus defeating a "universal" approach.

9. Default sets of limitations that apply to a potentially diverse set of dischargers and industries may be more susceptible to legal challenge and protracted litigation. Thus reducing the time taken to promulgate a guideline may not speed up the overall process if litigation delays or even denies implementation.

EPA should also consider proposing a UTS as a “straw man”or “conceptual guideline” to prompt industry participation in guideline development. Proposing what would amount to an interim effluent limit derived from available data on demonstrated technologies should encourage interested parties to provide EPA with actual performance data and technology options earlier in the development process: if EPA receives useful data earlier, it can promulgate a rule faster. Since there is presently no statutory or regulatory incentive for industry to voluntarily provide information to EPA, delaying a guideline can currently mean that industry delays substantial operating and capital expenditures. There is no statutory “hammer” in the CWA that is equivalent to RCRA’s prohibition against land disposal of a hazardous waste if a limit is not promulgated. EPA should therefore consider modifying how it frames the discussion of a proposed guideline, and provide a reason for the regulated community to change the way it interacts with the agency during guideline development.

II. National Emission Standards for Hazardous Air Pollutant (NESHAP)

A. Background

Before examining the details of the newest requirements under the CAA, it may be helpful to understand why the old system did not work. Section 112 of the CAA of 1970 was intended to address the very same problems covered by the new air toxics program. That section directed EPA to identify air pollutants that might have hazardous effects, and called for EPA to establish control standards that would restrict concentrations of such substances to a level which would prevent any adverse effects “with an ample margin of safety.” It therefore follows that in order to satisfy the statutory requirements the standards had to be stringent enough to protect against any adverse effect at all.

The CAA was defective in that its stringency prevented EPA from building an effective regulatory program upon its statutory foundation. EPA’s traditional position on carcinogenicity is that there is no “safe” level of exposure. Since carcinogenicity is the most significant of the health risks associated with hazardous air pollutants (HAPs), it became impracticable for EPA to write implementable regulations under the authority of §112 due to the available science on the causes of cancer.

Under the old NESHAP standards development structure pursuant to §112, only seven pollutants were promulgated in two decades. Standards promulgated in 1989 and 1990 to regulate benzene were based on the 1987 *Vinyl Chloride* decision (*Natural Resources Defense Council v. EPA*, 824 F.2d 1146 (D.C. Cir. 1987)). EPA confronted the zero risk problem directly and set standards requiring the tightest level of controls which they found to be technologically and economically achievable, albeit not at zero risk. The U.S. Court of Appeals declared that approach illegal. The result of this decision was to grind a program that was already moving at a glacial pace to an absolute halt. No other standards were promulgated between the *Vinyl Chloride* decision and the 1990 CAA amendments.

During the 1980s the debate over appropriate controls to regulate air toxics evolved toward a consensus on shifting the focus of regulation from a risk-based approach to a technology-based approach. Health advocates accepted the reality that the existing approach was not producing results and industry leaders acknowledged that some level of control was necessary to provide assurance to the public that maximum efforts to reduce health risks were under way.

A major feature of the new, i.e., current, statutory provisions is the “list of substances” to be regulated. Chief among the complaints of EPA’s critics has been the agency’s refusal over the years to identify airborne substances producing adverse health effects. This refusal was in large measure due to the fact that EPA believed it would be impossible to develop standards to base a compliance program on. Congress adopted a statutory list of 189 substances presumed to be air toxics that require regulation. EPA is, however, authorized to add or delete substances to this list, if the scientific data demonstrate that such a change is appropriate.

Consistent with this change in approach, EPA will not establish control requirements directly on a substance-by-substance basis. Instead, the process has EPA first identifying categories of industrial facilities that emit substantial quantities of each air toxic, and then developing a final list of facilities requiring regulation. The amendments also defines a “major source” as any industrial facility which emits 10 tons per year of any single air toxic or 25 tons per year of any combination of air toxics. The new controls will also be applicable to certain facilities with lower levels of emissions under the “area source” requirements. EPA must take steps to assure that 90% of the emissions of the 30 most serious area source pollutants are regulated within 10 years.

The standards for listed source categories will require the maximum achievable degree of reduction in emissions. Establishment of controls for sources on a case-by-case basis within an airshed is still provided for, if a state that has received primacy for its Title V program and if EPA fails to adopt MACT based standards in one year. This is the so-called "MACT hammer" in the CAA. If EPA fails to establish a national MACT standard, states must develop their own standards. Faced with the potential of 50 state standards setting processes for multiple substances, regulated industries have opted to work with EPA to ensure timely promulgation of national standards.

Tighter standards may be established for new sources than for existing sources. For the latter, the standards must at least require controls equivalent to the average of those presently employed at the most tightly controlled 12% of existing facilities. New source standards must be more stringent. For both, however, technological feasibility and cost are appropriate factors to be considered in determining what constitutes MACT.

Although the emphasis in the air toxics program has shifted from requirements designed for risk elimination to achieving maximum improvement through the use of available technology, the concept of risk-based controls has not been abandoned. The 1990 CAA amendments require that when MACT standards are promulgated for each industrial category, EPA must determine whether still more stringent standards are required to protect public health with an “ample margin of safety,” the criterion established under the 1970 CAA.

EPA has approached its one-year MACT promulgation window by using what it calls a presumptive standard. The statutory information requirements for a MACT standard are not as strict as the information requirements in the effluent guidelines program (the CWA identifies a number of factors to be considered, e.g., process, age, geography, non-water quality costs, etc.). and EPA can use information on hand to develop a proposal.

