

**COMMENTS ON
EPA'S PROPOSED §316(a)
REGULATIONS AND DRAFT GUIDANCE MANUAL**

Submitted To

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By

The Edison Electric Institute
The American Public Power Association
National Rural Electric Cooperative Association
with the following utility systems constituting
The Utility Water Act Group:

Allegheny Power System, Inc.
Monongahela Power Company
The Potomac Edison Company
West Penn Power Company
American Electric Power Company, Inc.
Baltimore Gas and Electric Company
Boston Edison Company
Carolina Power & Light Company
Commonwealth Edison Company
Consolidated Edison Co. of New York, Inc.
Consumers Power Company
Duke Power Company
Florida Power & Light Company
General Public Utilities Corporation
Hartford Electric Light Company, Holyoke Water
Power Company, The Connecticut Light and
Power Company, Western Massachusetts Electric
Company
Illinois Power Company
Long Island Lighting Company

Middle South Utilities, Inc.
Montaup Electric Company
National Rural Electric Cooperative Association
New England Power Company
Pacific Gas and Electric Company
Pennsylvania Power & Light Company
Philadelphia Electric Company
Potomac Electric Power Company
Public Service Company of New Hampshire
Public Service Electric & Gas Company
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Tennessee Valley Authority
Union Electric Company
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And the following additional utility systems endorsing such comments:

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Alaska Electric Light and Power Company
Alaska Power and Telephone Company, Inc.
Arizona Public Service Company
Atlantic City Electric Company
Bangor Hydro-Electric Company
Black Hills Power and Light Company
Bozrah Light and Power Company
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Central Hudson Gas & Electric Corporation
Central Illinois Light Company
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Central and South West Corporation
Central Power and Light Company
Public Service Company of Oklahoma
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Central Telephone & Utilities Corporation
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Cincinnati Gas & Electric Company, The
Union Light, Heat & Power Company
West Harrison Gas & Electric Company
Cleveland Electric Illuminating Company, The
Columbus and Southern Ohio Electric Company
Community Public Service Company
Concord Electric Company

(over)

June 26, 1974

Continued — The following additional utility systems endorsing such comments:

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Delmarva Power & Light Company
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Duquesne Light Company
Eastern Utilities Associates
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Electric Energy, Inc.
El Paso Electric Company
Empire District Electric Company, The
Exeter & Hampton Electric Company
Fitchburg Gas and Electric Light Company
Florida Power Corporation
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Gulf States Utilities Company
Hawaiian Electric Company, Inc.
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 Maui Electric Company Ltd.
Hershey Electric Company
Home Light and Power Company
Houston Lighting & Power Company
Idaho Power Company
Indianapolis Power & Light Company
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Iowa Electric Light and Power Company
Iowa-Illinois Gas and Electric Company
Iowa Power and Light Company
Iowa Public Service Company
Iowa Southern Utilities Company
Kansas City Power & Light Company
Kansas Gas and Electric Company
Kansas Power and Light Company, The
Kentucky Utilities Company
 Old Dominion Power Company
Lake Superior District Power Company
Madison Gas and Electric Company
Maine Public Service Company
Minnesota Power & Light Company
 Superior Water, Light and Power Company
Missouri Public Service Company
Missouri Utilities Company
Montana-Dakota Utilities Company
Montana Power Company, The
Mt. Carmel Public Utility Company
Nevada Power Company
New England Gas and Electric Association
 Cambridge Electric Light Company
 New Bedford Gas and Edison Light Company

New Mexico Electric Service Company
New York State Electric & Gas Corporation
Newport Electric Corporation
Niagara Mohawk Power Corporation
Northern Indiana Public Service Company
Northern States Power Company
 Northern States Power Company (Wisconsin)
Northwestern Public Service Company
Ohio Edison Company
 Pennsylvania Power Company
Ohio Valley Electric Corporation
Oklahoma Gas and Electric Company
Orange and Rockland Utilities, Inc.
 Pike County Light & Power Company
 Rockland Electric Company
Otter Tail Power Company
Pacific Power & Light Company
Portland General Electric Company
Public Service Company of Colorado
 Cheyenne Light, Fuel & Power Company
Public Service Company of Indiana, Inc.
 (Public Service Indiana)
Public Service Company of New Mexico
Puget Sound Power & Light Company
Rangeley Power Company
Rochester Gas and Electric Corporation
St. Joseph Light & Power Company
Savannah Electric & Power Company
Sherrill-Kenwood Power and Light Co., Inc.
Sierra Pacific Power Company
Southern Indiana Gas and Electric Company
Southwestern Electric Service Company
Southwestern Public Service Company
Texas Utilities Company
 Dallas Power & Light Company
 Texas Electric Service Company
 Texas Power & Light Company
Toledo Edison Company, The
Tucson Gas & Electric Company
UGI Corporation
United Illuminating Company, The
Upper Peninsula Power Company
Utah Power & Light Company
 Western Colorado Power Company, The
Washington Water Power Company, The
Wellsboro Electric Company
Windber Electric Corporation
Wisconsin Power and Light Company
Wisconsin Public Service Corporation

Other electric systems are expected to give endorsement by separate letter.

EDISON ELECTRIC INSTITUTE - UTILITY WATER ACT GROUP
COMMENTS ON EPA'S PROPOSED § 316(a) REGULATIONS
AND DRAFT GUIDANCE MANUAL

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Note: Because of the interrelationship of §§ 304, 306 and 316(a) with regard to effluent limitations on discharges from steam electric powerplants, our comments on EPA's proposed regulations under §§ 304 and 306 are incorporated by reference in our submission in this rulemaking. The Table of Contents to those comments follows.

EDISON ELECTRIC INSTITUTE - UTILITY WATER ACT GROUP
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COMMENTS ON PROPOSED SECTION 316(a) REGULATIONS AND DRAFT
GUIDANCE MANUAL

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UTILITY WATER ACT GROUP
EEI AD HOC WATER QUALITY GROUP

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UTILITY WATER ACT GROUP
EEI AD HOC WATER QUALITY GROUP

Comments on Proposed Regulations and Draft
Guidance Manual for Administering Section 316(a)
of the Federal Water Pollution Control Act

SUMMARY

EPA's proposed regulations¹ and draft Guidance Manual² for administration of § 316(a)³ would together foreclose, in most cases, any practical opportunity to demonstrate the appropriateness of § 316(a) thermal limitations. They would, in short, make § 316(a) unavailable to most steam electric powerplants in the country.

In its parallel rulemaking for steam electric powerplants under §§ 304(b) and 306,⁴ EPA has assumed that the cost and impact of proposed thermal effluent limitation guidelines and standards of performance will be mitigated by § 316(a). By the Agency's questionable estimate, 80% of pre-1973 powerplants

¹39 Fed. Reg. 11434 (1974). The proposed regulations are synopsized in the appendix to this memorandum.

²Environmental Protection Agency, Proposed Guidelines for Administration of the § 316(a) Regulations (Draft April 18, 1974) (hereinafter cited as the "Manual"); Notice of Availability 39 Fed. Reg. 16921 (1974).

³33 U.S.C. § 1326(a) (Supp. II, 1972).

⁴39 Fed. Reg. 8294 (1974).

and roughly 50% of post-1973 plants otherwise subject to its technological standards will be granted relief under § 316(a).⁵ Without § 316(a), the Agency estimates that the capital cost of the utility industry's meeting proposed technological standards would be \$39.5 billion by 1990;⁶ the resulting nationwide loss in generating capacity by that date would exceed the present capacity of the entire Tennessee Valley Authority System.⁷ If those costs are to be avoided and EPA's expectation realized, the proposed § 316(a) regulations must be substantially revised before adoption, and the draft Manual must be withdrawn.

There are three major reasons why the proposed regulations and Manual would fatally undermine § 316(a). These are discussed below.

First, the proposed regulations fail to reckon with the severely limited time within which § 316(a) determinations must be made for existing powerplants. Plants must have discharge permits by December 31, 1974. Less obvious but more crucial, the compliance dates of July 1, 1977, and July 1, 1978, for

⁵EPA Office of Planning and Evaluation, Economic Analysis of Proposed Effluent Guidelines -- Steam Electric Powerplants, I-3 (Sept. 1973).

⁶Id. at II-58, II-59, Tables 27 and 28.

⁷Id. The total capacity loss figure of 25,100 MWe compares with TVA's total installed capacity of 23,316 MWe. Tennessee Valley Authority Annual Report, April, 1974.

achieving water quality standards and "best available technology," respectively, are fatal to effective implementation of § 316(a) through EPA's proposals. Unless § 316(a) limitations have been established by December 31, 1974, costly design work must begin on any cooling towers necessary to meet state thermal water quality standards.

EPA has taken the position that § 316(a) limitations supplant any more stringent thermal water quality standards. We concur. But § 316(a) cannot be given that intended effect if construction must commence before applicants have had an opportunity to demonstrate the excessive stringency of water quality standards.

The July 1, 1977 date for compliance with those standards looms large for three-fourths of the capacity in the industry. We believe it absurd to require construction of off-stream cooling facilities before the data required to show that they are unnecessary can even have been collected. To avoid this result, regulations implementing § 316(a) must be amended to provide for quick initial demonstrations and decisions. Appropriate data-gathering and monitoring conditions in any original § 316(a)-based permit would afford information for further determinations. In addition, information that will become generally available through §§ 104(t) and 303(d) will aid subsequent § 316(a) determinations.

The second major reason why EPA's proposals will fatally undermine § 316(a) is that the limited methods prescribed for demonstrating compliance with § 316(a) are simply infeasible. As elaborated by the Manual, one ("no appreciable harm") is infeasible in the time remaining before plants must have discharge permits (December 31, 1974), or before construction must commence to meet non-§ 316(a) limitations where § 316(a) has not been invoked. The others are infeasible in almost any amount of time.

A full year's data is required for a "no appreciable harm" demonstration. Design of a data-gathering program and analysis of samples may stretch that one year to two.⁸ Even if it could be done before lead times and compliance dates forced beginning construction, relatively few plants are eligible for a "no appreciable harm" demonstration. Only (a) existing plants with (b) several years operating experience on (c) unpolluted water bodies are eligible for a "no appreciable harm" demonstration. All other plants are remitted to two other demonstrations for which the Manual demands data unavailable to the scientific community. Both involve completion of a Thermal Tolerance Matrix. Collection

⁸Results of an Industry Questionnaire summarized in Attachment C to these Comments indicate that the average time needed to prepare for uncontested § 316(a) proceedings is estimated at 13.9 months. For controlled proceedings, the average time needed is estimated at 22.7 months.

of the data necessary for this exercise would take years of intensive laboratory and field investigation by dozens of biologists at each plant site.

If § 316(a) is to have any effect, implementing regulations must prescribe feasible methods for demonstrating compliance. Valid, reliable methods have been overlooked in the proposed regulations and Guidance Manual. We urge the Agency to adopt (1) the water quality standards method of proof, (2) a low potential impact method of proof, and (3) a predictive techniques method of proof. Further, EPA's proposed "representative, important species" demonstration should be merged into all the others in order to permit focused study and analysis.

The third major flaw in the Agency's proposed regulations and Manual is their definition of the "balanced, indigenous population" which is the object of protection under § 316(a). It would require "protection" of aquatic populations which, in some cases, could not possibly exist in the pertinent water body during the term of a discharge permit, even if all thermal loads were removed. In other cases they would exclude from § 316(a) consideration existing thermal discharges into man-made water bodies which support thriving, viable aquatic populations of recreational significance.

We believe that the population whose protection should be assured under § 316(a) should be determined, first, in

reference to that which can reasonably be expected to exist in the water body during the term of the permit. On man-made water bodies developed for cooling purposes this determination should be made taking the existing heat load as given. On natural water bodies, the determination may be made assuming the absence of artificial additions of heat. However, in the latter case, a conclusion that the resident population without thermal discharges would differ significantly from the present population, simply because of the removal of heat, is an insufficient basis for rejecting a § 316(a) request. If the population existing with artificial additions of heat is viable and has recreational or commercial value, then the existing population is the one whose protection should be assured.

I.

INTRODUCTION

Section 316(a) is a unique provision of the Federal Water Pollution Control Act. Limited in scope to thermal discharges, it authorizes case-by-case easing of any generally applicable effluent limitation which is more stringent than necessary "to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife" in the receiving water. We believe that thermal discharges from many steam electric powerplants using once-through cooling do in fact assure this protection and propagation.

However, § 316(a) is not self-implementing. EPA has the initial responsibility to assure that it is effected so as to achieve Congress' purpose. To fulfill that responsibility, the Agency must develop procedures to give applicants sufficient opportunity to show the propriety of easing non-§ 316(a) thermal limitations. It must also define substantive tests to aid prompt and fair decisions consistent with the purpose of § 316(a).

We believe that the following measures are necessary to give § 316(a) its intended effect:

1. Information required to justify establishing § 316(a) thermal limitations should be related to (a) data and information reasonably available at the time the showing must be made, and (b) the effective period of the permit imposing § 316(a) limitations. Initially, § 316(a) limitations should be established upon a demonstration that relevant physical parameters and available biological information indicate that "protection and propagation" will not be precluded for the time reasonably necessary to collect sufficient data to confirm the initial determination.

2. Final § 316(a) regulations should recognize that there are two dimensions to the Act's effluent limitations: (a) the technological stringency of the controls required, and (b) the time by which those controls must be achieved. Section 316(a) may be invoked to modify either dimension which is more stringent than necessary. Thus, if achievement of a given technological standard by a set date is unnecessarily stringent to assure protection and propagation, EPA may defer the date in individual cases by establishing schedules of compliance in § 316(a) effluent limitations. We believe that EPA has this authority explicitly under § 316(a) and implicitly as part of its general authority to administer the Act.

3. The advanced compliance dates in proposed § 304(b) guidelines for 1983's "best available technology" effluent limitations should be set back to the statutory deadline, or failing that, at least two years, in order to allow § 316(a) to operate.

4. The acceptable methods for demonstrating compliance with § 316(a) should be expanded and made sufficiently flexible that they become feasible. Prescribed methods should provide a realistic alternative in all cases in which § 316(a) limitations may be appropriate. Specifically, we recommend the following additional routes to demonstrate compliance with § 316(a):

a. Compliance with approved water quality standards for fish and aquatic life uses should give rise to a presumption that the requirements of § 316(a) are satisfied. Such a demonstration should be included in the final regulations as an alternative mode of proof comparable to the "no appreciable harm" demonstration.

b. Applicants for new plants and relatively new existing plants should be allowed to show compliance with § 316(a) through valid predictive techniques or through use of data from analogous or comparable situations.

c. A "low potential impact" demonstration should be available for all plants, whether existing or new. Such a demonstration should be based on evidence that the relationship between (1) the size and configuration of the thermal discharge

and (2) the volume, flow, temperatures and general physical conditions is such that there is or will be no appreciable impact relative to the water body as a whole.

5. Finally, the proposed regulations should make clear that § 316(a) requests may be denied only where continuation of the thermal discharge during the term of the discharge permit in question would preclude the existence or maintenance of a viable, beneficial aquatic community during that time.

This memorandum addresses major deficiencies of EPA's proposed regulations and draft Manual and offers a more detailed description of the recommended remedies. Part II examines the severe time limits within which § 316(a) must be effectuated. Part III takes issue with the proposed regulations' construction of the substantive standard embodied in § 316(a) and articulates a standard more consistent with achieving the intent of that section in practical application. Part IV deals with the problem of the timing of § 316(a) determinations for new sources. Since this problem is related to the much broader problem of the general regulation of new sources, the solution may usefully be viewed against that broader context. We have addressed the general problem and its solution in Attachment I-A to the Utility Water Act Group Comments on proposed regulations implementing §§ 304(b) and 306.

Three attachments are included with these comments. Attachment A is a mark-up of the proposed regulations indicating the changes necessary to implement the recommendations contained herein. The preface to the mark-up is an explanation, analogous to a preamble to regulations, which describes how we believe each of the six principal recommended demonstration types should be administered. Less significant changes are shown on the mark-up, and the rationale explained in accompanying annotations. Attachment B is a two-part critique of the draft Manual from biological and engineering viewpoints, respectively, prepared under the auspices of the Edison Electric Institute Environment and Energy Division's Subcommittee on Water Quality in conjunction with the Ad Hoc Water Quality Group and the Utility Water Act Group. A summary of the results of an industry questionnaire on the availability of § 316(a) under EPA's proposed regulations is included as Attachment C.

The proposed regulations include parallel and substantially identical procedures for administration of § 316(a) by EPA Regional Administrators (Subpart B) and by Directors of state water quality agencies conducting approved permit programs (Subpart C). Though these comments focus on the provisions for EPA administration, they are for the most part applicable as well to the parallel provisions in Subpart C. The exceptions are comments on hearing procedures and state certification prerequisites which are unique to EPA administration.

II.

SEVERE TIME CONSTRAINTS

The proposed regulations fail to provide realistic solutions to critical time constraints: (1) the need for applicants to obtain discharge permits by the end of 1974,⁹ and (2) the necessity to meet non-§ 316(a) limitations or to obtain a § 316(a) exemption from them by fixed dates. In the absence of § 316(a), plants must achieve effluent limitations necessary to meet state water quality standards by July 1, 1977.¹⁰

⁹Section 301 of the Act declares any discharge of pollutants into the navigable waters to be unlawful, except as in compliance with certain sections of the Act, including § 402. Violations expose the discharger to enforcement actions under § 309 and citizen suits under § 505. 33 U.S.C. §§ 1319, 1365 (Supp. II, 1972). Section 402(k) immunizes unpermitted dischargers from civil or criminal liabilities until December 31, 1974, if a permit application is pending for the discharge and the applicant has not failed to provide needed information. Id. § 1342(k).

¹⁰§301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C) (Supp. II, 1972). Exemptions may be obtained under § 316(a) from state effluent limitations whenever they are set at levels more stringent than necessary to assure the protection and propagation of a balanced, indigenous population. The authority of States to set such limitations pursuant to § 301(b)(1)(C) is granted by § 510 "[e]xcept as expressly provided in this Act." Section 316(a) expressly authorizes relaxation of "any effluent limitation proposed [under §§ 301 or 306] for the control of the thermal component of any discharge" which is more stringent than necessary to protect a balanced, indigenous aquatic population. (emphasis added). Further, § 303(g) requires that water quality standards relating to heat must be consistent with § 316(a). Any such standards which would result in unnecessarily stringent effluent limitations would be inconsistent with § 316(a). Thus such state-imposed effluent limitations are subject to § 316(a) by the express language of § 316(a) and § 303(g).

Further, EPA's proposed § 304(b) effluent limitation guidelines, which apply in the absence of § 316(a), entail acceleration of § 301's July 1, 1983 date to July 1, 1978, for "best available technology" limitations applicable to large base load units,¹¹ which constitute the backbone of the industry.

Four general recommendations are advanced here to resolve the difficulties inherent in satisfying deadlines under the statute while preserving the viability of § 316(a). In brief, they are as follows:

(a) Reduce the information necessary to support an initial § 316(a) demonstration. Information reasonably available in the limited time should be sufficient to conclude that open-cycle operation during conduct of additional studies will not appreciably harm the balanced indigenous population. The results of those studies will then provide the basis for a longer term § 316(a)-based discharge permit.

(b) Establish, on a case-by-case basis pursuant to § 316(a), coordinated with data-gathering programs necessary to make a sufficient showing. This can be done under § 316(a) since "alternative effluent limitations" include, by definition, alternative compliance schedules.

¹¹39 Fed. Reg. 8294, 96 (1974).

(c) Relax proposed § 304(b) compliance deadlines for base-load plants by abiding by the statutory deadline of 1983 or, at least, by deferring them from the 1978-80 period to the 1980-82 period.

(d) Provide for optional consolidation of the duplicative non-adjudicatory and adjudicatory hearings presently available in the administration of § 316(a), in order to eliminate redundancy and reduce the overall length of the hearing process.

Recommendation (a) is directed primarily to the problems of timely attainment of discharge permits by December 31, 1974, and secondarily to those of compliance with water quality standards in 1977 and effluent limitations beginning in 1978. Recommendation (b) is intended to assist in implementing recommendation (a) with regard to 1977 and 1978 deadlines. Recommendation (c) is directed entirely to compliance with § 304(b) effluent limitations, whose present deadline for large base-load plants is 1978. Recommendation (d) is intended to ease somewhat the obstacles to obtaining discharge permits by the end of 1974.

These recommendations, and the context of their application, are discussed in more detail below.

A. Excessive Information Requirements

The "no appreciable harm" and "representative important species" tests could aid in implementing § 316(a) within the

tight time frame of the Act. But the Manual's requirement for excessive and irrelevant information for any prescribed types of § 316(a) demonstrations severely limits their utility and availability. It makes establishment of § 316(a) limitations by December 31, 1974, highly unlikely. And to the extent required data is not available at the time backfitting must commence to meet §§ 301 and 304 limitations otherwise applicable, it would preclude § 316(a) relief.

Where data are not available in the detail specified by the Manual, their collection would take at least a full year in order to reflect all four seasonal conditions.¹² Under any test, the Manual calls for "[a] list, and an indication of the abundance of pollution tolerant species and threatened and endangered species, at any trophic level, and of species of fish, shellfish, and wildlife" which exist there without stress from point source discharges.¹³ Additional field data are required for a "representative important species" demonstration.¹⁴ The requirements associated with

¹²In very few cases are such extensive and detailed data available. See note 15 below and Attachment C. Few, if any, existing studies have examined all trophic levels.

¹³Environmental Protection Agency, Proposed Guidelines for Administration of the 316(a) Regulations 18, 25-6 (Draft, April 18, 1974).

¹⁴Id. 24.

the remaining alternative, submission of comprehensive biological monitoring data, are even more burdensome. It would be virtually impossible to amass the data required by the Manual before the statutory deadline for permit issuance, December 31, 1974.¹⁵ Accordingly, the Manual should be completely withdrawn from use during the critical period between now and the end of the year.

In place of the Manual, the regulations should provide that the information required to establish § 316(a) limitations in each case must be related to (i) data and information reasonably available at the time the showing must be made and (ii) the effective period of the permit. We believe that it would be sound administrative policy, well within the Agency's discretion, to require § 316(a) applicants to provide increasingly extensive information for subsequent determinations as more detailed and sophisticated

¹⁵ Returns from an Edison Electric Institute questionnaire indicate that for the 59 respondents, the average time to prepare for uncontested § 316(a) hearings will be 13.9 months. Estimates ranged from 0 (in two cases) to 36 (seven cases) months for plants representing 350,213 MWe of capacity. For those responding companies able to predict the time needed to prepare for contested hearings, estimates ranged from 0 to 60 months with an average of 22.7 months.

data become available.¹⁶ Under such an approach, the decision-maker would be directed to accept a reasonable quantum of evidence, considering the circumstances at the time the showing must be made, that protection of a "balanced, indigenous population" would be assured during continuation of a thermal discharge under § 316(a) limitations. Reasonably, the duration of a discharge permit containing § 316(a) effluent limitations should reflect the extent of the data provided.

Initially, § 316(a) effluent limitations should be established upon a demonstration that relevant physical parameters and available biological data indicate reasonable assurance of "protection and propagation." Thus, for example, data relative to normal water temperatures, flow rates, seasonal variations in these physical parameters, sources of heat input, and calculations of the total dissipative capacity of the body of water in question may justify establishing initial § 316(a) limitations.¹⁷ If the information were sufficient to conclude that "protection and propagation" would

¹⁶More sophisticated data should become generally available as a result of (1) EPA's continuing comprehensive studies under § 104(t) of the effects of thermal discharge, and (2) state thermal load analyses under § 303(d). 33 U.S.C. §§ 1254(t), 1313(d) (Supp. II, 1972).

¹⁷These factors are the ones to be used in estimating total maximum thermal loads "required to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife" pursuant to § 303(d)(1)(D). 33 U.S.C. § 1313(d)(1)(D) (Supp. II, 1972). Basing § 316(a) determinations on them is consistent with expression of legislative intent in the House. 118 Cong. Rec. 9129 (daily ed. Oct. 4, 1972) (remarks of Rep. Clausen), 1 Legis. Hist. 263.

be assured for a period of two years, for example, the discharge permit would be for two years and would be conditioned upon the permittee's conducting a survey or monitoring program to justify the establishment of § 316(a) limitations for a longer period. In addition, the term of the permit could be limited to the time reasonably necessary to collect data needed for a more substantial, longer-term determination. At the expiration of the permit when § 316(a) limitations were reexamined, a more substantial demonstration, based on additional data collected during the term of the initial permit, would be expected. But during the term of the initial permit, the original § 316(a) limitations and study conditions would supplant any more stringent limitation, thus avoiding costly construction of cooling facilities before a more conclusive long-term decision can be made.

Such an approach is necessary if the intent of § 316(a) is not to be frustrated by overly burdensome and unrealistic information requirements for initial § 316(a) determinations. The suggestions in the Manual for one year's data-gathering preceding § 316(a) determinations overlook pressing time constraints and fail to recognize an important temporal aspect of § 316(a). Few applicants would be able to complete the process before they must commence constructing off-stream

cooling facilities. The approach we urge would accommodate the § 316(a) temporal dimension by relating the duration of operation permitted under § 316(a) limitations to the quantity of information reasonably available. By employing this approach, EPA would facilitate establishment of § 316(a) effluent limitations before the end of the year, provide assurance of "protection and propagation" during the term of the permit, and avoid requiring enormous expenditures for off-stream cooling facilities which may prove unnecessary.

B. Unnecessarily Restricted Opportunity to Collect Additional Data

If sufficient § 316(a) information is not available at the conclusion of discharge permit proceedings, the proposed regulations direct issuance of a permit which requires the permittee to achieve non-§ 316(a) effluent limitations,¹⁸ but allows him subsequently to request a § 316(a) hearing.¹⁹ Any deferred § 316(a) hearing must be scheduled so that the permittee may take measures necessary to meet non-§ 316(a) effluent limitations by the final compliance date specified

¹⁸39 Fed. Reg. 11439, § 122.10(b)(2) (1974). The applicant would have to provide EPA with a § 401 certification from the state before any such permit could be issued. 40 C.F.R. §§ 125.15, 125.21(a) (1973). It is unclear which, if any, thermal effluent limitations would be applicable for purposes of § 401 certification.

¹⁹Id. The permit must also include, as a schedule of compliance a construction schedule for achieving offstream cooling and must require periodic reporting on construction progress. 40 C.F.R. § 125.23(b) (1973).

in the permit.²⁰ But since any such permit issued prior to a § 316(a) determination must require compliance by dates specified under §§ 301 or 304, the proposed deferral of § 316(a) determinations alone is a non-solution to inadequate information: construction may have to be started before a § 316(a) determination can be obtained. If § 316(a) is to be given practical effect for existing plants, then the final § 316(a) regulations must provide for appropriate deferrals of compliance deadlines for non-316(a) requirements, so that § 316(a) issues may be resolved before commitments necessary only to satisfy § 301 or § 304 need be made.

The proposed regulations unnecessarily restrict the opportunity for assembling additional § 316(a) information by requiring that deferred § 316(a) hearings be so timed that the permittee can achieve compliance dates otherwise imposed pursuant to §§ 301 or 304.²¹ The term "effluent limitations" is defined by § 502(11) of the Act to include schedules of compliance.²² Section 316(a) allows the imposition

²⁰39 Fed. Reg. 11439, § 122.10(b)(3).

