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Agency

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Office of Water Enforcement and Permits
Washington DC 20460

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Office of Water

EPA

FINAL GUIDANCE

For

IMPLEMENTATION OF REQUIREMENTS

UNDER SECTION 304(1)

OF THE CLEAN WATER ACT

AS AMENDED

RESPONSIVENESS SUMMARY

Summary of Responses to Major Comments Received on "Draft Final Guidance: Implementation of the Requirements under §304(l) of the Clean Water Act as Amended," July 1987

The following discussion responds to the major comments received on the Draft Final Guidance: Implementation of the Requirements under §304(l) of the Clean Water Act as Amended" and is arranged in the order of the sections of the guidance. Changes made in the final §304(l) guidance in the response to public comment are discussed. Our responses to significant comments that did not lead to changes are also discussed.

Surface Water Toxics Control Program

Several commenters were concerned that the §304(l) guidance does not provide sufficient detail on how the §304(l) guidance relates to the umbrella State Clean Water Strategy (SCWS) guidance. In response to these comments, we have included a discussion of how the §304(l) guidance and SCWS guidance are related. The time frames required for the initial activities under §304(l) generally will not allow for extensive coordination with the SCWS process. However, the longer term aspects of the national toxics control program (using both new and preexisting statutory authorities) should be coordinated with the SCWS process.

A number of comments were received concerning the relationship of the §304(l) guidance to the requirements of §303(c)(2)(B) for promulgation of water quality standards by States for §307(a) pollutants in cases where waters are impaired by such pollutants. One commenter suggested that implementation of the requirements of §304(l) should not proceed until all State water quality standards are revised in accordance with §303(c)(2)(B). EPA agrees that the requirements of §303(c)(2)(B) are directly related to the requirements of §304(l) and has, therefore, expanded the portion of the guidance which deals with the relationship between these two sections. However, the statutory deadlines of §304(l) do not allow for final resolution of all water quality standards issues before proceeding with implementation of §304(l). The guidance suggests ways that States may address such problems in the short term, until State water quality standards are revised in accordance with §303(c)(2)(B). One approach is to use State narrative standards ("no toxics in toxics amounts") as the basis for controlling both whole effluent toxicity and individual chemicals. EPA's interpretation of "applicable standard" (in the statutory description of the paragraph (B) list of waters) includes State narrative standards.

In a related comment, one commenter felt that Congress intended that numerical criteria be the criteria of choice and that States are to adopt criteria based on biological monitoring and assessment methods only where numeric criteria are not available. EPA notes that under §303(c)(2) Congress set forth an aggressive program for State promulgation of numeric criteria for §307 toxic pollutants where waters are being impaired as a result of these pollutants. However, the statutory language also provides for "the use of effluent limitations or other permit conditions based on or involving biological monitoring or assessment methods or previously adopted numerical criteria." Similarly, in its March 9, 1984 policy statement, EPA indicated that an integrated program, consisting of both biological and chemical methods is necessary to be fully protective in a water quality-based toxics control program.

One commenter objected to the phased approach to the national toxics control program discussed in the §304(l) guidance in which known and suspected toxicity problems are addressed immediately and data is collected to further characterize currently unknown problems for control in subsequent phases. This commenter felt that Congress' objective in enacting §304(l) was to spur regulators to move immediately to identify and control all toxics problems (including known, suspected, and unknown problems). In the final guidance, EPA directs States to comply with the §304(l) statutory time frames in listing impaired waters and controlling all known point sources of §307(a) toxic pollutants. The emphasis on a phased approach has been dropped. However, EPA continues to recognize the ongoing nature of the national toxics control program. The guidance requires that assessments of waters and establishment of controls for identified problem dischargers will not end when §304(l) deadlines are met. The State Clean Water Strategies process will help to identify activities needed to assure the long term integrity of the program.

Several commenters felt that the guidance goes beyond Congressional intent by requiring that the toxics to be addressed include §307(a) pollutants as well as all pollutants which cause toxicity. The guidance clearly notes that many of the specific requirements of §304(l) apply only to §307(a) toxic pollutants (notably, paragraphs B, C, and D). However, the guidance also directs regulatory authorities to control all known sources of toxicity, giving non-§307(a) pollutants that cause toxicity the same priority as §307(a) pollutants. The statutory authority for controlling sources of non-§307(a) pollutants is preexisting under §301(b)(1)(C) of the Clean Water Act (CWA) and requires that controls be developed in order to ensure that water quality standards are achieved. Although this distinction was made in the draft final guidance, this point is clarified in the final guidance.

Some commenters were concerned, in particular, that the §304(l) guidance noted that chlorine and ammonia were specifically included among the non-307(a) pollutants which should be addressed and given the same priority as problems due to §307(a) pollutants. EPA mentioned chlorine and ammonia specifically because these pollutants tend to be widely present in wastewater discharges and the environment and because they do sometimes cause water quality impairment due to toxicity.

Comments were also received which questioned EPA's interpretation of §307(a) toxic pollutants as the 126 priority pollutants. EPA recognizes that the number of pollutants encompassed by the 65 classes of compounds listed under §307(a) of the Clean Water Act is potentially much greater than 126. However, the list of 126 pollutants corresponds to the compounds for which EPA has promulgated water quality criteria pursuant to §304(a) of the CWA. EPA has also focused on this list in developing the effluent limitation guidelines. The final §304(l) guidance clarifies this interpretation of the list of §307(a) pollutants.

Several commenters argued that the requirements of §304(l) should be promulgated as formal rulemaking with associated public notice and comment requirements. These commenters indicated that the draft final §304(l) guidance includes many directives which are more expansive than the specific statutory language and goes beyond simple interpretive guidance. EPA agrees that the guidance is more inclusive than the basic statutory language, because it places the requirements of §304(l) in the overall context of the nationwide program for control of toxic pollutants and toxicity. However, the additional requirements discussed in the guidance do not rely upon the statutory authority of §304(l), but rather, upon preexisting requirements of other portions of the CWA and EPA's current regulations. The final guidance clarifies the statutory authorities of the various requirements included in the §304(l) guidance. In addition, EPA plans to codify the basic requirements of §304(l) in regulation and is considering whether other regulatory requirements should be established.

Identification of Waters and Point Source Discharges

Several commenters felt that the States should be required to collect new water quality data and not just encouraged to use existing and readily available data to develop the required lists of waters. These commenters pointed out that the States have two years to make the required identifications which provides them with adequate time to gather and evaluate new data. However, another commenter pointed out that the accelerated timetable will hinder a State's ability to identify waters actually having water quality problems because they will

not have sufficient time to review and analyze data on all waters. In response to these comments, EPA recognizes that the time frames established by the statute are very aggressive. EPA feels that these short time frames necessitate the use of existing and readily available data in order to meet the statutory deadlines. The guidance urges completion of preliminary lists by April 1, 1988 so that the States have adequate time to review the data, refine the lists of waters, identify sources and pollutants, and establish ICS's by February 4, 1989. EPA recognizes that many States will need to expand their data bases to refine their lists of waters. To provide for this, the guidance establishes that a Water Quality Assessment Plan be prepared where States do not have sufficient available information to develop the final lists of waters. This plan would describe what assessments need to be done as well as where, how, and when the State plans to assess the quality of waters for which more information is needed.

Several commenters objected to the requirement that EPA water quality criteria be used to assess the condition of waters where there are no State water quality standards, arguing that only promulgated State water quality standards should be used for this purpose. States have established water quality standards with numeric criteria for only a limited number of toxic pollutants, so assessments of impacts of toxics discharges on receiving waters based solely on State standards with numeric criteria would be extremely limited. However, all States have standards with narrative criteria for controlling toxic discharges. The statute does not restrict lists and ICS requirements to numeric standards violations. In interpreting the narrative standards, EPA's water quality criteria documents would be an appropriate basis for determining whether such standards are being exceeded, since the criteria documents contain information on the toxic effects of pollutants. Congress intended a broad assessment of toxics problems and use of EPA criteria as a screening tool represents a reasonable approach. States are free to use other information on toxic effects as well.

Two commenters stated that where discharge limits based on effluent limitations guidelines have already been incorporated into NPDES permits, determination of water quality should not be based on the assumption that such limits are being met. They suggested that in these cases, actual discharge monitoring data should be used to evaluate the effects on receiving waters. EPA agrees with this approach and encourages the States to use actual discharge data.

Several commenters indicated that without additional resources, States may have a problem completing the requirements called for by the new statute and related activities required under preexisting statutory authorities. EPA recognizes that potential resource problems exist. However, a significant

portion of the requirements for listing and control actions have been in existence since the 1972 Clean Water Act. In addition, a number of States have developed aggressive toxics control programs to address these problems and have collected sufficient data on water quality to meet the current requirements. For those States that have done little in this area, a more intensive effort to meet the new requirements may be necessary.

Two commenters felt that EPA's recommendation to use dilution calculations as a minimum approach to help identify waters is inappropriate since simple dilution techniques are conservative and may result in listing waters that are not water quality limited. EPA acknowledges the limitations of simple dilution analyses and agrees that they may cause stream segments to be listed which do not immediately pose water quality problems. Since States are required to identify waters which are posing or will pose actual water quality problems, dilution calculations provide the simplest means to help determine if the State's water quality standards are being met. This technique is recommended to enable a State to identify suspected problem waters which should be further narrowed down by means of site-specific data such as Discharge Monitoring Reports and available ambient monitoring data. In cases where there is doubt, more detailed monitoring and modeling techniques are available and should be used.

Several commenters felt that whole effluent toxicity should not be used as a parameter in identifying and listing water quality-limited stream segments. These commenters argued that it is not the nature of the discharge itself but the effect of such discharge on the receiving stream that causes impairment. Also, since whole effluent toxicity relates to the mixture of all pollutants in a discharge, these commenters felt that effluent toxicity does not identify the toxic effects of any one pollutant or type of pollutants specifically. EPA is requiring that all available sources of information be used and evaluated, including whole effluent toxicity, since whole effluent toxicity is a good indicator of potential water quality standards violations. In addition, EPA recommends in the Technical Support Document for Water Quality-based Toxics Control that assessments of receiving water quality based upon whole effluent toxicity include consideration of available dilution and State mixing zone requirements.

One commenter felt that EPA has not provided sufficient information regarding the procedures it will use for granting or denying approval of States' lists of waters. In response, EPA has included additional discussion of this issue in the guidance and has also provided a list of categories of waters that may be used for both the development and evaluation of States' lists of waters and point source discharges. In addition, EPA

has included a discussion in the guidance of public participation in the §304(l) process and may provide further guidance on this matter in the future.

A number of States and others expressed concern that EPA would require States to use EPA's §305(b) Waterbody System for reporting the April 1, 1988 preliminary lists to EPA by incorporating the lists in their §305(b) report. These commenters urged that the guidance clarify that use of the system be optional for this report because this data system may not yet be completed. The guidance has been revised to clarify this matter. EPA is not requiring States to use the Waterbody System at this time but is requesting that States include their §304(l) lists of waters in the 1988 §305(b) report in a format compatible with the Waterbody System.

Several commenters objected to the requirement that States submit the preliminary §304(l) lists as part of their 1988 §305(b) reports. Some argued that the Agency does not have the authority to impose such a deadline, which is ten months earlier than the February 4, 1989 deadline for final lists of waters, sources, and individual control strategies. Others said the accelerated schedule would prevent States from performing any additional data collection or analysis, making the problems created by the tight deadlines even more difficult. EPA recognizes that the preliminary lists of waters are not a requirement specifically imposed by the statute. However, in order to allow for better coordination with State activities, EPA's policy is that preliminary lists should be prepared by the States as they are categorizing waters for their 1988 §305(b) Reports that are due to EPA on April 1, 1988. States will have the opportunity to receive public comment on and revise the preliminary lists between the submission of the §305(b) report in April, 1988 and submission of final lists on February 4, 1989.

Two commenters were concerned that the guidance does not adequately address the problem of toxics in sediments. EPA recognizes that the problem of toxics in sediments is an important one and has modified the guidance to clarify that sediment contamination is to be considered in assessing water quality, particularly for the paragraph (A)(ii) list of waters. However, it should be recognized that EPA has not developed final criteria for assessing the water quality impact of contaminated sediments.

Several commenters expressed concern that the data in EPA's data systems may not be accurate or current. Others were concerned over the quality of data which will be collected by the States. EPA believes that the data in STORET and other data systems is generally adequate for use by the States in assessing water quality. It should be pointed out that States should use all sources of data (including State or

private data systems) in developing their lists. EPA has mandated that all new data collected for EPA projects must include quality assurance/quality control as part of the survey work plan. It should also be noted that the lists can be amended based on better data at a later date.

Development of Individual Control Strategies

Several commenters objected to EPA's interpretation that an ICS requirement can only be satisfied by NPDES permits and supporting documentation. Some commenters argued that other mechanisms such as administrative orders and consent decrees may be appropriate in certain circumstances. These comments notwithstanding, EPA maintains its position that an ICS requirement can only be satisfied by an NPDES permit(s) and therefore requires final NPDES permits, to the extent possible. This interpretation is supported by the specific references in §304(l) to "establishment of effluent limitations under §402 of the CWA." However, the guidance does recognize that enforcement actions based on adequate permits may be part of a complete ICS.

Some commenters maintained that individual control strategies (ICS's) were required for all three lists of waters to be developed under §304(l) and that EPA's interpretation that ICS's are only required for the paragraph (B) list of waters is contrary to Congressional intent. The statutory language indicates that controls must be developed which will produce a reduction in point source discharges of §307(a) toxic pollutants in order to achieve applicable water quality standards within 3 years of establishment of the strategy. In order for such point source controls, in combination with "existing nonpoint source controls," to effectively achieve water quality standards, there is an implicit assumption that such waters are capable of achieving water quality standards primarily by controlling point sources of §307(a) toxic pollutants. Such a scenario corresponds to the (B) list of waters, and therefore supports EPA's interpretation that the ICS requirement applies only to the (B) list.

Some comments expressed concern that point sources are being required, through the ICS requirement, to bear the primary burden for toxics cleanup when many problems are more properly attributed to nonpoint sources. These comments support EPA's position that the ICS requirement applies only to the (B) list of waters, which, by definition are those waters which are impaired "entirely or substantially" due to point sources. The primary burden for resolving such problems, therefore, should properly fall to point sources. Problems which are primarily attributable to nonpoint sources of pollution should be addressed in developing controls for the portions of the paragraph (A)(ii) lists of waters which are primarily affected by nonpoint sources of pollution.

One commenter noted that an ICS should not be a final permit because it requires a sequence of events which is not consistent with the sequence required in the plain language of §304(l). This commenter argued that the program will only be successful if States first develop a coordinated control program plan which would be submitted for EPA review and approval. If approved, States would then take appropriate permit actions to ensure that controls will be implemented within the three year time frame envisioned by Congress. EPA's position is that final permits offer the best prospect for implementing the controls and achieving water quality standards by the statutory deadlines and are specifically required by the reference to §402 in the statute. Where a State demonstrates that a final permit cannot be issued by February 4, 1992, a draft permit and supporting documentation may be accepted as an ICS. Such draft permits must be be accompanied by a schedule indicating when the final permit will be issued and providing adequate time for the permittee to comply with the limitations such that water quality standards will be achieved by June 1992. EPA acknowledges that the time frames required by the statute are relatively short. States which have already instituted aggressive toxics control efforts should be able to meet the deadlines.

In a related comment, one reviewer noted that the regulatory authority should not have to prove the existence of receiving water impacts before developing permit limitations to control a pollutant of concern. EPA agrees and its final guidance indicates that development of permit limitations should be commensurate with the situation under consideration, consistent with technically sound current practises, and in accordance with applicable requirements under the Water Quality Management and NPDES regulations.

A number of commenters felt that it is inappropriate to address whole effluent toxicity in an ICS. Several commenters expressed concern over the use of toxicity testing in a regulatory context. The guidance requires that NPDES permits developed as part of an ICS requirement address all problems associated with a point source, not simply those associated with §307(a) toxic pollutants. EPA is not setting up a permitting standard for ICS's which is separate and distinct from established NPDES procedures. Rather, EPA recommends that permitting authorities employ an integrated approach which utilizes both biological and chemical methods, as appropriate. With respect to the efficacy of toxicity testing methods as a regulatory tool, EPA has provided ample justification for these methods in the Technical Support Document for Water Quality-based Toxics Control and through the various studies undertaken by the EPA's Office of Research and Development.

One commenter felt that nonconventional pollutants cannot be addressed through an ICS. As discussed above, point source discharges should be listed on the (B) list on the basis of impairment due to §307(a) toxic pollutants. It is important to

note, however, that all pollutants of concern will be addressed in developing NPDES permits as part of an ICS. The statutory authorities for controlling nonconventional pollutants is preexisiting and does not rely upon §304(l) authority. EPA is simply requiring that when NPDES permits are issued, they meet all applicable requirements, including but not limited to §304(l). We are mindful that permits are generally issued for a five year term.