B. Presumptive MACT Applicability to an Effluent Guideline

As discussed above, the CWA does not contain any statutory incentive such as the MACT “hammer” that might prompt earlier industry participation the guideline development process. The CWA also does not focus on the performance of the technology to the degree the CAA does. The CAA’s presumptive rule approach does, however, offer a mechanism to bring the regulated community and other interested parties into the development process earlier. Instead of proposing a rule that results from a long and comprehensive data gathering effort, EPA should consider proposing a rule based on commonly available data on an industry, its pollutants and available control technologies: a presumptive rule.

A presumptive rule could be based on demonstrated, but not necessarily widely used, technology or practices. The presumptive rule could be used to notify industry and the public about the direction EPA is heading in. In this process, interested parties should propose appropriate data challenging or supporting the presumptive standards, which EPA should subsequently analyze and consider in an open forum. The economic achievability analysis would not be conducted in detail for a presumptive standard, but would be conducted in detail for a reduced number of final options as required by the CWA. Practically speaking, if the regulated industry disagreed with the proposal, it would have to support its disagreement with information and data. Thus, some of the burden of proof would shift from EPA to the regulated community. EPA should modify the presumptive standard if credible data supports a challenge.

A presumptive rule development process should not to be used in lieu of the rigorous and statutorily required review of the technological and economical feasibility of various model treatment technologies. It is intended to focus participants earlier on a likely outcome and reduce the time spent investigating marginal proposals.

III. Testing the UTS and Presumptive Rule Concepts

A. UTS

A simple test could be conducted to evaluate the potential impact of a UTS approach. Using existing guidelines, identify common pollutants, review the technology basis and select the lowest common denominator limit. Assuming that currently unregulated sources will be regulated and install ‘model technology’ sooner than they would have under a traditional guidelines development process, estimate the aggregate pollutant load reductions from these newly regulated sources. Comparing the two results, determine if the net impact on loadings is positive or negative.

Under any development approach, a high level of uncertainty is unavoidable in the data that EPA will continue to receive and use on the performance of various treatment technologies. Within a given industrial sector, raw materials, facility and process design are diverse. Thus for any selected technology it is anticipated that the estimated achievable standard can not be met by 100% of the affected industry sites, however the standards should be achievable by the vast majority of impacted sites. As long as the standard deviation is not excessive, there is no need to spend limited agency resources on technology validation because the diversity of scenarios and service conditions may never be reasonably simulated.

B. Piloting the Presumptive Rule Approach

A number of Effluent Guidelines Task Force recommendations have been implemented by EPA during recent work on the Synthetic Drilling Fluids-related revisions to the Offshore and Coastal Oil and Gas Extraction, Iron and Steel and Coal Remining guidelines and standards. Proposed revisions to the oil and gas guidelines were signed on December 31, 1998, approximately one year from the time a decision was made to revise these rules. EPA staff reported that increased stakeholder involvement at the very beginning of the process in identifying potential technology options and data needs was a crucial element in being able to expedite the process. Early discussions of 1) the issues, 2) the criteria for evaluating the issues, and 3) the data necessary to evaluate the issues were held, and EPA received a commitment from stakeholders to develop the additional data necessary for evaluations. These discussions resulted in the formation of industry groups to address each of these areas.

As of the date of this report, regular status meetings and data gathering activities are ongoing, and EPA is evaluating pre-existing information and data, particularly operational logs and laboratory-scale results. EPA and stakeholders exchanged recommended regulatory options at an early stage so that issues could be identified in time to attempt their resolution prior to proposal. This work was conducted without the use of a time consuming questionnaire, and with the voluntary cooperation of the industry and participation of other federal agencies (Departments of Energy and Interior) in generating data.

With respect to the other two rulemaking efforts, additional efforts are being made to involve stakeholders sooner by providing early information on regulatory or technology options identification and making greater use of available (pre-existing data) from both industry, and federal and state agencies. These experiences should be evaluated to identify what factors made this approach succeed or fail in each instance, and the lessons learned should be applied to other guideline development processes.

C. Consideration of Risk

Effluent limits developed at the federal level by definition can not accommodate site specific situations. Health and environmental risk are presently considered on a generic basis in the effluent guidelines program to decide whether or not to regulate an industrial sector. The effluent guidelines development process establishes a common “floor” for discharges into surface waters or into Publicly Owned Treatment Works (POTWs). Site-specific allowable discharges into surface waters or POTWs must be modified locally to accommodate site-specific human and environmental health considerations. For example, discharges into protected or fragile ecosystems in rural areas are expected to be stricter in terms of pollution control requirements than discharges into major waterways or rivers.

Once a sector is selected for regulation, the focus is on the technological and economic attainability of pollution control. This is appropriate for a number of reasons. Risk has many components that vary spatially and temporally. Magnitude ranges for specific pollutants would have to be developed to capture the variabilities of these parameters nationally. Some components of risk may derive from other sources of pollution in a given locality. Populations do not stay constant in a given location; thus exposure to pollution is not constant. Thus, site-specific risk cannot be a factor for setting a UTS or developing a presumptive rule.

IV. Conclusion and Recommendations

Both the UTS and the Presumptive MACT frameworks offer opportunities to the effluent guidelines program to shorten the guideline development process. Neither framework, however, is completely transferable to the effluent guidelines program because of statutory requirements in the CWA that require effluent guidelines to consider economic achievability on an industry specific basis. They do represent new ways to engage the stakeholder and advocacy communities earlier, and in more substantive ways, in the process. The choice of this strategy rests on the assumption that if EPA has adequate data sooner, it can promulgate a more timely guideline.

[See Recommendations 4.2 and 4.3 in the main body of this report.]

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