²¹Permits must include schedules of compliance which, in cases where construction would be required, impose interim compliance dates. 40 C.F.R. §§ 125.22(b), 125.23 (1973).

²²33 U.S.C. § 1362(11) (Supp. II, 1972). "Schedule of compliance" in turn, is defined as "a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard." Id. § 1362(17), § 502(17).

under § 301 of effluent limitations which will assure "protection and propagation" if those otherwise applicable are more stringent than necessary to assure that end. Thus, § 316(a) may be invoked to modify compliance dates, as well as technological standards, otherwise imposed under § 301. If achieving a technological standard by a given date is unnecessary to assure "protection and propagation," a different date may be established pursuant to § 316(a) and imposed under § 301. Hence, schedules of compliance may be established pursuant to § 316(a) which vary from the compliance dates otherwise applicable under § 301.

It would be especially appropriate to adopt such a procedure in order to afford § 316(a) applicants an adequate opportunity to collect sufficient information and data.²³ In such cases, the applicant should be required to make a threshold showing that continuation of its thermal discharge will not preclude the protection and propagation of a "balanced, indigenous population" during the period reasonably necessary for the collection of the additional information. Based on

²³The general authority to establish schedules of compliance is implicit in EPA's obligation to "apply, and insure compliance with, any applicable requirement of sections 301, 302, 306, [and] 307" 33 U.S.C. § 1342(b)(1)(A). See id. § 1342(a)(2), (3).

such a showing, § 316(a) limitations may be established in a discharge permit, conditioned upon the permittee's diligent data-gathering efforts. If the permittee is unable to collect sufficient additional information within a reasonable time, a schedule of compliance may be established pursuant to § 316(a). The basis for the § 316(a) schedule of compliance would be that continued operation during construction of off-stream cooling facilities would not cause substantial, irretrievable harm to the "balanced, indigenous population" or preclude its protection once construction was complete. Such a schedule would allow the permittee to continue operation during construction of facilities necessary to comply with the technology-based effluent limitations otherwise applicable under § 301. In the interim, as long as construction proceeded in accordance with the § 316(a) schedule of compliance, the permittee would be operating in compliance with § 301.

C. Deadlines for Compliance with Non-Section 316(a) Effluent Limitations

Proposed guidelines under § 304(b) would require existing steam electric powerplants to achieve off-stream cooling (identified as the "best available technology economically

achievable")²⁴ by a phased schedule beginning July 1, 1978, for large base-load plants,²⁵ although § 301 does not require that level of control to be achieved until July 1, 1983.²⁶

In order to meet a 1978 deadline for control of thermal discharges, owners must begin to plan and construct control facilities far in advance. With existing construction lead time,²⁷ for a large base-load unit to have off-stream cooling installed and operating by July 1, 1978,²⁸ planning and

²⁴39 Fed. Reg. 8306, § 423.13(a) (1974). EPA concluded that off-stream cooling, which it determined represented "best available technology," was not the "best practicable technology" for existing plants, in part because it could not be installed by the July 1, 1977 deadline if applicants were to be given the opportunity to make a § 316(a) demonstration. Id. 8296.

²⁵Id. § 423.13(a)(2)(i). Smaller base-load plants would have to meet the same limitation by July 1, 1979 or July 1, 1980. Id. § 423.13(a)(2)(ii) and (iii). Finally, by July 1, 1983, all existing generating units not to be retired before 1986 (large) or 1989 (smaller), would be required, regardless of size or utilization, to employ off-stream cooling. Id. § 423.13(a)(2)(iv), and 8304, § 423.11(a), (b), and (c). There is, however, an exception provided for those units at plants with insufficient land reasonably available. Id. § 423.13(a)(3).

²⁶33 U.S.C. § 1311(b)(2)(A) (Supp. II, 1972).

²⁷Current lead times for the design and construction of off-stream cooling facilities will range from 34 months for mechanical-draft cooling towers to 46 months for natural-draft towers. Utility Water Act Group Thermal Engineering Technical Advisory Group, A Critique of the Burns and Roe Report and Development Document for Proposed Effluent Limitation Guidelines at 18, Attachment VII to Utility Water Act Group Comments on EPA's proposed §§ 304 and 306 guidelines and standards of performance (June 26, 1974). However, the lead times are unlikely to remain constant in the face of sharply increasing demand for cooling towers that would result from adoption of the proposed regulations under §§ 304 and 306 in their present form. A far more likely result, judging from present severe materials shortages, is the increase of lead times, especially as the 1978 compliance date approaches.

²⁸39 Fed. Reg. 8306, § 423.13(a)(2)(i) (1974).

design of natural-draft cooling towers would have to start in mid-1974; and that of mechanical-draft towers, by the middle of 1975.²⁹ These dates determine the critical point at which a § 316(a) determination must have been made or commitments and expenditures for design or construction will be necessary regardless of § 316(a).

The largest base-load generating units face the most severe constraints. First, these units will be required to achieve off-stream cooling by the earliest date.³⁰ Generally, backfitting of off-stream cooling facilities to these units will be the most difficult, costly and time-consuming. Further, since these units are also the ones which produce the greatest quantities of heat, they may be the most difficult for which to prove compliance with § 316(a). Finally, if a substantial portion of large base-load units must employ off-stream cooling by July 1, 1978, severe reliability problems will

²⁹These lead times will vary depending on site-specific conditions. There have been instances in which the entire process was compressed into less than half the normal time. However, compressing the lead time will become increasingly infeasible as the number of towers being constructed at the same time increases.

³⁰39 Fed. Reg. 8306, § 423.13(a) (1974).

result.³¹ Thus, the units which may be the most difficult cases under § 316(a) and for which the magnitude of potential error will be the greatest are required to achieve off-stream cooling by the earliest date.

EPA offers no basis for its conclusion that these units can be afforded an adequate opportunity to seek § 316(a) limitations and still achieve off-stream cooling by July 1, 1978, if they fail to qualify under § 316(a). The judgment does not appear to be based on realistic estimates of the length of time required for either § 316(a) demonstrations or for installation of off-stream cooling. Adherence to the accelerated compliance schedule for "best available technology" may precluded the effective operation of § 316(a) in contravention of the Act.

The dates for compliance with the technology-based thermal effluent limitations should be based on a realistic assessment of the time necessary for § 316(a) demonstrations. Part of EPA's rationale for not prescribing off-stream cooling as the "best practicable technology" was recognition of the need

³¹See Attachment VIII, Utility Water Act Group Reliability Task Group, Impact on Reliability of Utility Systems from Implementation of Proposed Federal EPA Effluent Limitations at 6.

to provide a reasonable opportunity for § 316(a) determinations.³² However, the resulting schedule for compliance with the "best available technology" requirement of § 301 does not follow from the stated rationale. Achieving the prescribed non-§ 316(a) compliance date will in many cases foreclose an effective opportunity to make a § 316(a) demonstration. Where the opportunity is lost, enormous, frequently unnecessary costs will be incurred in order to backfit off-stream cooling facilities. To avoid such a result, EPA should not accelerate non-§ 316(a) compliance dates in effluent limitations guidelines.

Even if the Agency's conclusion were correct that the statutory compliance dates may be generically accelerated, effectuation of Congress' § 316(a) intent would require that it not be done in a way which frustrates the operation of that section. Further, consideration of the national energy situation militates against imposition of any non-statutory schedule which results in severe shortages of electric power.³³ Thus EPA should revise the compliance dates in its proposed

³²39 Fed. Reg. 8296 (1974).

³³33 U.S.C. § 1314(b)(2)(B) (Supp. II, 1972).

§ 304(b) guidelines to allow maximum flexibility in the 1978-83 period so that compliance with "best available technology" may be timed to preserve § 316(a) and to avoid severe reliability problems.³⁴ Further, EPA should allow scheduling of any necessary backfitting construction and unit outage time to be coordinated among neighboring systems and within power supply pools and regional reliability groups.

D. Duplicative and Protracted Procedures

Even for § 316(a) applicants with sufficient information available, unnecessarily time-consuming procedures pose a major obstacle to securing § 316(a) effluent limitations by the end of 1974. Under the proposed regulations, two separate hearings, the first non-adjudicatory, the second

³⁴See Utility Water Act Group Reliability Task Group, supra note 31, at 8-10 for minimum alternative scheduling adjustments to protect system and regional reliability.

adjudicatory, may be required.³⁵ Procedures surrounding even a non-adjudicatory hearing will require at least 90 days to complete.³⁶ If both types of hearings are held, eight months could well be required to produce a final agency decision on the § 316(a) request. Thus, to be assured of a decision on a § 316(a) request by the end of 1974, the notice of the request must have been issued by May 1, 1974.³⁷

³⁵ 39 Fed. Reg. 11438-39, § 122.10 (1974). Within 30 days of a public notice describing § 316(a) effluent limitations any person may request a hearing. 39 Fed. Reg. 11437-38, §§ 122.6(b)(2), 122.10(a)(1), (1974). If a hearing is granted there must be at least 30 days' notice prior to the hearing. 40 C.F.R. § 125.32(b)(2) (1973). If this initial hearing is not adjudicatory, there is an additional period of 20 days, following notice that the permit has been issued or denied, in which interested persons may request an adjudicatory hearing. Id. § 125.34(c)(1). The Regional Administrator then has 5 days in which to rule on the hearing request. Id. § 125.34(f). Notice must be given of an adjudicatory hearing at least 30 days prior to the date fixed for the hearing. Id. After the hearing, another 35 days will elapse before a tentative decision is required. Id. § 125.34(o). Final decision must follow within 30 days, and there is an additional 30-day period for appeal following the decision. Id.

³⁶ 40 C.F.R. §§ 125.32(b), 125.34(b) (1974).

³⁷ Failure of EPA (1) to provide reasonable procedures for obtaining an NPDES permit by December 31, 1974, or (2) to consider the inclusion of § 316(a) limitations and to act, if appropriate, in time to issue the permit by that date may raise due process questions if an applicant were thereby subjected to a choice among (a) exposure to criminal or civil liability, (b) ceasing operation, or (c) waiving any right to a fair § 316(a) determination.

The potential for delay in duplicative hearings is unnecessary. Since any decision reached in the first, non-adjudicatory public hearing is subject to reexamination during an adjudicatory hearing,³⁸ the non-adjudicatory hearing will not necessarily resolve any issues concerning the permit, though it adds nearly three months to the process. These factors virtually assure that any contested permit proceeding cannot be completed before December 31, 1974. Under the proposed regulations avoidance of this delay, even where the application is uncontested, is a matter of chance.

The problem would be less severe if only one hearing were involved. With a single non-adjudicatory hearing, at least 90 days must elapse between notice of permit application and the effective date of a permit incorporating § 316(a) alternative effluent limitations.³⁹ If a single adjudicatory hearing is

³⁸39 Fed. Reg. 11438-39, § 122.10(a) (1974).

³⁹40 C.F.R. § 125.32(b)(1) and (2), 125.34(b)(4) (1973). Apparently non-adjudicatory hearings may be held only when alternative § 316(a) effluent limitations are proposed in the public notice of the permit application. See 39 Fed. Reg. 11437, § 122.6(b)(2) and 11438-39, § 122.10(a) (1974). The proposed alternative effluent limitations must be based on demonstration of "no appreciable harm" or protection of "representative important species." 39 Fed. Reg. 11437-38, § 122.8(a) (1974). If the latter route is chosen, the notice may be delayed pending selection of the species. Id. § 122.8(a)(2)(ii).

held, 5 months must elapse between the public notice of the permit and final agency decision on a § 316(a) request.⁴⁰

EPA should accordingly allow an applicant, through a prompt request for an adjudicatory hearing following notice of public hearing,⁴¹ to obtain a single adjudicatory hearing, pre-empting the non-adjudicatory hearing. The applicant has the most immediate and direct interest in a prompt § 316(a) determination. Consequently, he will be best situated to determine whether the issues to be raised in the non-adjudicatory hearing with respect to proposed § 316(a) limitations are substantial enough to justify an adjudicatory hearing.⁴² Also, he will be unlikely to request the lengthier adjudicatory hearing except in cases where both types of hearing appear inevitable otherwise. Eliminating the possibility of redundant hearings would be consistent with Congress' directive to avoid unnecessary duplication to the maximum extent possible.⁴³

⁴⁰ 39 Fed. Reg. 11439, § 122.10(a)(2) (1974); 40 C.F.R. §§ 125.32(b), 125.34(c), (f), (k), (o)-(q) (1973).

⁴¹ 40 C.F.R. § 125.34(b)(1) (1973).

⁴² A public hearing may be held only where § 316(a) limitations are included in the public notice of public application. 39 Fed. Reg. 11438, § 122.10(a) (1974).

⁴³ 33 U.S.C. § 1251(f) (Supp. II, 1972).

The applicant should be able as well to elect to sever a § 316(a) hearing from the remainder of a § 402 permit proceeding. In many cases determination of the permit conditions for control of pollutants other than heat may be a simple, mechanical matter. In a separate § 316(a) proceeding the issues would be more clearly focused and perhaps more easily resolved. Unnecessary delay would be avoided.⁴⁴

⁴⁴ 40 C.F.R. § 125.34(c) (1973). Adoption of these recommended changes in procedure will not reduce the opportunity for public participation since any person may submit a request to be a party to the adjudicatory hearing.

III.

SUBSTANTIVE STANDARDS

The substantive requirements for implementing § 316(a) will determine its availability. Proposed § 316(a) regulations and the accompanying Manual would define the population which must be protected so narrowly that the potential availability of § 316(a) is unjustifiably restricted.

In addition, the proposed regulations fail to adopt other valid and reliable criteria of substantive qualification for § 316(a). Compliance with water quality standards, for instance, should qualify applicants for § 316(a) approval. Unless the final § 316(a) regulations are rewritten to correct these deficiencies, this section, and the intent of Congress, will be virtually nullified by administrative action.⁴⁵

A. Definition of the Population to be Protected

1. The Proposed Regulations

Definition of the "balanced, indigenous population" to be protected under § 316(a) is crucial to that section's proper interpretation and implementation. The definition in the proposed regulations recognizes that "[s]uch a population may

⁴⁵The EPA economic analysis for proposed regulations for steam electric powerplants under §§ 304 and 306 estimates that a majority ranging from 50 to 80% of plants subject to those requirements will obtain limitations under § 316(a). See note 5, supra.

include historically non-native species . . . and species whose presence or abundance results [or has resulted] from substantial, irreversible environmental modifications."⁴⁶

But the proposed regulations include two significant limitations on what may comprise a "balanced, indigenous population": it (1) must be "typically characterized by . . . non-domination of pollution tolerant species" and (2) "[n]ormally will not include species whose presence or abundance is attributable to the introduction of pollutants."⁴⁷ The preamble to the regulations explains:

In areas of poor water quality, modification of thermal limitations would be appropriate only if they would assure protection of those species which could be expected to exist if the receiving water met water quality criteria designed to protect fish, shellfish and wildlife. ⁴⁸

The Manual reflects the more stringent limitation that "the population must be consistent with the restoration and the

⁴⁶39 Fed. Reg. 11436, § 122.1(h) (1974). Thus the regulations properly indicate that in order "[t]o qualify for an exemption under § 316(a) it is . . . not necessary to show that the discharge is compatible with a population which may have existed in pristine environment but which has not persisted. Id. 11435, ¶ 7.

⁴⁷Id. 11436, § 122.1(h).

⁴⁸Id. 11435, ¶ 7.

maintenance of the biological integrity of the water."⁴⁹

Thus, these provisions combine to engraft upon § 316(a) an apparent requirement that the applicant demonstrate enhancement of existing aquatic populations. To the extent that these requirements may result in imposition of thermal limitations under §§ 301 or 306 to protect aquatic populations which could not otherwise be reasonably expected to exist in the water body during the term of the permit in question, they would subvert the intent of § 316(a). Both the legislative history of the 1972 Amendments and common sense suggest that the "balanced, indigenous population" sought to be protected under § 316(a) is that which could reasonably be anticipated to exist or come into existence during the term of a permit containing § 316(a) limitations.

2. The Legislative History

Section 316(a) speaks of assuring protection of a "balanced, indigenous population . . . in and on the body of water into which the [thermal component of the] discharge is to be made." Without further qualification, this language suggests that the primary focus is on protecting the aquatic population indigenous to the body of water as it exists at the time of the § 316(a) determination. This construction is reinforced by the expression of legislative intent during House debate on the Conference

⁴⁹Environmental Protection Agency, note 2, supra.

Report. Mr. Clausen explained on behalf of the Managers for the House that:

It is . . . intended that in making such determinations [of alternative effluent limitations pursuant to § 316(a)], 'balanced' shall be interpreted to mean a reasonable maintenance of aquatic biology and not the demonstration of enhancement thereof. 'Indigenous' shall be interpreted to mean growing or living in the body or stretch of water at the time such determination is made. 50

Mr. Johnson's remarks indicate that, as a conferee, he shared Mr. Clausen's understanding.⁵¹ Thus, by "balanced, indigenous population," the House Conferees were calling for "reasonable maintenance" of the aquatic population actually growing or living in the relevant body of water.⁵²

On the same side, Senator Muskie's view of the intent of the Conference Committee as to § 316(a), inserted into the Record during the final Senate debates, reflects a somewhat different perception of the section from that held by House conferees. According to Senator Muskie,

It is not the intent of [§ 316(a)] to permit modification of effluent limits . . . where existing or past pollution has eliminated what would otherwise be an indigenous fish, shellfish and wildlife population. The owner . . . must show . . . that a "balanced, indigenous population . . ." could exist 53

⁵⁰118 Cong. Rec. 9130 (daily ed. Oct. 4, 1972), 1 Legis. Hist. 264 (emphasis added).

⁵¹Id. 9131, 1 Legis. Hist. 267.

⁵²The House view gains added force by virtue of the fact that the policy expressed in § 316(a) originated in the House amendments to the Senate bill.

⁵³Id. 16875, 1 Legis. Hist. 175. That Senate leadership generally did not contemplate a return to pristine conditions is evident from the exchange between Sen. Eagleton, while acting as floor manager

The phrase "what would otherwise be an indigenous . . . population" suggests that the population Senator Muskie sought to protect is not that which is actually growing or living in the body of water at the time of a § 316(a) determination, but rather an historical or imaginary population.

The apparent conflict between the expressions of intent of House leaders and those of Senator Muskie can be resolved by viewing the "balanced, indigenous population" which is to be protected in the context of the duration of any permit containing alternative § 316(a) effluent limitations.⁵⁴ Necessarily,

(Continued)

of S.2770, and Senator Buckley. 117 Cong. Rec. 17416 (daily ed. Nov. 2, 1971), 2 Legis. Hist. 1301.

It is also significant that a provision which would have prohibited the issuance of any permit "unless such permit shall assure the maintenance and enhancement of the quality of any affected waters," and thus would have been consistent with language in the proposed regulations (text at notes 50-52, supra), was deleted in Conference. S.2770, 92d Cong., 1st Sess., § 402(h) (1971); H.R. 11896, 92d Cong., 2d Sess., § 402(g) (1971), 2 Legis. Hist. 1691; S. Rep. No. 1236, 92d Cong., 2d Sess. 140 (1972) (hereinafter cited as Conference Report), 1 Legis. Hist. 323.

⁵⁴Normally this will be five years from the date the permit becomes effective for an existing plant unless the applicant makes modification to meet § 316(a) limitations. See 33 U.S.C. § 1342(b)(1)(B) (Supp. II, 1972). In the latter case the relevant period becomes ten years from the date of the completion to the modification. Id. § 1326(c). The term of the permit may, however, be for periods less than five years where there is a necessity for an initial § 316(a) determination to be made and a period for data gathering provided for subsequent action on a request for a longer term permit.

the population of interest is that which can reasonably be expected to inhabit the pertinent water body during the term of the permit.

Thus, the superficially inconsistent positions taken in the House and the Senate are reconciled with this interpretation. Though Mr. Clausen's remarks focus on protection of the aquatic population inhabiting the water body as it exists at the time of the § 316(a) determination, nothing in them precludes taking advantage of reasonably anticipated improvements in water quality during the term of the permit.

Similarly, Senator Muskie's remarks, which focus particularly on thermal discharges into presently heavily polluted water bodies, reflect a concern that the present, drastically altered population of such waters should not be taken as their "indigenous" population in perpetuity, and that attention be devoted as well to the population likely to inhabit such waters as their progressive restoration is reasonably anticipated.⁵⁵ "Indigenous" should therefore be interpreted to describe the population which could exist in water of a quality which might reasonably be achieved during the term of a discharge permit containing alternative effluent limitations under § 316(a).

⁵⁵The preamble to the § 316(a) regulations makes the same point when it notes that determining an indigenous population for purposes of § 316(a) "in all cases" by its present composition "would unfairly reward dischargers located on heavily polluted waters" 39 Fed. Reg. 11435 (1974).

3. The Permit-Period Population Test

Clearly, the aquatic population which can be postulated for protection under a permit containing § 316(a) limitations depends on the water quality of the water body during the permit period. Approved water quality standards for chemical and other non-thermal aspects of water quality, taken as of the date of the 316(a) determination, will usually provide a useful benchmark to gauge both the probable quality of the water and the aquatic populations which might be expected to exist upon attainment of those standards, without the artificial addition of heat. Moreover, these standards should also provide a rough measure of the anticipated aquatic populations which can be the object of "protection and propagation" by reasonable § 316(a) thermal limitations during the term of a discharge permit.

In many water bodies, especially those presently or recently subject to heavy chemical or biological pollution, water quality standards will not be met instantly. Moreover, once compliance with water quality standards is attained, time will be required for the regeneration of the full aquatic population which the water body will ultimately be capable of supporting at a given level of water quality.

Thus, to postulate as the basis for determining the "balanced, indigenous population" to be protected under § 316(a) that population which can be sustained in water of the quality projectable within the permit period is to impose an inherently

optimistic view of the aquatic population of interest, and a correspondingly conservative limit on the thermal discharges subject to approval under § 316(a). In setting limitations by this method, it should not be necessary to speculate on changes which may or may not take place in water quality criteria during or following the term of § 316(a) effluent limitations. On the other hand, actual and anticipated water quality improvements stemming from compliance with effluent limitation guidelines under § 304 and standards of performance under § 306 during the permit period (except thermal limitations) would be relevant.⁵⁶

a. Non-thermal Water Quality Criteria as a Determinant

Reliance only on non-thermal aspects of water quality criteria in determining the balanced, indigenous population to be protected under § 316(a) is justified by the assumption that virtually any variation in the amounts of heat added to a water body, whether from natural or artificial sources, will affect the vital characteristics of nearly all species of aquatic life

⁵⁶In some water bodies, water quality standards may not be reasonably attained during the duration of a permit containing § 316(a) limitations. In this case, the principle of defining a "balanced, indigenous population" in terms of a population which can be reasonably anticipated during the permit term should still apply. The only modification would be to use non-thermal water quality levels expected to be achieved, rather than non-thermal water quality standards, as the baseline for determining the anticipated population.

differently. In some instances such variation may alter the overall mix of species within a water body. In general, any addition of any heat will favor so-called "warm water" species in relation to so-called "cold water" species. It will also increase the overall biomass within the water body as a whole. Accordingly, to read the phrase "balanced, indigenous population" as requiring precise maintenance of the population as it would exist without the addition of any artificial heat would beg the question ostensibly being asked under § 316(a). It would also effectively foreclose the use of that section.⁵⁷

Realistically, in erecting the "balanced, indigenous population" requirement, Congress expressed its primary concern that beneficial recreational and commercial fisheries should be maintained (or restored where practically feasible) on any given water body. Thus, in the administration of § 316(a), the social desirability of various species within pertinent thermal regimes, both with and without discharges, must be examined.

The starting point of any such inquiry should be in distinguishing between commercially and recreationally valuable aquatic communities which, whether composed of "cold-water" or "warm-water" species, might be classified as beneficial communities,

⁵⁷The proposed regulations would exclude from the "balanced, indigenous population" species whose "presence or abundance is attributable to the introduction of pollutants." 39 Fed. Reg. 11436, § 122.1(h) (1974). Since heat is included in the Act's definition of "pollutant," 33 U.S.C. § 1362(b) (Supp. II, 1972), the regulations may be construed to exclude viable, beneficial aquatic communities existing under the influence of thermal discharges.

on the one hand, and non-beneficial communities on the other. Congress could hardly have intended that the term "indigenous" always had to be read to prohibit maintenance or encouragement of beneficial aquatic communities simply because a different community would have existed in the total absence of the discharge, without regard to whether that different community would have been beneficial. Accordingly, the presence and viability of beneficial communities which are compatible with the thermal discharge should be a factor in determining the composition of the "balanced, indigenous population" even where it is different from the population which might exist under more pristine conditions.

b. Receiving Water Body Type as a Determinant

A second factor in determining a socially desirable "balanced, indigenous population" to be protected relates to the type of water body into which the discharge would flow. If it is a natural stream or lake or the ocean, normally maintenance of principal beneficial species reasonably expected to be present without the § 316(a) discharges should be required. If, on the other hand, the water body is man-made, consideration should be given to the reasons which led to its creation. Many existing man-made lakes and ponds would never have been created but for their use as cooling technology. Others will not be built in the future if use for cooling technology is to be barred through EPA's combined implementation of §§ 306 and 316(a). In some cases warm water species that are beneficial may have been

deliberately introduced or may have entered or now be in abundance as a result of the man-made conditions (both impoundment plus heat). It would be grossly unreasonable to require the banishment or reduction of these beneficial species under a rigid no-variation rule.

The recommendations above are no more than an amplification of the logic contained in the preamble to the proposed § 316(a) regulations,⁵⁸ and given express recognition in proposed § 122.1(h). Under that section, a "balanced, indigenous population" may include "historically non-native species introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modifications." Adoption of these recommendations would remove the confusion now likely to result from use of the phrase "pollution-tolerant" species in that section.

In sum, "balanced, indigenous population" should be defined as that population which can be expected to exist in the water

⁵⁸The preamble explains,

The description in the regulations recognizes that an indigenous population may contain species not historically native to the area which have resulted from major irreversible modifications to the water body (such as hydroelectric dams) or to the contiguous land area (such as deforestation attributable to urban or agricultural development) or from deliberate introduction in connection with a program of wildlife management. To qualify for an exemption under section 316(a) it is therefore not necessary to show that the discharge is compatible with a population which may have existed in a pristine environment but which has not persisted.

39 Fed. Reg. 11435 (1974).

body as a whole during the term of the permit containing the § 316(a) limitations.⁵⁹ Section 316(a) alternative effluent limitations should be denied only where continuation of the discharge during that period would preclude the maintenance or existence of a viable, beneficial aquatic community. Thus construed and implemented, the § 316(a) "projection and propagation" test would become a periodically self-adjusting standard, complementing the statutory goal of increasingly stringent water quality standards and non-thermal effluent limitations. Such a policy would also ensure that unnecessary or premature expenditures were not made for the control of thermal discharges.