One commenter felt that there is no statutory basis for distinguishing among "major", "significant minor", and "minor" permits in developing ICS's. In conjunction with the allocation of resources and tracking of commitments, EPA ranks certain point source dischargers as "major." The ranking process involves tabulating a "score" for each facility, based upon a number of factors, including water quality impacts. Thus, by definition, facilities which have a significant water quality impact would normally be ranked as a "major" facility. Where the §304(l) identification and listing process indicates that a "minor" facility will need additional controls in order to achieve a water quality standard, that facility should generally be reclassified as a "major" facility and controlled. Other minor facilities would be expected to have a negligible effect on achievement of water quality standards and thus would be a low priority for additional controls. However, if a facility listed under §304(l) is a "minor" and is not reclassified, it must still be controlled in accordance with §304(l). The final §304(l) guidance was clarified to reflect these points.

One commenter felt that toxicity reduction evaluations (TREs) should be performed, where necessary, but that permit limitations should not be developed until the TRE is completed. EPA disagrees and feels that TREs are most effective in conjunction with a permit limit as a target level which the TRE is designed to achieve. However, EPA agrees that permitting authorities should develop reasonable compliance schedules in this context (provided that §304(l) deadlines are still achieved) and has added this point to the §304(l) guidance document.

One commenter felt that EPA should require toxic dischargers to undertake a number of toxics use reduction measures (e.g., product substitution and process changes) in addition to simply requiring more stringent NPDES permit limitations. EPA agrees with the commenter that such measures are often effective and encourages permittees to utilize all appropriate control measures in order to comply with NPDES permit limitations. Additional language addressing such control measures has been added to the discussion of toxicity reduction evaluations. However, EPA notes in the guidance that it is the responsibility of the permittee to conduct a TRE and take corrective action as necessary to comply with applicable NPDES permit limits.

A number of commenters felt that the guidance should clearly indicate that the §304(l) requirements apply only where all

required technology-based requirements are inadequate to achieve water quality objectives. EPA agrees and has clarified this point in the final §304(l) guidance. However, a review of all technology-based limitations should be part of an overall toxics control strategy. Another commenter objected to the recommendation in the guidance that technology-based limitations be reexamined to ensure that they are still being appropriately applied to the facility under consideration. Although the guidelines themselves are fixed, the site-specific considerations which affect the application of the guidelines to an individual facility can change and therefore require periodic reexamination as part of a comprehenive toxics control strategy.

Implementation

One commenter urged EPA to encourage States to solicit public participation in the §304(l) implementation process, particularly in the review of waterbody lists, water quality assessment plans, and any technical agreements. EPA agrees that public participation is an integral part of the effort and will help ensure the successful completion of the requirements. Specific reference to public participation is included in the final guidance.

Some commenters thought unreasonable the dates for States' submission of lists of waters and final compliance with water quality standards after implementation of individual control strategies. They point out that a literal interpretation of the statute does not allow adequate time to complete the requirements. These commenters observed that if EPA fails to review and approve all control strategies within the 120 day period or if States fail to comply with the established deadlines, the net effect will be to penalize point source dischargers by providing a compliance deadline date less than three years from the date the strategies were completed. EPA recognizes that the time frames for compliance with the statute are extremely tight. EPA also agrees that point source dichargers should not be unfairly penalized due to the failure of regulatory authorities to provide adequate notification of the limitations which must be met. In its guidance, EPA encourages States to establish reasonable compliance schedules where appropriate in cases where facilities cannot comply with final effluent limitations upon permit issuance. It is important to recognize, however, that the intent of Congress in setting these statutory deadlines was to establish a sense of urgency in addressing and resolving the nation's toxics pollution problems and therefore, ICS's must ultimately result in attainment of applicable water quality standards by June 1992.

FINAL GUIDANCE

IMPLEMENTATION OF REQUIREMENTS UNDER §304(1) OF THE CLEAN WATER ACT AS AMENDED

OFFICE OF WATER REGULATIONS
AND STANDARDS

OFFICE OF WATER ENFORCEMENT
AND PERMITS

MARCH 1988

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EXECUTIVE SUMMARY

The purpose of this guidance is to provide specific information for States and Regions on interpretation of the statutory requirements of §304(l) of the Clean Water Act (CWA), as amended, and to place the new requirements in the context of the ongoing nationwide program for controlling toxic pollutants and toxicity.

Section 304(l) of the CWA requires States to develop lists of impaired waters, identify point sources and amounts of pollutants they discharge that cause toxic impacts, and individual control strategies for each such point source. These individual control strategies are designed to ensure that applicable water quality standards are achieved by no later than June 1992. The general effect of §304(l) is to focus national surface water quality protection programs immediately on addressing known water quality problems due entirely or substantially to point source discharges of §307(a) toxic pollutants. As used in this guidance, "§307(a) toxic pollutants" refers to the "priority pollutants" listed in accordance with §307(a) of the CWA. Controls for these pollutants must be established as soon as possible but no later than the statutory time frames set forth in §304(l).

The new statutory requirements of §304(l) are only one component of the ongoing national program for toxics control. Under the national program, as a matter of policy, EPA is asking that all known toxics problems (due to any pollutant, not only the §307(a) toxic pollutants) be controlled as soon as possible, giving the same priority to controls for non-§307(a) pollutants as to controls where only §307(a) pollutants are involved. Such problems include any violation of a State numeric criterion for any pollutant known to cause toxic effects and any violation of a State narrative water quality standard that prohibits in-stream toxicity, due to any pollutant (including chlorine, ammonia, and whole effluent toxicity), based upon ambient or effluent analysis. Even prior to the 1987 amendments to the Clean Water Act which added §304(l), federal law mandated such controls. Section 304(l), however, adds a new dimension to the basic framework within which States and EPA will identify and address water quality problems related to toxicity and toxic pollutants.

The immediate emphasis of §304(l) and the national program for toxics control requires States and EPA to address problems identified through review of existing and readily available data. However, States and EPA Regions will continue to collect new water quality data as an ongoing obligation under the national program to assure that changes in water quality are identified and any important data gaps in existing data are filled to provide a reasonable basis for identifying and solving cases of water quality impairment. State Clean Water Strategies,

developed to assist implementing the amended CWA, may provide a useful framework for setting priorities for new toxics monitoring, problem assessments, and controls. Such an approach would be especially relevant for areas with both point and nonpoint source toxics problems.

Section 304(l) requires States to develop and submit the following lists of waters to EPA. Each list is identified by the subdivision designation of §304(l) which describes it:

> (A)(i): A list of waters the State does not expect to achieve numeric water quality standards for §307(a) toxic pollutants after technology-based requirements have been met, due to either point or nonpoint sources of pollution. This list is a subset of the (A)(ii) list described below and could be a very short list where a State has few or no numeric criteria for §307(a) toxics, even if water quality impairments due to toxicity are occurring in many of the State's waterbodies.
>
> (A)(ii): A comprehensive list of waters impaired by point or nonpoint source discharges of toxic, conventional, and nonconventional pollutants. This list should reflect all waters needing additional control actions, whether the problem is toxicity or some other impairment.
>
> (B): A list of waters the State does not expect will achieve "applicable standards" after technology-based requirements have been met, due entirely or substantially to point source discharges of §307(a) toxics. EPA interprets "applicable standards" to mean both numeric criteria for §307(a) toxic pollutants and narrative "free from toxicity" standards.

For each stream segment or waterbody on the paragraph (B) list, paragraph (C) of §304(l) requires that the State identify the specific point sources discharging any §307(a) toxic pollutant and the amount of each such pollutant discharged.

In developing lists of impaired waters, States should use a variety of available screening techniques. At a minimum, dilution analyses based upon existing or readily available data and a review of all other relevant data should be conducted. Where data can be readily developed to complete preliminary listing activities or to refine preliminary lists, States will be asked to develop needed data quickly. EPA is asking that States report preliminary lists of waters required by paragraphs (A)(i), (A)(ii), and (B), and the point sources and amounts required by paragraph (C) by April 1, 1988, in the State's §305(b) report. These lists should be refined and expanded by the statutory deadline of February 4, 1989.

For each stream segment or waterbody on the paragraph (B) list, §304(l) requires that individual control strategies (ICS) be developed by February 4, 1989, to reduce the discharge of toxic pollutants from each identified point source. Controls will be established as effluent limits that assure, in combination with existing nonpoint source controls, the attainment and maintenance of applicable water quality standards for toxic pollutants and toxicity. Applicable water quality standards in existence on February 4, 1989, must be achieved no later than June 4, 1992.

Section 304(l) requires that ICS's be established in accordance with §402 of the CWA. This is the provision establishing the National Pollutant Discharge Elimination System (NPDES) permit program. Therefore, to ensure compliance with the 1992 deadline, each ICS is to consist of final enforceable NPDES permits, to the extent possible, and accompanying documentation (i.e., fact sheets). Where a State demonstrates that a final permit cannot be issued by February 4, 1989, a draft permit and supporting documentation may be accepted as an ICS. However, such a draft permit must be accompanied by a schedule indicating when the final permit will be issued and providing adequate time for the permittee to comply with the limitations such that water quality standards will be achieved by June 1992.

Because water quality impairment due to toxicity may be present in waters other than those that must be listed under paragraph (B), EPA also requires that water quality-based permit limits be developed for any stream segment or waterbody that is not achieving applicable water quality standards due to any pollutant that causes toxic effects, not simply the §307(a) toxic pollutants. Development of controls to address these problems will be based upon statutory authorities other than §304(l), particularly §301(b)(1)(C) of the CWA. This approach should be focused to assure that the significance of the impairment, rather than the cause of the impairment, will dictate the priority assigned to establishing enforceable control requirements

NPDES permits incorporating all necessary and appropriate elements should be developed for all point sources which are identified under paragraph (C) of §304(l). This will entail addressing all known and potential problems with respect to a point source (e.g., conventional, nonconventional, and toxic pollutants) irrespective of the specific reason for listing the point source. This is necessary to assure that each NPDES permit issued is to the best of the State's knowledge, adequate in all respects for a five-year term.

The following table summarizes the time frames for these major actions (for further details, see Figure 1 and Figure 3 and relevant sections of this document):

List/Action	EPA Deadline for Preliminary Submission	EPA and Statutory Deadline for Final Submission
(A)(i) list of waters	4/1/88	2/4/89
(A)(ii) list of waters	4/1/88	2/4/89
(B) list of waters	4/1/88	2/4/89
(C) identification of point sources and amounts of pollutants	4/1/88	2/4/89
Individual Control Strategies for sources on (C) list (resissued/modified NPDES permits)		2/4/89

In addition, as a matter of policy, EPA asks that permits for all major and significant minor point sources causing toxicity effects in receiving waters due to pollutants other than the §307(a) toxic pollutants be developed by February 4, 1989.

Section 304(1)(2) requires that within 120 days after the February 4, 1989, deadline for lists of waters and ICS submittal, EPA must approve or disapprove the lists of waters and each ICS. Controls must achieve the applicable water quality standard within 3 years (no later than June 4, 1992). If disapproved, or if the State fails to submit the required lists or ICS's, EPA must develop these lists and ICS's within 1 year (June 4, 1990) and controls must assure that standards are met no later than 3 years thereafter (June 4, 1993).

States are responsible for listing waters and point sources and developing individual control strategies (in those States which are authorized to issue NPDES permits). However, EPA has a statutory responsibility to oversee these activities, to approve or disapprove State actions under §304(1), and to act where a State does not develop all necessary lists and ICS requirements. In addition, EPA is responsible for issuing NPDES permits which are required under §304(1) in those States which are not authorized to issue NPDES permits. EPA will work closely with the States to strengthen their toxics control programs and help develop the technical approaches to be used in fulfilling the requirements of §304(1) and the national toxics control program.

SECTION I. INTRODUCTION

One of the most significant national environmental problems is the presence of harmful levels of toxic pollutants in the waters of the United States. EPA's goal is to work with States to protect human health and aquatic resources by controlling the release of toxicants, as necessary, to protect water quality.*

The Clean Water Act (CWA) provides broad statutory authorities in sections 301, 303, 304, 306, 307, 401, and 402, which have long mandated that programs be implemented to control the discharge of pollutants to surface waters. Under these sections of the Act, States and EPA are required to develop and implement both technology-based and water quality-based controls of conventional, non-conventional, and §307(a) toxic pollutants for point source dischargers.** Through the use of technology-based effluent guidelines, State water quality standards, and the NPDES permitting process, significant reductions of pollutant loadings to the Nation's receiving waters have been achieved.

In addition to the existing statutory authorities, the Water Quality Act of 1987 has added a new section 304(l) to the CWA with specific deadlines to accelerate State action in controlling certain toxic discharges to surface waters where water quality is now impaired. The purpose of this document is to provide specific guidance for implementation of the statutory requirements of §304(l) of the Clean Water Act as amended in 1987, and to put the new requirements of §304(l) in the context of the national program for toxics control.

Section II provides an overview of the statutory requirements of §304(l) and an explanation of how these new initiatives

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* The terms, "toxics" and "toxicants", as used in this document, refer to any pollutant or combination of pollutants which cause toxicity to aquatic life or terrestrial life, or cause adverse human health impacts.

** The term "§307(a) toxic pollutants" is used in this document to refer to the more narrowly defined list of 126 "priority pollutants" listed in connection with §307(a)(1) of the CWA. The water program has historically concentrated on the 126 priority pollutants as a subset of the 65 classes of compounds listed pursuant to §307(a)(1). This list of 126 has been the focus of both the national water quality criteria and the national effluent guidelines development processes. The 65 classes of compounds include thousands of individual chemicals.

relate to the overall nationwide program for control of toxic toxic pollutants and toxicity. Sections III and IV provide specific guidance for performing the tasks required by §304(l) including the identification of waters impaired by §307(a) toxic pollutants and other sources of toxicity· the identification of point sources of impairment; and the development of individual control strategies. Section V provides specific information on logistical considerations in implementing the new statutory requirements.

SECTION II. SURFACE WATER TOXICS CONTROL PROGRAM

EPA has worked with the States to develop the overall direction for the surface water toxics control program. A fundamental principle of the national program is that the control of pollutants beyond the technology-based provisions of the CWA requires an integrated strategy consisting of both biological and chemical methods to address toxic, conventional, and nonconventional pollutants from municipal and industrial sources. EPA's goal is to ensure a reasonable degree of national consistency in addressing problems while preserving sufficient flexibility to construct solutions to deal with specific problems.

A. The New Requirements

Section 304(l) of the Clean Water Act, as amended, does not require any major change in direction. It does, however, put States and EPA on an accelerated timetable for accomplishing many activities (see Figure 1), especially those related to controlling §307(a) toxic pollutants. By February 4, 1989, §304(l)(1) of the CWA requires that States submit specific lists of impaired waters, lists of point sources and amounts of pollutants they discharge that cause toxic impacts, and individual control strategies for each such point source. These individual control strategies are designed to ensure that applicable water quality standards are achieved by no later than June 1992. Detailed discussions of the procedural and technical aspects of these new statutory requirements are provided in Sections III and IV.

Section 304(l)(2) of the CWA, as amended, requires that within 120 days after the deadline for States to submit the required lists and individual control strategies (i.e., by June 4, 1989), EPA must approve or disapprove the State's lists and individual control strategies. If a State fails to submit all necessary individual control strategies, or if EPA disapproves the State strategies, §304(l)(3) requires EPA, in cooperation with the State and after opportunity for public notice, to implement the requirements of §304(l)(1) by no later than June 4, 1990. In the implementation of such requirements, EPA must, at a minimum, consider listing waters for the development of control strategies in accordance with petitions submitted by any person between February 4, 1989, and June 4, 1989.

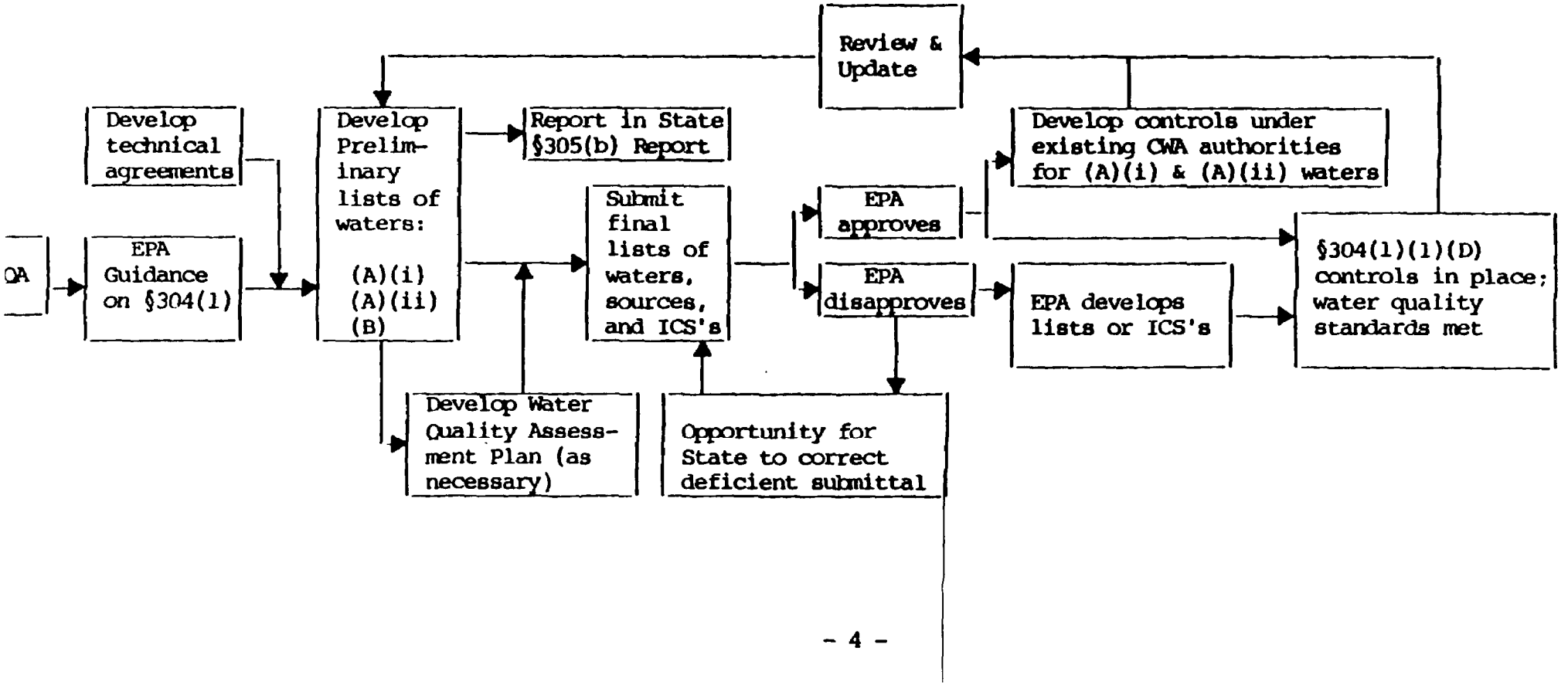
A related statuory provision is new section 303(c)(2)(B) of the CWA. This section requires States to revise water quality standards and adopt numeric criteria for all §307(a) toxic pollutants for which §304(a) criteria have been published, where the discharge or presence of the pollutant could reasonably be anticipated to interfere with the designated uses adopted by the State. If such numeric criteria are not available, a State is to adopt criteria based on biological assessment methods

FIGURE 1. SURFACE WATER TOXICS CONTROL PROGRAM

1) ACTIVITIES CONDUCTED UNDER ONGOING TOXICS CONTROL PROGRAM:

- Control of all sources (under sections 301, 316, 319, 402, 403, and 405 of the CWA)
- Control of all types of pollutants (under sections 301(b), 303, and 307 of the CWA)
- Control of all water bodies (under section 303(d) of the CWA)
- Program development activities (including assessments of State toxics control programs)

2) SPECIFIC ACTIVITIES CONDUCTED UNDER §304(1) OF CWA AS AMENDED:



consistent with EPA guidance for aquatic life and human health protection. Implementation of §303(c)(2)(B) is not covered in this document. A discussion of numeric criteria is available in the Water Quality Standards Regulation and should be referred to for more information (40 CFR 131, November 1983). In addition, EPA is developing separate guidance for meeting the requirements of §303(c)(2)(B).

The concurrent requirements of §304(l) and §303(c)(2) may present a near term timing problem in some States. State water quality standards may be undergoing revision while listing and control activities are also being carried out. States are nevertheless required to identify and control impaired waters within the §304(l) statutory time frames. In many States, completion of §304(l) requirements will be necessary even though revision of State water quality standards in accordance with §303(c)(2) is still underway. Chapters III and IV provide additional information on technical approaches which may be used where State water quality standards have not yet been revised in accordance with §303(c)(2).

B. Relationship of New Requirements to Ongoing Programs

The new requirements of §304(l) apply primarily to specific impacts resulting from §307(a) pollutants. Other sections of the CWA, including §§301(b)(1)(C), 303(c), 303(d), 303(e), 401, and 402(a), require water quality-based control measures for all pollutants (including chlorine, ammonia, and whole effluent toxicity) which impair the achievement of water quality standards after technology-based control requirements are met.*

The national strategy for implementing §304(l) is to direct immediate attention to establishing toxics controls where there are impacts due entirely or substantially to point source discharges of §307(a) toxic pollutants. These problems, as well as point source discharges of other pollutants causing toxic impacts (including chlorine, ammonia, and whole effluent toxicity), should be controlled through ongoing programs on a high priority basis. It is important to note, however, that the specific

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* As used in this document, the term "controls" includes all actions designed to reduce or eliminate pollutant loadings utilizing all applicable statutory authorities. Such actions will usually involve enforceable NPDES permit effluent limitations in conjunction with other specific permit requirements, including best management practices, wastewater treatment system optimization, and pretreatment program modifications (*see* additional discussions under sections IV.B and IV.C.). The term "individual control strategies" refers to the specific statutory requirements of §304(l)(1)(D) and will require NPDES permits which contain the appropriate limitations within the statutory time frames.

statutory requirements for individual control strategies under the new §304(l) apply only to §307(a) toxic pollutants. Other preexisting statutory authorities are used for controlling other pollutants. At the same time, as an ongoing obligation of existing programs, and in conjunction with State Clean Water Strategies, the States and the Regions should continue to collect new data where current data are inadequate, to identify any new or currently unidentified problems. The national program will ensure an ongoing process of updating data and controls, even after the deadlines for listing waters establishing individual control strategies have been met.

In carrying out the requirements of the toxics control provisions of the 1987 CWA amendments and the ongoing national program of toxics control, EPA and the States should continue to implement a progressive program of toxic pollutant load reduction, focusing first on high priority areas where improvements will result in the greatest environmental benefit. EPA and States should address all toxicants causing human health and environmental impacts, regardless of the type and source of discharge. At the same time, they should continue to gather new data under existing programs where important information gaps exist. The toxics control program should continue to address emerging problems and ensure prevention of water quality impairment due to toxicity even after §304(l) deadlines have been met.

EPA has recently published several guidance documents which expand on the national toxics control initiative. These documents include: State Water Quality-based Toxics Control Program Review Guidance (December 1987), Nonpoint Source Guidance (December 1987), Clean Lakes Program Guidance (December 1987), and State Clean Water Strategies: Meeting the Challenges of the Future (December 1987).

As a part of their ongoing toxics control program and in conjunction with State Clean Water Strategies, States should expand their water quality monitoring programs as necessary to ensure that all discharges and receiving waters are covered by appropriate biological and chemical data collection activities. EPA encourages States to require permittees to gather both discharge and ambient monitoring data where this is reasonable, and where the State's resources can be better used for other priority activities. In general, States should maintain monitoring programs that are designed to identify the nature and extent of the effects of toxic discharges on the designated uses of the waters.

In addition to planning for the future of the toxics program after §304(l) has been implemented, States and EPA will need to coordinate §304(l) activities with their ongoing activities that affect toxics controls. For example, new data being generated by permittees under existing NPDES permits, as well as data generated by States and EPA should be used to establish controls

in new permits to assure that applicable standards will be met. Regions and States should also fully implement and enforce the results of toxicity reduction evaluations now underway, including needed improvements to local pretreatment programs and new local limits for §307(a) toxic pollutants and other toxicants. Where stormwater discharges from point sources are contributing to water quality standards violations in receiving waters or are significant contributors of pollutants to waterbodies, they should be designated under §402(p) as needing to seek and obtain NPDES permits.

In addition, the States will be addressing impacts due to nonpoint sources through programs mandated under §319 of the new amendments to the CWA. As regulatory authorities obtain increased data from improved monitoring of receiving waters and the results of toxicity studies, their ability to address nonpoint sources should be enhanced. Throughout the implementation process, it is important for point and nonpoint source control programs to be closely coordinated. Nonpoint sources are considered in calculating §303(d) total maximum daily loads (TMDLs) for a segment, and are part of the process of developing water quality-based controls for point sources. Waters which are impaired "entirely or substantially" due to point source discharges of §307(a) toxic pollutants (paragraph (B)) will generally not require new controls on nonpoint sources. However, coordination between point and nonpoint source controls will be particularly important in developing controls for those impaired waters listed under paragraph (A)(ii) which have substantial contributions of pollutants from nonpoint sources.

As new technology-based effluent limitations guidelines and pretreatment standards are developed, EPA Regions and States should assure compliance by all affected dischargers (not just those located on listed waters). In addition, as new State numeric criteria and standards are developed, they should be used in the permitting process to set more stringent water quality-based limits, where necessary.

It will be necessary for States routinely to update and further refine their procedures for implementing point and nonpoint source controls. To support State programs, EPA will publish criteria and advisories on additional pollutants of concern, (in addition to the §307(a) toxic pollutants); provide supplemental guidance on improved biological monitoring, assessment, and evaluation techniques for complex point and nonpoint source discharges; and develop risk assessment/risk management procedures to better define program priorities for the national program for toxics control.

C. Technical Approaches to Surface Water Toxics Controls

Finding appropriate solutions to surface water toxics problems presents long term institutional and technical challenges.

To assure the long term success of the overall toxics control initiative, it is important to have strong State toxics control programs that include monitoring, standards, wasteload allocation, permitting, pretreatment, and enforcement activities. In accordance with the State Water Quality-based Toxics Control Program Review Guidance (December 1987), Regions will work with the States to ensure that States are equipped with the necessary tools to make significant progress in controlling toxics and to meet the requirements of the Clean Water Act. In addition, Regions and States are encouraged to develop technical agreements covering the conduct of the specific activities mandated by the new statutory requirements.

1. Strengthening State Toxics Control Programs

In FY 1988, Regions will use the guidance referred to above to conduct broad, comprehensive reviews of State programs for identifying and controlling toxic dischargers. In addition, Regions will work with States to develop clear action plans to strengthen toxics control programs as necessary in FY 1988 and beyond. These reviews will include assessments of State progress toward meeting the requirements of §304(l). Each action plan will also include the steps, if any, that the a State should undertake in order to ensure compliance with the requirements of §304(l) of the CWA.

Where a State is not approved to implement the NPDES program (or some portion of it), these program assessments will focus in part on the EPA Region's preparedness to implement controls for toxics (e.g., through permits and/or pretreatment requirements) and the State's ability to fulfill its share of the responsibilities for standards, monitoring, identifying waters to be listed, and providing input to NPDES permits and pretreatment requirements.

2. Technical Agreements for Performing New Requirements

To ensure that the activities conducted by States in accordance with §304(l) of the CWA are thorough, appropriate, and technically sound, Regions and States should discuss the procedures that each State will follow to develop the lists of waters, identify sources/pollutants, and prepare individual control strategies. These procedures should then be documented and mutually agreed upon in technical agreements.

These technical agreements need not be detailed documents and should not impede progress in implementing the new statutory requirements. It is essential, however, that States and Regions agree upon the approach, methods, and timing to be followed in implementing the requirements of §304(l). Regional assessments of State toxics control programs, as discussed above, can help identify elements which need to be incorporated into technical agreements. These technical agreements should occur as soon

as possible, however, and should not await the results of the State program assessments, if the timing of these two activities cannot be coordinated. In any event, EPA Regions and States should ensure that §304(l) technical agreements and Action Plans for State toxics control programs are consistent with regard to priorities and timing.

The technical agreements could be new documents, with references to existing memoranda of agreement and performance agreements, or new amendments to existing State-EPA agreements. At a minimum, the agreements should contain descriptions of the following elements:

- Water quality standards or screening criteria values (where no numeric criteria exist).
- The basic technical approach for assessing water quality (i.e., dilution analyses, basinwide screening analyses, etc.), developing lists, locating sources/amounts of toxic discharges, and developing individual control strategies.
- Data sources.
- Other input agreed to by the State and the Region.

By entering into technical agreements that describe the procedures to be followed by each State for assessing waters and developing individual control strategies, States and Regions can minimize the administrative burden caused by submittal and review of the required lists and strategies. Regional review of State submittals can also be facilitated. While establishment of specific technical agreements for performing §304(l) activities is not mandatory, it is strongly recommended to facilitate the review/approval process between EPA Regional offices and States.

SECTION III. IDENTIFICATION OF WATERS AND POINT SOURCE DISCHARGES

A. Background

The specific mandate for the identification and listing of waters impaired by toxics and point sources of toxic pollution is specified by new Clean Water Act sections 304(l)(1)(A), (B), and (C). This portion of the guidance discusses the procedural and technical implications of these statutory requirements in the context of the national toxics control program.

The listing requirements under paragraph (A) form the basis for a program where waters are regularly screened for any conventional, nonconventional, or §307(a) toxic pollutants which adversely impact water quality. Paragraph (B) requires the States to develop a list of all waters for which they do not expect applicable water quality standards to be achieved after implementation of technology-based effluent limits and pretreatment standards due entirely or substantially to the point source discharge of §307(a) toxic pollutants. This list identifies waterbodies for which point sources and amounts of pollutants will be identified and individual control strategies prepared under paragraphs (C) and (D). A schedule for submitting these requirements to EPA is provided in Section V of this guidance.

All relevant authorities under the CWA are to be employed when developing controls and issuing permits for sources on the lists of waters required by paragraphs (A) and (B). CWA sections 301(b)(1)(C), 303(c), 303(d), 303(e), 401 and 402(a), as well as implementing regulations, require control measures for all pollutants, including chlorine, ammonia, and whole effluent toxicity, which impair the achievement of specific water quality objectives.

B. Statutory Requirements

The new statute establishes three distinct lists of waters that States are to prepare. The types of waters to be included on these lists as well as on the list required in §303(d) are further described on Table 1. Figure 2 illustrates the relationships among the lists, and their related control actions.

1. Paragraph (A)(i) - A list of waters which, after application of technology-based limitations, cannot reasonably be anticipated to attain or maintain water quality standards revised pursuant to new section 303(c)(2)(B) for section 307(a) toxic pollutants due to either point source or nonpoint source discharges. All waters listed under paragraph (A)(i) impacted by §307(a)

Table 1

LISTS OF WATERS REQUIRED UNDER
§304(l)(1) and §303(d) OF THE CLEAN WATER ACT

This table summarizes the basis for listing the categories of impaired waters under §304(l)(1). It should be noted that the various listing criteria will cause some waters to appear on more than one list.

	Paragraph in §304(l)(1) of the CWA as amended			§303(d)
BASIS FOR LISTING:	(A)(i) "Mini List"	(A)(ii) "Long List"	(B) "Short List"	
Point Source Impacts				
Impairment due to §307(a) toxic pollutants as indicated by violations of State water quality standards for §307(a) toxics	X	X	X	X
Impairments due to §307(a) toxic pollutants as indicated by violations of an applicable standard (i.e., narrative or numeric)		X	X	X
Waters not meeting applicable water quality standards due to any pollutant(s)		X		X
Waters not meeting the fishable/swimmable goals of the CWA due to the point source discharge of any pollutants		X		
Nonpoint Source Impacts				
Impairment due to §307(a) toxic pollutants as indicated by violations of State water quality standards for §307(a) pollutants	X	X		X
Waters not meeting applicable water quality standards due to any pollutant(s)		X		X
Waters not meeting the fishable/swimmable goals of the CWA due to the nonpoint source discharge of any pollutants		X		

toxic pollutants due entirely or substantially to discharges from point sources will require the identification of the source and amount of toxic pollutant discharged, as well as the preparation of an individual control strategy because this portion of the (A)(i) list is included on the paragraph (B) list.

2. Paragraph (A)(ii) - A list of waters which, after application of technology-based limits, cannot reasonably be anticipated to attain or maintain water quality that shall assure attainment of the fishable/swimmable goals of the CWA. This is a comprehensive listing of waters impacted by all toxics and nontoxics due to both point and nonpoint sources. The paragraph (A)(ii) list includes all waters whose designated uses are less than the fishable/swimmable goals of the CWA as well as those which are not meeting water quality standards for established designated uses.