B. Recognition of Compliance with Thermal Water Quality Standards

In addition to clarifying the substantive standards in the proposed regulations so as to make them workable, it would greatly expedite initial § 316(a) determinations to include an additional substantive test providing that compliance with approved water quality standards gives rise to a presumption that the requirements of § 316(a) are satisfied. In the case of many plants

⁵⁹A related question is the degree to which future heat loads should be projected in allocating the assimilative capacity of the water body. Information generated pursuant to § 303(d) will provide useful guidance on the assimilative capacity of the receiving waters and existing heat loads. We believe that allocation of the assimilative capacity among present and future thermal discharges should be done on a "first-come, first-served" basis. Thermal control technologies can be designed and built into new plants more cheaply than they can be backfitted to existing plants. Further, new plants have siting alternatives not available to existing plants. Thus, we believe that § 316(a) determinations should not be predicated on projections of future thermal loads.

there have already been determinations by competent government agencies that the existing or proposed thermal discharge is in compliance with EPA approved water quality standards. Where these prior determinations exist, they can and should be given effect for § 316(a) purposes.

The language of the statute and its legislative history indicate that § 316(a)'s "protection and propagation" standard can be satisfied by showing that the thermal discharge meets, or will meet, applicable water quality standards in effect at the time of the § 316(a) determination. Section 303(g) directs that "[w]ater quality standards relating to heat shall be consistent with the requirements of section 316 of this Act."⁶⁰ Therefore, water quality standards relating to heat must "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the [thermal] discharge is to be made"⁶¹

Further, the Administrator is under a continuing duty to revise or establish new water quality standards promptly whenever he "determines that a revised or new standard is necessary to meet the requirements of this Chapter,"⁶² including those of

⁶⁰33 U.S.C. § 1313(g) (Supp. II, 1972).

⁶¹Id. § 1326(a). The requirement in § 303(g) for consistency with § 316(a) means that water quality standards cannot be more stringent than necessary to assure the protection and propagation of a balanced, indigenous population. Failure to provide relief from excessively stringent thermal water quality standards is not consistent with the intent of § 316(a) to provide such relief.

⁶²Id. § 1313(c)(4)(B).

§ 316(a). Accordingly, compliance with those standards approved or promulgated by EPA⁶³ is demonstrative of "protection and propagation of a balanced, indigenous population."

Such a construction of § 316(a) is consistent with the statement of legislative intent in the House. Mr. Jones, chairman of the House managers of the conference, summarized § 316(a) for his colleagues:

[Section 316(a)] provides that the EPA Administrator may waive the requirements of Sections 301 and 306 of the Act . . . if the owner or operator . . . demonstrates . . . that the given thermal discharge could be at a higher level . . . and still be in accordance with water quality standards or otherwise assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made. 64

This statement by Mr. Jones, a principal figure in the conference which drafted § 316(a), establishes his clear understanding that compliance with water quality standards satisfies the "protect and propagate" test under § 316(a).

Establishment of initial § 316(a) effluent limitations on the basis of compliance with existing water quality standards will not interfere with achieving revised water quality standards⁶⁵

⁶³Id. § 1313(a), (b).

⁶⁴118 Cong. Rec. 9120 (daily ed. Oct. 4, 1972), 1 Legis. Hist. 239 (emphasis added).

⁶⁵States must periodically review their standards and revise them as necessary. 33 U.S.C. § 1313(c) (Supp. II, 1972).

or attaining the general goals of the Act.⁶⁶ Revision of standards and subsequent enhancement of water quality by removal of pollutants other than heat will change the composition of the biological community which can be expected to live in that water, particularly where the water is presently heavily polluted. Thus, the "balanced, indigenous population" which § 316(a) seeks to protect may change.⁶⁷ If § 316(a) thermal limitations do not assure protection of the "balanced, indigenous population" as it is redefined in light of enhanced water quality, they should be modified in any subsequent permit.⁶⁸

⁶⁶ Section 101(a) declares, "The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The objective is to be achieved, consistent with the provisions of the Act, by the attainment of an ultimate goal of eliminating the discharge of pollutants by 1985 and an interim goal of achieving a quality of water wherever attainable, which provides for "fishability" and "swimmability" by July 1, 1983. However, neither the objective nor the goals are absolute imperatives. They are to be achieved only by controls which are "consistent with the provisions of [the] Act." Section 316(a) establishes the principle that limitations on thermal discharges under §§ 301 and 306 are to be no more stringent than necessary to assure protection and propagation of the aquatic population. 113 Cong. Rec. 9129-31, 9133 (daily ed. Oct. 4, 1972), 1 Legis. Hist. 263-64, 267-68, 273.

⁶⁷ See discussion at 32-43, supra.

⁶⁸ Modification of thermal effluent limitations for cause need not await the expiration of an existing permit. Any permit which is issued, whether by EPA or a state, must be such that it can be terminated or modified for cause, including a "change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge" 33 U.S.C. § 1342(a)(3), (b)(1)(C)(iii) (Supp. II, 1972). Marked change in water quality may be a sufficient "change in condition" to justify modification of § 316(a) thermal limitations which do not assure protection of the newly-defined population. The 10-year grace period provided in § 316(c) precludes the amendment of § 316(a) limitations only where (1) the point source was modified after October 18, 1972, (2) as modified it meets effluent limitations of § 301 or § 303 (if more stringent), and (3) those effluent limitations "will assure the protection and propagation of a balanced, indigenous population Id. § 1326(c).

EPA's recognition and adoption of this test would facilitate the granting of § 316(a) requests for perhaps one-fourth of the existing generating capacity in the country. In many of these cases, competent government agencies will have already made a prior determination of compliance with water quality standards in connection with a decision on a certification, permit, license or other authorization. Where there has been such a prior determination of compliance, EPA should give it effect unless the thermal criteria in the water quality standards have changed materially since the determination.⁶⁹ Doing so would streamline and simplify the § 316(a) administrative process by making full use of appropriate prior determinations in furtherance of the national policy to "prevent needless duplication and unnecessary delays" in administration of the Act.⁷⁰

Several types of prior determinations have an especially compelling claim to recognition. First, § 21(b) certifications

⁶⁹ The summary of questionnaire results in Attachment C suggest that only 7,000 MWe of existing capacity not in actual compliance with water quality standards have received state certification of compliance. Compare Questionnaire item 3 with item 4c. The recommended regulatory language for the water quality standards demonstration, Attachment B, 39 Fed. Reg. 11438, §§ 122.8(a)(2), 122.9(b) (1974), would permit the Regional Administrator to reexamine the prior determination if there were substantial evidence that it was erroneous.

⁷⁰ 33 U.S.C. § 1251(f) (Supp. II, 1972).

issued prior to the enactment of the 1972 Amendments necessarily involved a finding of "reasonable assurance" of compliance with applicable water quality standards which, for the most part, were designed to protect fish and aquatic life uses. Those certifications were continued "in full force and effect" by § 4(b) of Pub. L. No. 92-500 and have been recognized by EPA as equivalent to § 401 certifications.⁷¹ Their use to prove compliance with water quality standards is thus especially appropriate unless the standards have been changed materially since the certification.

Second, § 401 certifications issued in the interim between enactment and promulgation of effluent limitation guidelines and standards of performance for steam electric powerplants may recite a determination of compliance with the relevant water quality standards. Where these determinations have been made and compliance certified by responsible states, they should be respected by EPA.

Third, a state discharge permit, if any, will almost invariably have involved a finding of compliance with applicable state water quality standards for fish and aquatic life uses, or with an equivalent substantive test. Whether such a specific finding was made will depend upon the nature of the requirements

⁷¹Letter from John R. Quarles, Jr., EPA Assistant Administrator for Enforcement and General Counsel to H. Edward Dunkelberger, Jr., April 6, 1973.

under state law. If a prior determination was made with respect to the discharge permit, it should be sufficient for § 316(a).

Finally, the prior determinations with the strongest claim to EPA recognition are those of the Atomic Energy Commission (AEC) which are represented by construction permits or operating licenses. If those permits and licenses have been issued or continued in effect since the AEC-EPA Memorandum of Understanding⁷² and contemporaneous AEC Interim Policy Statement,⁷³ they reflect a finding by either a state (in a § 401 certification) or the AEC that the thermal discharge will be in compliance with existing water standards.⁷⁴ The Memorandum, especially in light of the policy against needless duplication of regulatory effort expressed in § 101(f) of the FWPCA, indicates that EPA should respect the AEC's actions in discharge of its NEPA-related⁷⁵ responsibilities, as modified by the FWPCA, during the interim until the FWPCA is fully implemented. AEC findings of compliance should therefore be given full effect.

Even without the Memorandum of Understanding, Commission actions pursuant to its NEPA obligations, as clarified by Calvert Cliffs,⁷⁶ and implemented by Appendix D to Part 50 of 10 C.F.R., merit recognition by EPA. The AEC licensing process

⁷²38 Fed. Reg. 2713 (1973).

⁷³38 Fed. Reg. 2679 (1973).

⁷⁴Id. ¶ 5.

⁷⁵National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq. (1970).

⁷⁶Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d 1109 (D.C. Cir. 1971).

entails thorough, careful review of water quality impacts of the proposed data.⁷⁷ The review is based on extensive information of the same type that is being required by EPA in connection with discharge permits. Failure to recognize and give effect to AEC decisions in a subsequent § 316(a) determination would be completely inconsistent with avoiding needless duplication in administration of the Act.⁷⁸

Thus, adoption and implementation of the water quality standards method of proof would be consistent with § 316(a) and congressional intent. It would not interfere with attaining the goals of the Act and would greatly simplify the administration of § 316(a) in the initial period.

⁷⁷See 10 C.F.R. 50, App. D, § A 4, 8.

⁷⁸See 33 U.S.C. § 1251(f) (Supp. II, 1972).

IV.

TIMING OF DETERMINATIONS FOR NEW SOURCES

Section 316(a) provides for the establishment of alternative standards of performance for new sources in lieu of those otherwise applicable under § 306.⁷⁹ Once established for a particular new source, these § 316(a) limitations become the applicable thermal standards of performance under § 306 to be imposed in an NPDES permit.⁸⁰ But, pursuant to § 401, before any federal license or permit, including an NPDES permit from EPA,⁸¹ may be issued, the state in which the discharge originates must certify that the discharge will be in compliance with all applicable standards of performance. Any certification must set forth limitations necessary to assure that the applicant will comply with all applicable requirements of the Act. These limitations then become conditions of the federal license or permit.⁸³ Thus, if § 316(a) is to

⁷⁹ 33 U.S.C. § 1326(a) (Supp. II, 1972). A "new source" is "any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance ... which will be applicable to such source, if such standard is thereafter promulgated" Id. § 1316(a)(2). "Construction" includes contractual obligations to purchase equipment and site preparation work. Id. § 1316(a)(5).

⁸⁰ Section 316(a) provides that "the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections [sections 301 and 306]" Id.

⁸¹ Id. § 1341. If the state is issuing discharge permits under an EPA-approved NPDES permit program, the § 401 certification prerequisite is inapplicable since it applies only to "federal license or permit."

⁸² Id. § 1341(d).

cover new sources as Congress intended, the procedures for implementing § 316(a) must allow for § 316(a) determinations prior to, or at the time of, state certification. Further, the certification must in turn precede the granting of any federal construction permit required. And, in order that site and design decisions can be made with a reasonable degree of confidence, § 316(a) determinations must be made before application for the construction permit.

The proposed regulations, however, do not make adequate provision for preconstruction, § 316(a) determinations for new sources.⁸³ The proposed suspension mechanism to allow making § 316(a) determinations prior to the § 401 certification is inadequate for new sources. For them, it solves only part of the problem. Several problems remain. First, there is no clear provision or mechanism for preconstruction determination of § 316(a) issues either in conjunction with or apart from § 402 proceedings.⁸⁴ Second, although EPA may deem a waiver of the

⁸³ Under the proposed regulations, requests for § 316(a) limitations must be made upon application for a § 402 discharge permit. 39 Fed. Reg. 11437, § 122.5 (1974). If the discharge permit application is to EPA, the applicant is to notify the state certifying agency and this notice constitutes a withdrawal of any pending certification request and suspends the running of the period of time within which the certifying agency must act. *Id.* 11437, § 122.7. EPA subsequently must notify the certifying agency of its decision on the § 316(a) request; this notice effects a resubmission of the certification request and a resumption of the time within which the certifying agency must act. *Id.* See note 85, infra.

⁸⁴ The need for preconstruction issuance of § 402 permits for new sources to effect § 306's policies of predictability and finality is discussed in the general context of regulation of new sources in section V.B. of Attachment I-A to Utility Water Act Group Comments on proposed §§ 304(b) and 306 effluent limitation guidelines and standards of performance for steam electric powerplants (June 26, 1974).

certification requirements to have occurred after 3 months for purposes of issuing § 402 permits, other federal licensing and permitting agencies may allow a full year to elapse.⁸⁵ In order to facilitate early § 316(a) determinations and to avoid unnecessary delays in the certifying-licensing-permitting process for new powerplants, the regulations should afford new-source applicants additional flexibility.

First, EPA's existing regulations in 40 C.F.R., Parts 124 and 125, should be amended to make clear that preconstruction § 402 discharge permits incorporating § 316(a) thermal limitations may be issued.⁸⁶

Second, the § 316(a) regulations should be revised before adoption to allow the Regional Administrator (or State Director) to set § 316(a) alternative thermal limitations promptly after receipt of a § 316(a) request, regardless of the status of the § 402 discharge permit proceedings. Since the Act does not require consolidation of the § 316(a) proceeding with consideration of other issues relevant to the § 402 permit,⁸⁷ it is

⁸⁵ If the certifying agency fails or refuses to act on a certification request "within a reasonable period of time (which shall not exceed one year)" the certification requirement is waived. 33 U.S.C. § 1341(a)(1) (Supp. II, 1972). Existing EPA regulations provide that three months will generally be considered a "reasonable period of time," although the Regional Administrator may vary this period where warranted by the circumstances. 40 C.F.R. § 125.15(a) (1973).

⁸⁶ For a more detailed explanation of the effect of these permits see section V.C. of Attachment I-A to Utility Water Act Group Comments, note 84, supra.

⁸⁷ Section 316(a), independently of § 402, directs EPA (or the state) to provide an opportunity for a hearing on any § 316(a) request. There is no suggestion in the Act that this hearing must be consolidated with that required under § 402. Though administrative convenience and expedition will normally favor consolidation, the regulations should not foreclose early § 316(a) determination where appropriate to avoid delay.

unnecessary to delay the § 316(a) determination because other permit issues are undecided. Following notice and opportunity for a hearing on the § 316(a) request, the permit grantor should either establish an alternative thermal limitation or deny the request.⁸⁸ Once established, the § 316(a) thermal limitation would not be subject to challenge at any later hearing on the § 402 permit. As the thermal limitations applicable to the facility under § 306, the § 316(a) limitation would then be included in the § 402 discharge permit.

Third, the regulation should allow the certifying agency to certify that there are no applicable thermal provisions where a § 316(a) request has been filed for a new source and the NPDES administrator has determined that additional information is required to substantiate the request. If needed, information will take substantial time to develop. The applicant should be able to receive a certification so that issuance of a federal construction license need not be delayed indefinitely pending resolution of the § 316(a) issues.⁸⁹ Section 401(a)(1)

⁸⁸The decision would be reviewable in the United States Court of Appeals as an administrative action under § 301 of the Act. 33 U.S.C. § 1369(b).

⁸⁹Where a shorter time would be sufficient to collect needed information, § 316(a) limitations should be established and imposed under the terms and conditions which we recommend in Part II.A. of these Comments. These limitations and requirements would then provide the basis for a § 401 certification.

provides an appropriate resolution:

In the case of any such activity [which may result in any discharge into the navigable waters] for which there is not an applicable . . . standard [of performance] under [section] 306 . . ., the State shall so certify

Once a § 316(a) request is filed, there are no applicable thermal standards under § 306 until the determination is made. Final action on the request determines the applicable standard.

Adoption of this recommendation would eliminate unnecessary delay while in no way frustrating the purposes of the Act. The certifying agency will have a further opportunity under §§ 401(a) (3) and (4) to reexamine the facility's compliance with applicable thermal standards after they are established. Further, the § 402 permit required for any discharge must assure compliance with all applicable standards and limitations.

APPENDIX

SUMMARY OF PROPOSED REGULATIONS TO
IMPLEMENT SECTION 316(a)

The proposed regulations tie the administration of § 316(a) to the permit program under the National Pollutant Discharge Elimination System (NPDES).¹ Thus, an applicant must give notice of its desire for § 316(a) alternative limitations at the time of filing a discharge permit application.² Following this notice, the applicant has 60 days within which to submit available data and information in support of its § 316(a) request.³ In practice this 60-day period will also be a time of negotiations between the applicant and the permitting agency to determine the type and quantity of information to be submitted.

Public notice of the permit application is the next significant step in the process. By this time the agency must have reached a tentative decision on whether § 316(a) limitations should be permitted in lieu of those specified in § 304 or § 306 regulations. If § 316(a) limitations are proposed in the notice,

¹The NPDES is established by § 402 of the Act. 33 U.S.C. § 1342 (Supp. II, 1972). EPA will operate the NPDES permit program except where a state requests permit authority and EPA approves its proposed permit program.

²39 Fed. Reg. 11437, § 122.5(1974). In cases in which discharge permit applications were filed prior to publication of the proposed § 316(a) regulations, notice must be given within 60 days of the notice of promulgation of § 316(a) regulations or promulgation of § 304(b) guidelines. Applicants must at the same time notify the state agency responsible for certifying compliance under § 401. Id. This notice suspends any § 401 proceedings and tolls the period of time within which the certifying agency must act on a certification request. Id. at § 122.7.

³Id. § 122.5(b). The applicant may submit additional information and data "as soon as practicable" after the initial 60-day period.

it must include a description of them.⁴ Under the proposed regulations the agency may include § 316(a) limitations in the proposed permit only on the basis of information submitted by the applicant which demonstrates that either ⁵ (1) no appreciable harm has resulted from past discharge, ⁶ or (2) protection of representative important species is assured. ⁷ The "no appreciable harm" demonstration would be available only for pre-existing

⁴Id. at § 122.6(a)(1) and (2).

⁵Section 122.8(b) of the proposed regulations authorizes an applicant to produce other relevant data to satisfy the statutory requirements. But § 122.8, as presently proposed, would preclude the NPDES administrator from proposing § 316(a) limitations in the public notice even if he is satisfied that the applicant's evidence, outside the two specific tests of the regulations, meets the statutory test. A hearing would be mandatory in all such cases.

⁶Id. 11437-38, § 122.8(a)(1). In determining whether appreciable harm has occurred, the permitting agency is to consider evidence of compliance with water quality standards designed to protect fish and aquatic life. Id.

⁷Id. 11438, § 122.8(a)(2)(i). These representative species must reflect the "biological needs" of a balanced, indigenous population in the receiving water body. Id. § 122.9(b)(1)(i). In determining whether or not protection of the selected species will be assured, the permitting agency must consider evidence of compliance with temperature criteria established for growth, reproduction and survival of those species. Id. § 122.8(a)(2)(i).

discharges.⁸

The type of the thermal effluent limitations proposed by the NPDES administrator in the public notice would determine the type of administrative proceedings that follow. If § 316(a) limitations were proposed in the notice any person might file written comments with the agency and/or request a hearing to consider them.⁹ Whether a hearing will be held and the type of hearing, whether "legislative" or "adjudicatory," would be left to the Administrator's discretion. If § 316(a) limitations were not proposed in the notice, the applicant would have 30 days in

⁸ Id. 11437 § 122.8(a)(1). The Manual implies that this demonstration is available only to discharges which have existed at least five years on waters which are not despoiled. Environmental Protection Agency, supra note 3 at 7, 18-19.

⁹ Id. § 122.6(b)(2). These procedures are established in 40 C.F.R. §§ 125.32 and 125.34 (1974). The proposed provisions for hearings are rather complex. Any person may request an adjudicatory hearing pursuant to 40 C.F.R. § 125.34(c) within 30 days after the public notice of the permit application, or if a nonadjudicatory hearing is held, within 20 days after that hearing. Id. 11438, § 122.10(a)(2). The hearing request may raise any issues concerning the permit application and must include the issue of thermal effluent limitations in the statement of issues proposed to be considered at the hearing. Id. § 122.10(a)(3).

If a hearing is granted, all contested issues relating to the proposed permit must be considered and resolved in a single hearing unless, for some reason, consolidation and simultaneous resolution is inappropriate. Id. 11438-39, § 122.10(a)(4). The § 316(a) issues may be severed from the other issues and their consideration deferred to a subsequent hearing if the permitting agency finds that information sufficient for a knowledgeable determination is not available. Id. 11439, § 122.10(b)(1). In such a case, the § 316(a) hearing is to be deferred until the owner or operator has completed engineering and biological studies considered necessary by the permitting agency. Id.

which to request an adjudicatory hearing at which it might demonstrate that the proposed § 301 or § 306 thermal limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population.¹⁰ At such a hearing, the applicant would, at its election, submit evidence directed towards showing (1) "no appreciable harm" or (2) protection of "representative important species" or (3) any other new or historical biological data, physical monitoring data, engineering models, or other relevant evidence.¹¹

The proposed regulations authorize § 316(a) limitations to be included in the final permit if (1) they were included in the proposed permit based on either a "no appreciable harm" or a "representative important species" demonstration and (2) if no adverse information is received during the public comment or hearings, or if received is insubstantial or rebutted.¹² Further, § 316(a) limitations could be included in the final permit even if not proposed in the public notice, if the applicant's

¹⁰ Id. § 122.6(b)(1); see also note 9 supra.

¹¹ Id. 11438, § 122.8(b).

¹² Id. §§ 122.9(a), (b). Section 316(a) limitations included in the public notice of the permit based on a "no appreciable harm" demonstration may be included in the final permit unless (1) information received indicates that the thermal discharge has caused appreciable harm or disturbed the balanced, indigenous population, and (2) the applicant does not establish that despite this "harm" or "disturbance" the § 316(a) limitations will assure protection and propagation. Id. § 122.9(a)(1), (2). If § 316(a) limitations included in the notice of permit application are based on a "representative important species" demonstration, they may be imposed in the permit unless un rebutted information indicates inappropriateness of the species selected, inadequacy of the temperature criteria employed or excessive size of the allowed mixing zone. Id. § 122.9(b)(1)(2).

evidence ultimately establishes that they are stringent enough to assure protection of the balanced, indigenous population and that thermal limitations otherwise applicable under §§ 301 or 306 are more stringent than necessary to assure such protection.¹³

The proposed regulations recognize that sufficient § 316(a) information may not be available prior to resolution of other issues relating to the permit. If information sufficient for a § 316(a) determination is not available, the § 316(a) issues may be severed from the other issues and their consideration deferred until completion of necessary engineering and biological studies.¹⁴ In that event, the permitting agency would issue a discharge permit which requires the achievement of non-§ 316(a) limitations no later than the date specified for the relevant category of plant in guidelines issued pursuant to §§ 304(b) or 306 of the Act.¹⁵ This permit would also afford the applicant an opportunity to request

¹³Id. 11439, § 122.10(a)(6), (7).

¹⁴Id. § 122.10(b)(1).

¹⁵Id. In addition, the permit must contain a schedule of compliance, which includes a construction schedule for installation of off-stream cooling facilities. 40 C.F.R. § 125.23(a),(b) (1973).

a subsequent hearing after completion of the biological and engineering studies.¹⁶ But, under the proposed regulations, any such hearing would have to be held sufficiently in advance of the §§ 304(b) or 306 compliance date so that the applicant could reasonably be expected to achieve the non-§ 316(a) limitations by that date if it were unsuccessful in the § 316(a) hearing.¹⁷

¹⁶Id.

¹⁷Id. § 122.10(b)(3).

A. Annotated Mark-Up of Proposed Section 316(a)
Regulations

ATTACHMENT A

ANNOTATED
MARK-UP OF PROPOSED
SECTION 316(a) REGULATIONS

This attachment includes, first, an explanation of the demonstration types proposed in our recommended § 316(a) regulations and, second, a mark-up of EPA's proposed regulations with accompanying explanatory comment.

I. Explanation of UWAG's Proposed
§ 316(a) Demonstration Types

UWAG's suggested revision of EPA's proposed 40 C.F.R. Part 122 contains six alternative ways to demonstrate that a less stringent thermal effluent limitation will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made. The following explanation, analogous to a preamble or statement of consideration, is intended for publication with the regulations at the time they are promulgated. Its purpose is to provide guidance for administering § 316(a) and implementing each of the six demonstration types.

GUIDANCE FOR IMPLEMENTING THE REQUIREMENTS
OF 40 C.F.R. § 122.8(a)(1) THROUGH (6)

The following explanation is to be used as guidance in administering the requirements of 40 C.F.R. § 122.8(a)(1) through (6).

§ 122.8(a)(1) Demonstration of Lack of Appreciable Harm

This means of making a § 316(a) demonstration is available to any existing source which has been in operation for a sufficient period to gather reliable data on the effects of the discharge.

After determining that a source has been operating for a sufficient period to permit gathering reliable data, the second step is to determine whether or not the population of shellfish, fish and wildlife in and on the water body into which the discharge is made has been altered in any material sense as a result of point source discharges. If it is found that discharges of chemical and sanitary wastes have so polluted the quality of the water that the effects of the thermal discharge cannot be determined, Part 122.8(a)(1) may not be utilized. Assuming that the waters have not been despoiled by such wastes but that the population has been altered to the extent that fish and other biota normally associated with warmer water are dominant, it will then be necessary to demonstrate that the resulting population is socially valuable. This may be accomplished by pre-

senting evidence that the existing population mix (a) accords with a recognized program of wildlife management, or (b) is commercially or recreationally valuable, or (c) is consistent with the purposes for which the water body was created or developed or (d) is consistent with irreversible environmental modifications which have already occurred. In the event it is determined that the population is socially valuable it may then be shown that as to that population no appreciable harm has occurred. If it is found that the population is not socially valuable, Part 122.8(a)(1) may not be utilized.

In order to facilitate the use of the lack of appreciable harm test it is intended that Regional Administrators and State Directors will enter into stipulations with applicants relative to the threshold issues discussed above. Such stipulations, are, of course, subject to challenge by third parties in any hearing held in conjunction with a determination under § 316(a).

Assuming that the source for which a permit is sought is eligible to proceed under this section, the next step is to determine whether it is necessary to show that no appreciable harm has occurred to all important species in and on the body of water or whether it is sufficient simply to show that no appreciable harm has occurred to important representative species. In order to reduce the administrative burden, representative species will be selected wherever feasible and evidence of

lack of harm restricted to those species. As in the case of other threshold decisions, it is expected that the Regional Administrator or State Director will enter into binding stipulations regarding representative species.

The final step under the lack of harm approach is to demonstrate that no appreciable harm has occurred to the species to be protected. This may be accomplished through presenting any relevant, reliable, probative evidence available to the applicant. Among other things:

1. The applicant may present pre- and post-operational data collected from the body of water into which the discharge is made showing that the population of species important to his case have not changed in any material sense.

2. The applicant may present data showing that the species important to his case are present in the body of water in the same numbers as would be expected under natural conditions.

3. The applicant may present evidence on the thermal tolerances of the species important to his case and their relationship to the temperatures in question.

4. The applicant may present evidence relative to the effects of the temperatures in question on the reproduction, growth, feeding and metabolism of the species important to his case.