Waters not meeting water quality standards for established designated uses will also appear on the list of waters required by §303(d) of the CWA. These waters should be the focus of control actions under other CWA authorities and existing regulations (CWA sections 301, 303, 401, and 402; and the Water Quality Planning and Management (WQM) Regulation, 40 CFR Part 130, January 1985).*

Note that the lists described in paragraphs (A)(i) and (B) are actually subsets of the comprehensive list required under paragraph (A)(ii). (See Figure 2.)

3. Paragraph (B) - A list of waters for which the State does not expect that the applicable water quality standards will be achieved, after BAT, pretreatment, and new source performance standards are complied with, due entirely or substantially to point source discharges of §307(a) toxic pollutants.

"Applicable standard" is not specifically defined in the statute; however, EPA interprets it to mean numeric criteria within water quality standards for §307(a) toxic pollutants or the narrative water quality standard for toxicity (e.g., "no toxics in toxic amounts"). The narrative standard for controlling both whole

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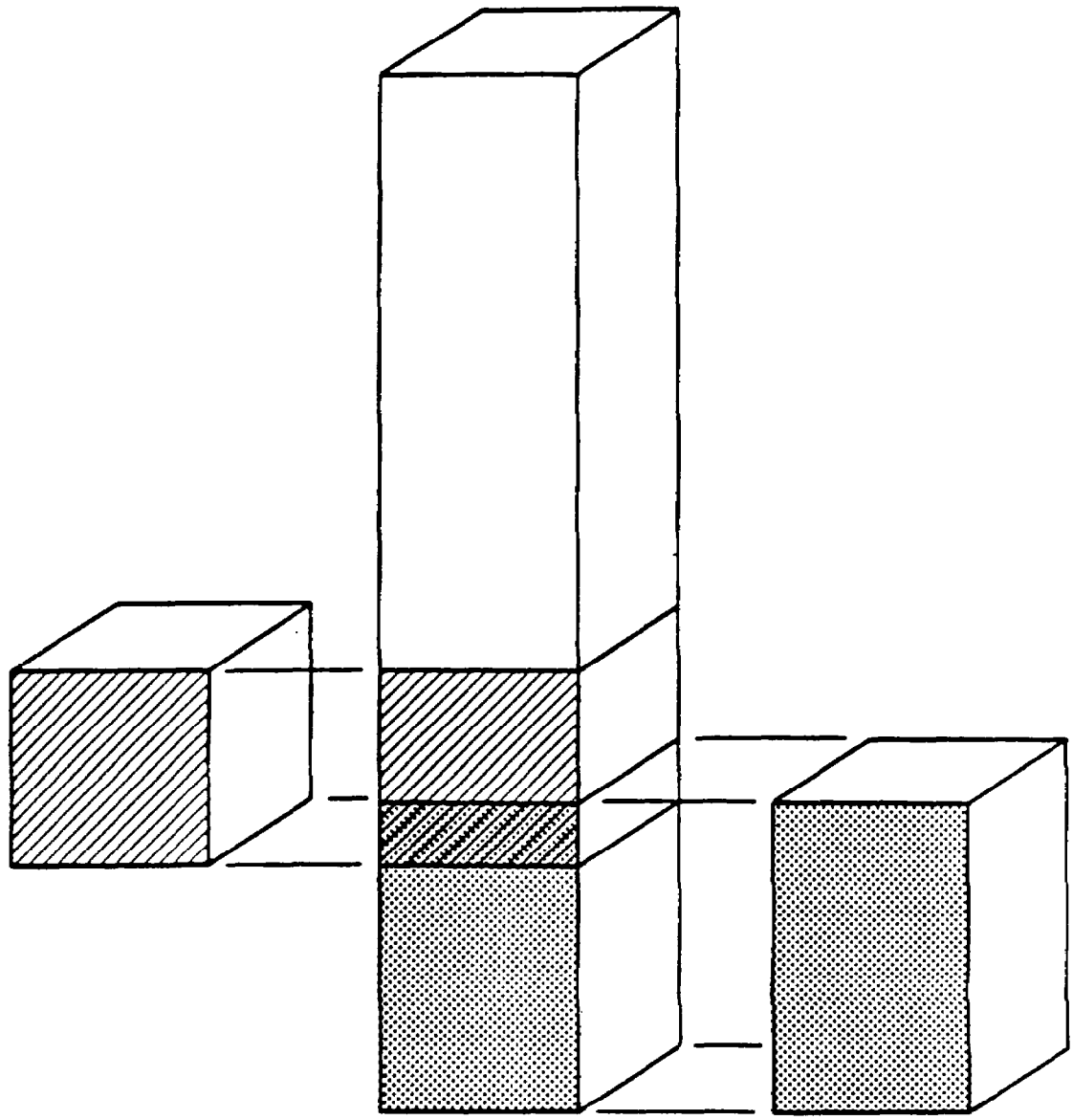
* The new §304(l) requirements are consistent with 303(d) which requires States to identify waters where water quality-based controls are needed to meet water quality standards, rank them in priority order, prepare total maximum daily loads (TMDLs) for each waterbody, and submit these lists of waters and TMDLs to EPA for review and approval. The WQM Regulation describes how States are to identify these areas, prepare submissions to EPA, and send the lists of waters and TMDLs to the EPA Regional office for review and approval.

FIGURE 2. INTERRELATIONSHIP OF WATERS LISTED UNDER SECTION 304(l) OF THE CLEAN WATER ACT



MINI LIST (A)(i):

Control actions include use of all existing CWA authorities for toxic pollutants.

LONG LIST (A)(ii):

Control actions include use of all existing CWA authorities for all pollutants and all waters.

SHORT LIST (B):

Control actions require Individual Control Strategies.

effluent toxicity and toxicity due to individual chemicals may be interpreted by using EPA criteria on a chemical-by-chemical basis to identify §307(a) toxic pollutants. Since impairment is defined in §304(l) with reference to §307(a) toxic pollutants, violations of the narrative standard for purposes of developing the paragraph (B) list are those attributable to one or more §307(a) toxic pollutants. The phrase "due entirely or substantially to discharges from point sources" refers to waters where additional controls primarily on point sources will achieve water quality standards for §307(a) toxic pollutants.

For each waterbody segment included on the paragraph (B) list, specific point sources discharging §307(a) toxic pollutants are to be identified along with the amount of each pollutant discharged by each source. Individual control strategies will be prepared for each waterbody segment on the paragraph (B) list.

While the requirements of paragraphs (C) and (D) apply only to the waters identified on the paragraph (B) list, other statutory authorities (sections 301, 303, 304, 401, and 402 of the CWA) mandate that water quality-based controls be developed for all waters identified as needing such controls. It is important to note that §301(b)(1)(C) of the CWA requires that water quality-based limitations necessary to meet water quality standards be achieved by July 1, 1977. Further, the NPDES regulations require that issued permits include all limitations necessary to achieve applicable water quality standards. States must therefore continue to establish water quality-based controls under these authorities.

C. Identification of Waters

To meet the deadlines for the listing of waters, sources, and amounts, and the development of individual control strategies, States are to use all existing and readily available sources of information. States are encouraged to build on the work that has already been done in the continuous process of water quality monitoring, reviewing/revising water quality standards, evaluating needs for technology-based or water quality -based controls, developing TMDLs/WLAs, issuing permits, and continued monitoring to determine the effectiveness of pollution controls.

Where States have made significant progress to date in developing water pollution controls, the new statutory provisions of §304(l)(1) will require only that remaining impacts be identified and controlled within the statutory time frames. Where States have not made substantial progress to date in these areas, the new statutory provisions will involve a considerable effort within a very short time. Although collection of extensive new data will generally not be required for completion of these initial pollution control activities, some States may need to strengthen their monitoring efforts to obtain the data needed to make these determinations. For detailed information on possible

data sources, see Appendix B.

States should be able to demonstrate to EPA that they have sufficient information to justify decisions to list waters as well as decisions not to list waters. At a minimum, States should assemble and evaluate available data on the following categories of waters so as to identify those to be considered for inclusion on the lists.

- Waters where fishing or shellfish bans and/or advisories are currently in effect or are anticipated.

- Waters where there have been repeated fishkills or where abnormalities (cancers, lesions, tumors, etc.) have been observed in fish and other aquatic life during the last ten years.

- Waters where there are restrictions on water sports or recreational contact.

- Waters identified by the States in the 1982, 1984, 1986 or draft 1988 State §305(b) reports as either "partially achieving" or "not achieving" designated uses.

- Waters identified by the States and reported to EPA in the third quarter of FY87 as waters needing water quality-based controls for "toxics" and "non-toxics." (See FY87 Office of Water Accountability System measure WQ-32.)

- Waters identified by the States as priority waterbodies in FY86 because of impaired or threatened uses. State Water Quality Management plans include priority waterbody lists which are those waters that most need water pollution control decisions to achieve water quality goals.

- Waters where ambient data indicate the presence of §307(a) toxic pollutants from primary industries.

- Waters for which effluent toxicity test results indicate possible violations of State water quality standards, including narrative "free from" criteria or EPA criteria where State standards are not available.

- Waters with primary industrial major dischargers where simple dilution analyses indicate exceedances of State water quality standards (or EPA criteria where State standards are not available) for §307(a) toxic pollutants, ammonia, or chlorine. These dilution analyses could be based upon estimates of BAT levels from effluent guidelines development documents, NPDES permit application data (e.g., Form 2C), Discharge Monitoring Reports (DMRs), or other available information.

- Waters with municipal major dischargers requiring pretreatment where simple dilution analyses indicate exceedances of State water quality standards (or EPA criteria where State standards are not available) for §307(a) toxic pollutants, ammonia, or chlorine. These dilution analyses could be based upon data from NPDES permit applications (e.g., Form 2A), Discharge Monitoring Reports (DMRs), or other available information.

- Waters with known or suspected use impairments where dilution analyses indicate exceedances of State water quality standards (or EPA criteria where State standards are not available) for §307(a) toxic pollutants, ammonia, or chlorine. This category includes waters with facilities not included in the previous two categories such as municipal majors not required to have pretreatment, federal majors, and minors having water quality impacts. These dilution analyses could be based upon estimates of BAT levels from effluent guideline development documents, NPDES permit application data, Discharge Monitoring Reports, (DMRs) or other available information.

- Waters classified for uses that will not support the "fishable, swimmable" goal of the Clean Water Act.

- Waters where ambient toxicity or adverse water quality conditions have been reported by local, State, EPA or other Federal Agencies, the private sector, public interest groups, or universities. These organizations and groups should be actively solicited for research they may be conducting or reporting. For example, State university researchers, USDA Extension Service, and the U.S. Fish and Wildlife Service are good sources of current field research and activities.

- Waters identified as having impaired or threatened designated uses in the Clean Lakes Assessments conducted under §314 of the Clean Water Act.

- Waters identified as impaired by nonpoint sources in the 1985 <u>America's Clean Water: State's Nonpoint Source Assessment</u> (Association of State and Interstate Water Quality Pollution Control Administrators [ASIWPCA]) and waters identified as impaired or threatened in the nonpoint source assessments under §319 of the Clean Water Act.

- Surface waters impaired by pollutants from hazardous waste sites on the NPL prepared under §105(8)(A) of CERCLA.

D. Known and Suspected Problem Waters

From the categories of waters listed above, and from the data sources identified in Appendix B, the States should be able to develop preliminary lists of waters with known or suspected problems. States are expected to exercise sound technical judgment when deciding whether a waterbody has a water quality problem, and whether that problem is suspect or known.

Waters with known problems include waters which have sufficient ambient or effluent data to indicate violations of any applicable State numeric criteria, or violations of any applicable State narrative water quality standard due to any pollutant (including chlorine, ammonia, and whole effluent toxicity). A violation indicated by dilution mass balance calculations based upon discharger-specific and ambient data which reflect current operating conditions would be a known problem. Discharger-specific data that may be useful in assessing current conditions includes NPDES permit application data and Discharger Monitoring Reports (DMRs).

Where sufficient existing data are not available to identify a waterbody as a known problem, it should be designated as a suspected problem. For waters with suspected problems, the State should prepare a Water Quality Assessment Plan. This plan should be submitted by April 1, 1988 along with the preliminary lists of waters and should describe what assessments need to be done and how the State plans to assess these waters. In particular, the plan should describe when and where the State intends to collect additional data needed to confirm suspected problem waters as known problems, or to detemine that no problems exist. As a high priority, the Water Quality Assessment Plan should focus on those activities which will help refine the preliminary lists into final lists by February 4, 1989. However, preparation of a Water Quality Assessment Plan does not absolve the State's responsibility to complete the lists of waters in accordance with §304(l). If such lists are not completed and approved, EPA is required to complete them.

Waters with suspected problems include waters where a simple dilution analysis or an assessment of available data indicates a strong likelihood for violations of State numeric criteria or the State's narrative water quality standard. For example, suspected problems would include stream segments which were "flagged" by simple dilution analyses where they were performed using other than site-specific data; or segments which receive the discharge from municipal treatment facilities which have not yet fully implemented required pretreatment programs, or which have not fully characterized their discharges for §307(a) toxic pollutants or whole effluent toxicity.

As a matter of policy, EPA is asking that controls be developed for waters with known toxicity problems due to any pollutant as soon as possible, giving the same priority to these controls as for controls where only §307(a) pollutants are involved.

E. Listing and Delisting Waters

Waters with known and suspected problems should be included on preliminary lists to be submitted on April 1, 1988. After submitting these initial lists to EPA for review and comment, States are to follow their Water Quality Assessment Plans to further evaluate suspected water quality problems. The final lists of waters

submitted to EPA for approval or disppproval on February 4, 1989, will include only those waters where water quality problems are known.

Decisions on listing or delisting waters are dependent on the data available. Once waters are placed on the final §304(l)(1)(B) list, an individual control strategy is required. However, the process of developing an ICS may provide additional data that could refute or confirm that a State water quality standard was violated. Where such new information becomes available, the State may reconsider their listing decisions and adjust their lists of waterbodies or point sources accordingly. In addition, a State may have other significant reasons for not including or deleting waters from their lists as discussed in Section III.J. below.

While existing and readily available data are to be used to develop both the preliminary and final lists, new data will continue to be needed after the submission of final lists of waters in February 1989. States should continue to assess the quality of their waters to identify waterbodies that cannot reasonably be expected to attain or maintain water quality standards and update their lists of waters accordingly.

EPA sees the assessment of waters, development of lists of impaired waters, and reporting of these waters as a continuing process to achieve the objectives of the water quality program and to identify needs for water quality-based controls. As waters continue to be assessed in conjunction with ongoing monitoring and permitting, including the assessment of toxics contamination in sediments, updated lists of waters should be reported in the States' §305(b) reports in a form compatible with EPA's §305(b) Waterbody System (see Section III.H. below). This ongoing assessment and reporting process will help ensure that waters are continually assessed for use impairment and that controls are instituted on the basis of water quality protection. Clean Water Act §§ 304(l), 303(d), and 305(b) support these objectives and provide EPA with appropriate review and approval authority.

F. Screening Techniques

Screening techniques generally used to identify waters needing water quality-based controls are described as follows:

1. Simple Dilution Calculations - A dilution calculation is a relatively simple and conservative method for estimating where water quality-based controls may be needed. This technique is useful for predicting the concentration of a pollutant after complete mixing with the receiving water and assumes no decay or other fate processes are present to reduce the concentration. For multiple sources, the concentration at each downstream source should be recalculated.

Because simple dilution techniques are often conservative, they could generate a list of waters that may not actually need water quality-based controls. However, this method provides a

simple approach to determine the likelihood of a water quality criteria or standards violation. In order to rely solely on a dilution calculation to designate a water as known, the dilution calculation should be based upon site-specific data. More detailed analyses may be needed for non-soluble or hydrophobic pollutants which tend to accumulate in the sediments of lakes and tidal waters and for other pollutants where more detailed analyses are needed for developing effluent limitations.

2. Automated Data Calculations - There are several automated data systems which States may employ in the process of evaluating waters within a State. One such system is the Reach Pollutant Assessment Program. This system was developed by EPA and utilizes eight existing EPA data bases to identify receiving stream segments with potential priority pollutant impacts from industrial and municipal point source discharges.

An existing automated data system which States may use to help identify potentially impaired waters is EPA's Routing and Graphical Display System (RGDS). This system can systematically evaluate large numbers of streams (see Appendix C) and has the capability to perform analyses using national criteria and dilution calculations to estimate in-stream concentrations of pollutants. For marine waters, dilution models have been developed for the §301(h) program. These are discussed in Appendix D.

3. Effluent Toxicity and Biosurveys - The whole effluent, or toxicity-based, approach to toxics control involves the use of toxicity tests to measure the toxicity to aquatic life of point source discharges. Whole effluent toxicity is an extremely useful parameter for identifying undesirable effects caused by the discharge of a complex mixture of waste materials.

The Technical Support Document for Water Quality-based Toxics Control (EPA-440/4-85-032) and the Permit Writers Guide to Water Quality-based Permitting for Toxic Pollutants (EPA-440/4-87-005) present information on how to use the whole effluent toxicity approach and the pollutant-specific approach. More detail on the pollutant specific approach is also provided in EPA's screening manual (referenced below).

Biosurveys (defined here as field assessments of the ambient effects of toxic pollutants as measured by representative biological organisms) are also useful for screening of waters for toxicity. These field surveys provide a cost-effective screening method for determining designated use support and use attainability, assessing point source and nonpoint source impacts, and evaluating effectiveness of control actions. EPA is developing a draft document: Rapid Bioassessment Protocols for Streams and Rivers, which describes the application of certain types of biosurveys to water quality assessment. This guidance will be made available by EPA upon its completion (estimated Fall, 1988).

4. Screening Manual - An EPA manual entitled Water Quality Assessments: A Screening Procedure for Toxic and Conventional Pollutants (EPA 600/6-85-002a, 002b) presents simple techniques to assess the loading and fate of specific pollutants in streams, impoundments, estuaries, and groundwaters. It also presents equations for lakes and estuaries. The techniques are readily programmed on hand-held calculators or microcomputers. Of the available screening techniques, those described in this manual will usually provide the most accurate data for listing waters, and, in many cases, these techniques can be used to establish permit limits. Application of techniques in this manual, however, are more resource intensive than other screening techniques and must be applied on a site-by-site basis.

G. Technical Considerations for Listing

The use of screening techniques for developing the lists of waters requires a careful selection of model parameters. Some of the factors to consider when selecting parameters for use in modeling and data analysis include the following.

1. Applicable Standard - Water quality numeric criteria for §307(a) toxic pollutants in State water quality standards should be used as the basis for water quality modeling. Where State numeric criteria for §307(a) toxic pollutants are not established, narrative standards may be interpreted by using EPA criteria on a chemical-by-chemical basis to identify §307(a) toxic pollutants.

When a point source discharge contains a relatively small number of specific chemicals for which ambient water quality standards exist, or where toxicants of human health concern need to be controlled, specific chemical testing can determine whether technology-based treatment levels are sufficiently protective of water quality. Criteria for aquatic life will be more restrictive in many cases; however, criteria for human health may be more limiting in some cases, and therefore will need to be assessed.

2. Effluent Concentrations - Effluent concentrations should be assessed assuming discharge at the enforceable technology-based limit. Where possible, these calculated concentrations of pollutants in an effluent should be used in dilution calculations to determine whether technology-based or water quality-based controls are adequate to achieve applicable water quality standards. Because municipal treatment facilities generally have few or no NPDES permit limits for §307(a) toxic pollutants, estimates should be made based on any enforceable permit limits as well as the assumption that contributing industries implement currently applicable enforceable pretreatment standards.

In general, where current permit limits for industrial or municipal discharges do not adequately limit the discharge with

respect to toxic pollutants, assessments should utilize data from additional sources, such as the permit application data and effluent guidelines development data. EPA's screening manual (referenced above) will also contain some data on discharges of priority pollutants which could be used if other information is not available.

3. Design Flow - The major receiving water characteristic of concern for the identification of waters is the diluting capacity of the water. When using dilution calculations, the acute or chronic design flow mandated by the State should be used. Otherwise, see the Technical Support Document for Water Quality-based Toxics Control (EPA-440/4-85-032) and Book VI, Design Conditions of the Technical Guidance Manual for Performing Wasteload Allocations (EPA 440/4-87-004). The simple techniques discussed are not suitable for streams unless the total streamflow used in the calculations is reduced to the portion in which mixing actually occurs. Similarly, the actual mixing volume of a lake, estuary, or bay should be used instead of the entire volume if the waterbody is not completely mixed (see EPA's screening manual, referenced previously).

4. Rate Coefficients - Analyses that incorporate fate and transport processes require selection of rate coefficients. Measured values from intensive surveys should be used whenever possible. Typical values of coefficients for waters throughout the State, or literature values, can be used if intensive survey data is not available. Useful sources of rate coefficient data are: Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (Second Edition) (EPA 600/3-85-40), and Processes, Coefficients, and Models for Simulating Toxic Organics and Heavy Metals in Surface Waters (EPA/600/3-87-015).

5. Establishing Boundaries for Waterbodies - Upstream and downstream limits of waterbody segments where water quality standards cannot be met with technology-based controls should be defined. Use of EPA's Reach File system (see Appendix E) will simplify the identification of individual waters.

H. Reporting Lists of Waters

The listing requirements of §304(l)(1) do not specify how waterbody segments are to be reported. EPA is therefore requesting States to include waters in their §305(b) report in a format compatible with EPA's §305(b) Waterbody System (WBS) as described in: Guidelines for the Preparation of the 1988 State Water Quality Assessments §305(b) Report (April, 1987). The elements relevant to §304(l) listing are outlined as follows:

- ID Number - State waterbody identification number as used in the §305(b) report and the WBS.

- Indexing - Information to index the waterbody to various data systems using the Reach File number system. This is a hydrologic retrieval specification that is described in the WBS user's manual.

- Name of Waterbody.

- Description - A detailed description of the waterbody that can be used to determine the start and end point of the waterbody on a USGS map.

- Type and Size of Waterbody - River miles, lake acres, estuary square miles, Great Lake or ocean shore miles, or wetland acres.

- §304(l) status - An indication of the appropriate list on which the waterbody is located. It is possible that a waterbody can be on several lists at the same time as shown on Table 1 and Figure 2, and discussed in Section III.B. of this guidance.

I. Identification of Point Sources and Amounts Discharged

Once individual waters have been identified under paragraph (B), States, with the assistance of the Regional offices, are to determine (and keep current) lists of specific point sources discharging §307(a) toxic pollutants believed to be preventing or impairing water quality and the amounts discharged by each source. For each waterbody on the paragraph (B) list, the following information should be reported to EPA:

- Waterbody identification number as used in the §305(b) report and the WBS.

- Name of waterbody.

- NPDES number(s).

- Facility name(s).

- Latitude-longitude coordinates of point of discharge (in degrees, minutes, and seconds).

- STORET parameter code of each §307(a) toxic pollutant that is discharged.

- Amount of each §307(a) toxic pollutant discharged. This data may already be in the PCS data system or in Discharge Monitoring Report data.

This information should be reported by the States to the EPA Regional office by April 1, 1988, in hard copy or in the State's §305(b) Report along with the preliminary lists of

waters as requested. This will enable the identification of any permits that need to be modified and completed by the February 4, 1989, deadline.

J. Approval of Lists of Waters and Point Source Dischargers

Under §304(l), EPA is required to review and approve or disapprove the lists of waters not meeting water quality standards and identify individual dischargers and amounts of §307(a) toxic pollutants discharged. Approval or disapproval of these lists by EPA must occur within 120 days after this information is submitted as final by the States (June 4, 1989). During this period, EPA will give the States the opportunity to correct deficient or incomplete submittals. However, where States fail to submit their lists, or where EPA disapproves them, EPA must develop these lists within one year after the deadline date (June 4, 1990).

When the States submit their final lists of waters to EPA for review, EPA will use a process similar to that for approving total maximum daily loads/wasteload allocations to add or delete waterbodies (see Appendix A).

The list of categories described in Section III.C. above may serve as a principal basis for reviewing, and approving or disapproving the lists of waters submitted by the States. However, EPA notes that a State may have good cause for not including waters from the categories described in Section III.C., some of which are as follows:

- More recent or more accurate data
- More sophisticated water quality modeling
- Flaws in the original analysis that led to the listing
- Changes in conditions, e.g., new control equipment or elimination of dischargers.

As described in Section III.E. above, States may modify §304(l) lists after submittal to EPA, subject to EPA review and approval. Data generated in the future as a result of Water Quality Assessment Plans or through the process of developing ICS's may show that a water should not have been listed under §304(l), or that a water was omitted when it should have been listed. For example, where additional data confirm that an observed §307(a) toxic pollutant ambient water quality problem is not due entirely or substantially to a point source discharge of the §307(a) toxic pollutant, then this information would serve as a basis for removing the water body from the §304(l)(1)(B) list (the short list) and for removing the point source from the §304(l)(1)(C) facility list.

SECTION IV. DEVELOPMENT OF INDIVIDUAL CONTROL STRATEGIES

A. Statutory Requirement and Relationship to Other Guidance

This section defines an individual control strategy (ICS) and discusses the procedural and technical implications of the ICS development and approval process. The new provisions of §304(l)(1)(D) are generally analogous to the various components which presently comprise the water quality-based toxics control program. The amendments provide new impetus for many of these activities by establishing new deadlines and a new EPA review and approval/disapproval authority.

The basis for the individual control strategy requirement is paragraph (D) of §304(l)(1) of the CWA amendments. This paragraph requires that for each segment identified under paragraph (B), the State must develop an individual control strategy to produce a reduction in the discharge of §307(a) toxic pollutants from the identified point sources through the establishment of effluent limits and water quality standards. Such controls must be sufficient, in combination with existing point and nonpoint source controls, to achieve the applicable water quality standards within three years of establishment of the strategy (i.e., 3 years after EPA approval of a State ICS or 3 years after development of an ICS by EPA, where a State ICS is not submitted or is disapproved.)

A comprehensive and effective toxics control program must control toxic pollutants as necessary to protect water quality. As part of its ongoing national toxics program, EPA is asking for controls for all waters listed as having known toxicity problems due to any pollutant (including chlorine, ammonia, and whole effluent toxicity) as soon as possible, giving the same priority to these controls as for controls where only §307(a) pollutants are involved. As discussed earlier, the control of non-§307(a) pollutants which cause toxicity is based upon other statutory and regulatory authorities, including Section 301(b)(1)(C). This comprehensive approach should be focused to assure that the significance of the impairment, rather than the cause of the impairment, will dictate the priority assigned to establishing enforceable control requirements.

The development of individual control strategies will complement the listing activities described in the previous section of this guidance document. In actual practice, many of the activities described in Sections III and IV can and should be conducted simultaneously. In addition, as noted above, the various tasks which are required in the development of individual control strategies are already familiar to States and Regions and are identical in most respects to the process long used for developing NPDES permits. Detailed technical guidance has already been developed relative to the water quality-based control of toxic pollutants in the NPDES

permit program. See the Technical Support Document for Water Quality-based Toxics Control (EPA-440/4-85-032) and the Permit Writer's Guide to Water Quality-based Permitting for Toxic Pollutants (EPA-440/4-87-005)

B. Procedural Considerations in ICS Development

While States and Regions should continue to develop NPDES permits to control toxics from all point sources causing impairment of water quality due to toxicity, the specific ICS development requirement applies only to the list of waters developed pursuant to §304(l)(1)(B). These are waters which are impaired entirely or substantially due to point source discharges of §307(a) toxic pollutants. Waters listed in accordance with these new statutory authorities should be controlled using all existing statutory authorities, which address not only §307(a) toxic pollutants, but all pollutants of concern. In addition, waters listed due to known toxicity problems, as defined earlier, should also be controlled using all necessary existing authorities, and given the same priority as problems attributable to §307(a) toxic polltants.

As States and EPA gather data on currently inadequately assessed problems, they should reopen and reissue permits to incorporate all necessary controls. As noted earlier, §301(b)(1)(C) of the CWA requires that all water quality-based limitations necessary to achieve water quality standards be in place by July 1, 1977. In addition, NPDES regulations require that all issued permits include limitations necessary to achieve all applicable water quality standards. These requirements will continue to drive the NPDES toxics control program after the §304(l) deadlines are met.

1. Elements of an ICS

The vehicle for establishing an enforceable ICS is the NPDES permit. The term "strategy" suggests the need to protect entire waterbody segments through imposition of effective and coordinated controls as necessary on all point sources in the segment. Controls for point sources should be developed in conjunction with existing controls on nonpoint sources of pollution. Planned nonpoint source controls may be considered "existing" for the purposes of developing ICS's, if such planned controls will be effective by June 1992 (the statutory deadline for achieving the applicable water quality standard under §304(l)). However, nonpoint source control assumptions must be based on specific, reliable, and preferably, enforceable control plans. A mere intention to establish a nonpoint source control plan would not suffice.

An "individual control strategy" consists of an effective NPDES permit, to the extent possible, for each point source listed, and documentation that such permits have been adequately developed with consideration of the effects of any other dischargers. Documentation of the total maximum daily load and the wasteload allocation for individual discharges will normally suffice as

documentation that the effects of other contributing sources have been adequately considered.

An approvable ICS therefore consists of effective NPDES permit limitations and schedules for achieving such limitations if they cannot be achieved upon permit issuance, along with documentation which shows that the controls selected are appropriate and adequate (i.e., fact sheets including information on how water quality-based limits were developed, such as total maximum daily loads and wasteload allocations):

ICS = NPDES PERMIT LIMITATIONS + DOCUMENTATION.

Where a State demonstrates that a final permit cannot be issued by February 4, 1989, a draft permit and supporting documentation may be accepted as an ICS. However, such a draft permit must be accompanied by a schedule indicating when the final permit will be issued and providing adequate time for the permittee to comply with the limitations such that water quality standards will be achieved by June 1992.

Regulatory authorities should include, where appropriate, additional requirements in NPDES permits such as toxicity reduction evaluations, special monitoring conditions, local limit development, and pretreatment program modification. Such requirements are effective in conjunction with NPDES permit limitations in controlling toxicity. Once controls are established, their effectiveness should be tracked through ongoing State monitoring and assessment programs. Subsequent adjustments to strategies may be required as a result of such assessments.

2. Submitting Limits and Documentation

Plans containing proposed actions are not adequate substitutes for NPDES permits as part of an ICS since they are not fully enforceable and cannot ensure that limitations will be achieved within the statutory time frames. Enforcement orders and consent decrees, by themselves, are also not adequate surrogates for NPDES permits. However, an enforcement order or judicial decree based on an adequate, effective NPDES permit may be part of an ICS.

a. NPDES Permit Limitations - Technical considerations in developing control requirements are discussed generally in Section C below. All necessary NPDES permit limitations must be achieved by the discharger no later than three years after EPA approval (i.e., by June 1992). Where construction or other activities (e.g., wastewater treatment system optimization, pretreatment program implementation or modification, etc.) are necessary to comply with effluent limitations within the required time frames, compliance schedules may be incorporated into NPDES permits. The more advance notification a discharger has of the limits which will ultimately need to be met, the greater the likelihood that controls will be in place within three years of strategy approval.

Effluent limitations based upon existing water quality standards were to be met by July 1, 1977, and cannot be included in new permit compliance schedules if the discharger's permit previously required compliance with those standards. Enforcement orders would need to be developed in such cases. It is important to note, however, that a discharger must have had a reasonable measure of how a State water quality standard is interpreted so it could comply with the existing standard. Effluent limitations based upon newly developed water quality standards or new interpretations of existing standards may be covered by compliance schedules in NPDES permits. In addition, technology-based controls may need to be revised to reflect new effluent guidelines or other new information on available controls. If these requirements cannot be immediately met, they may also be covered by permit compliance schedules.

The additional workload presented by these new statutory requirements will relate directly to the extent to which permitting authorities have already addressed toxics problems. States which have previously considered these problems and have established adequate controls in NPDES permits, may need only to reexamine impaired segments to ensure that all contributions from point sources have been adequately addressed and provide this documentation to EPA. However, States which have not been active in the area of toxics control may have a considerable workload as a result of the new statutory provisions.

Permitting authorities typically issue five-year term NPDES permits on a staggered basis (i.e., some percentage of the total number of permits expires each year) in order to spread workloads as evenly as possible and to avoid backlogs of expired permits. Incorporating revised permit limitations into the permits which expire during the period when ICS's must be developed (February 4, 1987, through February 4, 1989) is therefore an activity which permitting authorities can readily accommodate. However, where assessments of waters on the paragraph (B) list indicate the need for additional controls for point sources whose permits do not expire during this period, permitting authorities will be required to reopen, modify, and reissue these unexpired permits.

Existing performance agreements for permitting authorities are generally tied to designations of the number of "major" facilities the permitting authority is required to control. A number of factors comprise the "major" definition; all other facilities are generally referred to as "minor."* As a general

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* Classification of facilities as "major" or "minor" is based upon a cumulative "score" of a number of key factors (e.g., toxics component, industrial category, discharge flow volume, etc.). These factors and the basis for the major/minor classification scheme are currently being examined by a State-EPA workgroup and may be revised to reflect the increased emphasis on water quality and toxics control.

principle, final permits, to the extent possible, (with appropriate limitations and requirements) should be issued as part of the ICS for all major and significant minor facilities which have been identified as point sources contributing to toxic impairment and which need to be controlled through an ICS.