5. The applicant may present evidence on the effects of similar discharges, on similar bodies of water, with similar biota, on the species important to his case.

6. The applicant may present data which shows that the area affected by the thermal discharge is too small to have had any appreciable impact on the water body or that the thermally affected area could not, under natural conditions, constitute a biologically significant area.

§ 122.8(a)(2) Demonstration of Compliance With Approved State Water Quality Standards.

This means of making a § 316(a) demonstration is available for both new and existing sources. Since state water quality standards approved subsequent to passage of the FWPCA Amendments of 1972 and designed for fish and aquatic life uses are consistent with § 316(a), the relevant consideration under this section is whether compliance with water quality standards is assured. Where the specific methods for demonstrating compliance with approved water quality standards set out in § 122.8(a)(2) are inappropriate (or otherwise unavailable), the Regional Administrator or State Director must make the initial determination of compliance. Where compliance with approved water quality standards for fish and aquatic life uses is dependent upon certain modes of operation or where the determination is based upon a prediction of ability to comply with such standards, appropriate conditions may be inserted in the permit.

In demonstrating compliance with approved water quality standards for fish and aquatic life the applicant may present

any relevant, reliable, probative evidence available to him.

Among other things:

1. The applicant may, for existing plants (a) present scale drawings showing typical surface isotherms at specific temperature increases (such as, 3°C, 5°C, etc.); (b) specify the definition of ambient temperature used in the study which, when subtracted from the absolute measured temperatures, yields the above temperature increases; (c) discuss the implications of seasonal variations and extreme hydrological conditions; and (d) present scale drawings showing the above isotherms in the vertical water column along two transects of the plume.

2. The applicant may, for new plants, present scale drawings showing the predicted surface and subsurface isotherms obtained using physical or mathematical models, showing only the incremental plant-induced temperature increases.

3. The applicant may present a program for plant operation which, with proposed modifications or installed equipment, will assure compliance with approved water quality standards.

§ 122.8(a)(3) Demonstration of Protection of a Balanced, Indigenous Population Through Predictive Techniques.

This means of making a § 316(a) demonstration is designed for use in situations in which it is necessary to predict the

impact of (1) future discharges on existing populations or (2) future or existing discharges on future populations. It may be used for (1) new sources, (2) existing sources which have not been operating long enough to qualify under the lack of appreciable harm test,* and (3) existing sources for which the lack of harm test is not available because the water body has been polluted by discharges of chemical and sanitary wastes.

For new plants, there are at least two threshold issues. The first is whether the population in and on the water body has been materially altered as a result of discharges of chemical and sanitary wastes. The second is whether it has been altered by existing thermal discharges (or will be altered by the new discharge) so that fish and other biota normally associated with warmer water are, or will become, dominant.

For these new sources discharging into waters whose populations have not been altered by chemical and sanitary wastes, the existing population is the population whose protection must be satisfactorily predicted unless it is determined that existing discharges or the proposed discharge have changed or will change the predominant aquatic biota to that normally associated with warmer water.

*For all practical purposes such sources will be treated as new sources, although some data collected after operations have begun may be submitted to verify predictive data.

If the new or existing source is on a water body whose population has been materially altered as a result of discharges of chemical and sanitary wastes, the next step is to predict the population of shellfish, fish and wildlife which could reasonably be expected to exist during the term of the permit in question if all point sources discharging chemical and sanitary wastes into that body of water complied with the applicable requirements of § 301(b) of the Act. This will then become the population whose protection must be satisfactorily predicted, except as described below.

In those instances in which it is found that a proposed or existing discharge has or will alter the population which would otherwise be present, to the extent that biota normally associated with warmer water will dominate, it will be necessary to demonstrate that the resulting population is socially valuable. This may be accomplished by presenting evidence that the resulting population (a) accords with a recognized program of wildlife management, (b) is commercially or recreationally valuable, (c) is consistent with the purpose for which the water body was created or developed, or (d) is consistent with irreversible environmental modifications which have already occurred. In the event it is determined that the population is socially valuable, it shall be the population whose protection must be satisfactorily

predicted. If it is found that the population is not socially valuable, the population whose protection must be satisfactorily predicted is that which would exist but for the discharge responsible for establishment of warm water biota.

After identifying the population to be protected under these various sets of circumstances, the next step is to determine whether it is necessary to satisfactorily predict that all important species will be protected or whether it is sufficient to show only that important representative species will be protected. In order to reduce the administrative burden, representative species will be selected wherever feasible and evidence restricted to predicting that those species will be protected.

It is expected that Regional Administrators and State Directors will, wherever possible, enter into stipulations relative to the preliminary determinations associated with identifying the specific species whose protection must be successfully predicted. Such stipulations are, of course, subject to challenge by third parties in any hearing held in conjunction with a determination under § 316(a).

The final step under the predictive approach is to demonstrate by predictive means that the species selected as important to such a demonstration will be protected. This may be accomplished

through presenting any relevant, reliable, probative evidence available to the applicant. Among other things:

1. The applicant may present the results of predictive modeling of the effects of the thermal discharge on the species important to his case. This may include results of engineering, hydrologic, or mathematical modeling studies and evidence of the effects of the predicted temperatures in question on the reproduction, growth, feeding, and metabolism of the species important to his case.

2. The applicant may present evidence on the thermal tolerances of the species important to his case and their relationship to the temperatures in question.

3. The applicant may present evidence of the effects of similar discharges, on similar bodies of water, with similar biota, on the species important to his case.

4. The applicant may present data which shows that the area to be affected by the thermal discharge is too small to have any appreciable impact on the water body, or that the thermally affected area would not, under natural conditions, constitute a biologically significant area.

§ 122.8(a)(4) Demonstration of Low Potential Thermal Impact

It is recognized that certain plants are located on such large water bodies or on water bodies with flows so large

that the thermal discharge cannot possibly impact the aquatic population in any material way. Accordingly, it would be wasteful of finite human and other resources, including those of Regional Administrators and State Directors, to engage in detailed studies or to require protracted hearings to prove the obvious. Thus the low potential thermal impact approach is intended for use by new and existing plants on those water bodies where, for all practical purposes, it is possible to make generic 316(a) determinations. The primary focus of the low impact discharge approach is on the water body and its dissipative capacity. Because of this it would be appropriate for Regional Administrators and State Directors to specify certain waters within their jurisdiction into which, under normal circumstance, discharges of heat will not impact the indigenous population. The discharger and Administrator (or State Director) would then have to look only at the specific thermal data (either historical or predictive) and the specific discharge area to verify that there is nothing about the discharge which tends to negate the presumption that harm has not and will not be caused by the discharge.

It would, of course, be appropriate to require a reasonable degree of monitoring during the term of the permit to verify the conclusion that the discharge has no material impact.

The threshold¹ issue under this approach is a determination that the area, configuration, volume, flow, temperatures and general physical conditions cannot impact a large enough area relative to the water body as a whole to have a measurable effect. The applicant would then submit site-specific data which would indicate that there is nothing to the presumption that there is or will be no appreciable impact on the aquatic population. Among other things:

1. The applicant may present evidence indicating that the size of the thermal plume is very small as compared to the water body.

¹It is expected that the Regional Administrator or State Director would enter into stipulations as to which waters in his jurisdiction meet the low potential impact criteria. The classification of basin segments pursuant to 40 C.F.R. 130.11, 39 Fed. Reg. 19636 (1974) and calculation of thermal loads pursuant to 40 C.F.R. 131.304, 39 Fed. Reg. 19641 (1974), should assist in identification of low-potential impact waters. The stipulation would, of course, be subject to challenge by third parties in any hearing held to consider the discharge.

2. The applicant may present evidence showing that adequate zones of passage are available for migratory species.

3. The applicant may present evidence which shows that no biologically unique or important shoreline or other areas are impacted by the thermal discharge.

4. The applicant may present evidence of detailed studies on similar low potential impact water bodies which confirm the fact that discharges to such waters do not adversely impact aquatic biota.

§ 122.8(a)(5) Demonstration of Lack of Irreparable Harm

This means of making a § 316(a) demonstration may only be used in conjunction with initial NPDES permits. It may be utilized for both new and existing plants. All permits issued pursuant to this section will be for terms not to exceed the number of months reasonably necessary to gather field data or conduct studies required to make a fair § 316(a) determination pursuant to one of the other methods described herein. Generally, such permits will be for terms of one to three years.

It must be assumed that Congress both meant for § 316(a) to work and that was aware of the fact that extensive data would not be immediately available. Accordingly, it must have been their intent for initial determinations under § 316(a) to be based on extant data. This is the key to understanding the lack of irreparable harm approach. It is designed to permit establishing alternative limitations on the basis of data which is readily available or can be obtained quickly. This will

permit a plant to continue operation without ultimate risk to the indigenous population while more extensive data is gathered for a 5-year permit.

The cornerstone of the lack of irreparable harm approach is a finding that during the initial permit the aquatic population will sustain any marked change which would affect its recovery if off-stream cooling were later required. If a source has been discharging for 5 or 10 years, for example, it is unlikely that any effects over the term of a 2- to 3-year permit would further impact the aquatic population beyond the term of the permit. For new sources, the finding would center on determining whether discharge for the term of the permit would significantly impact the indigenous population beyond the term of the permit. On waters already polluted by discharges of chemical and sanitary wastes it is unlikely that thermal discharges will result in any material change that would slow the ultimate recovery of the aquatic population.

The second major basis of the irreparable harm test is a demonstration that prior to expiration of the permit the applicant will have necessary the data for a valid determination pursuant to one of the other approaches to § 316(a) demonstrations. Further, the applicant must show some reasonable likelihood that the requisite demonstration can success-

fully be made by the end of the initial permit term.

It is expected that Regional Administrators and Directors will grant permits under this section in most cases where requested to do so.

Applicants may submit any relevant, probative, reliable evidence available to them to establish both that no irreparable harm will occur during the term of the permit and that there is reasonable probability of making a second successful demonstration prior to the termination of the initial permit. Among other things:

(1) The applicant may present evidence showing that no [further] measurable biological changes are likely to occur over the term of the permit.

(2) The applicant may show that the likelihood of any measurable change occurring is minimal and that any change which could be associated with a new discharge would not be irreversible.

(3) The applicant may present evidence on the effects of similar discharges on similar bodies of water to show that there is little likelihood of appreciable harm occurring over the life of the permit.

(4) The applicant may present any evidence in support of a § 316(a) demonstration pursuant to any of the other methods discussed herein in order to support a finding that there is reasonable probability of making a sub-

sequent § 316(a) determination prior to the termination of the permit.

(5) The applicant may present a plan and schedule for gathering biological and other data to show that necessary data for a renewal permit will be available in a timely manner.

§ 122.8(a)(6) Demonstration by Any Other Means of Protection of a Balanced, Indigenous Population

It is not intended that the methods for demonstrating that a less stringent thermal effluent standard will assure the protection and propagation of a balanced, indigenous population be confined to the five district approaches described in section 122.8(a)(1)-(5). A § 316(a) demonstration may be made by any other relevant, reliable, probative and substantial evidence, adduced by the applicant.

II. Annotated
Mark-Up of Proposed
Section 316(a) Regulations

This mark-up indicates recommended changes in the proposed § 316(a) regulations; accompanying comments explain their rationale. Where the rationale for a particular change is stated in the Utility Water Act Group Comments, the reader is referred to the relevant portion of the Comments. No rationale is offered for self-explanatory changes (e.g., definition of "certifying agency" in § 122.1 and conforming changes in § 122.7).

The form adopted for indicating changes is that prescribed by subsection (4) of Rule XXXIX of the Standing Rules of the Senate. Recommended deletions are enclosed in brackets (e.g., [State or interstate]). Recommended insertions are underscored (e.g., establishment).

PART 122 - THERMAL DISCHARGES

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SUBPART A - GENERAL

§ 122.1 Definitions

Except as otherwise specifically provided:

(a) The term "Act" means the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251, et seq.

(b) The term "Administrator" means the Administrator of the U.S. Environmental Protection Agency.

(c) The term "alternative effluent limitations" means effluent limitations or standards of performance for the control of the thermal component of any discharge which are [imposed] established pursuant to section 316(a) of the Act and these regulations and imposed under section 301 or 306 in lieu of effluent limitations or standards of performance otherwise applicable under section[s] 301 or 306 of the Act.

Comment

Section 316(a) authorizes the Administrator to "impose an [alternative] effluent limitation under such sections . . . that will assure the protection and propagation" The phrase "under such sections" is clearly a reference to "section 301 or section 306 of this Act. . . ." Thus, effluent limitations established pursuant § 316(a) must be imposed under § 301 or § 306 in lieu of effluent limitations or standards applicable under such sections. The statute contemplates, and the final regulations should provide, that § 316(a) thermal limitations, once established, become the applicable requirements under § 301 or § 306 and supplant any other more stringent requirements under those sections for the control of thermal discharges.

(d) The term "Director" means the chief administrative officer of a State water pollution control agency or interstate agency. In the event responsibility for water pollution control and enforcement is divided among two or more State or interstate agencies, the term "Director" means the administrative officer authorized to perform the particular procedure to which reference is made.

(e) The term "Environmental Protection Agency" means the U. S. Environmental Protection Agency.

(f) The term "Regional Administrator" means one of the Regional Administrators of the Environmental Protection Agency.

(g) The term "certifying agency" means a State or interstate agency empowered to issue certifications under section 401 of the Act.

[(g)](h) The term "Representative, important species" means one or more important species [which] whose thermal responses are generally representative[, in terms of biological needs, of a] of the thermal responses of other important species comprising the balanced, indigenous population of shellfish, fish and wildlife in the body of water into which discharge of heat is made. Important species include those which are (1) of recreational or commercial significance, (2) necessary food chain elements for such significant species, or (3) rare and endangered species.

Comment

1. Biological Needs

Nonrepresentative "biological needs" may be irrelevant to the issue under § 316(a), which concerns the effect of thermal discharges. The question should be whether the thermal responses of the selected species are fairly representative of those of other important species comprising the balanced, indigenous population in the body of water into which the discharge is made. The regulations should be clarified to achieve this result.

2. Important Species

The proposed regulations offered no criteria to determine whether representative species were also important species. The criteria we recommend are drawn from the explication in the Draft Manual. Two of the Manual's criteria, however, should be rejected. First, "[o]ther characteristics causing the species to be important as a reflection of the existence of a balanced, indigenous population" are encompassed in the determination of whether the species are representative.

Second, identification of the "most temperature-sensitive species in the local area" would in most cases be a time-consuming and fruitless exercise; in others it would be impossible. What is the "most temperature-sensitive" species under one set of conditions will prove more tolerant than others under different conditions. Which species proves to be the "most temperature-sensitive" in a laboratory study will depend on the other physical and chemical characteristics of the water which is used. Even if those other characteristics approximate those observed at the site, ambient water characteristics and conditions do not remain constant. Finally, even if one were successful in identifying this species, it may warrant no special consideration. The fact of its temperature sensitivity may indicate that the species is observed at or beyond its extreme southern range. Under such circumstances the species should be considered neither representative nor important.

[(h)](i) The term "balanced, indigenous population" refers, except in the case of man-made impoundments, to [a] the population which can reasonably be expected to exist in the pertinent water body upon attainment of existing water quality standards; or, if water quality standards will not be attained during the term of the permit in question, to the aquatic community which can reasonably be expected to exist in the water body during such term [typically characterized by diversity at all trophic levels, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and non-domination of pollution-tolerant species]. The term "balanced, indigenous population" refers, in the case of man-made impoundments, to the population which can reasonably be expected to exist in the pertinent water body upon attainment of existing water quality standards other than heat.

[Such a] The population may include historically non-native species successfully introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modification. Similarly, the absence of historically native species does not necessarily mean that the remaining population is not a "balanced, indigenous population." Normally, however, such a population will not [include] be dominated by species which are not valuable or desirable for recreational or commercial purposes and whose [presence or abundance] dominance [is attributable to the introduction] has resulted from discharges of pollutants or, in the case of a man-made impoundment, of pollutants other than heat.

Comment

1. Balanced Indigenous Population

The rationale for the definition is stated in detail at pages 32 to 43 of the Utility Water Act Group Comments on the proposed § 316(a) regulations. Simply stated, we believe that the phrase was intended to have, and should be given, a practical interpretation which will serve as a guide in real-world decisions. Section 316 requests should be denied only where continuation of the thermal discharge during the term of the discharge permit would preclude the existence of a viable, beneficial aquatic population during that period.

Existing water quality standards, we believe, provide a realistic and yet conservatively protective measure of the aquatic population which can be anticipated during a permit term of five years or less. Section 316(a) applicants for discharges into natural water bodies designated for fish and aquatic life uses should normally be required to demonstrate reasonable maintenance of a normal complement of beneficial aquatic biota indigenous to the region. However, variation in species composition which may have been occasioned by the addition of artificial heat does not disqualify the resulting population from being the object of § 316(a)'s "protection and propagation" test. If the resulting aquatic population is beneficial for recreational or commercial uses, it is the relevant population under § 316(a).

2. Man-made Water Bodies

The distinction between natural and man-made water bodies is based on the recognition that the latter are themselves "substantial, irreversible environmental modifications." Further, we believe that socially acceptable reasons which led initially to the physical alterations should be considered in determining

the population to be protected under § 316(a). Many man-made lakes and ponds were created for their use and value in generating electricity. Neither the lake nor its resident aquatic population would exist but for that use. Many of these impoundments afford significant recreational opportunities as an incident to their use for cooling water sources. In such cases, we believe that the nature of the aquatic population which may have inhabited the new impounded stream provides no useful guide in determining the population to be protected. Rather, the inquiry should be toward that aquatic population whose "presence or abundance" has resulted from the man-made modification. If that population is beneficial, assuring its viability should be sufficient for purposes of § 316(a).

~~[(i)]~~(j) The term "water quality standards" means applicable water quality standards which have been (1) approved or permitted to remain in effect by the Administrator pursuant to sections 303(a) or 303(c) of the Act, or (2) promulgated or proposed for promulgation by the Administrator pursuant to sections 303(b) or 303(c) of the Act, as of the date any notice is issued pursuant to section 122.6(a) or 122.12(a) of this part.

(k) The term "thermal mixing zone" means that area or volume of direct thermal influence which is so delimited that (1) its area or volume is not so large in relation to the area or volume (cross-sectional or flow) of the pertinent receiving water body segment that it is inconsistent with the existence of a viable, beneficial aquatic population in and on the receiving water body segment, and (2) its location and configuration do not significantly impact biologically sensitive zones to a degree which is damaging to the ecosystem of the receiving water body segment or constitute a permanent blockage to the necessary passage of important fish species.

(1) The term "water body segment" means a portion of a basin the surface waters of which have common hydrologic characteristics (or flow regulation patterns); common natural physical, chemical, and biological processes, and which have common reactions to external stress, e.g., discharge of pollutants. (See 40 C.F.R. § 130.2(m).) Where they have been defined, the water body segments determined by the State Continuing Planning Process under section 303(e) of the Act will apply.

[(j)](m) The term "section 316(a)" shall mean section 316(a) of the Act.

[(k)](n) The definitions of the following terms contained in section 502 of the Act shall be applicable to such terms as used in this part unless the context otherwise requires: "State water pollution control agency," "interstate agency," "State," "person," "pollutant," "navigable waters," "territorial seas," "contiguous zone," "ocean," "effluent limitations," "discharge of a pollutant," "point source," "discharge," and "pollution."

§ 122.2 Scope and Purpose

(a) The regulations in this part prescribe the procedures to be followed in connection with the [imposition] establishment of alternative effluent limitations, pursuant to section 316(a), and the imposition thereof, pursuant to section 301 or 306, upon the thermal component of discharges from point sources in lieu of requirements otherwise [subject to] applicable under section[s] 301 [and] or 306 of the Act.

(b) The regulations in this part prescribe the procedures for the establishment and imposition of such alternative effluent limitations in conjunction with applications both for permits which are issued by the Administrator pursuant to section 402(a) of the Act and for permits which are issued by the Director of a State water pollution control agency or interstate agency which is authorized to issue permits pursuant to a program approved by the Administrator under section 402 of the Act and Part 124 of this chapter.

Comment

In conformance with the recommended change in § 122.1(c), this change would make clear that alternative effluent limitations established pursuant to § 316(a) are imposed under §§ 301 or 306 in lieu of requirements otherwise applicable under those sections.

§ 122.3 Law Authorizing Alternative Effluent Limitations

(a) Section 316(a) provides that:

"With respect to any point source otherwise subject to the provisions of section 301 or section 306 of this Act, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife in and on that body of water."

§ 122.4 Delegation of Authority

(a) Subject to the appeal provisions of section 125.34 of this chapter and the national security responsibility provisions of section 125.34(c) of this chapter, the Regional Administrator is hereby delegated the authority, for the area which he administers, to establish and impose alternative effluent limitations to control the thermal component of discharges in accordance with the provisions of section 316(a) and these regulations.

(b) This authority may be redelegated to the Director, Enforcement Division, of each region.

Comment

Conforming change. See §§ 122.1(c), 122.2.

SUBPART B

EPA DETERMINATION OF ALTERNATIVE EFFLUENT LIMITATIONS

§ 122.5 Application for Determination under Section 316(a)

(a)(1) The owner or operator of any point source who desires the Regional Administrator to [impose] establish alternative effluent limitations pursuant to section 316(a) shall so notify the Regional Administrator and the appropriate [State or interstate] certifying agency [empowered to issue section 401 certifications] in writing prior to or upon the filing of an application for a permit pursuant to section 125.12 of this chapter.

(2) Notice pursuant to paragraph (a)(1) of this section shall, in the case of any point source for which a discharge permit application has been filed prior to the publication of these proposed regulations, be given not later than 60 days after promulgation of these regulations or 60 days after promulgation of effluent limitation[s] guidelines under section 304 or standards of performance under section 306 applicable to that point source, whichever is later.

(b) The owner or operator shall submit to the Regional Administrator within 60 days thereafter such data and other information as are available to it and, as soon as practicable thereafter, such other data as it wishes to be considered in support of its application for alternative effluent limitations.

Comment

1. Establish
Conforming change.

2. Certifying Agency
Conforming Change.

3. Time of Filing

The recommended change would provide applicants with additional flexibility, particularly for new sources, to initiate § 316(a) consideration prior to actual filing of a discharge permit application. The § 316(a) determination may prove to be the most time-consuming aspect of § 402 permit proceedings; yet a § 316(a) determination may have a significant impact on siting decisions. Further, the additional flexibility is needed for directing evidence to representative important species, where appropriate, since the applicant cannot provide relevant data until after the species are selected.

(c) As soon as practicable after the notice required by subsection (a) of this section the owner or operator may propose stipulations with respect to identification of the population whose protection must be assured, selection of representative, important species, or classification of the discharge as a low potential impact discharge for the purpose of a demonstration pursuant to section 122.8 of this Part. The Regional Administrator may agree to such stipulations as are consistent with the purposes of section 316(a) of the Act. Any such stipulation reached pursuant to this subsection shall be subject to challenge by any person other than the applicant or Regional Administrator at a hearing held pursuant to section 122.10(a)(2) of this Part.

Comment

This provision would encourage early agreement to resolve threshold issues determinative of the type of demonstrations for which the discharge is eligible. Stipulations will also reduce the applicant's burden in preparing and submitting data and the Agency's burden in sorting and analyzing the data submitted. Maximum agreement to narrow and focus the issues would greatly facilitate and expedite administration of § 316(a). Since the stipulations will be subject to challenge by third parties in any hearing held pursuant to § 122.10(a)(2), the public would not be foreclosed from meaningful participation.

§ 122.6 Public Notice

(a) In addition to the information required by section 125.32(c) of this chapter, the public notice of any application for a permit for a discharge which is subject, pursuant to sections 301 or 306 of the Act, to effluent limitations controlling its thermal component and for which an application has been filed pursuant to section 122.5 of this part shall include:

(1) A statement that the thermal component of the discharge is subject to effluent limitations pursuant to sections 301 or 306 of the Act and a brief description (which shall include a quantitative statement) of the thermal effluent limitations proposed pursuant to sections 301 or 306; and

(2) A statement that such an application has been filed and that alternative (and less stringent) effluent limitations may be imposed on the thermal component of the discharge pursuant to section 316(a), and a brief description (which shall include a quantitative statement) of the proposed alternative effluent limitations, if any.

(b)(1) If no proposed alternative effluent limitations are described in the public notice of the application, it shall include, in addition to the statements required by paragraph (a) of this section, a statement that the applicant is entitled, at any time within 30 days of the issuance of the public notice, to request a hearing pursuant to section 125.34(c) of this chapter in order to demonstrate, pursuant to section 316(a) and these regulations, that the proposed effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(2) If proposed alternative effluent limitations are described in the public notice of the permit application (in addition to the limitations otherwise applicable pursuant to sections 301 or 306 of the Act), the notice shall include, in addition to the statements required by paragraph (a) of this section, a statement that the applicant has submitted evidence in support of its request for alternative effluent limitations which warrants further consideration and that the Regional Administrator is considering imposition of such alternative limitations. The notice shall state that all data submitted by the applicant, as well as a summary thereof, are available at the office of the Regional Administrator for public inspection during office hours. The notice shall also state that any person may comment in writing upon these proposed alternative effluent limitations in accordance with the provisions of section 125.32(c)(6) of this chapter and may request a hearing pursuant to section 125.34 of this chapter.

(c) The public notice of any hearing held pursuant to section 122.10(a) of this part shall include the information required by section 125.32(d) of this chapter.

Comment

Conforming change. Section 316(a) effluent limitations are also applicable under §§ 301 or 306 of the Act.

(d) Nothing in this section shall be construed to relieve the applicant of the burden of demonstrating to the satisfaction of the Regional Administrator, after opportunity for public hearing afforded by section 122.10 of this part, that the thermal effluent limitations proposed pursuant to sections 301 or 306 of the Act are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife. Such a demonstration may be made by demonstrating that less stringent thermal effluent limitations are sufficiently stringent to assure such protection and propagation.

Comment

This provision, as proposed, implied that a demonstration that less stringent limitations are sufficiently stringent to assure the protection and propagation of a balanced, indigenous population is not simultaneously a demonstration that any more stringent effluent limitations are more stringent than necessary. The suggestion was that § 316(a) applicants must do something further affirmatively to demonstrate that effluent limitations under §§ 301 or 306 are more stringent than necessary to assure protection and propagation of a balanced, indigenous population. While the language of § 316(a) on first glance appears to require an affirmative demonstration that "any [thermal] effluent limitation proposed . . . will require effluent limitations more stringent than necessary," the legislative history reveals congressional expectation that such a showing could and would be made by demonstrating the sufficiency of less stringent limitations.