In cases where minor facilities must be controlled in order for a listed waterbody to meet standards by 1992, final permits, to the extent possible, should be issued by February 4, 1989. Permitting authorities may wish to designate such sources as "major." It may be possible to redesignate minor facilities as "discretionary majors" or to reclassify them through the permit classification rating process to become "majors."

The ultimate objective is to ensure that all point sources identified as requiring control through an ICS are adequately addressed. The existing definition of "major" should generally be compatible with that objective. However, where it is not, the permitting authority must still develop all necessary individual control strategies.

Where the permitting authority is a State which is authorized to administer the NPDES program, the various activities within the State Agency will need to be closely coordinated from the standpoint of both data requirements and schedules to ensure that appropriate permits are developed and the statutory deadlines are met. For States which are authorized to issue NPDES permits, EPA Regions will expeditiously review and comment on draft State permits (as required by State-EPA agreements) as they are issued. However, EPA will also need to review and approve or disapprove all State lists and ICS permits upon formal submittal in February 1989. Coordination is also important in the case of States which are not authorized to administer the NPDES program. The role of the State agency in such cases will be to supply all necessary information in support of the permit development process in accordance with existing State-EPA agreements so that EPA can issue all permits necessary to fulfill ICS requirements by February 4, 1989 (see Sections II.C and V.B).

b. Documentation of Controls - This portion of an ICS is basically synonymous with the fact sheet portion of the supporting documentation of the NPDES permit. The NPDES regulations (§124.8(a)) require that a fact sheet be prepared for every major facility, for permits which incorporate unusual elements (variances, etc.), and for those of widespread interest. While the fact sheet requires a brief summary of the basis for the limitations, a more extensive rationale is typically developed for the historical record and is strongly encouraged. Such a rationale can vary in degree of detail in accordance with the complexity of the situation.

The documentation portion of the ICS will involve a description of the relevant information from the process of identifying impaired waters and point sources causing impair-

ment. This information should be incorporated into the rationale portion of the fact sheet for the NPDES permit. Therefore, the documentation requirement of the ICS submittal can be satisfied by submittal of fact sheets which include or reference written rationales with the relevant information. The rationale should include information on the development of any water quality-based limits, as well as documentation concerning review and revision (if necessary) of technology-based limits. The following information should be included in the rationale:

- Water quality standard(s) which served as the basis for the water quality-based limitations.
- Water quality model which was used to calculate the limitations and a listing of significant assumptions and parameters included in the model (if not described in the State-EPA technical agreement).
- TMDLs and the WLAs which were used.
- Method used to translate WLAs into permit limitations.
- Basis for any new technology-based requirement.
- Parameters limited and the levels of each.
- Rationale for required monitoring frequencies and compliance schedules.
- Any other information necessary to support major or controversial control requirements.

A cover sheet should also be submitted with the permit documentation which clearly indicates that the permit and supporting information are being submitted in partial fulfillment of an ICS requirement. The cover sheet should include an identification of the waterbody (with geographical boundaries) covered by the ICS. Since an ICS will consist of the controls for all point sources which are causing impairment of the waterbody, a complete ICS submittal should include permits and documentation for all point sources included on the §304(l)(1)(C) list.

Overall assessments of State toxics control programs conducted by EPA Regional offices during FY 88 should help ensure that permits are developed in accordance with effective and integrated State toxics control programs. States with full, effective toxics control programs that are clearly described in generally applicable regulations, policies, and procedures should have little difficulty documenting how their permits were developed. In such cases, detailed explanations of the development process for each permit would ordinarily not be required as part of the ICS submission. The State's process may also be well documented in a written State-EPA technical agreement (as described in Section II.C.2) and documented in an EPA review of the State toxics control program (as described in Sec. II.C.1).

C. Technical Considerations

1. General Approach for Developing ICS's

NPDES permits incorporating all necessary and appropriate elements should be developed for all point sources which are identified and listed in accordance with §304(l)(1)(C). Such permits should be fully adequate under the NPDES program (e.g., must address all conventional, nonconventional and toxic pollutants that need control, irrespective of the specific reason for listing the point source). All NPDES permits must be issued in accordance with currently applicable regulations under 40 CFR Parts 122 through 125 and must meet technology-based requirements as well as water quality-based requirements.

To control pollutants beyond BAT, secondary treatment and other CWA technology-based requirements, States and EPA should use an integrated strategy, consisting of both biological and chemical methods to address toxic, conventional and nonconventional pollutants from industrial and municipal sources. Where State standards contain numerical criteria for toxic pollutants, NPDES permits should contain limits as necessary to assure compliance with these standards. In addition to implementing specific numerical criteria, EPA and the States should use biological techniques and available data on chemical effects to assess toxic impacts based upon State narrative water quality standards. EPA criteria documents should be considered in setting limits, along with other relevant data.

Where there is a significant likelihood of toxic effects to biota in the receiving water, EPA and States may impose permit limits on effluent toxicity and may require an NPDES permittee to conduct a toxicity reduction evaluation. Where toxic effects are present but there is a significant likelihood that compliance with technology-based requirements will sufficiently mitigate the effects, EPA and the States may require chemical and toxicity testing after installation of treatment. Based upon the results of such testing, the permit may be reopened to incorporate additional limitations if needed to meet water quality standards.

ICS's should be developed for all point sources on the paragraph (C) list of point sources. However, new information gathered during the permit development process may serve as the basis for delisting decisions (see Sections III.E and III.J). The discharger may generate additional data to either refute or confirm the information which caused the point source to be listed as a significant contributor of §307(a) toxic pollutants. This information would then serve as the basis for revising the §304(l) lists.

State water quality goals are based upon consideration of environmental objectives as well as important social and economic benefits. As with other permits, there are a number of factors which can be considered in developing ICS's designed to achieve

State water quality standards. States may exercise their flexibility in setting requirements to attain standards in order to maximize environmental benefits while minimizing control costs wherever possible. In setting compliance schedules and establishing the scope and frequency of monitoring, permitting authorities should consider the reasonableness of their actions by balancing the need for timely, complete information with the cost and economic impact on the permittee. It should be kept in mind, as discussed elsewhere, that in many cases, new technology-based requirements for previously unregulated toxic pollutants will be sufficient to meet water quality standards and obviate the need for additional expenditures. EPA encourages permitting authorities to select cost effective approaches to the extent possible.

2. Methods for Developing Controls

Water quality analysts and permitting authorities currently employ varying types of water quality assessments and permit limit derivation procedures depending on the specific circumstances of the discharger and the waterbody. These techniques range from simplified wasteload allocation methods and permit derivation procedures to more complex techniques. The level of detail required in ICS preparation should be commensurate with the situation under consideration, consistent with technically sound current practices, and in accordance with applicable requirements under the WQM and NPDES regulations.

a. Compilation of Available Data - As a starting point for development of NPDES permits, permit writers should gather all available information, including, but not limited to, the following (much of this information will be gathered in connection with the activities described in Section III of this guidance):

- NPDES application.
- discharge monitoring reports.
- facility inspection reports.
- applicable TMDLs/WLAs
- existing nonpoint source controls (including those to be in place by June 1992).

Where data needed for NPDES permitting decisions are not readily available, the permitting authority may use one or more of the following approaches. Limitations can be established in the absence of extensive effluent characterization information by using conservative assumptions to calculate effluent levels which will maintain applicable water quality standards. Alternatively, the permitting authority may require the discharger to generate additional data. Such data collection should ideally be done prior to permit issuance; however, data gathering requirements may also be imposed as part of a permit special condition with a reopener clause to establish appropriate limitations based upon the data. Additional data may also serve as the basis for deleting the point source from the paragraph (C) list. In any case, final limits developed as

part of an ICS must result in achievement of applicable water quality standards by June 1992.

b. Review of Technology-Based Limitations - The specific requirements of §304(l) apply only where all required technology-based controls are or will be inadequate to achieve water quality objectives. However, a review of technology-based limitations should be part of an overall toxics control strategy. In some cases, it may be necessary to revise technology-based limitations to achieve the BAT-level reductions in point source discharges of toxic pollutants. Although technology-based limitations derived from effluent limitation guidelines are relatively straightforward applications of fixed loading factors, some of the underlying assumptions in the calculation of such limitations (e.g., production basis, categorization, etc.) may need to be reexamined. The objective of such a reexamination is to ensure that limits are still being appropriately applied to the facility under consideration and are still reflective of the best available technology economically achievable. In some cases, new effluent guidelines have lately become available and may need to be incorporated in permits for the first time.

Particular care is needed in evaluating technology-based limitations which were derived on the basis of a best professional judgment (BPJ) assessment of BCT/BAT. BPJ limitations should focus on pollutants discharged from industrial processes not covered by the guidelines or on pollutants not regulated by the guidelines. BPJ limitations should be developed for all pollutants of concern, not just the §307(a) toxic pollutants.

Generally, States and EPA Regions should consider whether new technology-based toxics control requirements are appropriate before applying water quality-based requirements. Technology-based limits are often more readily calculated and documented than water quality-based limits, and using this approach could save time and avoid controversy. However, limits may be based on either technology or water quality or both so long as they assure standards will be met by June 1992.

c. Protection of Designated Uses - Permit limitations must be protective of designated uses. Permit writers and water quality analysts are probably most familiar with developing limitations which are protective of aquatic life. Aquatic life may be protected by using criteria for specific chemicals or by considering the parameter "toxicity", particularly where point source discharges consist of complex mixtures. EPA has also published human health criteria on all but a few of the 65 classes of §307(a) toxic pollutants, which have been adopted by some States to protect designated uses. Applicable standards must be reflected in permit limits.

As discussed in Section II, the time frames associated with the statutory requirement to develop new State water quality standards for toxics under §303(c)(2) overlaps with the §304(l)

deadlines. Where States do not have water quality standards for specific §307(a) toxic pollutants by February 1989, regulatory authorities will need to employ interim strategies. One approach is to use the State's narrative "free from toxicity" standard and rely on EPA criteria documents for individual chemicals. In this way, permit limits for individual toxic pollutants may be developed, where appropriate. The narrative standard will also serve as the basis for limiting whole effluent toxicity in appropriate cases.

d. Wasteload Allocation Models - In general, sophisticated water quality models (e.g., dynamic models) using relatively complete and accurate data inputs will result in less stringent limitations than permit limits which are developed utilizing the output from simple steady state models with minimal data requirements. More of the variables inherent in the modeling process are accounted for in the former case and outputs which are produced tend to be more accurate. Where there are many sources of uncertainty, conservative assumptions are used which tend to produce more stringent limitations.

If practical and available, wasteload allocation derivation using dynamic modeling is preferable. However, unless the State has the capability to perform dynamic modeling, a steady-state modeling approach, which may include simple mass balance calculations in some cases, is recommended. The WLA should consider both acute and chronic toxic effects. In any case, States have flexibility in the process to allocate wasteloads among various point and nonpoint sources on an affected waterbody, in order to maximize environmental benefits while keeping control costs to a minimum. The EPA Regional Wasteload Allocation Coordinators should be contacted for more information on conducting wasteload allocations. A list of wasteload allocation guidance is included in Appendix F.

e. Translating WLAs into Permits - In translating water quality modeling outputs into NPDES permit limitations, permit writers need to consider a number of factors. The permit limits should provide for adequate protection from both acute and chronic toxicity and should include daily maximum and monthly average or weekly average values. Of particular importance in this process are considerations of effluent variablility, such that effluent limitations are protective against "worst case" conditions. These factors are described in detail in the Technical Support Document for Water Quality-based Toxics Control and the Permit Writer's Guide to Water Quality-based Permitting for Toxic Pollutants.

f. Monitoring Requirements - Establishment of compliance monitoring requirements for the limitations which are developed is an extremely important component of the NPDES permit. In many instances, compliance monitoring requirements for the various parameters will be derived directly from the permit limitation development process since the frequency of monitoring

is sometimes factored into the various statistical considerations. An array of factors needs to be considered when establishing compliance monitoring requirements, including:

- o effluent variability.
- o parameter(s) being monitored.
- o type of wasteload allocation model used.
- o type of wastewater treatment facility.
- o compliance history of facility.
- o associated costs of monitoring requirements

The permit writer will need to evaluate, on a case-by-case basis, whether it is appropriate to establish limitations with compliance monitoring requirements or monitoring requirements alone with "triggers" for specific actions, depending on the level of certainty that water quality is being impaired by toxicity due to the permittee's discharge. In many cases, it may be appropriate to require the discharger to conduct in-stream monitoring to assess receving water impacts, either to evaluate the effectiveness of control requirements when they are met or to determine whether controls should be required. In such cases, inclusion of ambient monitoring requirements in NPDES permits is strongly encouraged wherever it is reasonable in the circumstances.

g. Toxicity Reduction Evaluations - One mechanism that may be used to bring a discharger into compliance with a water quality-based requirement (either chemical specific or whole effluent) is a toxicity reduction evaluation (TRE). A TRE is a study conducted to determine what control options are effective for complying with either toxicity or chemical concentration requirements. Control measures may include a range of options and do not necessarily entail the construction of additional wastewater treatment facilities. Actions taken in a plant to to reduce or eliminate the generation of toxic wastes may include product substitution, process changes, and in-process recycling. Such actions can produce rapid environmental benefits and can be cost effective for an industrial permittee due to the use of less expensive materials and decreased potential liability.

In most cases, the permittee should be responsible for conducting a TRE. A TRE can be required at several points: prior to permit issuance, during the permit term in response to a monitoring trigger or exceedence of limits, or in response to an administrative order (e.g., a Federal §308 or §309 order or a State equivalent). A TRE is not a substitute for permit limits. A TRE requirement alone, in the absence of permit limitations or a monitoring trigger, does not provide any assurance that toxicity reduction objectives will be met. Permitting authorities should develop reasonable compliance schedules in conjunction with TREs in cases where compliance schedules are allowable in connection with a water quality-based limit (see discussion under Section IV.B.2.a. above). As noted earlier, controls developed as part of an ICS must result in achievement of water quality standards by the statutory deadline of June 1992.

SECTION V. IMPLEMENTATION

A. Schedule for Implementation of §304(l) Requirements

In order to meet the requirements of the Act, States must submit the necessary information to EPA as described below. Under the statute, EPA must approve or disapprove the lists of waters, the identification of sources and pollutants, and the individual control strategies for each segment on the list within 120 days after receipt of the information from the States. EPA will provide States with an opportunity to correct incomplete or technically inadequate submissions during the 120 day review period. EPA will develop regulations, as appropriate, to implement the approval/disapproval provisions of §304(l).

EPA's process for approval and disapproval of State lists and ICS's will be as expeditious as possible under federal law. Although EPA has not yet established its formal process for review, adequate opportunity for public participation in the development, review, and approval/disapproval of lists and ICS's must be provided. It is possible that State procedures for public participation can be relied upon by EPA where the State procedure provides adequate notice and opportunity to comment on listing and permitting procedures.

Where States fail to submit lists and/or control strategies, or where EPA disapproves them, EPA must develop these lists and individual control strategies within one year after the deadline has passed. In implementing this requirement, EPA must also consider listing those waters for which any person submits a petition for listing. Also, it should be noted that the requirements of §303(d) for a list of waters still needing water quality-based controls for toxics and non-toxics to meet water quality standards was to be submitted by the States in June 1987 in accordance with the Agency's Strategic Planning and Management System (SPMS).

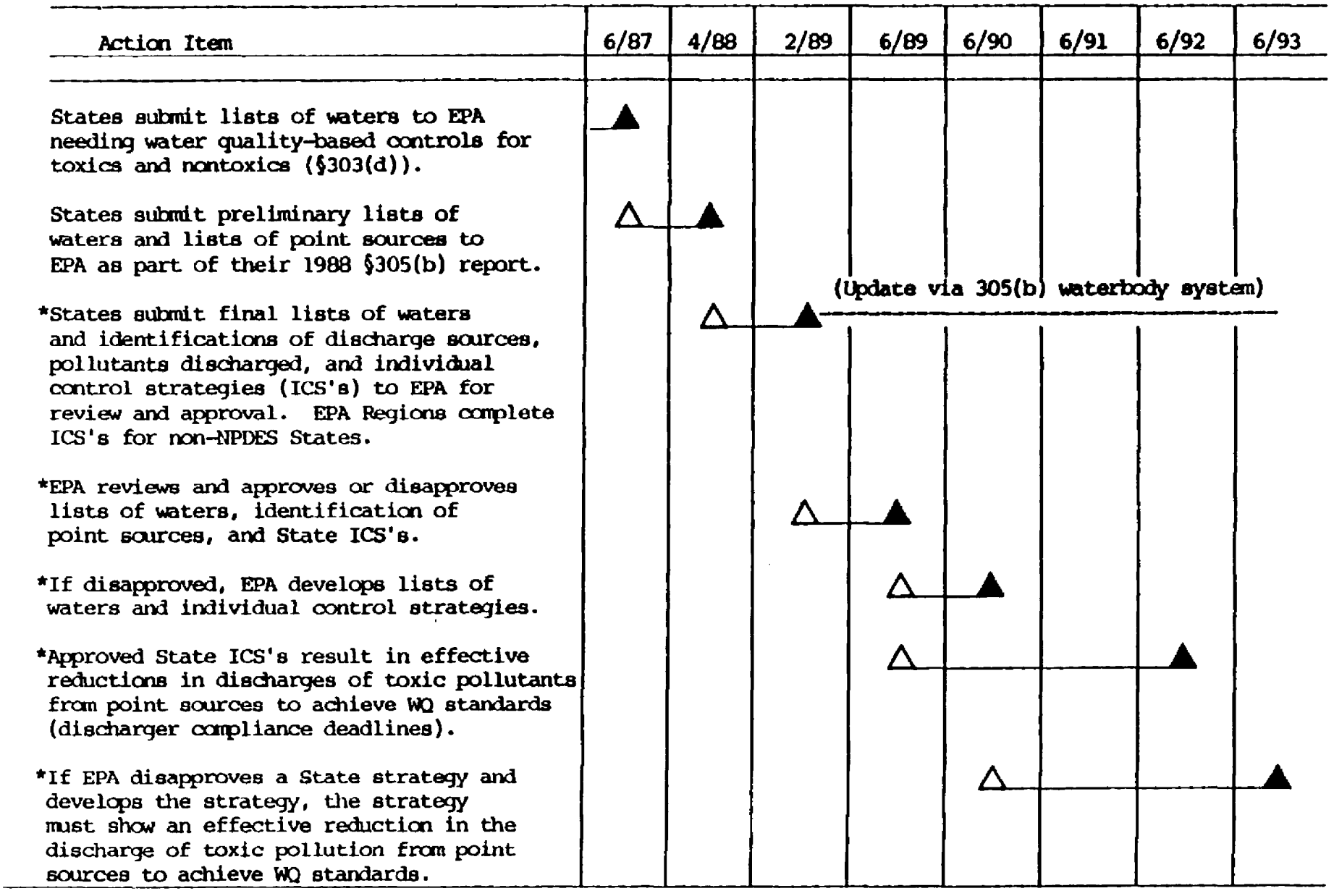
A schedule for implementing the requirements of §304(l) is outlined below (see Figure 3):

- States submit preliminary paragraph (A) and (B) lists of waters, Water Quality Assessment Plans, if applicable, and lists of discharge sources to EPA as part of their 1988 305(b) report: April 1, 1988.

- States submit final lists of waters, identifications of discharge sources, identification of pollutants discharged, and amounts discharged, and individual control strategies to EPA for review and approval: February 4, 1989.

FIGURE 3

SURFACE WATER TOXICS STRATEGY IMPLEMENTATION SCHEDULE



*NOTE: The starting and ending points shown for these activities are the allowable statutory dates; these tasks should be completed at the earliest possible date.

△ = Start Point

▲ = End Point

- EPA develops individual control strategies (NPDES permits) for all States lacking approved NPDES programs: February 4, 1989.

- EPA reviews and approves or disapproves the lists of waters and information on specific point source discharges and State individual control strategies: June 4, 1989.

- EPA develops lists and individual control strategies where a State fails to submit its lists of waters and individual control strategies or where EPA disapproves such submissions: June 4, 1990.

- Once approved, State individual control strategies must produce a reduction in the discharge of toxic pollutants from point sources to achieve the applicable water quality standards (i.e., permittees must comply with all requirements): no later than June 4, 1992.

- If EPA disapproves a State strategy and develops its own strategy for the State, controls must result in achievement of applicable water quality standards: June 4, 1993.

B. State Responsibilities

The new statutory requirements of §304(l) apply primarily to States and therefore States are ultimately responsible for ensuring that the various requirements are met within the statutory time frames. However, Regions and States will need to work cooperatively to accomplish the required objectives.

State-EPA cooperation is particularly important in those States which are not authorized to administer the NPDES program. Many States which are not authorized to issue NPDES permits still perform much of the preliminary work which eventually leads to NPDES permit issuance by the Regional office. In addition, §401 of the CWA requires States to certify that EPA-issued permits will meet State water quality standards. Cooperative efforts between Regions and States, if effective and mutually agreeable, should continue under the ICS development process and should be referenced in the technical agreement.

C. EPA Responsibilities

As discussed in Section II, a general technical agreement between EPA Regions and States covering the requirements (both technical and procedural) for development, review, and approval of the requisite information should facilitate the process for both parties. In order to ensure consistency, Regions should also specify a format for submittals and may wish to employ a checklist including specific review criteria for lists of impaired waters, identifications of point sources causing impairment, and individual control strategies. EPA will provide

assistance to the States in carefully reviewing the preliminary lists of waters and the Water Quality Assessment Plans. Both are to be submitted to EPA by April 1, 1988. This review will help assure that the final lists, due by February 4, 1989 will be as complete and accurate as possible.

Upon receipt of lists of waters and ICS's, EPA should first screen the submittal in accordance with the required format and should contact the State within 30 days with respect to completeness. If the submittal is incomplete, EPA should provide the State with an opportunity to supply any missing information within a reasonable period of time during the 120 day review period.

After EPA is satisfied that the submittal is complete, it should be reviewed for technical adequacy. This review may be expedited where the submission has been prepared in accordance with a technical agreement. At a minimum, the reviewer needs to answer the basic questions:

- Are lists of waters and point sources complete?
- Will ICS's result in elimination or reduction of §307(a) toxic pollutants from the point sources to allow the applicable standard to be met within 3 years of strategy approval (i.e., no later than June 4, 1992, where the State has prepared the strategy)?

In addition, the reviewer needs to ensure that known sources of toxicity not addressed in connection with §304(l) requirements will be controlled as soon as possible and be given the same priority as toxics problems attributable to §307(a) toxic pollutants.

After reviewing the lists and ICS's for technical adequacy, Regions should provide States, and may also need to provide the public, with an opportunity to respond to any deficiencies which would cause a list or ICS to be disapproved. Resolution of such issues should occur within the 120 day review period. EPA will assess a State's overall progress toward implementing the requirements of §304(l), as well as other relevant statutory requirements, during the reviews of State toxics control programs which will be conducted during Fiscal Year 1988.

D. State Revolving Funds

Certain requirements will apply to the initial round of funding assistance under the newly created State Revolving Funds (SRFs). However, States will ultimately have substantial flexibility to use their SRF funds to meet new water quality-based limitations for toxic controls.

E. Technical Assistance

In addition to review and approval/disapproval of lists of waters, lists of point sources, and ICS's, EPA will provide technical assistance to States on the various elements of §304(l) implementation. The various technical assistance tools that may prove useful in accomplishing the activities required under §304(l) are listed in the appendices.

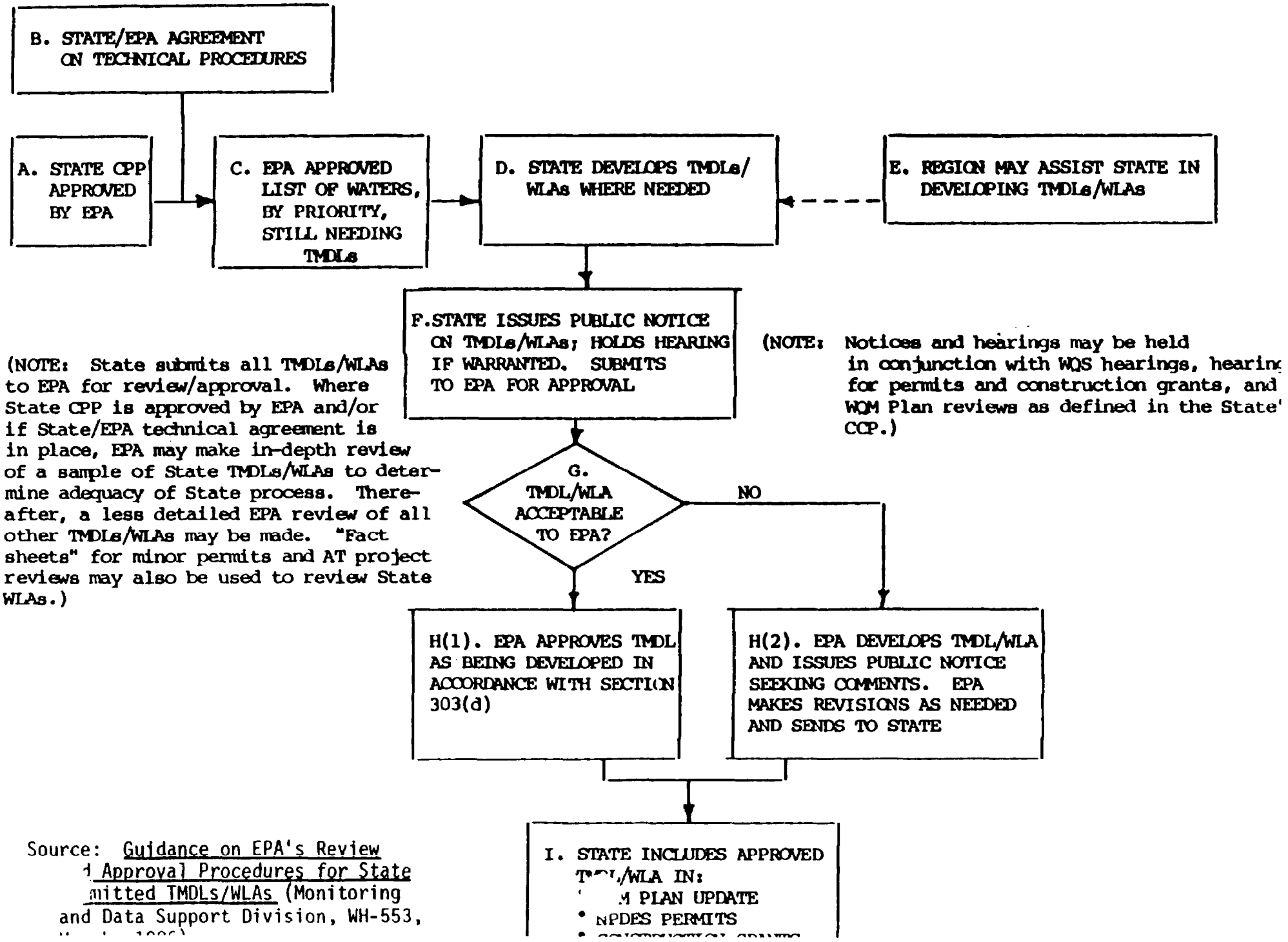
F. Public Participation

The States should seek full participation by the public in listing waters, point source dischargers, specific pollutants, and developing individual control strategies. Between April 1, 1988, and submission of final lists and ICS's to EPA by February 4, 1989, States may issue a public notice announcing the availability of the lists and ICS's and requesting public input into the decision-making process. NPDES regulations also specify the public participation requirements related to State permit issuance. Public input should also be encouraged for commenting on the State's technical agreement with the EPA Region and on the Water Quality Assessment Plan, where developed.

As discussed earlier, EPA will consider whether further public participation may be required when it approves/ disapproves State lists and ICS's. One important consideration in making this determination is whether the State has conducted an open process for public review and comment.

APPENDIX A. REVIEW/APPROVAL PROCEDURE FOR STATE TMDL/WLA

REVIEW/APPROVAL PROCEDURE FOR STATE TMDL/WLA



Source: Guidance on EPA's Review d Approval Procedures for State mitted TMDLs/WLAs (Monitoring and Data Support Division, WH-553,

APPENDIX B. AVAILABLE DATA SOURCES

A. EPA Data Systems and Sources

EPA maintains the following water quality-related data base, containing State and EPA data. Much of this information is linked together for access using the reach file coding structure under STORET. Permit Compliance Systems (PCS) data is available directly through PCS coordinators (located in regions and States) or through Reach File Systems in related pilot project regions (Regions I, II, III, IV, and V).

These data bases, individually and through linkages that have been and are being developed, can be very useful in assessing water quality. For instance, ambient water quality data in the EPA's Section 305(b) Waterbody System can be compared with State water quality standards or EPA water quality criteria quickly to identify those waterbodies where State standards or national criteria may have been exceeded.

The Reach File

- Nation's major waterbodies divided into approximately 70,000 individual segments (reaches).
- Reaches assigned numbers/names.
- Locational data includes latitude/longitude, State and county codes.
- Associated Reach Characteristics File contains physical characteristics for segments in Reach File--slope, elevations, width, depth, velocity, etc.
- Associated Guage File contains annual mean and low flow and monthly mean flow estimates.
- Linked to Drinking Water Supply File, giving location of water supply sources/intakes.

Contact: Bob Horn, Criteria and Standards Division
EPA Headquarters
Phone: FTS 382-7103/ (202) 382-7103

Water Quality File

- Water quality data from about 200,000 stations.
- Locational data for each station-- ID No., reach assignment, latitude/longitude, States/county.
- Data on hundreds of parameters, most common of which include pH, temperature, DO, solids, nitrogen, metals.
- Information on use impairment from ASIWPCA State's Evaluation of Progress (STEP) and NPS reports.
- National Urban Runoff Program (NURP) study data.

Contact: STORET Customer Support
Office of Information Resources Management
EPA Headquarters
FTS 382-7220 or (800) 424-9067

(Note: Until recently, STORET and the Water Quality File were synonymous, but STORET is now becoming a much broader system linking a number of EPA databases.

Industrial Facilities Discharge File (IFD)

- Data on 60,000 industrial and municipal discharges.
- Industrial SIC codes, reach assignments, effluent data.
- Information on direct discharges to POTWs.
- Industrial status sheets.

Contact: Phil Taylor
OWRS, Monitoring and Data Support Division
EPA Headquarters
FTS 382-7046/ (202) 382-7046

NPDES Permit Application Data

Permit Compliance System

- Records on 65,000 NPDES permits
- Locational data on permitted facilities, including link to Reach File.
- Pollutant-specific discharge limits.
- Data from Discharge Monitoring Reports (DMRs).
- Automatic detection of violations of effluent limits.
- Special feature of link to STORET provides estimates of effluent dilution ratios (average or low stream flow)

Contact: Larry Reed
OWEP, Enforcement Division
EPA Headquarters
FTS 475-8373/ (202) 475-8373

Phil Taylor (PCS/STORET/link)

BIOS

- Data on the distribution, abundance, and condition of aquatic organisms, including fish tissue analysis.
- Descriptions of habitat at sampled sites--substrate type, streambank stability, canopy type.
- Can generate diversity indices and community structure analyses
- Will incorporate CETIS (see below)

Contact: Barbara Lamborne
Office of Information Resources Management
EPA Headquarters
FTS 382-7220/ (202) 382-7220

Complex Effluent Toxicity Information System (CETIS)

- Data from whole effluent toxicity tests.

Contact: David Eng
OWEP, Permits Division
EPA Headquarters
FTS 475-9522/ (202) 475-9522

Fish Kill Reports

- Fishery trends data.
- Known commercial fishery impacts.

Contact: Nina Harllee
OWRS, Monitoring and Data Support Division
EPA Headquarters
FTS 382-7056/ (202) 382-7056

Section 305(b) Waterbody System

- Computerized system of recording information needed to prepare 305(b) reports.
- Correlated with Reach File segments.
- Contains assessment data, including types(s) and magnitude of impairment, categories of point and nonpoint sources.

Contact: Bruce Newton
OWRS, Monitoring and Data Support Division
EPA Headquarters
FTS 382-7056/ (202) 382-7056

STORET Nonpoint Source Stream Station File

- Data on 700 stations from 22 States estimated to be primarily impacted by NPS.
- STORET number, river reach number, State, county.
- Relative contribution of NPS in wet and low flow conditions of nine general pollutant types.

Contact: Steve Dressing
OWRS, Criteria and Standards Division
Nonpoint Sources Branch
EPA Headquarters
FTS 382-7110/ (202) 382-7110

B. Other EPA Data Sources

Regional Priority Wetlands Lists

- o Lists of most valuable (productive, unique) and vulnerable wetlands in each EPA Region.
- o Prepared by EPA Regional Offices.

Contact: Office of Wetlands Protection
EPA Headquarters
FTS 382-7496/ (202) 382-7496

Discharge Monitoring Reports

- o Chemical and biological data generated by NPDES permittees.

Dioxin Study and Bioaccumulation Study results

Contact: Steve Kroner (WH-553)
MDSD, EPA Headquarters
FTS 382-7071/ (202) 382-7051

Guidance on Identifying Sediment Enriched Lakes Using Landsat (under development)

- o Will explain how to use Landsat imagery to identify and rank sediment enriched lakes.