The Conference Report* merely tracks the language of § 316(a) and is therefore of little assistance. However, every explanation of the Conference Agreement by members of the Conference indicates a common understanding and intent that excessive stringency of non-§ 316(a) limitations could be established by showing sufficient stringency of § 316(a) limitations. Thus, Senator Muskie explained:

Under the conference agreement thermal pollutants will be regulated [under non-§ 316(a) limitations] unless an owner or operator of a point source can prove that a modified thermal limitation can be applied which will assure "population and propagation of a balanced indigenous population of fish, shellfish and wildlife." [sic]**

In the House, Mr. Clausen remarked in a similar vein:

These [§ 316(a)] limitations will apply whenever the owner or operator can satisfy the appropriate . . . agency that they will assure the protection and propagation of balanced, indigenous population of shellfish, fish, and wildlife . . . ***

Mr. Johnson expressed a similar understanding of the conference agreement:

Under the agreement of the conferees, . . . section 316(a) authorizes the imposition of a less stringent [thermal] limitation whenever it can be demonstrated that such lesser limitation will protect shellfish, fish and wildlife . . . ****

Nowhere in the remarks by the conferees is there any indication that a separate affirmative demonstration of excessive stringency is required. A demonstration that proposed § 316(a) limitations are sufficiently stringent is necessarily a showing

*S. Rep. No. 1236, 92d Cong., 2d Sess. 137 (1972), 1 Legis. Hist. 320.

**118 Cong. Rec. 16875 (daily ed. Oct. 4, 1972), 1 Legis. Hist. 175.

***Id. 9129, 1 Legis. Hist. 263.

****Id. 9131, 1 Legis. Hist. 267; accord, id. 9120, 1 Legis. Hist. 237 (Remarks of Rep. Jones).

that any more stringent limitation on thermal discharges is excessively stringent. The proposed regulations, however, did not recognize this proposition. We believe that it should be clearly stated in the final regulations.

§ 122.7 State Certification

(a) Notification pursuant to section 122.5(a) of this part to [a state or interstate] the appropriate certifying agency [empowered to issue section 401 certifications] shall be deemed a withdrawal of any pending application for certification as to the compliance of the thermal component of the discharge with sections 301, 302, 306 and 307 of the Act. Such notification shall, as to the thermal component of the discharge, toll the running of the period of time within which the [state or interstate] certifying agency must act.

(b) When the Regional Administrator, (or the Administrator pursuant to section 125.34(p) of this chapter) has made a final determination as to the effluent limitations to be imposed on the thermal component of the discharge, he shall within 10 days thereafter notify the [State or interstate] certifying agency in writing of that determination. Such notification shall be deemed a resubmission of any application for certification as to the thermal component of the discharge under section 401 of the Act and the running of the period of time within which the certifying agency must act shall resume upon receipt of such notification.

Comment

1. Certifying Agency

Conforming change.

2. Running of Time

Clarifying change. In many cases this suspension mechanism may delay issuance of the § 402 permit, making the December 31, 1974 date unattainable. The Regional Administrator's use of his authority to shorten the normal three-month period for certification will be essential to the feasibility of this mechanism. See 40 C.F.R. § 125.15 (1973). In addition, agreements for joint federal-state public notice concerning requests for § 401 certification and applications for § 402 discharge permits would be especially appropriate where a § 316(a) determination is involved. See 40 C.F.R. § 125.32(g) (1973).

(c) If the Regional Administrator determines in the case of a new source that additional information needed for a knowledgeable section 316(a) determination necessitates long-term studies, he shall notify the appropriate certifying agency that, pending final action on the request for alternative effluent limitations, there are no standards or limitations applicable to the thermal component of the discharge under sections 301, 302, 306 and 307 of the Act. Upon receipt of such notification, the certifying agency shall certify that there is no applicable standard or limitation for the thermal component of the discharge under sections 301, 302, 306 and 307 of the Act.

Comment

The rationale for this provision is explained at pages 53 to 54 of the Utility Water Act Group Comments.

[(c)] (d) Any alternative effluent limitation established pursuant to section 316(a) shall constitute the applicable thermal provisions of sections 301, 302, 306 and 307 of the Act for purposes of section 401 of the Act.

§ 122.8 Proposal of Alternative Effluent Limitations

(a) The Regional Administrator [may] shall include in the public notice of the permit application proposed alternative effluent limitations on the thermal component of the discharge if the owner or operator satisfies the requirements of [either] any subparagraph [(a)(1) or (a)(2)] of subsection (a) of this section.

Comment

The Regional Administrator has no discretion ultimately to refuse to establish alternative effluent limitations if the applicant has presented substantial evidence that limitations otherwise applicable are excessively stringent. Despite the apparently discretionary cast of the statutory language, the intent of Congress was that § 316(a) adjustments would be made whenever the applicant made a satisfactory demonstration. E.g., 1 Legis. Hist. 263. This intent and not use of the term "may" in § 316(a) is determinative of the mandatory nature of the Regional Administrator's duty under that section. See United States ex rel. Siegel v. Thompson, 156 U.S. 353, 359 (1895); cf. Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 380 n.13 (D.C. Cir. 1973), cert. denied, ___ U.S. ___ (1974). Further, even if the Administrator's duty could be construed as a discretionary power, his refusal to establish § 316(a) effluent limitations despite an adequate demonstration would be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" within the meaning of the Administrative Procedure Act, 5 U.S.C. § 706(2)(A). See Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971); see also Wong Wing Hung v. Immigration & Neutralization Service, 360 F.2d 715, 719 (2d Cir. 1966).

Since the ultimate establishment of § 316(a) limitations after an adequate showing is mandatory, no purpose is served by granting, by regulation, discretion to refuse to propose those limitations in the public notice of the permit application. Yet, use of that discretion, if granted, would impede administration of § 316(a) by unfairly and unnecessarily requiring applicants to endure an adjudicatory hearing. Under the proposed regulations, unless alternative effluent limitations are included in the notice, the applicant must make its demonstration at an adjudicatory hearing. 39 Fed. Reg. 11438, § 122.8(b) (1974). If the applicant has made an adequate initial demonstration pursuant to proposed § 122.8(a), there is no justification for unnecessarily subjecting it to the delay or expense occasioned by an adjudicatory hearing. Moreover, encouragement of public participation in the permit process demands that the public be apprised when a satisfactory initial § 316(a) demonstration has been made. Thus, the inclusion of alternative effluent limitations in the notice under this subsection should be made clearly mandatory.

(1) Demonstration of Absence of Prior Harm

(i) In the case of a point source which has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations may be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, that no appreciable harm has resulted from the thermal component of the discharge (taking into account the interaction of such thermal component with other pollutants [and the additive effect of other thermal sources]) to the [species] population of shellfish, fish and wildlife in and on the water body segment [of water] into which the discharge has been made, and therefore that the thermal component of the discharge [has not disturbed] is consistent with the continued existence of a balanced, indigenous aquatic population [of such species]. [In determining whether or not appreciable harm or disturbance has occurred, the Regional Administrator shall consider evidence demonstrating compliance during the period of operation and discharge with water quality standards designed to protect fish and aquatic life together with any additional evidence submitted by the owner or operator.]

1. Species

Section 316(a) does not require protection and propagation of "species" of shellfish, fish and wildlife, but of a "population." Thus it is the population, and not the species, which should be the object of scrutiny to determine whether appreciable harm has occurred. If there is a viable, robust population of shellfish, fish and wildlife, notwithstanding some incidental harm to particular species, there has been no appreciable harm from the thermal component of an existing discharge.

2. Disturbance

The "disturbance" notion may be construed to impose a substantive requirement far more stringent than § 316(a). Linking the concept to this section's principal substantive test of no appreciable harm suggests that "has not disturbed" means no more than that there has been no appreciable harm. However, it does not assist in establishing criteria for determining, for purposes of § 316(a), when no appreciable harm has occurred. Literally, a rainstorm, a floating log, or a swimmer may "disturb" an existing aquatic population. But § 316(a) does not require that thermal discharges must not "disturb" a balanced, indigenous population. Rather it requires only that they assure protection and propagation of such a population. The relevant question in a § 316(a) determination is thus not whether a thermal discharge will "disturb" the population, but whether the thermal discharge will subject the population to such severe thermal stress that continuation of the discharge is inconsistent with the survival of a balanced, indigenous population in and on the body of water into which the discharge is made. We believe that the "disturb" notion adds little to the proposed regulations. Since it may be used to defeat the operation of § 316(a), it should be deleted and replaced with language more consistent with that of the statute.

3. Water Quality Standards

Compliance with water quality standards should be included, as we have done in § 122.8(a)(2), as an independent means of demonstrating compliance with § 316(a). If that test is adopted, compliance with water quality standards will become irrelevant to the "no

appreciable harm" demonstration. Non-compliance may simply reflect water quality standards more stringent than necessary for purposes of § 316(a).

(ii) (A) Whenever an applicant proposes to base its demonstration pursuant to this paragraph on the absence of appreciable prior harm to a population of representative, important species, it shall so notify the Regional Administrator at the time the application is filed. The Regional Administrator shall promptly consult with the Director and the applicant as to the appropriate representative, important species to be selected.

(B) If the available information is insufficient to enable the Regional Administrator to select one or more appropriate representative, important species, the applicant may conduct such studies and furnish such evidence as may be necessary to enable the Regional Administrator to select appropriate species. In such cases, the applicant shall have the burden of proving the appropriateness of the species as well that its discharge has not caused appreciable harm to the population of such species.

Comment

1. Representative, Important Species

EPA's proposed regulations included a "representative, important species" demonstration. Although the data demanded by the draft Manual would make this type demonstration infeasible, we believe that the concept embodied in the proposed regulations is sound. Properly implemented, the "representative, important species" principle would provide a useful and feasible mechanism for demonstrating and determining assurance of "protection and propagation." In any demonstration or showing based in whole or in part on biological data, identification of representative important species would greatly reduce the time and effort necessary to gather and assess needed data. Further, such an approach is consistent with the language of § 316(a) which speaks of a "population of shellfish, fish and wildlife."

We have included the representative, important species alternative in the "no appreciable harm" and "predictive techniques" demonstrations which we propose.

2. Information on Appropriate Species

In many cases a § 316(a) applicant will have available information which would assist the Regional Administrator in making a knowledgeable selection of appropriate representative important species. Frequently, this will be the best available information and should inform the decision. We urge the adoption of language which makes clear the applicant's right to submit such information and which directs the Regional Administrator to consult with the applicant on species appropriate for selection.

(C) Upon selection of the representative,
important species, the Regional Administrator shall promptly
notify the applicant of the species selected and thereafter
evidence of no appreciable harm may be directed to such species.

(iii) A demonstration of the absence of prior appreciable harm shall be based on the effects of the discharge on the relevant populations in the entire water body segment considered as a whole.

Comment

This provision is intended to clarify the area of concern in the "no appreciable harm" demonstration. The mixing zone should not be excluded from that area; nor should it be the single focus of examination. Rather, it should be considered together with the rest of the water body segment to determine whether appreciable harm has occurred. Impacts within the mixing zone may or may not constitute appreciable harm in the context of the entire segment.

(2) Compliance with Approved State Water Quality

Standards

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, that the discharge will comply with approved State water quality standards for fish and aquatic life uses. Proof of a prior determination of compliance in accordance with subparagraph (a)(2)(ii) of this section shall constitute a satisfactory demonstration of compliance unless substantial evidence indicates that the prior determination is insufficient or inadequate. If there has been no such prior determination of compliance with approved State water quality standards for fish and aquatic life uses, the owner or operator desiring to make such a demonstration may submit to the Regional Administrator such data and other information as may be necessary to enable the Regional Administrator to make such a determination of compliance.

Comment

The rationale for our recommended § 122.8(a)(2) is stated at pages 39-43. We believe that compliance with water quality standards was intended to be a principal substantive test under § 316(a). The recommendation would limit availability of this demonstration to thermal discharges in compliance with water quality standards for fish and aquatic life uses. EPA's recognition and adoption of this test would facilitate the granting of § 316(a) requests for perhaps one-fourth to one-third of the existing generating capacity in the country. In many of these cases, competent government agencies will have already made a prior determination of compliance in connection with a decision on certification, permit or license. Where there has been such a prior determination of compliance, EPA should give it effect unless the thermal criteria in the water quality standards have changed materially since the determination. The methods for proving a prior determination and the limitations on its effect are specified in subparagraph (ii) below.

(ii) A prior determination of compliance with approved State water quality standards for fish and aquatic life uses may be proved by submission of

(A) a certification issued under section 21(b) of the Act as in effect immediately prior to the enactment of the 1972 Amendments;

(B) a certification issued under § 401 of the Act;

(C) a discharge permit or other authorization issued under state law; or

(D) a construction permit or operating license issued, amended, or continued in effect by the Atomic Energy Commission subsequent to its Memorandum of Understanding with the Environmental Protection Agency dated January 29, 1973 (38 Fed. Reg. 2713),

unless approved State water quality standards have been changed materially since such certification, permit, or license was issued, amended, or continued in effect, or unless issuance, amendment or continuation of such certification, permit, or license did not entail a determination of compliance with water quality standards for fish and aquatic life uses or with an equivalent substantive test.

(3) Prediction of Protection

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, through the use of valid, reliable predictive techniques, that the discharge will assure protection and propagation of the balanced, indigenous population in and on the pertinent water body segment.

Comment

The objective of this test is to afford new and almost new plants and those on heavily polluted water bodies a feasible means of demonstrating the appropriateness of § 316(a) limitations. In all such cases the applicant and administrator are in the position of predicting future events without the guide of direct prior experience under circumstances similar to those expected. Simulation and modeling techniques yield results which provide the basis for reliable predictions. Other especially useful information may be found in studies of the effects of similar discharges on biota in similar habitat conditions. We include the representative, important species alternative in order to permit focused data-gathering efforts.

(ii) (A) Whenever an applicant proposes to base its demonstration pursuant to this paragraph on prediction of protection and propagation of a population of representative, important species, it shall so notify the Regional Administrator at the time the application is filed. The Regional Administrator shall promptly consult with the Director and the applicant as to the appropriate representative, important species to be selected.

(B) If the available information is insufficient to enable the Regional Administrator to select one or more appropriate representative, important species, the applicant may conduct such studies and furnish such evidence as may be necessary to enable the Regional Administrator to select appropriate species. In such cases, the applicant shall have the burden of proving the appropriateness of the species as well as that its discharge will assure the protection and propagation of the population of such species.

(C) Upon selection of the representative, important species, the Regional Administrator shall promptly notify the applicant of the species selected and thereafter the applicant's evidence may be directed toward such species.

(iii) A demonstration pursuant to this subsection may be based on:

(A) Results of engineering, hydrological, or mathematical modeling studies employing accepted techniques;

(B) Evidence on the effects of similar discharges on the populations of relevant species in similar habitats;

(C) Evidence of the thermal tolerances of relevant species and their relationship to predicted thermal regimes;

(D) Data which show the area affected by the thermal discharge to be relatively small or biologically insignificant under natural conditions; or

(E) Projections of seasonal abundance and distribution of relevant populations.

[(2) Protection of Representative Important Species

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations may be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, that the discharge will assure the protection and propagation of representative, important species (selected in accordance with subparagraph (2)(ii) of this section) whose protection and propagation, if assured, will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on that body of water. In determining whether or not the protection and propagation of such species will be assured, the Regional Administrator shall consider evidence demonstrating that the discharge will comply with the temperature requirements for growth, reproduction and survival of the selected species, as specified in the water quality criteria and water quality information published by the Administrator pursuant to section 304(a) of the Act, together with any additional information submitted by the owner or operator or required by the Regional Administrator.]

[(ii) (A) Whenever an applicant proposes to include a demonstration pursuant to this paragraph as an element of its support for an application for a determination pursuant to section 316(a), it shall so notify the Regional Administrator at the time the application is filed. The Regional Administrator shall promptly seek the advice and recommendation of the Director as to the species whose protection and propagation in and on the receiving water body will, if assured, satisfy the requirements of subparagraph (2)(i) of this section. Any species included in the State's approved water quality standards shall be selected, together with such additional species as the Regional Administrator considers appropriate. The Regional Administrator shall advise the applicant of the species selected within 60 days after receipt of notification under this subparagraph.]

[(B) If the available information is insufficient to enable the Regional Administrator to select one or more representative, important species, the applicant may, at the request of the Regional Administrator, conduct such studies and furnish such evidence as may be necessary to select appropriate species. In such cases, the applicant shall have the burden of proving the appropriateness of the species as well as that its discharge will assure the protection and propagation of such species.]

[(C) Compliance with the temperature levels referred to in subparagraph (a)(2)(i) of this section shall be determined outside a mixing zone whose temporal and spatial (area, volume, configuration and location) distribution will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the receiving water body.]

(4) Low Potential Impact

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, that (A) the volume, flow, dissipative capacity and general physical condition of the receiving water body are such that there can be no significant impact from the discharge, and (B) no specific characteristic of the thermal discharge creates a likelihood of appreciable impact on the relevant population.

Comment

This demonstration type is directed to those situations in which the administrator can make initial generic decisions that thermal discharges into a particular water body can have no significant biological impact. The crux of the classification as a low potential impact area is the relationship of the assimilative capacity of the water body to the discharge in question. Open-ocean thermal discharges, for example, can be expected to have imperceptible impacts. Other water bodies will be identifiable as low potential impact areas through implementation of the state continuing planning process under § 303(e) and development of water quality management basin plans.

(ii) Alternative effluent limitations included
in the public notice of the permit application pursuant to this
subsection may contain appropriate monitoring requirements to
confirm the conclusion of low impact.

(5) Lack of Irreparable Harm

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application, under the terms and conditions and subject to the limitations specified in paragraph (ii) of this subsection, if no alternative effluent limitations have previously been established pursuant to section 316(a) for the thermal component of the discharge with respect to which application is made and available information and data are insufficient on which to base a knowledgeable determination that alternative effluent limitations will assure the protection and propagation throughout the term of a five-year permit and the applicant demonstrates, to the satisfaction of the Regional Administrator, that:

(A) Continuation of the thermal discharge during a period reasonably necessary to collect sufficient additional information and data to permit a knowledgeable section 316(a) determination for a longer term will not result in substantial, irreversible harm to the aquatic populations inhabiting the body of water into which the discharge is made; and

Comment

The rationale for this provision is stated in Part II.A. of the Utility Water Act Group Comments.

(B) Data relative to normal water temperatures and flow rates (including seasonal variations in these parameters), existing sources of thermal discharge, the total dissipative capacity of the receiving water body and other available data indicate that there is a reasonable likelihood of a successful demonstration for a longer term.

(ii) Any public notice containing proposed alternative effluent limitations pursuant to this subsection shall provide that such alternative effluent limitations, if established and imposed, would be subject to the following terms, conditions and limitations:

(A) Duration of the alternative effluent
shall be for a fixed term, not to exceed three years, to be de-
termined by consultation between the Regional Administrator and
the applicant and which shall be concurrent with and limited
to the time reasonably necessary for the required studies to be
conducted and an ultimate section 316(a) determination made on
the basis of those studies; and

(B) The alternative effluent

limitation shall entail conditions which require the permittee
diligently to conduct the required studies, to report on the
progress of such studies at regular intervals during continuation
of the studies and to complete such studies by a specified date.

(6) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.5(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Regional Administrator, by whatever reliable, probative, substantial evidence the applicant may adduce, that the thermal discharge (taking into account the interaction of such discharge with other pollutants) will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made.

Comment

Proposed § 122.8(b) made clear that alternative effluent limitations could be established on the basis of evidence outside the "no appreciable harm" or "representative important species" demonstrations. However, as proposed, the regulations would have required a hearing in all such cases. We believe that the delay incident to a hearing should be avoided in all cases except where specifically requested by an interested party. If the Regional Administrator is satisfied with the applicant's demonstration, whatever its type, he should propose alternative effluent limitations in the notice. Hence, we urge adoption of a provision which would direct inclusion of alternative effluent limitations on the basis of any satisfactory demonstration.

(b) If an applicant is unable to demonstrate to the satisfaction of the Regional Administrator [either that no appreciable harm has resulted from the thermal component of a discharge (pursuant to paragraph (a)(1) of this section) or that a discharge will assure the protection and propagation of any species selected (pursuant to paragraph (a)(2) of this section)] that the discharge will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife pursuant to subsection (a) of this section, the Regional Administrator shall not include proposed alternative effluent limitations in the public notice of the permit application. However, the applicant may thereafter request a hearing pursuant to section 122.10 of this Part at which evidence may be submitted in support of the application for a determination under section 316(a). Such evidence may consist of evidence intended to satisfy the requirements of [paragraph (a)(1) or (a)(2)] any paragraph of subsection (a) of this section, or any other new or historical biological data, physical monitoring data, engineering or diffusion models, or other relevant evidence.

(c) Determinations of the Regional Administrator made pursuant to [paragraphs (a)(1) and (a)(2)] subsection (a) of this section may be reconsidered in any hearing held pursuant to section 122.10 of this Part.

§ 122.9 Determination of Alternative Effluent Limitations

(a) The Regional Administrator [may] shall impose alternative effluent limitations included in the public notice of the permit application pursuant to section 122.8(a)[(1)] of this Part (or appropriate modifications thereof) unless[:] he finds that none of the provisions of section 122.8(a) are satisfied.

[(1) Information received during the period provided for public comment under section 125.34(b) of this chapter or evidence introduced at any hearing held to consider the permit indicates that appreciable harm has occurred as a result of the thermal component of the discharge (taking into account the interaction of such thermal component with other pollutants), or that the thermal discharge has disturbed the balanced, indigenous population of shellfish, fish and wildlife; and]

Comment

1.

The Regional Administrator has no discretion to refuse to establish and impose alternative effluent limitations if the applicant has made a satisfactory demonstration. See the Comment to § 122.8(a), supra. Further, if the applicant's demonstration is sufficiently cogent to persuade a reasonable person, the Regional Administrator may not deny the § 316(a) request on the ground that he is not "satisfied." To do so would be "arbitrary, capricious . . . or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A).

[(2) The applicant does not demonstrate that, despite the occurrence of such previous harm or disturbance, the alternative effluent limitations proposed (or appropriate modifications thereof) will nevertheless assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made.]

[(b) The Regional Administrator may impose alternative effluent limitations included in the public notice of the permit application pursuant to section 122.8(a)(2) of this Part (or appropriate modifications thereof) unless:

(1) Information received during the period provided for public comment under section 125.34(b) of this chapter or evidence introduced at any hearing held to consider the permit indicates: (i) that the species selected by the Regional Administrator is or are not representative, in terms of biological needs, or a balanced, indigenous population in the receiving water body; or (ii) that the temperature requirements employed in calculating the proposed alternative effluent limitations are not adequate to assure the protection and propagation of those species in and on the receiving water body; or (iii) that the temporal or spatial (area, volume, location and configuration) distribution of the mixing zone permitted is excessively large or otherwise inconsistent with the purposes of section 316(a); and]

[(2) This evidence is not rebutted.]

(b) The Regional Administrator may establish and impose alternative effluent limitations, after notice and opportunity for a hearing, which require compliance with applicable technology-based control requirements of section 301, as determined in accordance with guidelines promulgated by the Administrator pursuant to section 304(b), or with applicable standards of performance under section 306, or, if more stringent, with control requirements necessary to achieve water quality standards pursuant to section 301(b)(1)(C), but which alternative effluent limitations defer the date by which such applicable control requirements must otherwise be achieved pursuant to sections 301 or 306 or under regulations promulgated by the Administrator, if:

Comment

The rationale for this provision is explained in Part II.B. of the Utility Water Act Group Comments.

(1) Upon expiration of a permit containing alternative effluent limitations, the Regional Administrator determines, after reexamining the terms and conditions of the permit and considering the results of any monitoring the permittee conducted during the term of the permit, that alternative effluent limitations (or appropriate modifications thereof) are no longer sufficiently stringent to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made; or

(2) In any case in which the hearing under section 316(a) is deferred pursuant to section 122.10(b) of this Part and the time available prior to the final compliance date under sections 301 and 306 of the Act, or under regulations promulgated pursuant to sections 304(b) or 306, is insufficient to permit the applicant to conduct the necessary biological and engineering studies, participate in the hearing and subsequently take the necessary measures to comply with the applicable control requirements by the final compliance date otherwise applicable; provided that the applicant demonstrates, to the satisfaction of the Regional Administrator, that continuation of operation and discharge up to the compliance date established pursuant to this subsection will not materially interfere with the restoration and maintenance of a balanced, indigenous population once such compliance is achieved.

(c)(i) In cases where the Regional Administrator is unable to make all the determinations required by section 125.31 of this chapter and the owner or operator has submitted the information required to satisfy section 122.8(a) of this Part, the Regional Administrator shall, at the request of the owner or operator, issue a public notice setting forth a tentative determination to establish alternative effluent limitations or issue a public notice setting forth a tentative determination to deny the request to establish alternative limitations. Any such notice shall provide identical opportunities and procedures for public comment and hearing as provided in section 125.32 of this chapter and sections 122.6 and 122.10 of this Part.

(ii) The requirements of section 122.9(a) of this Part shall govern establishment of any alternative effluent limitation pursuant to this subsection.

(iii) Any alternative effluent limitation established pursuant to this subsection shall subsequently be included in the notice required by section 125.32(c) provided, however, that issues relating to such alternate limitations cannot be raised at any hearing held pursuant to section 125.34 and such alternate limitation must be included in any final permit issued in accordance with part 125.

Comment

The rationale for this provision is detailed in the Utility Water Act Group Comments at pages 54 to 55.

§ 122.10 Public Hearings

(a) Requests for Hearings

(1) If alternative effluent limitations are proposed any person may, within 30 days following the issuance of the public notice of the permit application containing such proposed limitations, submit to the Regional Administrator a request for a hearing pursuant to section 125.34 of this chapter to consider whether the alternative effluent limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(2) If effluent limitations or alternative effluent limitations are proposed any person may, within 30 days following the issuance of the public notice of the permit application, or, if a public hearing is proposed to be held pursuant to section 125.34(b)[,] of this chapter, within [20] 10 days following issuance of the notice provided in section 125.34(b)[(4)](1), or, if a public hearing is held pursuant to section 125.34(b) of this chapter, within 20 days following issuance of the notice provided in section 125.34(b)(4), submit to the Regional Administrator a request for a hearing pursuant to section 125.34(c) to consider any issues concerning the permit application including whether the effluent limitations or the alternative effluent limitations proposed are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

Comment

The rationale for this change is stated in UWAG's § 316(a) Comments at pages 29-31.

(3) Any request for a hearing made pursuant to paragraph (a)(2) of this section shall include the issue of proposed effluent limitations and/or proposed alternative effluent limitations on the thermal component of the discharge in the statement of issues proposed to be considered at the hearing, as provided by section 125.34(c)(3), of this chapter.

(4) If a request for a hearing to consider the proposed effluent limitations or the proposed alternative effluent limitations on the thermal component of the discharge is granted, the Regional Administrator shall consolidate this issue with other issues, if any, relating to the proposed permit and its conditions raised by the owner or operator, or by any other person, which are included in the list or lists of issues submitted pursuant to section 125.34(c)(3) of this chapter and shall consider and resolve all such issues in a single hearing, unless he determines to defer the hearing on issues related to the proposed effluent limitations or proposed alternative effluent limitations on the thermal component pursuant to paragraph (b) of this section or deems [such a procedure] consolidated consideration and resolution to be inappropriate for other reasons.

(5) Any hearing, other than a hearing held pursuant to section 125.34(b) of this chapter, held pursuant to this section shall be conducted in accordance with the provisions of sections 34(a) and (c) through (o) of Part 125 of this chapter.

(6) The Regional Administrator may not impose an alternative effluent limitation on the thermal component of any discharge which is less stringent than the effluent limitations otherwise required by sections 301 or 306 of the Act except in compliance with section 122.9 of this part unless the owner or operator has otherwise demonstrated that the effluent limitations otherwise required are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife.