Contact: Ken Adler
Office of Policy Analysis
EPA Headquarters
FTS 382-2755/ (202) 382-2755

C. Department of Interior Data Sources

Water Data Storage and Retrieval System (WATSTORE)

- o Managed by USGS.
- o Water quality data for 5,000 sampling stations.
- o Data on peak and daily flows from some 8,000 stations.
- o Incorporates NASQAN data base.

(Note: all water quality data from WATSTORE included in STORET)

National Water Data Exchange (NAWDEX)

- o Managed by USGS.
- o Listing of all organizations nationwide collecting water data.
- o Master Water Index provides information on about 400,000 data collection sites.

Contact: Owen Williams
Water Resources Division
U.S.G.S.
Reston, VA
(703) 648-5684

National Wetlands Inventory (partially completed)

- o Managed by U.S. Fish and Wildlife Service.
- o Computerized mapping scheme for entire country.
- o Vegetation data--3500 wetlands species.
- o Ecological community types.
- o Classification according to wetlands types.

Contact: Bill Wilen/Tom Dahl
Fish and Wildlife Service
U.S. Department of Interior
Washington, D.C. 20240

Nationwide Rivers Inventory

- o Developed by National Park Service.
- o List of over 1,500 river segments (around 62,000 miles) thought to have sufficient natural or cultural attributes to qualify for the National Wild and Scenic Rivers System, except for those already in System or officially-designated candidate rivers.

Contact: Glen Eugster
Division of Park and Resource Planning
National Parks Service
Philadelphia, PA
(215) 597-7386

Endangered Species Information System (ESIS)

- o Covers species listed under federal Endangered Species Act
- o Official status (endangered, threatened)
- o Factors contributing to present status
- o Habitat types with which species associated
- o Present/past location by county/state
- o Watersheds/subunits where found
- o Counties/states with designated critical habitat

Contact: Michael J. Hein
Office of Endangered Species
Department of Interior
Washington, D.C. 20240
(703) 235-2760

Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service

- List of all National Wildlife Refuges and other lands under the control of the Fish and Wildlife Service.

Contact: Division of Realty
Fish and Wildlife Service
U.S. Department of Interior
Washington, D.C. 20240
(202) 653-7650

National Natural Landmarks Program (National Park Service)

- A register of significant natural areas which illustrate the diversity of the natural heritage of the U.S.
- Maps of area.
- Information on ecological and geological characteristics.
- Information on threats.

Contact: Hardy Pearce
National Register Division
National Park Service
Washington, D.C. 20240
(202) 343-9525

Land Use and Data Analysis (USGS)

- Reports land use by 40 different land use types for entire USA
- Most data is from middle 1970's
- Data based on LANDSAT satellite imagery

Contact: National Cartographic Information Center
USGS, Reston, Virginia
(703) 648-6045

Inventory of Private Recreation Facilities

- o Inventory of private recreation facilities
- o Data reported by State, county and town

Contact: Paul Solomon
National Park Service
Washington, D.C. 20240

National Survey of Fishing, Hunting and Wildlife Associated Recreation

- o Includes fishing and hunting information on expenditures, times use, location and socio-economic characteristics
- o Covers non-consumptive wildlife recreation

Contact: Michael Hay
U.S. Fish and Wildlife Service
Washington, D.C. 20240
(202) 343-4902

D. National Oceanic, and Atmospheric Administration

National Estuarine Inventory

- o Covers 92 major estuaries
- o Data on estuary dimensions, drainage area, stratification classification, freshwater inflow rates, flow rations, and tides
- o Land use information for 25 categories of land use
- o Computerized database

Contact: Dan Basta
NOAA
Washington, D.C.
(202) 443-8843

National Coastal Wetlands Database

- o Type and extent of coastal wetlands by estuary
- o Based on statistical sample of 3000 National Wetland

Contact: Dan Basta
NOAA
(202) 443-8843

National Shellfish Register

- o Classifies shellfish beds according to water qualiity and productivity
- o Historical data available for some areas

Contact: Dan Basta (See above)

Shoreline Characterization

- Characterizes estuarine shoreline according to eight shoreline types, and dredging activities
- Shoreline type is reported on color coded NOAA nautical charts

Contact: Dan Basta (See above)

National Coastal Pollutant Discharge Inventory

- Comprehensive database of pollutant discharges entering estuarine waters
- Source categories include point sources, nonpoint sources, upstream sources, oil and gas operations, dredging operations and accidental spills
- Computerized database

Contact: Dan Basta (See above)

E. Other Federal Data Sources

National Resources Inventory (Soil Conservation Service Department of Agriculture)

- National survey based on 160 acre units.
- Data on land use, conservation practices, soil type, erosion.

Contact: Jeff Gable
Soil Conservation Service
U.S.D.A
Washington, D.C. 20013
(202) 447-4530

Land Areas of the National Forest System (U.S. Forest Service)

- Organized by State and county.
- Includes information on designated wilderness areas, primitive areas, recreation areas, wildlife preserves.

Contact: Forest Service
Department of Agriculture
Washington, D.C. 20013
(202) 235-8105

Recreation Information Management System

- Recreational facilities and areas in National Forest System.
- Data on types of recreation, visitor days, participation by activity.

Contact: Gene Welsch
Recreation Management Division
U.S. Forest Service
Washington, D.C. 20250

F. Other Data Sources

State Natural Heritage Programs

- o Designed to identify elements essential to preservation of biological diversity.
- o Inventories on existance and location of rare and endangered plants and animals.
- o Inventories on unique plant communities, aquatic systems.
- o Over half the States have such programs, developed in cooperation with The Nature Conservancy.

Contact: State Natural Heritage Program Office in your State

Priority Aquatic Sites for Biological Diversity Conservation (The Nature Conservancy, Arlington, VA)

- o Listing, by State, of waters containing key elements of biological diversity.

Contact: Bob Chipley
The Nature Conservancy
1800 North Kent St.
Arlington, VA 22209
(202) 841-5300

Breeding Bird Survey (Cornell Lab of Ornithology, Greg Butcher 607-255-4999)

- o Census of 200 species by county
- o Historical data available

Socio-Economic Environmental Demographic Info. System (Deane Merril, Lawrence Berkeley Lab, Department of Energy 415-486-5063)

- o Collection of socio-economic, environmental, demographic and health related data bases
- o Covers geographic regions ranging from nation to minor civil divisions
- o Computerized data base updated annually

Contact: Deane Merril
Lawrence Berkeley Lab

State 305(b) Reports

Contact: Individual State Offices

APPENDIX C. ROUTING AND GRAPHICAL DISPLAY SYSTEM

The Routing and Graphical Display System (RGDS) is a computer based tool to aid in the analysis of water quality. It currently includes a pollutant routing and analysis system capable of computing instream pollutant concentrations based on the transport of pollutants from dischargers located on streams, and summarizing the results in a variety of tabular and graphical displays. RGDS uses EPA's Reach File which serves as a common mechanism for accessing multiple data bases, especially the Industrial Facilities Discharger (IFD) File, and other files which have been related to the Reach File.

Originally written as a batch oriented, fixed format input system, RGDS has been modified to operate in a STORET-like environment. STORET, EPA's widely used system for storing and retreiving water quality data, utilizes a free format input system composed of keywords and associated values. RGDS has been modified to use this type of input and to interface with the STORET SCAN program for job submittal and error identification. This implementation of RGDS both simplifies the use of the system and also utilizes a format with which the large STORET user base is familiar.

A wide range of analysis and display options have been constructed under the RGDS umbrella. Those applications which potentially have the widest appeal have been implemented under this STORET-like environment. Other applications, not supported under the new format, will continue to be available for non-routine or research application under the original format. It is anticipated that additional applications will be brought under the RGDS-STORET umbrella to broaden the capabilities in the area of water quality management.

EPA Contact

For additional information, contact Phillip Taylor, Monitoring and Data Support Division (WH-553), 401 M. St. SW., Washington, DC. 20460.

APPENDIX D. SECTION 301(h) DILUTION MODELS

The following computer models are available on EPA's Office of Marine and Estuarine Protection data system and are described in OMEP's ODES User's Guide: Supplement A, Description and Use of Ocean Data Evaluation System (ODES) Tools (Draft, September, 1986). EPA contract number 68-01-6938, TC-395302.

1) Initial Dilution Models

- PLUME
- DK PLUME
- LINE

Information on these models can be obtained from:

Mr. Donald Baumgartner
Environmental Protection Agency
Environmental Research Laboratory
Office of Research and Development
Hatford Marine Science Center
Newport, Oregon 97365

2) Disposition Model: (D-CAL). This is a field fate model of particulates and other contaminants from point sources. The model predicts areal distribution at given depths in the water and on the bottom (two-dimentional feature). For more information on this model, please contact EPA's Office of Marine and Estuarine Protection.

APPENDIX E. THE REACH FILE

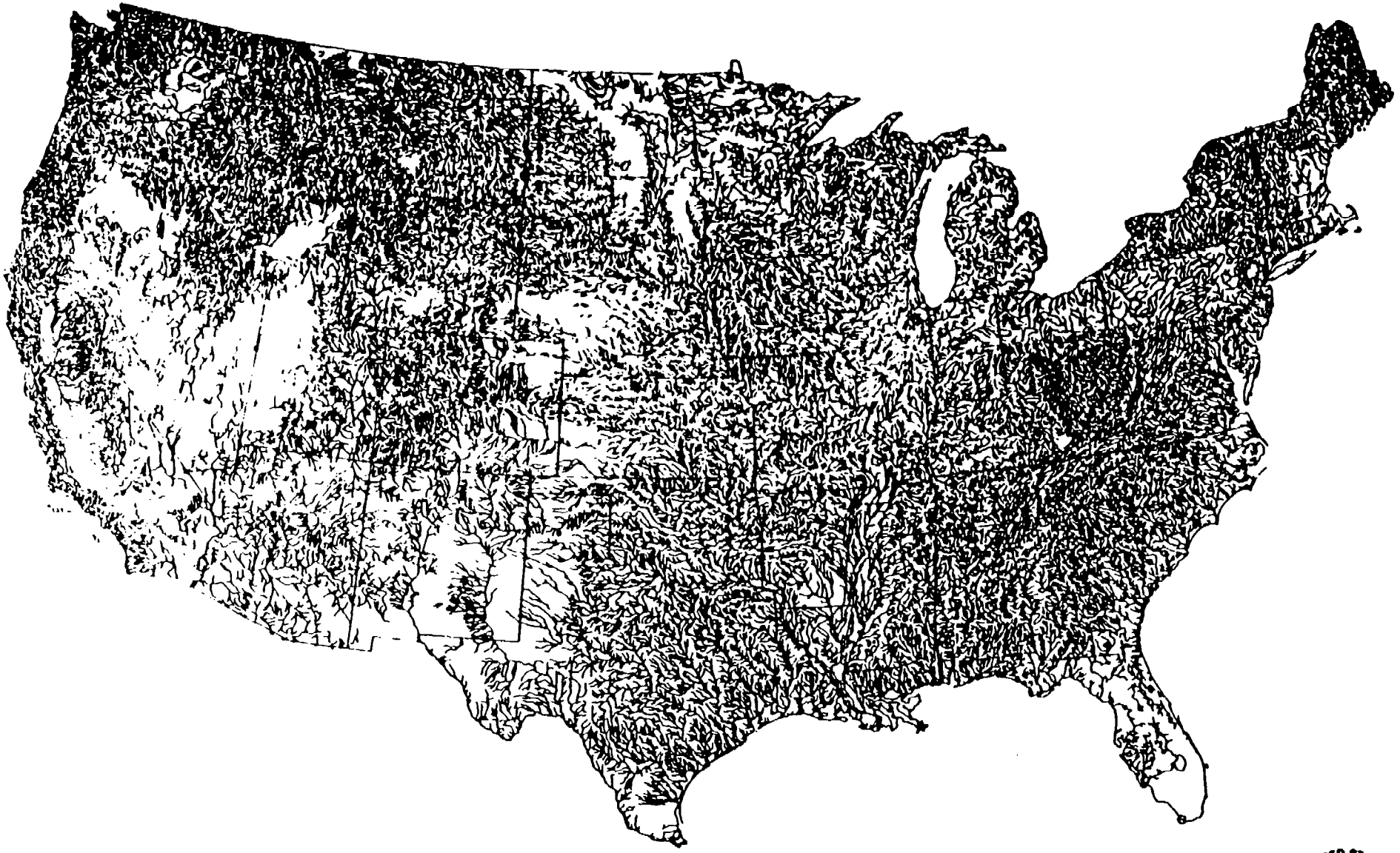
The Reach File is a digital data base of streams, lakes, reservoirs, and estuaries divided into segments called "reaches." Each of the 70,000 reaches is uniquely identified by a reach number. The data available from the file includes stream names, open water names, stream and shoreline traces, and mileage information. In the File, reaches are referenced to each other in a special manner making it possible to traverse upstream and downstream through the nation's rivers and open waters while scanning other data bases for any reach-indexed data along the traversal path. Of particular importance is the reach indexing that has been established in other EPA data bases on NPDES discharges, stream gages, and drinking water supplies.

Software for performing Reach File traversals developed by EPA's Monitoring and Data Support Division, Water Quality Analysis Branch (and other offices within EPA), provides extensive opportunities to store, retrieve, analyze, and interact with many water resources data bases in common with the Reach File. The Nonpoint Sources Branch, in cooperation with the Soil Conservation Service, is preparing a screening tool which will combine reach traversal capabilities with data on nonpoint sources, agricultural land use, point sources, precipitation, and other information to help relate nonpoint sources to water quality problems and NPS controls.

The Reach File contains several record types. The reach structure provides the power to traverse upstream and downstream while providing stream names, etc., as discussed above. The reach trace provides the pictorial data for making plots of the surface waters represented in the file. The cataloging unit characteristics contains basin-wide data (such as precipitation and landform data) for the USGS Cataloging Units in the United States. The reach characteristics contains information about the natural properties or prevalant conditions of each reach, such as stream flow and elevation. This record type is being expanded to include water temperature and other data to aid in the analysis of toxic pollutants. Finally, the open water body characteristics contains data on whole water bodies, including lakes, reservoirs, and estuaries. Surface area, depth, volume, dam height, tide data, and other information will be made available from this record type.

A map of all the reaches in the Reach File, as of July 1, 1986, is shown on the next page. Several hundred new reaches will be added in each State under a major update of the file which is currently underway and should be completed by FY 89.

For more detail on the Reach File, contact Robert Horn or Phillip Taylor, U.S. EPA, 401 M Street, S.W., Washington, D.C.



LIST OF FINAL GUIDANCE DOCUMENTS

1. Technical Guidance Manual for Performing Wasteload Allocation - Book II Streams and Rivers - Chapter 1 Biochemical Oxygen Demand/Dissolved Oxygen

2. Technical Guidance Manual for Performing Wasteload Allocation - Book II Streams and Rivers - Chapter 2 Nutrient/Eutrophication Impact

3. Technical Guidance Manual for Performing Wasteload Allocation - Book II Streams and Rivers - Chapter 3 Toxic Substances

4. Technical Guidance Manual for Performing Wasteload Allocations - Simplified Analytical Method for Determining NPDES Effluent Limitations for POTWs Discharging into Low-Flow Streams

5. Technical Guidance Manual for Performing Wasteload Allocation - Book IV Lakes and Impoundments - Chapter 2 Nutrient/Eutrophication Impacts

6. Technical Guidance Manual for Performing Wasteload Allocation - Book IV Lakes and Impoundments - Chapter 3 Toxic Substances Impacts

7. Technical Guidance Manual for Performing Wasteload Allocation - Book VI Design Conditions - Chapter 1 Stream Design Flow for Steady-State Modeling

8. Technical Guidance Manual for Performing Wasteload Allocation - Book VII Permit Averaging

9. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Groundwater (Parts I and II)

10. Technical Support Document for Water Quality-Based Toxics Control

11. Handbook - Stream Sampling for Wasteload Allocation Applications

LIST OF DRAFT GUIDANCE DOCUMENTS

1. Technical Guidance Manual for Performing Wasteload Allocation - Book I General Guidance

2. Technical Guidance Manual for Performing Wasteload Allocation - Book I General Guidance - Appendix Volume Annotated Bibliography of Wasteload Allocation - Related Documents

3. Technical Guidance Manual for Performing Wasteload Allocation - Book III Estuaries

4. Technical Guidance Manual for Performing Wasteload Allocation - Selecting Estuarine Models

5. Technical Guidance Manual for Performing Wasteload Allocations - Book VI Design Conditions - Chapter 2 Design Temperature

6. Technical Guidance Manual for Performing Wasteload Allocations - Book VI Design Conditions - Chapter 3 Design pH