(7) The Regional Administrator may impose an alternative effluent limitations with respect to the thermal component of any discharge only in accordance with section 122.9 of this Part or if he is otherwise satisfied that such alternative effluent limitation (taking into account the interaction of such thermal component with other pollutants) will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(8) The Regional Administrator may hold a hearing pursuant to section 125.34 of this chapter in any case or class of cases in which he deems it appropriate.

(b) Deferral of Hearings

(1) In any case in which the Regional Administrator determines, after reviewing the evidence which the owner or operator proposes to present at the hearing, that sufficient information is likely not to be available upon which to base a knowledgeable determination of whether or not the proposed effluent limitations on the thermal components of the discharge are more stringent than necessary, he may order that the hearing requested pursuant to section 316(a) be severed from the hearing scheduled pursuant to section 402 of the Act and be deferred until the owner or operator has completed such engineering and biological studies as the Regional Administrator may consider necessary; provided, however, that the owner or operator shall be granted an immediate hearing on demand notwithstanding the Regional Administrator's determination that sufficient information is not likely to be available.

Comment

The applicant's opportunity to seek § 316(a) limitations may be foreclosed by a deferred hearing as effectively as by a denial of a § 316(a) request. He should therefore be entitled to receive a prompt hearing and final, appealable decision upon the administrator's determination that sufficient information is not available.

(2) If the studies required under paragraph (b) (1) of this section have not been completed at the conclusion of the hearing held pursuant to section 402 of the Act and Part 125 of this chapter, the Regional Administrator shall issue a permit which is for a term of up to five years and which establishes a schedule of compliance pursuant to § 122.9(b) of this part or which requires that the point source achieve the effluent limitations initially proposed for the control of the thermal component of the discharge no later than the date specified in applicable effluent limitations guidelines issued pursuant to sections 304(b) or 306 of the Act but which affords the permittee an opportunity to request a hearing under section 316(a) after having conducted biological and engineering studies in order to develop information sufficient for the Regional Administrator to make a knowledgeable determination as to whether alternative effluent limitations may be imposed pursuant to section 316(a).

(3) Any hearing scheduled under paragraph (b) (2) of this section shall be publicized in accordance with the requirements of section 125.32(b) of this chapter and shall be held sufficiently in advance of the final compliance date specified in the permit to allow the permittee to take necessary measures to comply by that date in the event its request for modification of thermal limits is denied after the hearing is concluded.

(c) Appeal or review of decision of Regional Administrator

(1) Any party shall have the right to appeal to the Administrator from a decision of the Regional Administrator imposing effluent limitations or alternative effluent limitations on the thermal component of a discharge following a hearing held pursuant to section 125.34(c) of this chapter. The Administrator may, on his own motion, review any decision of the Regional Administrator. Such appeal or review shall be conducted in accordance with the provisions of section 125.34(p) of this chapter.

(2) If an owner or operator did not request a hearing pursuant to paragraph (a) of this section in order to consider whether effluent limitations proposed for the control of the thermal component of a discharge are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which discharge is to be made, he may raise this issue on appeal to the Administrator only if:

(i) The public notice also contained proposed alternative effluent limitations less stringent than those otherwise required under sections 301 or 306 of the Act; and

(ii) The decision of the Regional Administrator after the hearing imposed effluent limitations or alternative effluent limitations with respect to the thermal component of the discharge more stringent than those contained in the public notice of the application.

(3) Acceptance of a permit imposing effluent limitations or alternative effluent limitations on the thermal component of the discharge shall not affect the right of the owner or operator to appeal the decision of the Regional Administrator.

SUBPART C

STATE DETERMINATION OF ALTERNATIVE EFFLUENT LIMITATIONS

§ 122.11 Application for Determination under Section 316(a)

(a)(1) The owner or operator of any point source who desires the Director to [impose] establish alternative effluent limitations pursuant to section 316(a) shall so notify the Director in writing prior to or upon the filing of an application for a NPDES permit.

(2) Notice pursuant to paragraph (a)(1) of this section shall, in the case of any point source for which a discharge permit application has been filed prior to the publication of these proposed regulations, be given not later than 60 days after promulgation of these regulations or 60 days after promulgation of effluent limitations guidelines under section 304 or standards of performance under section 306 applicable to that point source, whichever is later.

(b) The owner or operator shall submit to the Director within 60 days thereafter such data and other information as are available to it; and as soon as practicable thereafter, such other data as it wishes to be considered in support of its application for alternative effluent limitations.

(c) As soon as practicable after the notice required by subsection (a) of this section the owner or operator may propose stipulations with respect to identification of the population whose protection must be assured, selection of representative, important species, or classification of the discharge as a low potential impact discharge for the purposes of a demonstration pursuant to section 122.13 of this Part. The Director may agree to such stipulations as are consistent with the purposes of section 316(a) of the Act. Any such stipulation reached pursuant to this subsection shall be subject to challenge by any person other than the applicant or Director at a hearing held pursuant to section 122.15(a) of this Part.

§ 122.12 Public Notice

(a) In addition to the information required by section 124.32(c) of this chapter, the public notice of any application for a permit for a discharge which is subject, pursuant to sections 301 or 306 of the Act, to effluent limitations controlling its thermal component and as to which an application has been filed pursuant to section 122.11 of this Part shall include:

(1) a statement that the thermal component of the discharge is subject to effluent limitations pursuant to sections 301 or 306 of the Act and a brief description (which shall include a quantitative statement) of the thermal effluent limitations proposed pursuant to sections 301 or 306; and

(2) a statement that such an application has been filed and that alternative (and less stringent) effluent limitations may be imposed on the thermal component of the discharge pursuant to section 316(a), and a brief description (which shall include a quantitative statement) of the proposed alternative effluent limitations, if any.

(b)(1) If no proposed alternative effluent limitations are described in the public notice of the application, it shall include, in addition to the statements required by paragraph (a) of this section, a statement that the applicant is entitled, at any time within 30 days of the issuance of the public notice, to request a hearing pursuant to section 124.36 of this chapter in order to demonstrate, pursuant to section 316(a) and these regulations, that the proposed effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(2) If proposed alternative effluent limitations are described in the public notice of the permit application (in addition to the limitations otherwise applicable pursuant to sections 301 or 306 of the Act), the notice shall include, in addition to the statements required by paragraph (a) of this section, a statement that the applicant has submitted evidence in support of its request for alternative effluent limitations which warrants further consideration and that the Director is considering imposition of such alternative limitations. The notice shall state that all data submitted by the applicant, as well as a summary thereof, are available at the office of the Director for public inspection during office hours. The notice must also state that any person may comment in writing upon these proposed alternative effluent limitations in accordance with the provisions of section 124.32 of this chapter and may request a hearing pursuant to section 124.36 of this chapter.

(c) The public notice of any hearing held pursuant to section 122.15(a) of this Part shall include the information required by section 124.37 of this chapter.

(d) Nothing in this section shall be construed to relieve the applicant of the burden of demonstrating to the satisfaction of the Director, after opportunity for public hearing afforded by section 122.15 of this part, that the thermal effluent limitations proposed pursuant to sections 301 or 306 of the Act are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife. Such a demonstration may be made by demonstrating that less stringent thermal effluent limitations are sufficiently stringent to assure such protection and propagation.

§ 122.13 Proposal of Alternative Effluent Limitations

(a) The Director [may] shall include in the public notice of the permit application proposed alternative effluent limitations on the thermal component of the discharge if the owner or operator satisfies the requirements of ~~either~~ any subparagraph [(a) (1) or (a) (2)] of subsection (a) of this section.

(1) Demonstration of Absence of Prior Harm

(i) In the case of a point source which has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations may be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director, that no appreciable harm has resulted from the thermal component of the discharge (taking into account the interaction of such thermal component with other pollutants [and the additive effect of other thermal sources]) to the [species] population of shellfish, fish and wildlife in and on the water body segment [of water] into which the discharge has been made, and [that] therefore that the thermal component of the discharge [has not disturbed] is consistent with the continued existence of a balanced, indigenous aquatic population [of such species]. [In determining whether or not appreciable harm or disturbance has occurred, the Director shall consider evidence demonstrating compliance during the period of operation and discharge with water quality standards designed to protect fish and aquatic life, together with any additional evidence submitted by the owner or operator.]

(ii) (A) Whenever an applicant proposes to base its demonstration pursuant to this paragraph on the absence of appreciable prior harm to a population of representative, important species, it shall so notify the Director at the time the application is filed. The Director shall promptly consult with the applicant as to the appropriate representative, important species to be selected.

(B) If the available information is insufficient to enable the Director to select one or more appropriate representative, important species, the applicant may conduct such studies and furnish such evidence as may be necessary to enable the Director to select appropriate species. In such cases, the applicant shall have the burden of proving the appropriateness of the species as well as that its discharge has not caused appreciable harm to the population of such species.

(C) Upon selection of the representative, important species, the Director shall promptly notify the applicant of the species selected and thereafter evidence of no appreciable harm may be directed to such species.

(iii) A demonstration of the absence of prior appreciable harm shall be based on the effects of the discharge on the relevant population in the entire water body segment considered as a whole.

(2) Compliance with Approved State Water Quality Standards

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director, that the discharge will comply with approved State water quality standards for fish and aquatic life uses. Proof of a prior determination of compliance in accordance with subparagraph (a)(2)(ii) of this section shall constitute a satisfactory demonstration of compliance unless substantial evidence indicates that the prior determination is insufficient or inadequate. If there has been no such prior determination of compliance with approved State water quality standards for fish and aquatic life uses, the owner or operator desiring to make such a demonstration may submit to the Director such data and other information as may be necessary to enable the Director to make such a determination of compliance.

(ii) A prior determination of compliance with approved State water quality standards for fish and aquatic life uses may be proved by submission of

(A) a certification issued under section 21(b) of the Act as in effect immediately prior to the enactment of the 1972 Amendments;

(B) a certification issued under § 401 of the Act;

(C) a discharge permit or other authorization issued under state law; or

(D) a construction permit or operating license issued, amended, or continued in effect by the Atomic Energy Commission subsequent to its Memorandum of Understanding with the Environmental Protection Agency dated January 29, 1973 (38 Fed. Reg. 2713),

unless approved State water quality standards have been changed materially since such certification, permit, or license was issued, amended, or continued in effect, or unless issuance, amendment or continuation of such certification, permit, or license did not entail a determination of compliance with water quality standards for fish and aquatic life uses or with an equivalent substantive test.

(3) Prediction of Protection

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director, through the use of valid, reliable predictive techniques, that the discharge will assure protection and propagation of the balanced, indigenous population in and on the pertinent water body segment.

(ii) (A) Whenever an applicant proposes to base its demonstration pursuant to this paragraph on the prediction of protection and propagation of a population of representative, important species, it shall so notify the Director at the time the application is filed. The Director shall promptly consult with the applicant as to the appropriate representative, important species to be selected.

(B) If the available information is insufficient to enable the Director to select one or more appropriate representative, important species, the applicant may conduct such studies and furnish such evidence as may be necessary to enable the Director to select appropriate species. In such case, the applicant shall have the burden of proving the appropriateness of the species as well that is discharge will assure the protection and propagation of the population of such species.

(C) Upon selection of the representative, important species, the Director shall promptly notify the applicant of the species selected and thereafter the applicant's evidence may be directed to such species.

(iii) A demonstration pursuant to this subsection may be based on:

(A) Results of engineering, hydrological, or mathematical modeling studies employing accepted techniques;

(B) Evidence on the effects of similar discharges on the population of relevant species in similar habitats;

(C) Evidence of the thermal tolerances of relevant species and their relationship to predicted thermal regimes;

(D) Data which show the area affected by the thermal discharge to be relatively small or biologically insignificant under natural conditions; or

(E) Projections of seasonal abundance and distribution of relevant populations.

[(2) Protection of Representative, Important Species

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations may be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director, that the discharge will assure the protection and propagation of representative, important species (selected in accordance with paragraph (a)(2)(i) of this section) whose protection and propagation, if assured, will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on that body of water. In determining whether or not the protection and propagation of such species will be assured, the Director shall consider evidence demonstrating that the discharge will comply with the temperature requirements for growth, reproduction and survival of the selected species, as specified in the water quality criteria and water quality information published by the Administrator pursuant to section 304(a) of the Act, together with any additional information submitted by the owner or operator or required by the Director.]

[(ii)(A) Whenever an applicant proposes to include a demonstration pursuant to this paragraph as an element of its support for an application for a determination pursuant to section 316(a), it shall so notify the Director at the time the application is filed. The Director shall promptly select the species whose protection and propagation in and on the receiving water body will, if assured, satisfy the requirements of paragraph (a)(2)(i) of this section. Any species included in the State's approved water quality standards shall be selected, together with such additional species as the Director considers appropriate. The Director shall advise the applicant of the species selected within 60 days after receipt of notification under this subparagraph.]

[(B) If the available information is insufficient to enable the Director to select one or more representative, important species, the applicant may, at the request of the Director, conduct such studies and furnish such evidence as may be necessary to select appropriate species. In such case, the applicant shall have the burden of proving the appropriateness of the species as well as that its discharge will assure the protection and propagation of such species.]

[(C) Compliance with the temperature levels referred to in paragraph (a)(2)(i) of this section shall be determined outside a mixing zone whose temporal and spatial (area, volume, configuration and location) distribution will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the receiving water body.]

(4) Low Potential Impact.

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director, that (A) the volume, flow, dissipative capacity and general physical condition of the receiving water body are such that there can be no significant impact from the discharge, and (B) no specific characteristic of the thermal discharge creates a likelihood of appreciable impact on the relevant population.

(ii) Alternative effluent limitations

included in the public notice of the permit application pursuant to this subsection may contain appropriate monitoring requirements to confirm the conclusion of low impact.

(5) Lack of Irreparable Harm.

(i) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application, under the terms and conditions and subject to the limitations specified in paragraph (ii) of this subsection, if alternative effluent limitations have previously been established pursuant to section 316(a) for the thermal component of the discharge with respect to which application is made and available information and data are insufficient on which to base a knowledgeable determination that alternative effluent limitations will assure the protection and propagation throughout the term of a five-year permit and the applicant demonstrates, to the satisfaction of the Director, that:

(A) Continuation of the thermal discharge during a period reasonably necessary to collect sufficient additional information and data to permit a knowledgeable section 316(a) determination for a longer term will not result in substantial, irreversible harm to the aquatic populations inhabiting the body of water into which the discharge is made; and

(B) Data relative to normal water temperatures and flow rates (including seasonal variations in these parameters), existing sources of thermal discharge, the total dissipative capacity of the receiving water body and other available data

indicate that there is a reasonable likelihood of a successful
demonstration for a longer term.

(ii) Any public notice containing proposed
alternative effluent limitations pursuant to this subsection
shall provide that such alternative effluent limitations, if
established and imposed, would be subject to the following
terms, conditions and limitations:

(A) Duration of the alternative

effluent shall be for a fixed term, not to exceed three years,
to be determined by consultation between the Director and the
applicant and which shall be concurrent with and limited to the
time reasonably necessary for the required studies to be con-
ducted and an ultimate section 316(a) determination made on the
basis of those studies; and

(B) The alternative effluent limitation shall entail conditions which require the permittee diligently to conduct the required studies, to report on the progress of such studies at regular intervals during continuation of the studies and to complete such studies by a specified date.

(6) In the case of any source, whether or not it has commenced operation and discharge prior to the filing of the notice required by section 122.11(a) of this Part, alternative effluent limitations shall be included in the public notice of the permit application if the owner or operator has demonstrated, to the satisfaction of the Director by whatever reliable, probative, substantial evidence the applicant may adduce, that the thermal discharge (taking into account the interaction of such discharge with other pollutants) will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made.

(b) If an applicant is unable to demonstrate to the satisfaction of the Director [either that no appreciable harm has resulted from the thermal component of a discharge (pursuant to subparagraph (a)(1) of this section) or that a discharge will assure the protection and propagation of any species selected (pursuant to subparagraph (a)(2) of this section)] that the discharge will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife pursuant to subsection (a) of this section, the Director shall not include proposed alternative effluent limitations in the public notice of the permit application. However, the applicant may thereafter request a hearing pursuant to section 122.15 of this Part at which evidence may be submitted in support of the application for a determination under section 316(a). Such evidence may consist of evidence intended to satisfy the requirements of [paragraph (a)(1) or (a)(2)] any paragraph of subsection (a) of this section, or any other new or historical biological data, physical monitoring data, engineering or diffusion models, or other relevant evidence.

(c) Determinations of the Director made pursuant to [paragraphs (a)(1) and (a)(2)] subsection (a) of this section may be reconsidered in any hearing held pursuant to section 122.15 of this Part.

§ 122.14 Determination of Alternative Effluent Limitations

(a) The Director [may] shall impose alternative effluent limitations included in the public notice of the permit application pursuant to section 122.13(a)[(1)] of this Part (or appropriate modifications thereof) unless[:]he finds that none of the provisions of section 122.13(a) are satisfied.

[(1) Information received during the period provided for public comment under section 124.34 of this chapter or evidence introduced at any hearing held to consider the permit indicates that appreciable harm has occurred as a result of the thermal component of the discharge (taking into account the interaction of such thermal component with other pollutants), or that the thermal discharge has disturbed the balanced, indigenous population of shellfish, fish and wildlife; and]

[(2) The applicant does not demonstrate that despite the occurrence of such previous harm or disturbance, the alternative effluent limitations proposed (or appropriate modifications thereof) will nevertheless assure the protection and propagation of a balanced, indigenous population of shellfish,

fish and wildlife in and on the body of water into which the discharge is to be made.]

[(b) The Director may impose alternative effluent limitations included in the public notice of the permit application pursuant to section 122.14(a)(2) of this Part (or appropriate modifications thereof) unless:]

[(1) Information received during the period provided for public comment under section 124.34 of this chapter or evidence introduced at any hearing held to consider the permit indicates (i) that the species selected by the Director is or are not representative, in terms of biological needs, of a balanced, indigenous population in the receiving water body, or (ii) that the temperature requirements employed in calculating the proposed alternative effluent limitations are not adequate to assure the protection and propagation of those species in and on the receiving water body; or (iii) that the temporal and spatial (area, volume, location and configuration) distribution of the mixing zone permitted are excessively large or otherwise inconsistent with the purposes of section 316(a); and]

(b) The Director may establish and impose alternative effluent limitations, after notice and opportunity for a hearing, which require compliance with applicable technology-based control requirements of section 301, as determined in accordance with guidelines promulgated by the Administrator pursuant to section 304(b), or with applicable standards of performance under section 306, or, if more stringent, with control requirements necessary to achieve water quality standards pursuant to section 301(b)(1)(C), but which alternative effluent limitations defer the date by which such applicable control requirements must otherwise be achieved pursuant to sections 301 or 306 or under regulations promulgated by the Administrator, if:

(1) Upon expiration of a permit containing alternative effluent limitations, the Director determines, after reexamining the terms and conditions of the permit and considering the results of any monitoring the permittee conducted during the term of the permit, that alternative effluent limitations (or appropriate modifications thereof) are no longer sufficiently stringent to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is made; or

(2) In any case in which the hearing under section 316(a) is deferred pursuant to section 122.15(b) of this Part and the time available prior to the final compliance date under sections 301 or 306 of the Act, or under regulations promulgated pursuant to sections 304(b) or 306, is insufficient to permit the applicant to conduct the necessary biological and engineering studies, participate in the hearing and subsequently take the necessary measures to comply with the applicable control requirements by the final compliance date otherwise applicable ; provided that the applicant demonstrate to the satisfaction of the Director, that continuation of operation and discharge up to the compliance date established pursuant to this subsection will not materially interfere with the restoration and maintenance of a balanced, indigenous population once such compliance is achieved.

(c) (1) In cases where the Director is unable to make all the determinations required by section 124.31 of this chapter and the owner or operator has submitted the information required to satisfy any provision of section 122.13(a), of this Part, the Director shall, at the request of the owner or operator, issue a public notice setting forth a tentative determination to establish alternative effluent limitations or issue a public notice setting forth a tentative determination to deny the request to establish alternative limitations. Any such notice shall provide identical opportunities and procedures for public comment and hearing as provided in section 124.32 of this chapter and sections 122.12 and 122.15 of this Part.

(2) The requirements of section 122.14(a)
of this Part shall govern establishment of any alternative
effluent limitation to this subsection.

(3) Any alternate effluent limitation established pursuant to this subsection shall subsequently be included in the notice required by section 124.32(c) of this chapter provided, however, that issues relating to such alternate limitation cannot be raised at any hearing held pursuant to section 124.36 and such alternate limitation must be included in any final permit issued in accordance with part 124.

§ 122.15 Public Hearings

(a) Requests for Hearings

(1) If alternative effluent limitations are proposed any person may, within 30 days following the issuance of the public notice of the permit application containing such proposed limitations, submit to the Director a request for a hearing pursuant to Section 124.32(b) of this chapter to consider whether the alternative effluent limitations will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(2) If effluent limitations or alternative effluent limitations are proposed any person may, within 30 days following the issuance of the public notice of the permit application, submit to the Director a request for a hearing pursuant to Section 124.36 of this chapter to consider any issues concerning the permit application including whether the effluent limitations or the alternative effluent limitations proposed are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(3) If a request for a hearing to consider the proposed effluent limitations or the proposed alternative effluent limitations on the thermal component of the discharge is granted, the Director shall consolidate this issue with other issues, if any, relating to the proposed permit and its conditions raised by the owner or operator, or by any other person, and shall consider and resolve all such issues in a single hearing, unless he determines to defer the hearing on issues related to the proposed effluent limitations or proposed alternative effluent limitations on the thermal component pursuant to paragraph (b) of this section or deems [such a procedure] consolidated consideration and resolution to be inappropriate for other reasons.

(4) The Director may not impose an alternative effluent limitation on the thermal component of any discharge which is less stringent than the effluent limitations otherwise required by sections 301 or 306 of the Act except in compliance with section 122.14 of this Part unless the owner or operator has otherwise demonstrated that the effluent limitations otherwise required are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife.

(5) The Director may impose an alternative effluent limitation with respect to the thermal component of any discharge only in accordance with section 122.14 of this Part or if he is otherwise satisfied that such alternative effluent limitation (taking into account the interaction of such thermal component with other pollutants) will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

(b) Deferrals of Hearings

The provisions of Section 122.10(b) of this part are applicable in any case in which the Director determines, after reviewing the evidence which the owner or operator proposes to present at the hearing, that sufficient information is likely not to be available upon which to base a knowledgeable determination of whether or not the proposed effluent limitations on the thermal component of the discharge are more stringent than necessary.

§ 122.16 Transmission to Regional Administrator of Proposed
Effluent Limitations

(1) Any State or interstate agency whose permit program has been approved pursuant to section 402 of the Act and part 124 of this chapter which proposes to issue a permit containing effluent limitations on the thermal component of a discharge less stringent than those otherwise required by sections 301 or 306 shall, if transmittal of such permit to the Regional Administrator is required under the agreement provided for in section 124.46 of this part, indicate to the Regional Administrator that the proposed effluent limitations are less stringent and shall set forth the grounds upon which they were proposed.

(2) The Regional Administrator may comment upon, object to or make recommendations with respect to such proposed effluent limitations pursuant to any agreement entered into under section 124.46 and may request a public hearing to consider them pursuant to section 124.36.

(3) If the Regional Administrator comments upon, objects to, or makes recommendations with respect to proposed alternative effluent limitations, the applicant shall be notified of such comment, objection or recommendation. Within 30 days following such notice, the applicant may request a hearing pursuant to section 124.36 of this part to consider such comment, objection or recommendations of the Regional Administrator.

§ 122.17 Transmission to Regional Administrator of Issued Effluent Limitations

Any State or interstate agency which has issued a permit containing effluent limitations with respect to the thermal component of a discharge shall, in transmitting a copy of the permit to the Regional Administrator pursuant to section 124.47 of this chapter, indicate whether or not such effluent limitations are less stringent than would otherwise be required under sections 301 or 306 of the Act and, if they are less stringent, shall also transmit the evidence (including the record of any hearing) upon which they were determined.

Comment

An objection or recommendation by the Regional Administrator may significantly affect the applicant's rights in a § 316(a) determination by the Director. Unless provision is made for a hearing at the applicant's instance, it will have no recourse short of seeking judicial review. Thus, we urge adoption of a provision which will ensure that the applicant receives notice of, and opportunity for a hearing on, any prejudicial comment, objection or recommendation of the Regional Administrator.

B. Technical Critique of § 316(a) Guidance Manual
(EEI Environment & Energy Committee, Water
Quality Subcommittee, EEI Ad Hoc Water Quality
Group and UWAG Personnel)

EDISON ELECTRIC INSTITUTE
ENVIRONMENT & ENERGY COMMITTEE

WATER QUALITY SUBCOMMITTEE

TASK FORCE ON SECTION 316(a)
GUIDANCE MANUAL

J. A. R. HAMILTON, PH.D., CHAIRMAN

in conjunction with

EDISON ELECTRIC INSTITUTE AD HOC WATER QUALITY GROUP

AND

THE UTILITY WATER ACT GROUP

TECHNICAL CRITIQUE OF § 316(a) GUIDANCE MANUAL
PART I -- BIOLOGICAL ASPECTS
PART II -- PHYSICAL ASPECTS

TO ACCOMPANY COMMENTS ON
EPA PROPOSED REGULATIONS § 316(a)

June 26, 1974

PART I BIOLOGICAL ASPECTS

SUMMARY

Section 316(a) of the Federal Water Pollution Control Act permits relaxation of thermal effluent limitations if the source can demonstrate that such limitations are unnecessarily stringent to assure the protection of the "balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made." The intent of § 316(a) is to provide reasonable means by which excessively stringent thermal limitations may be relaxed in order to avoid enormous unnecessary costs.

A. Deficiencies of the Manual

Several major characteristics of the draft § 316(a) Guidance Manual will seriously impede implementation of § 316(a).

1. All prescribed demonstration types require data presently unavailable to the scientific community.

2. Type 2 and Type 3 demonstrations using a thermal tolerance matrix are unworkable. By limiting new-source applicants to these demonstrations, the Manual effectively forecloses consideration of less stringent effluent limitations for new sources.

3. Much of the required data are irrelevant to the ultimate issue of whether the protection and propagation of a balanced, indigenous population will be assured.

4. The requirement, common to all demonstration types, for identification of species at "all trophic levels" may take years to meet, thus making it impossible to obtain a § 316(a) based permit before the end of 1974, or even before construction of off-stream cooling facilities must begin. Even the relevant data requested by the Manual cannot be gathered, processed and analyzed before the end of the year, or as in some cases before construction must begin. Yet the Manual proposes no way to avoid the absurd result of beginning construction while studies are ongoing.

5. The Manual ignores a number of valid methods which the applicant could employ to demonstrate that a balanced, indigenous population would be protected.

6. The Manual fails to give appropriate effect to a valid distinction which it recognizes: high versus low potential impact of the discharge. Low potential impact should provide an independent basis for demonstrating compliance with § 316(a)'s test.

7. The Type 3 demonstration is completely unusable. It is not offered as an independent alternative and is so poorly defined that applicants will be reluctant to risk its use.

8. The Manual requires a degree of certainty beyond that reasonably attainable on the basis of data which are, or

are likely to become, available. The demand for scientific certainty will negate the practical effectiveness of § 316(a).

9. The Manual imposes substantive requirements beyond those of the statute, such as the requirements (1) to protect species instead of populations or communities and (2) to identify a population consistent with the restoration of the pristine state of the water body.

10. The Manual's inapt use of scientific terminology makes it difficult for experienced professional biologists, resource managers and regulatory personnel to interpret.

Each of these ten deficiencies, except the tenth, is described in more detail below. The basis for the tenth criticism is made apparent by the specific comments in Section C of this critique.

Conclusion and Recommendation

The major flaws of the Guidance Manual make it completely unusable. Further, biologically incorrect statements and prescriptions, if followed, would result in misinformed decisions. We strongly recommend that the draft Guidance Manual be withdrawn from use immediately. Sufficient guidance in the critical period between now and the end of the year may be provided in an explanation, such as the one we suggest, accompanying the proposed regulations. If the need for additional guidance should become apparent, a document like the draft Manual may be prepared. However, it is imperative that any such document be

given careful, thoughtful consideration before it is put into actual use. The current draft Manual would benefit greatly from more thorough consideration. Presently, it provides no guidance on what is to be done with the applicant's data and information once submitted. Use of this draft Manual to determine § 316(a) applicants' rights between now and December 31, 1974, when the bulk of existing source permits will be issued, would substantially negate § 316(a).

B. Major Criticisms of the Draft Guidance Manual

1. Some of the data required or requested by EPA in the Manual are presently unavailable to the scientific community. These include:

- a. Identification of protozoa, algae, fungi and other biota (pages 14 and 19).
- b. Physiological characteristics and behavioral patterns of certain life history stages of many species, particularly marine organisms (pages 13 and 14 - migrants).
- c. Modes of reproduction as well as sites, habitats, and environmental conditions necessary for reproduction (pages 20, ii; 26, b and thermal tolerance matrix).
- d. Thermal tolerances, except for a few fresh water fish (page 12, line 8; page 13, line 1 and 27 et seq.).

Obtaining other data could be a major undertaking for the applicant, if, in fact, they could be collected. Before EPA requires that the applicant gather this information, some effort should be made to determine whether other data are

pertinent (see 4 below) or even necessary (see 3 below). If EPA determines these data are necessary, a demonstration type permit should be issued to allow completion of the necessary studies.

2. After careful consideration of EPA's proposed Type 2 demonstration presented in the Manual for § 316(a) demonstrations, we have concluded that this approach is infeasible and unworkable. Since this is the only approach available for an applicant trying to permit a new source or a relatively new existing source, it is imperative that this demonstration be abandoned or radically modified. Our criticism of the demonstration includes the following points:

a. A Type 2 demonstration is not allowed without inclusion of the Thermal Tolerance Matrix. Any applicant, therefore, who attempts a Type 2 demonstration will be required to fill out the matrix. If it cannot, no permit may be issued. The rest of the information required for a Type 2 demonstration would only be useful to the Regional Administrator in attempting to decide which representative important species should be chosen. This would usually be done prior to field assessment and would be of little use in determining whether a balanced, indigenous population is protected.

b. Most of the data on the thermal tolerances of aquatic species that are currently available in the scientific literature regard freshwater fish species, a few invertebrates, and very few aquatic plants. This paucity of scientific litera-

ture has three results:

1. The Regional Administrator will not be able to make a determination on which species, of the species presented by the applicant, constitute species representative of the thermal tolerance of the aquatic community in the vicinity of the discharge. Since the selection of representative important species will usually occur prior to the initiation of field studies (at least for new sources), the Regional Administrator will only be able to use published literature to guide him in his choice of representative species. This prejudices the use of any species that is not included in the published literature.

2. In estuarine or marine situations or in other situations where thermal tolerances of the species living in the aquatic community are not known, neither the Regional Administrator nor the applicant will be able to determine which species will be chosen and these species may or may not represent the thermal tolerance of the aquatic community.

3. The applicant will be unable to fill out portions of the Thermal Tolerance Matrix without first doing the necessary laboratory and field experiments to determine the thermal tolerances of the species chosen by the Regional Administrator. In this case, selection of the representative important species could become part of the applicant's "burden of proof." After completing the studies indicating the thermal tolerances, the applicant would also be required to show that the species chosen by the Regional

Administrator are actually representative of the thermal tolerance of the aquatic community. The applicant could therefore fail in his demonstration Type 2 because of a poor selection of representative important species. No rational applicant would take this chance.

c. The data requested in the thermal tolerance matrix are inadequate to show the effects of thermal discharges on representative important species of the aquatic community residing in the immediate discharge area. Since the thermal tolerance matrix was developed for freshwater fish, it should be used only for these species. It is irrelevant to request that the applicant provide data on the reproductive seasons (or date) of phytoplankton, zooplankton, benthos and certain fish species which spawn more than once each year. Many of these species apparently spawn or reproduce over a broad range of temperatures. Furthermore, as stated by EPA in the Proposed Water Quality Criteria, Vol. 1, page 161, most freshwater fish species spawn when certain temperatures are reached in the spring and the dates on which these temperatures are reached may vary up to as much as 60 days, depending on the conditions of the previous winter. It is therefore illogical to assign fish species a spawning date rather than a spawning temperature. The real question to be answered by the applicant should be: what are the impacts of premature spawning in the immediate discharge area in terms of survival of the young fish? If the applicant is ultimately assigned temperatures which are not to be exceeded on certain dates, power plants will shut down following warm

winters and be able to exceed any rational thermal standards following cold winters.

d. The scientific basis for EPA's calculation of maximum weekly temperatures is open to serious question and at best represents only an untested theory. EPA's calculation of the maximum permissible temperature for growth is calculated as 2° C. less than the temperature at which optimum growth occurs plus one-third of the difference between optimum growth and the ultimate incipient lethal temperature (UILT). EPA ignores the observation that the UILT would be exceeded in a discharge at most for one or two months out of each year. Most fish would avoid such temperatures by moving to other areas of the water body if these were available. If this movement does occur, EPA has not addressed the significance of this phenomenon except to say that a certain area of habitat is lost. The question of whether a balanced indigenous population is protected has not been addressed. Nor has EPA addressed two additional questions:

1. Whether the optimum growth temperature which is preferred by the fish species will be selected by them from a temperature gradient, or
2. Whether a population confined to its optimum growth temperature would actually be a balanced, indigenous fish population.

EPA has also ignored the observation that most fish grow in the spring and fall and growth slows during the summertime under natural conditions. Fishes have evolved under these

circumstances; in fact, no studies have been conducted in which populations were held at their optimum growth temperature throughout their entire life cycles. These studies could indicate that fish species are actually harmed by being held at a constant optimum growth temperature.

e. Calculations of EPA's maximum permissible weekly temperature for growth also leads to some interesting anomalies. Many natural water bodies naturally exceed EPA's calculated temperatures. These populations are apparently protected and propagate as a balanced, indigenous fish population. It should also be noted that many natural waters containing balanced fish populations never reach the optimum growth temperature or the maximum permissible weekly temperature listed by EPA. This implies that certain ecosystems would benefit from the addition of heat. This raises the question of racial or intra-specific differences in fish populations. These differences are particularly evident as differences from north to south in the United States. Each applicant therefore would be required to determine the UILT and the optimum growth temperature for the fish residing in some uninfluenced portion of their particular water body. This also raises the question of whether adaptation by certain populations has already occurred in thermally influenced situations. If this has occurred, these populations may well represent a balanced indigenous fish population which is protected and is propagating.

f. Even assuming that EPA's theoretical calculation is correct, it cannot be assumed that laboratory data reflect

circumstances occurring in the water body influenced by thermal discharges. This raises the whole question of applicability of laboratory studies to the field. Thermal preference studies have usually indicated that the laboratory thermal preference differs from field selected temperatures, implying that other variables may become more important than temperature. It is also evident that thermal preferences, at least, change with the size of the fish. If this is also true of optimum growth temperatures and ultimate incipient lethal temperatures, the applicant would be put in a position of selecting a particular size class of a species to be protected. This would, of course, violate the criterion of balance, since one age class would be chosen over another.

g. In using the thermal tolerance matrix, EPA has also ignored the question of whether discharges exceeding the maximum permissible weekly temperature do in fact affect the protection and propagation of a balanced, indigenous fish population. Innumerable studies have shown that most species of fish congregate in the discharge in some seasons or months and avoid the discharge in other months. It is not sufficient to say that a certain acreage of water is lost during summer when temperatures are too hot for certain species. The question really is: what is the long-term effect on the balanced, indigenous fish population? Growth is a function of temperature, but is lost growth during summer compensated for by increased growth during other seasons of the year due to the heated

effluent? Most studies of fish populations determine growth on an annual basis and not monthly or weekly increments. The EPA approach of maximum weekly permissible temperatures does not allow for growth compensation during other seasons of the year. This is not justified as the basis of the applicant's showing that the balanced, indigenous fish population is protected.

3. There are three categories of new data that may impose impossible burdens for applicants attempting to make § 316(a) demonstrations within the time requirements set forth in the proposed regulations. These include (a) data that are apparently unnecessary and irrelevant, (b) data that may be necessary for a full § 316(a) demonstration, but the collection of which would require an extended period of time, and (c) data that may be requested by the Regional Administrator (or Director), that could fall into either category (a) or (b), but which the Manual does not identify as something that could reasonably be anticipated.

The data requirements that appear unnecessary and largely irrelevant are numerous. Outstanding examples include the extensive thermal tolerance matrix (page 28), detailed theoretical analyses (page 19.4(a)(1)(C)), precise, statistical definition of mixing zones (page 40), and arbitrary analyses of biological responses to mixing zones (Chapter VII, pages 41-63).

Some further data collection may reasonably be considered necessary for a full § 316(a) demonstration, but because of the nature of the data, it will require considerable time (years in

some cases) to compile and interpret.

Initially, accurate verification of what are representative, important species (page 21) in a particular case, requires an analysis of the aquatic community with data usually taken from all seasons. Further examination of power plant effects in terms of protection and propagation of a species may (depending on the availability of data from prior studies) require additional years of study. Where proof of the absence of prior appreciable harm involves a relatively large water body (page 17), the study requirements may necessitate the use of trends in populations over an extended period of time, because local variations in species abundance may be exceedingly variable.

The Manual proposes that for Type 2 and Type 3 demonstrations (pages 23 and 35) the Regional Administrator (or Director) may request the applicant to provide information and data on the selection of representative, important species, and in other cases (such as page 24(c)(2)) additional evidence "sufficient to enable the Regional Administrator (or Director) to make a determination." Such an open-ended provision enabling the imposition of unnecessarily strict data requirements will confound rather than guide, impeding the reasonable implementation of § 316(a) exemptions.

The general solution to these problems is to limit data submittals to those that are clearly pertinent to the determinations to be made. Flexibility should be preserved for the

applicant to substitute data as may be appropriate for a given determination.

4. According to the Manual the applicant must determine natural diversity at all trophic levels in order to establish the effect of thermal effluents on biological communities. This task cannot possibly be accomplished in a year. It would necessitate an identification to the species level of bacteria, fungi, protozoa, and all other microorganisms, concluding with a total biological analysis of all taxonomic groups up through higher vertebrates. In some locations it could be achieved in several years of intensive field and laboratory studies involving literally dozens of specialists in taxonomy, physiology, microbiology and ichthyology and costing millions of dollars. In other cases, it cannot be done in a lifetime.

The Manual also requires, for all demonstration types, an identification of species and an indication of their abundance. Four to six months would be required to design the studies and order equipment and supplies. A minimum of one year's field data would be necessary so that all four seasons would be included and an additional six months required for data processing and report writing. Thus, a minimum of two years would be required

for each study.

These time requirements nullify the intent of § 316(a) since study time requirements are essentially the same as deadlines for installing cooling towers. As a result the applicant would be caught in the paradox of demonstrating the appropriateness of once through cooling after (out of necessary time requirements) he has ordered cooling towers. Therefore, the Manual should have provisions for temporary study permits based on alternate information requirements, so that rational decisions concerning the installation of cooling devices can be made within a reasonable time period.

5. EPA has not discussed under any of its demonstration types a number of valid, reliable methods that an applicant could use to show that a balanced, indigenous population is protected. These include:

- a. Pre- and post-operational studies;
- b. Comparisons of thermally affected and unaffected populations;
- c. Reviews of previously completed studies which discuss similar species or habitats as they are affected by thermal discharges;
- d. Biological modeling studies;
- e. Dynamics of thermally influenced populations including growth, energetics, reproduction, and survival; and
- f. Field studies of distributional changes in response to thermal inputs.

Since these methods are not mentioned in the Manual, an applicant's demonstration using these types of information may be prejudiced. Generally, the administration of

§ 316(a) should allow demonstrations to be based on any valid and reliable evidence available to the applicant. The omitted methods enumerated have been included in our proposed changes to the demonstration types available to the applicant.

6. EPA designation of a "high" and "low" potential impact discharge is of sufficient importance to warrant separation into two distinct demonstration types. The low potential impact should be elevated to a separate Type 4 demonstration for either existing or new sources. A Type 4 demonstration should yield a long-term permit conditioned on limited biological studies to verify the Regional Administrator's decision of low impact. The Type 4 demonstration which we recommend will require minimal data from the applicant and should avoid larger expensive long-term field studies. The Regional Administrator may conclude that a discharge has a low potential impact if:

- a. The thermal plume is relatively small;
- b. Zones of passage are available;
- c. The discharge does not significantly adversely affect benthic or shoreline organisms; or
- d. That the population residing in the immediate discharge area has not been or will not be significantly affected by the discharge.

7. The Type 3 demonstration offered by the Manual has no practical value as a separate demonstration because:

- (a) all data requirements for Type 2 are required in Type 3 (thus, failure on a Type 2 demonstration would automatically result in failure on a Type 3); and (b) the additional data

requirements which may be requested by the Regional Administrator would leave the applicant in doubt as to the quality and quantity of data he should collect. We believe that to have any practical value, a general residual demonstration must provide the applicant sufficient flexibility to base his demonstration on any reliable, probative information available. This was apparently the intent of EPA's proposed 40 C.F.R. § 122.8(b), but that intent would be completely nullified by the Manual.

8. The Manual requires the applicant, in effect, to prove its case to a degree of certainty that is not attainable in the real world. There will never be absolute certainty about the effects of external stresses on aquatic communities. All that can reasonably be expected is that the applicant demonstrate reasonable assurance of protection and propagation by substantial evidence.

Professional biologists and resource management specialists typically make decisions on the basis of information different in type and quantity from that required by the draft Guidance Manual. Section 316(a) determinations should be based on the type and quantity of information ordinarily needed for resource management decisions.

9. The draft Manual goes beyond the statutory substantive standards in three respects. First, the Manual focuses on and requires protection of species. Section 316(a), however,

is concerned with populations or communities; there is no indication in the statute that all species found in an aquatic community must be protected.

Second, the Manual's requirements reach all trophic levels. Section 316(a), however, speaks only of shellfish, fish and wildlife. If balanced, indigenous populations of shellfish, fish and wildlife exist in the water body, then whatever other elements of the ecosystem are necessary to support those populations can be presumed to be present in sufficient quantity.

Third, the statutory phrase "balanced, indigenous population" implies that only reasonable maintenance of the aquatic community need be demonstrated. The Manual distorts this term by imposing a requirement that the population of interest must be consistent with the restoration of the biological integrity of the affected water. This requirement is inconsistent with the proposed § 316(a) regulations' recognition that applicants need not show protection of some former population which may have existed in a pristine environment.

SPECIFIC COMMENTS ON BIOLOGICAL
ASPECTS OF THE DRAFT GUIDANCE MANUAL

The following comments on the § 316(a) Manual deal specifically with problems of terminology and data requirements of the Manual. Subheadings parallel those of the Manual and page references are to those of the April 18, 1974 draft.

A. Introduction

Page 4, para 1: The statement that "the basis for modification (thermal effluent limitations) is a case-by-case evaluation of the water quality impact of the individual discharge" should be clarified to insure that a multiple discharge plant would be considered a single discharge for demonstration purposes. A separate discharge evaluation may be appropriate where there is substantial separation between discharges, but the general guidance should be site-oriented.

Page 4, para 3: The paragraph states that the "manual describes the minimum information requirements . . . (and) while these requirements should normally be met, the Regional Administrator (or Director) may modify or expand any requirement as warranted by the circumstances of the particular case." The structure of the paragraph and the emphasis on modifying or expanding requirements leads to an interpretation

that any diminution in requirements would not be acceptable. This bias is not consistent with concept of a "guideline" document.

Page 5, para 3: Delete entire paragraph due to its procedural basis which is best described in procedural regulations elsewhere.

Page 6, para 1: "Time may not allow for another long-term study . . . If this is the case . . . then there may be no other choice but to require a closed cooling system."

The Manual presents the applicant a Hobson's choice. Time is insufficient to develop the unrealistic and unavailable data base that would be required. In order to provide such information on all modes of contemplated discharge affecting the protection and propagation of wildlife, the applicant would have to make an exhaustive study of the reaction of wildlife to each separate discharge type. Unless the applicant presently has the required data on hand, the time factor precludes further biological field studies, and closed-cycle cooling would be obligatory. The best resolution to this dilemma is a major reduction in the quantity of field data (and the use of case histories and prototype studies of similar power-plant/biological systems) required to satisfy § 316(a) demonstrations. Without such a reduction of data base volume, modification of effluent requirements under

§ 316(a) would be impossible for most power plants.

B. Types of Demonstrations

Page 6, Type 2: For Type 1 demonstration, the Regional Administrator may issue a permit for continuation of discharge without further investigation. The manual will be improved by providing the RA with the same authority for Type 2 or 3 demonstrations as are provided for Type 1 demonstrations.

Page 7, new para 2: Low-potential impact discharge:
This concept should be elevated to an independent method of demonstrating compliance. The Regional Administrator (or Director) would be directed to determine, on a case-by-case basis, that an existing discharge has a low potential impact if the applicant shows:

- a. That the thermal plume comprises a relatively small percentage of the total cross-section of a water body, zone of passage or stream flow;
and
- b. That the discharge results in a plume which does not have a significant adverse impact on benthic or shoreline populations.

Once these two determinations were made, alternative effluent limitations could be established without additional preliminary studies.

Page 7, new para 3: The concurrent demonstration requirement flatly contradicts the proposed regulations and

removes any advantage or reality of separate demonstration types. Further, if Type 3 is to be available for those who have failed on a Type 1 or 2, it is obvious that additional Type 3 information cannot be presented concurrently with the other. This abbreviation of the demonstration opportunities available penalizes the applicant for the Agency's delay in producing guidelines and beginning to implement the NPDES.

Page 8, Sentence 3: Delete entirely. This sentence suggests that all the data specified in the Manual are mandatory. The guidance Manual, if it is to be that, should identify the types of information that may be submitted and considered. Exactly what information is "necessary" will vary from case to case.

Page 9, (1) Balanced, indigenous population: The definition includes the phrase " . . . diversity at all trophic levels . . ." This is inaccurate in the biologic sense because communities are very often dominated totally by one or two species, such as the benthic molluscan communities of Tellina, Crassostrea on oyster bars or even a single species of Nereis polychaete in a salt-marsh community. Further, while such communities have common characteristics, they vary from situation to situation. Turning to the phrase " . . . non-domination of pollution tolerant species," aside from primary producers found inhabiting hot springs, which

is a unique natural habitat, the microflora at the species level has not yet been documented in scientific literature as to being either "thermal pollution tolerant" or "non-thermal pollution tolerant." Similar data is also lacking with respect to both primary and secondary consumers. Further, practically all rivers and bays in the United States are technically "polluted" to a degree and many already include species whose "presence or abundance is attributable to the introduction of pollutants." In short, a balanced, indigenous population does not typically include the characteristics listed (line 11).

Thus, the definition on page 9 should be changed to include the qualifier "may" as expressed above.

Page 10, para 1, line 2: "The following descriptions all characterize such population."

This statement is biologically incorrect and at the minimum, the qualifier "may" should be substituted for "all." Many systems exist where stratification, periodicity and succession do not occur. The definition of a climax community relies upon the stability rather than the succession of that community. Diversity at all trophic levels rarely occurs in all biological communities which are not self-perpetuating; for instance, the effect of aquatic rooted vegetation is to allow for the settling of debris and suspended matter to the

point where the substrate becomes drier, more elevated, and no longer suitable for aquatic plants.

Therefore, the following deletions are recommended:

- a. Delete Section (a), page 10. The Manual's frequent use of such non-specific phraseology from the glossaries of biological texts precludes practical application to the ecological concept of communities and to anticipated natural conditions.
- b. Delete Section (b), page 10. Not only do all trophic levels seldom occur in any one community, but this statement also eliminates the possibility of natural shifts in food chains. A bayou may possess only catfish or a shallow marsh only Fundulus; therefore, no diversity at that trophic level is exhibited.
- c. Delete Section (c), page 10. Biological communities are not always self-perpetuating. If each community perpetuated itself, the transitions would not be possible.
- d. Delete Section (d), page 10. This statement is incorrect in biologic terms. Energy production may be absent in a specific community, yet the community thrives due to energy transport into that system from outside primary producers. Also, not every community is characterized by primary, secondary, and tertiary consumers.

In summary, the definition of a "balanced, indigenous population," as presented on page 10, is vague, misleading, and scientifically unsupportable. A proper and reasonable description of what constitutes such a population should take into account (1) the possible existence of pollution-tolerant species, particularly where "pollution-tolerant" is thought of solely in terms of warmer water species, some of which may have been deliberately introduced through stocking, and (2) the expected changes in species diversity as water

quality improves due to implementation of FWPCA.

We recommend that, if the Manual is retained or rewritten, the following definition be adopted.

The balanced, indigenous population may include species not historically native to the area which:

- a. Result from major modifications to the water body (such as hydroelectric dams) or to the contiguous land area (such as deforestation attributable to urban or agricultural development) which cannot reasonably be removed or altered.
- b. Result from management intent, such as deliberate introduction in connection with a wildlife management program.
- c. Are species or communities whose value is primarily scientific or aesthetic.

Thus, it is not necessary to show that the applicant's discharge is compatible with a population which may have existed in a pristine environment but which has not persisted. However, a "balanced, indigenous population" may not include:

- a. Species of no appreciable value which were not part of the normal complement of aquatic biota indigenous to the region and which result from the introduction of thermal discharges.
- b. Species introduced and maintained in residence as a result of habitat destruction by man's activities (for example, dredging) except where habitat changes are irreversible.
- c. Species introduced by human activities (such as aquaculture) which colonize or establish themselves at the expense of endemic communities and which are beyond the limit of management intent.

C. Demonstration Type 1

Page 17: The title should read "Absence of Prior Appreciable Harm" rather than "Absense of Prior Applicable

Harm".

Page 17. For clarity, the last portion of the second paragraph should be changed to read: " . . . discharge on populations in the entire water body. Lack of appreciable harm may not be dependent upon excluding from consideration a portion of the waters for a mixing zone. Rather, whether there is appreciable harm should be determined by consideration of the overall effect in relation to the entire population within the water body. Harm observed within a mixing zone may or may not be appreciable in the context of the entire water body."

Page 18, line 7. Since some of the data requirements presented in Chapter VI may or may not be germane to demonstrating appreciable harm, the phrase " . . . engineering and hydrologic data described in Chapter VI . . ." should be deleted. There is no value in such a modeling exercise for the demonstration of no prior appreciable harm.

Page 19, line 3. This should be changed to read, "Copies of all water quality-related communications not already part of the public record . . ."

Page 19, (4)(B). The phrase " . . . just outside the immediate discharge area . . ." is unclear. One cannot tell whether the "discharge area" denotes an upstream control

station or an area sufficiently downstream. In the latter instance, this poses serious problems when other industrial effluents enter the "immediate discharge area". In such cases only an upstream control would be appropriate.

Also, the phrase "transitional biota regime" is confusing.

Page 20 (ii). The Manual's requirement for identification of reproductive dates of fish and shellfish species is scientifically misleading. Scientific investigation has established that the reproductive periods of fish, shellfish, and other aquatic organisms are determined by thermal influence (and photoperiod) and not by the calendar. Black Crappie, for example, may spawn under natural conditions as early as late March or as late as early May, depending upon when ambient conditions result in the maintenance of spawning temperatures for a sufficient period to stimulate reproduction.

Page 20 (iii). The term "principal benthic forms" is not related to reproduction, nursery areas and migration routes.

D. Demonstration Type 2: Protection of Representative Important Species

Page 22, (iv): This definition of a sensitive species contradicts the one presented on page 13. As indicated at

page 22, sensitive species should not be considered unless their continued existence in the state are or are likely to be threatened.

Further, insufficient information exists in the literature at the primary producer and consumer levels to justify the designation "most sensitive species."

Page 27 6(a). The Manual proposes the use of thermal tolerance matrix (Table A) for the purpose of demonstrating effect of thermal conditions on aquatic life. The matrix, as presented, is limiting in data coverage and scope of biological effect and does not allow for any sort of comprehensive evaluation of the effect of temperature on aquatic life. Much of the data which is proposed for the matrix (Tables 1 & 2, appendix A) is of laboratory origin and has little or no support or verification from field experience.

The compilation of temperature tolerance data for any species is a combined product of at least two types of scientific experience in the area. The first represents the results of prime temperature research procedures in a laboratory atmosphere with all the combined constraints and protocols that experimental laboratory procedures call for. These examination and test conditions are highly artificial

and results usually incorporate the combined stress of the experimental regime as well as the manipulated experimental temperatures. The second type of experience relevant to thermal tolerance is that which is gained through examination of temperal-spacial population distribution in response to thermal discharges from one or more point sources. Such field examinations are open to the difficulties of understanding all of the combined factors that are biologically integrated by individual fish and individual populations with the result that distributions of any species around the thermal source leaves considerable number of uncertainties as to the specific time-temperature sensitivities that would occur were the animal to be unable to escape from unfavorable circumstances. That is, in the open natural laboratory of the environment the option of behavioral mitigation of thermal stress through escape and transient movement into and out of thermal plumes is always available. In situ bioassay in which caged animals are placed in such field or open surface water experimental regimes does not permit escape as a viable biological mechanism to favoring survival. Hence such bioassay conditions are not much different from those that the laboratory imposes through caged and captured exposures. The reconciliation of the inherent conflicts in the numbers that have been reported at temperatures that have been reported

to be futile, or at best unfavorable for the growth and survival of individual species populations of fish, is a very difficult task requiring highly skilled measurements in both laboratory and natural environmental regime. These types of reconciliations must be made if an adequate understanding of the implications of thermal discharges of any kind are to be made for the purpose of reducing and minimizing stresses on aquatic populations from thermal generating stations. These reconciliations are not currently available and the generation of a host of data involving hundreds of potential test species will require a very large, highly skilled scientific staff, large fundings and considerable amounts of time. While these efforts are warranted on a limited basis, a total dependence on the results of such matrices of time and temperature exposures for all of the kinds of aquatic organisms that are currently residing in areas under thermal effluent influence will not be achieved in the immediate months and years in which these data are needed. Hence it is our recommendation that before prescribing elaborate experimental laboratory protocols involving complex experimental matrices of temperature, time and other stressing factors, that professional examination of the existing literature involving both laboratory and field conditions be made. Only after the assurance can be gained that

experimental laboratory data is verified by field observations should it be used. However, a total dependence on this unverified laboratory data is not in the best interest of the management of natural resources.

For this reason applications of the matrix approach as described in the E.P.A. document will not supply the Regional Administrator (or Director) and the permittee with the information required to assure the protection of a balanced indigenous population of fish, shellfish and wildlife. In the final analysis the meaningful information must be the result of laboratory research complemented by field verification.

PART II PHYSICAL ASPECTS

RECOMMENDED CHANGES TO THE PHYSICAL ASPECTS
SECTIONS OF THE "PROPOSED GUIDELINES FOR ADMINISTRATION
OF THE 316(a) REGULATIONS" (EPA -- 4/18/74)

A. General Impact of Manual if Applied as Presently Written

This section includes a summary of the major effects of the Guidance Manual if Chapter VI (Engineering and Hydrologic Data), Chapter VII (Mixing Zone Guidelines), and Chapter VIII (Thermal Load Analyses) are implemented as presently written. Section II makes specific recommendations for changing the physical aspects sections of the Guidance Manual with the objective of making them as rational and workable as possible.

Unfortunately, the physical aspects sections of the manual pose many unreasonable constraints, and securing 316(a) exceptions would be nearly impossible. At best, a 316(a) determination would be costly, cumbersome, and technically unsound.

Following are some examples of serious inadequacies:

- a. technical errors (e.g., p. 83, Equation $T = (T_o + E) / 2$ is incorrect, see Ref. 3),
- b. gross omissions (e.g., p. 38, (c), omits ocean receiving waters),
- c. naive assumptions (e.g., p. 47/48, (f), assumes equal biologic value),
- d. over-generalizations (e.g., p. 46 (iv), rapid mixing not always desirable),
- e. unrealistic specifications (e.g., p. 39 (c) (4), 10 years data seldom available; p. 58, requirement for extremely unrealistic diffusers),

- f. internal inconsistencies (e.g., p. 39, (c) vs. (d), weekly vs. monthly data, and
- g. ambiguous language (e.g., p. 38, Table C, gross vs. net water uses).

These problem areas, as further exemplified by the specific recommendations contained in the next section, render the entire document almost unsalvageable, i.e., the time and effort required to start anew may not exceed those required to salvage the present draft. Furthermore, the lack of uniform coverage of different types of receiving water situations, coupled with the lack of distinction (for any one type) between those aspects of data acquisition and analyses that are essential and those that are merely informative, indicate a profound lack of appreciation of the enormity of the efforts involved in providing all of the requested information for all sites within the limited time available.

Effects of Chapter VI - Engineering and Hydrologic Data

The major effects of this Chapter are to require that a vast amount of data be submitted in connection with a 316(a) demonstration. However, much of the data being requested, while having general interest aspects, is not relevant to the 316(a) demonstration. The impact of the Chapter is significant in terms of manpower and cost, particularly as it relates to providing data on "thermal plume characteristics." Such characteristics depend on field surveys, mathematical models (computer

models), and physical models.

Cost of Data -- Following are approximate typical costs for the acquisition, analysis, and reporting of field data and the application of computer (math) and physical models:

Boat survey for 3-dimensional temp. -- \$10,000 per survey.

Quantitative Aerial infrared survey -- \$60,000-75,000 per survey. (assumes 4 IR runs per survey).

Physical Model studies -- \$200,000 - \$6,000.000.

Computer Model studies -- \$25,000-50,000 (application only).
\$50,000-100,000 (application and development).

Permanent monitors (temp. and current) -- \$15,000-20,000 per monitor.

Time Needed

Field surveys must have seasonal data over one year.

Boat survey -- 35 man weeks per survey.

Physical model study -- 1 year.

Computer model study -- 3 months (application only)
1 year (application and development).

Manpower Needed

Following are roughly the number of available organizations/ consultants presently doing this type of work. The lead time needed for new firms to develop these capabilities is at least 1-2 years.

- a. There are less than 6 aerial infrared sensing firms having the capability to measure and analyze thermal plume data.
- b. Less than 6 firms providing permanent monitoring instrumentation.
- c. There are about 12-15 physical modeling consultants. Each can handle no more than one study per year.
- d. 10-20 computer modeling consultants. Three to five projects at a time per consultant.

Effects of Chapter VII - Mixing Zone Guidelines

Perhaps the greatest potential problem area in the guidance manual is the treatment of mixing zones. The physical sizes and shapes of mixing zones for fresh water are discussed only in vague qualitative terms. The size and shape of the mixing zone for marine water is defined in terms of the 2° F isotherm, with the net result being the requirement for highly impractical and prohibitively costly offshore diffusers. The total impact of this Chapter, however, is really unknown, because of the vagueness and uncertainty which permeates it. Certainly, the Chapter as presently written does not provide rational guidance.

Effects of Chapter VIII - Thermal Load Analyses

This Chapter is also couched in vague and uncertain terms. It appears to have been hurriedly pieced together by using sections from previous EPA publications. The thermal load analyses presented for rivers and lakes (the river analysis in particular) are severely limited in their application to

actual situations because of gross simplifications in the technical approaches. There are probably no more than three or four river plants in the U.S. for which even very approximate load analyses could be made using the approach in the guidance manual. While rivers and lakes are handled inadequately, estuaries and oceans are ignored completely. All receiving water bodies should be treated in a consistent manner.

The major effect of this chapter would be to provide erroneous or inadequate guidance to the EPA personnel who are processing 316(a) applications.

B. Specific Recommended Changes

We believe that the physical aspects sections are so technically deficient that they are beyond salvaging. Therefore, we recommend that the entire section be scuttled. Though we believe its retention ill-advised, we offer the following recommendations as the minimum acceptable changes if it is retained.

1. Chapter VI Engineering and Hydrological Data page 36 (b) Plant Operating Data.

a. Cooling Water Flow

Table B, Cooling Water Characteristics, serves no useful purpose as it stands. The values of various parameters at partial loads can be calculated from pump and condenser

characteristic curves, but the results have no relevance to 316(a) determinations. The only useful data which might be furnished at this point are design data for individual units that use a common intake and discharge.

Table B should be deleted and replaced as follows:

Table B

Design Cooling Water Characteristics, by Unit and Station
(Full Load)

Unit	Rate of Cooling Water Flow	Condenser ΔT	Mean Discharge Velocity
a			NA
b			NA
.			.
.			.
.			.
n			NA
Station			

Section VI(b) as written in the Draft suggests that the authors are interested in temperature changes that result from time variations in the power output of the units, which in turn, changes the rate of heat discharge. The operating cycle of any generating unit is determined on a real-time basis by the system load dispatcher. Even base load plants are controlled on a system basis. Predictions of expected operations for new plants or the operating histories of existing plants would have

no apparent value in a 316(a) determination.

Assuming cold shock is the concern, one analyzes the effect of a sudden unit or station shutdown. This, Part VI (b)(3) should be deleted because it has no real meaning.

Part VI(b)(2) deals with the time-temperature history of a typical volume of water as it passes through the plant cooling system. These data are relevant to the potential mortality of entrained organisms, but this paragraph should be reworded as follows:

(2) Submit a time-temperature profile of a volume of water as it passes through the plant cooling system. For each unit use design power level and plot temperature on the ordinate and time on the abscissa. The graph should indicate the water temperature relative to an ambient inlet temperature from the time it passes through the cooling system until its return to ambient temperature.

Table C apparently refers only to fresh water sites. For a once-through system, all plant-rejected heat is ultimately dissipated to the atmosphere. The breakdown between convective, radiative and evaporative heat transfer mechanisms vary according to meteorological conditions. However, for estimating purposes, approximately 40-50 percent of the reject heat is dissipated by evaporation during winter months and about 60-70 percent is dissipated by evaporation during summer months.

Therefore, Table C should be deleted and Part VI(b)(4) should read:

(4) For each unit, estimate the consumptive water use. State the assumptions used. Provide these data for the year of operation reported in FPC _____ for the year 197____. (Use the same year as required for 304 classification purposes.)

Chapter VI, para (c), page 38: Hydrologic Information

Change the first sentence to read:

Flow: Provide the information called for in paragraph (i), (ii), (iii) or (iv), as applicable to the site, using existing data augmented as needed by site specific studies:

Reason for recommended change:

Since large amounts of data are being requested, it should be emphasized that existing data, when available, can be used to the greatest degree possible.

Add under "Flow":

(iv) Oceans: tidal heights and qualitative discussion of the site's flushing characteristics.

Reason for recommended change:

Oceans have been ignored in the Guidance Manual, but should not be.

Para (c)(2), page 38:

Add:

(iv) Oceans: Seasonal changes in current speed and direction.

Reason for recommended change:

Same as preceding reason.

Para (c)(4), page 39:

Change to read:

(4) Tabulate or illustrate ambient temperatures of the receiving waters for the preceding 10 years to the extent published data exists.

Reason for recommended change:

Giving "weekly means and extremes" does not provide information relevant to a 316(a) determination. The second sentence was deleted because its meaning is not clear.

Para (c)(5), page 39:

Delete the words " . . . at 0.5m interval"

Reason:

Water depth contour intervals are site specific. Also, a 0.5m interval is unduly restrictive for any site.

Para (d), page 39: Meteorological Data:

Delete this paragraph.

Reason:

The acquisition of meteorological data is not relevant to a Section 316(a) determination.

Para (f)(1), page 40: Thermal Plume Characteristics:

Replace this paragraph with the following:

Provide the following information on thermal plume characteristics:

Existing Plants (Measured data)

- (1) Scale drawings showing typical surface isotherms at specific temperature increases (such as 3°C., 5°C., etc.). Specify the definition of ambient temperature used in the study which, when subtracted from the absolute measured temperatures, yields the above temperature increases. Discuss the implications of seasonal variations and extreme hydrological conditions.
- (2) Scale drawings showing the above isotherms in the vertical water column along two transects of the plume.

New Plants - (Predicted data)

Scale drawings showing the predicted surface and subsurface isotherms obtained using physical or mathematical models. Only the incremental plant-induced temperature increases are shown; ambient temperatures are not predicted.

Reason:

The data required by para (f), as presently written, are much more extensive than those actually needed to properly delineate the thermal plume.

The ranges of ambient variations in the natural environment can be large, even for a period of one day. For example, natural daily changes of 3-5°C. have been frequently observed in near shore coastal waters. Therefore, the time and space scales, and temperature intervals, when measuring temperatures in the environment are site dependent. These parameters should not be arbitrarily set, as in paragraph (f), but should be flexible to be consistent with ambient variations.

It would also be impossible to accurately define an actual thermal plume's configuration for various percentages of time because of the multiple dependent joint probabilities of the various parameters (time, flow, meteorology, etc.) which bear on ambient temperature variations. The temperature measured in a real body of water varies from point-to-point and is not constant with time. Experienced investigators who have actually performed field studies recognize that establishing a workable definition of "ambient temperature," and actually measuring it, is critical to any plume study. For example, changing the ambient temperature by only 1°F. can change the areas enclosed by lower level (say 2°F.) surface isotherms by a factor of five. For this reason, plume studies and the mixing zone concept, although extremely useful for the purposes of design and evaluation, have never proven usable as a compliance tool if based on low temperature increase levels.

Paragraph (F)(2), page 40:

Delete this paragraph.

Reason:

Discussing seasonal variations adequately covers extreme plume configurations. Variations attributable to variable climate conditions would be highly speculative, if even possible to analyze.

C. Chapter VII Mixing Zone Guidelines

(2) Fresh Water

(c) General Principles

It is popular to say that the permissible size of a mixing zone is related to the acceptable amount of biological damage (page 43). However, to date, few (if any) mixing zone criteria have ever actually been set on this basis.

The theoretical arguments proposed in this chapter and the appendix are untested and naive. They have not been published in the scientific literature in the sense that they are proposed to be used and have never been subject to critical review by competent authorities.

Their inclusion in a draft manual at a point in time when Regional Administrators have little choice but to use whatever guidance they can find, leaves no time for such review. Therefore, they should be deleted from the proposed Guidance Manual.

VII(2)(c)(iv) Shape:

These two paragraphs are not logical, except for the second sentence of the first paragraph: "Actual plumes are not fixed

in either size or shape and therefore cannot be used as boundaries."

The rest of the discussion about the merits of circular mixing zones and avoidance of shore-hugging plumes is naive. The final sentence, implying helpful impact on site selection, is self-serving and meaningless. These paragraphs should be deleted.

(2) Mixing Zone Guidelines - Fresh Water

(f) Total Biologic[al] Value, page 47

It is recommended that the first sentence in this section should be retained, but that the entire remainder of Section (f) from "A relative biologic value for the various zones is needed" to the end of Section (f) on page 48, should be deleted. There is no existing generally acceptable basis for assigning relative biological values to different biological zones in such a way as to "allow Regional Administrators to encourage dischargers to locate in areas least likely to be damaged" any differently than by merely identifying those zones that are notably more important than others (without assigning arbitrary values).

(g) Level of Protection, page 48

This entire section, which depends on Section (f), should be deleted for the same reason.

(h) Allocation Alternatives, page 49

Similarly, this entire section should be deleted, through page 56.

(3) Mixing Zone Guidelines - Marine Water

Replace the entire section on pages 57 and 58 with the

following:

(3) Mixing Zone Guidelines - Marine Waters

Delineation of marine water mixing zones must take into consideration biological and socio-economic factors which are highly site specific. Also, the variety of hydrologic situations found in ocean and estuary environments logically require different types of mixing zones. The natural fluctuations in ambient temperatures at different locations in these environments are reason enough for a mixing zone at one site to be significantly different from that at another. Consequently, specific numerical criteria for marine water mixing zones should be defined on a case-by-case basis taking into account specific regional differences.

Reason:

The Guidance Manual recognizes (page 41) that "the characteristics of an acceptable mixing zone vary according to location, and the specific determination must be made on a case-by-case basis." In addition, the EPA's Criteria for Water Quality (October 1973) states that Regional Administrators will have policy guidelines which "include provisions for waters to be exempted from specific criteria on a case-by-case basis for specified periods when naturally occurring conditions exceed limits of the EPA criteria or other extenuating conditions prevail to warrant such exemptions." (page 17.)

The specific mixing zone criteria enumerated on pages 57 and 58 are not at all consistent with the more rational "case-by-case" approach previously taken by the EPA as indicated by the above quotations. Therefore, it would be appropriate to recognize this by replacing the specific criteria on pages 57 and 58 with the above language which allows a more rational, flexible approach.

To illustrate the unreasonable limitations imposed by the criteria on pages 57 and 58, it is pertinent to examine the types of diffusers which would be needed to meet the criterion of paragraph (c) on page 58. The thrust of this "criterion" is that "an acceptable volume to surface area ratio will be approached when the slack water maximum horizontal dimension enclosed within the 2°F. isotherm does not exceed the depth of the zone." Letting L = horizontal dimension and H = depth of zone, the criterion can be stated as $L/H < 1$. To limit the surface temperature increase to 2°F., a long diffuser in shallow water (say 50-70 feet) could be used or a shorter diffuser in deep water (say greater than 300 feet) could be used. It is evident that the diffuser length must be less than its depth to satisfy the above criterion. The "criterion," therefore, is forcing the use of diffusers in deep water.

As an example, diffusers for a two unit nuclear plant (2200 MWe approx.) have been sized in an attempt to satisfy the criterion. The EPA's "Workbook of Thermal Plume Prediction, Volume 1, Submerged Discharge," Corvallis Oregon, August 1972, was used in making these estimates. If the diffusers are located in 70 feet of water, the total length would be about 1650 feet, assuming 56 near-horizontal individual 3 foot diameter jets having a velocity of 10 feet/second and a temperature increase of 18°F. This configuration results in a maximum 2°F. isotherm at the water surface. For this case, $L/H = 1650/70$ (approx.), and is far from satisfying the criterion.

If the diffusers are located in 300 feet of water, a total diffuser length of about 150 feet is obtained, assuming 20 indi-

vidual 5 foot diameter jets having a velocity of 10 feet/second and a temperature increase of 18°F. This configuration results in a 2°F. isotherm at the surface which is about 300 feet in length, and, therefore, roughly satisfies the criterion, since $L/H = 300/300$ (approx.). There are several other configurations which could be used, but these are not significantly different than this one.

In this example, the 300 foot depth should be viewed as a minimum, because there are sound technical reasons which strongly indicate that the EPA workbook underestimates plume size. However, even for 300 feet, the feasibility of constructing such a diffuser is in question, particularly if the bottom topography and composition require tunneling. Even assuming feasibility, the cost of construction would be enormous, and it simply is not a realistic alternative.

D. Chapter VIII, Thermal Load Analyses

This chapter describes several simple analytical techniques for predicting temperature distributions in only lakes and rivers, which receive thermal discharges. The techniques are described to have interesting "academic" applications, but, for the most part, are severely restricted as applied to real situations. Predictive techniques for estuaries and oceans are not even mentioned, even though many utilities use these receiving water sources exclusively.

To develop realistic and accurate "thermal load analyses" requires technical approaches which are tailored to the specific case being considered. It is not possible to develop a

simple model or technique which is generally applicable to a variety of situations.

Introduction, pages 59-62:

It is recommended that this section of four pages be deleted, and the following redraft substituted.

VIII

THERMAL LOAD ANALYSES

Introduction

For 316(a) evaluations, the major emphasis is on developing information to support (1) assurance of the protection and maintenance of balanced, indigenous populations (Chapters II-VI), and (2) determination of allowable mixing zones based on biological considerations (Chapter VII). Although the "mixing zone" approach will probably constitute the primary means of evaluating individual thermal discharges in most cases, additional calculations of the total thermal load on a receiving body of water are needed whenever it is possible for critical temperature conditions in a receiving water to be caused by the (combined) effects of one (or more) thermal discharge(s) operating under critical hydrological, meteorological and biological conditions.

Basically, the approach in total thermal load analyses is: (a) to access the total rate of heat contribution from all discharges entering a water body, (b) to determine the volume and/or surface area of the receiving water affected cumulatively by these discharges, and (c) to compare possible physical changes in the receiving water with pertinent water quality standards and temperature criteria. The need for total thermal load calculations is particularly important when considering the cases involving (a) new sources near existing plants, or (b) reservation of heat assimilative capacity for future thermal discharges.

The following outline addresses several points to be considered.

I. When are total thermal load analyses required?

A. When there are occurring or suspected violations to water quality standards and/or criteria during critical conditions of plant loading, receiving water flow, local meteorology, and/or local biological activity (e.g., spawning).

B. When there are several thermal discharges in close proximity, or where future growth plans indicate the need to allow for installation of new facilities (power plants, steel mills, etc.); or

C. When the receiving water for an individual discharge is specifically identified as a thermally loaded water under Section 303(d)(1)(B) and (D) of P.L. 92-500.

II. When is a total thermal load analysis adequate?

A. When the analysis has identified the extent of probable variations of water quality standards or criteria in terms of daily and seasonal variations of plant operations, receiving water flows, and weather conditions; and

B. When the analysis provides sufficient detail regarding control strategy(ies) (e.g., limits on rates of heat rejection to be applied to each discharge) needed to achieve conformity with water quality standards or criteria;

C. If models are used for the analysis, when the satisfactory accuracy of these models is established.

III. Information to be Obtained by the Applicant

A. Engineering and Hydrologic information (see Chapter VI).

B. If the applicant is the only significant thermal discharger on the receiving stream where violations are suspected, he will bear the burden of supplying the necessary data and analyses.

C. If there are several discharges with cumulative effects, each discharger is responsible for data collection in the region between his neighboring discharges.

Part 2 Thermal Load Analyses - Examples pages 71-111

Since the examples quoted in this section are, for the most part, taken directly from the Committee report:

"Technical Manual at Selected Techniques for Case-by-Case Evaluation of Thermal Discharges" and other publications, it is recommended that the entire section be deleted and references to the original document(s) substituted. Supplementary reasons for this recommendation include:

a. The 1965 methodology of Edinger and Geyer used for analysis of rivers is out-of-date (see Ref. 3, page 103) and contains several weak approximations (e.g., Table for B, page 78) and assumptions (e.g., constant stream width and depth, page 79) that render its use grossly approximate and over-simplified.

b. The stochastic data of Asbury and Frigo used as a basis for predictions of plumes in lakes was presented by the original authors for analytical purposes only, and was never intended to be used for predictive or regulatory purposes.

c. It would be more appropriate for the Guidance Manual to refer EPA personnel to state-of-the-art literature on a particular model or technique which should be used in a given case involving lake, river, estuary, or ocean thermal discharges. The Guidance Manual, when adopted in its final form, will have the force of regulation, and it should not be encumbered with technical data and detail related to performing specific thermal load analyses. It cannot possibly cover the range of applications which must be analyzed.

C. Results of Industry Questionnaire

RESULTS OF INDUSTRY QUESTIONNAIRE

Fifty-nine utilities, totalling 350,212.7 MW of generating capacity under the given definition of "existing sources,"¹ responded to Part I of the EEI-UWAG questionnaire concerning § 316(a) of the Federal Water Pollution Control Act Amendments of 1972. This is equivalent to 82.2% of the nation's projected total installed generating capacity for 1973 (425,847 MW). The total megawatts of capacity given in response to each question are set out in the attached excerpt from the results of the questionnaire. Also included is Table I demonstrating the total megawatts answering each question and indicating what percentage these figures are of the total capacity responding to the questionnaire.

Fifty-three utilities, totalling 337,812.1 MW of generating capacity under the given definition of "existing sources," responded to the EEI-UWAG Emergency Bulletin of June 1, 1974 concerning answers to the EEI-UWAG § 316(a) questionnaire. This is the equivalent of 79.3% of the nation's projected total installed generating capacity for 1973. The total megawatts given in response to each question are set out in the attached excerpt from the results of the telegram. Each answer is followed by the percentage this figure is of the total capacity responding to the telegram.

¹See attached Part I of the questionnaire.

The questionnaire and telegram necessarily reflect hasty and highly subjective answers to questions regarding the effect of the vague EPA § 316(a) proposals. They do not reflect the vagaries of litigation, except in the time estimates for preparation of an adequate case. The estimates of plants qualifying under § 316(a) are unrealistically high since the respondents indicated an average need for about 14 to 23 months to prepare the cases for approval. Yet, as the UWAG Comments on § 316(a) graphically demonstrate, these time periods simply are not available.

These questionnaire and telegram results were compiled prior to an industry-wide critique of the EPA Guidance Manual for § 316(a) and thus do not reflect that critique. We concur, however, with the industry conclusion that the number of plants getting exemptions under the "no appreciable harm" test and the "representative important species" test will be severely limited if the Manual is stringently adhered to.

A. Section 316(a)

1. How Many megawatts on your system are classified as "existing sources"* under FWPCA? -- 350,212.7

2. On how many "existing source" megawatts on your system do you have:

a. Thermal effluent dispersion studies? -- 190,756.25

b. Studies of the biological effects of your thermal discharges? -- 170,938.25

c. Studies of the biological composition of the aquatic life at your plants? -- 206,251

d. As to (2)(b) and (c), how long would to need to complete any further studies you feel would be appropriate to prepare for a 316(a) proceeding if it were uncontested? -- Average of 13.9 months with a range of 0-36 months

If it were contested? -- Average of 22.7 months with a range of 0-60 months

3. How many "existing source" megawatts on your system have been certified by your state authorities as being in compliance with the applicable federally approved state water quality standards? -- 100,431

4. To how many "existing source" megawatts on your system do you believe your EPA regional administrator or your state authorities will grant 316(a) alternative effluent limitations

*"Existing sources" are units in operation, units under construction, and units for which contractual obligations to purchase equipment for installation at a specific site were made prior to March 4, 1974.

under any of the following:

- a. A "no appreciable harm" test of 122.8(a)(1), or 122.13(a)(1), of EPA's proposed 316(a) regulations (see 39 Federal Register 11434, March 28, 1974)?
-- 117,074.4
- b. A "representative and important species" test of 122.8(a)(2) or 122.13(a)(2) of the EPA's proposed 316(a) regulations? -- 56,527.5
- c. A water quality standard test, should EPA include one in the 316(a) regulations; i.e., that you comply with the applicable federally approved state water quality standards? -- 93,166.7
- d. Total of above? -- 181,433.1

5. As to any plants that cannot qualify under 4(c), could they qualify if the applicable water quality standards contained a mixing zone defined as follows:

An area whose temporal and spatial (area, volume configuration and location) distribution will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the receiving water body?

-- Yes 30; No 8; Unknown 21

TABLE I
SUMMARY OF § 316(a) QUESTIONNAIRE RESPONSES

<u>Question Number</u>	<u>Question Posed</u>	<u>Megawatts Responding</u>	<u>Percentage of Total Megawatts Responding</u>
1	How many MW are "existing sources"	350,212.7	100
2	On how many "existing source" MW do you have:		
2a	Thermal dispersion studies	190,756.3	54.47
2b	Biological affects studies	170,938.3	48.81
2c	Biological composition studies	206,251	58.89
3	How many existing source MW have been state certified as within federally-approved state water quality standards	100,431	28.68
4	To how many existing source MW do you believe your EPA regional administrator or state authorities will grant § 316(a) alternative effluent limitations for:		
4a	"No appreciable harm" test of 122.8(a)(1) or 122.13 of EPA's proposed § 316(a) regulations	117,074.4	33.43
4b	"Representative and important species" test of 122.8(a)(2) or 122.13(a)(2) of EPA's proposed § 316(a) regulations	56,527.5	16.14
4c	A water quality standard test, should EPA include on the in the § 316(a) regulations	93,166.7	26.60
4d	Total of above	181,433.1	51.81

RESPONSES TO E.E.I. - UWAG EMERGENCY BULLETIN OF JUNE 1, 1974

Responses to the EEI questionnaire of April 26 show that of total megawatts responding (350,000 out of 425,000 total industry) only 93,000 MW were listed in answers to 4(c), i.e. 316(a) exemption via a water quality standards test. Responses to the questionnaires and inquiry of several companies, however, show that companies responded to question 4 on the basis of differing assumptions (cumulative results v. independent separate test) and some only included plants under answer to 4(c) that could not get 316(a) exemptions under 4(a) the "no appreciable harm" test or 4(b) the "indicator species" test. We accordingly need a new response from you on the basis of each of the tests in 4(a), (b) and (c) being treated as alternative methods of exemption (i.e. one plant may get out under more than one of them). Please respond by reply telegram or night letter or telecopier message (804-649-3661, indicate telecopier message for Freeman).

As follows: (Your individual response will be treated as confidential)

1. Company name _____
2. Total megawatts of "existing sources" on your system 337,812.1 MW (79.33% of projected capacity for 1973)

3. Of the above, the megawatts you believe should qualify for 316(a) exemption under:

(A) No appreciable harm test

(i) with Manual in effect 125,294.3 MW (37.09%)

(ii) without Manual in effect 162,484.3 MW (48.1%)

(B) Representative and Important Species test

(i) with Manual in effect 77,935.3 MW (23.07%)

(ii) without Manual in effect 161,101.3 MW (47.69%)

(C) A State Water Quality Standards test (As presently approved by EPA)

(i) if interpreted by State 159,587.8 MW (47.24%)

(ii) if interpreted by EPA 127,504.8 MW (37.74%)