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Final Report

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

SCIENCE AND TECHNOLOGY DEVELOPMENT PROJECT

ENVIRONMENTAL PROTECTION FOR TUNISIA

Visit to Tunisia August 6 -- August 22, 1983

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## I. ACKNOWLEDGMENTS

The contractor acknowledges and expresses his appreciation to Officials of the Government of Tunisia and the U.S. Agency for International Development for their invaluable assistance and cooperation in providing information and otherwise aiding the contractor. Particular "thanks" go to Mr. M. Majoub, Director and Mr. M. Darmoul, Deputy Director of the Department of Environment, Standards and Quality Control of the Government of Tunisia and to Mr. Richard Stevenson and Ms. Saida Zaiten of the Office of Science and Technology, U.S.A.I.D. Tunis.

## II. SUMMARY OF ENVIRONMENTAL PROGRAMS IN TUNISIA

Tunisian environmental programs are based on several laws, codes and decrees dating back to the 1930's (see Final Report of Howard J. Taubenfeld). Probably the most important of these are the Water Code of 1975 and the Decree of the President dated 12 April 1978 establishing the National Commission for the Environment and providing the Commission with a broad charter for environmental protection.

Environmental program activities are carried out by several Ministries, including the Ministry of Agriculture which represents the Tunisian Government in certain international environmental endeavors and deals with environmental programs to protect agriculture, the Ministry of Public Health which regulates pollution from municipal sources, and the Ministry of National Economy which regulates industrial pollution. The contractor's activities were limited to dealing with the personnel and programs of the Ministry of National Economy (MNE), Department of the Environment, Standards and Quality Control.

Information available to the contractor suggests that the principal environmental activities of the MNE are regulating industrial water pollution sources and participating in activities of the National Commission for the Environment.

Industrial pollution control activities include working with existing major sources to reduce discharges of water pollutants, reviewing plans for new industrial sources and specifying water pollution control measures, responding to complaints about pollution, participating in planning activities to locate industries in industrial zones, compiling an inventory of industrial facilities, and visiting industrial plants to check on compliance with requirements. Laboratory support for these activities is

provided by the environmental annex to the Central laboratory of Tunisia. The Central laboratory is located in Tunis with the environmental annex located in Gabes. Technical assistance in evaluating pollution control needs of specific industries has been provided by U.S.A.I.D. Environmental monitoring seems to have been performed only to a limited degree, but some expansion is planned using equipment to be supplied by U.S.A.I.D.

Activities of MNE relating to the National Commission on the Environment are currently focused on a draft decree on water quality and on discussions regarding ambient and/or source standards. The draft decree, developed pursuant to the Water Code of 1975, is the first specific environmental regulatory authority in Tunisia.

The total staff of MNE working on environmental programs is approximately ten, of which four are engineers and the remainder are technicians and support personnel. Priorities to be addressed when additional staff become available are 1) developing air pollution and other environmental legislation; 2) more frequent industrial plant visits to ensure compliance; and 3) establishing a monitoring program.

### III. SUMMARY OF MEETINGS WITH TUNISIAN OFFICIALS

Three meetings were held during the week of August 8 - 12 with Mr. Darmoul (Mr. Majoub was on vacation) to determine the status of environmental programs in Tunisia and to learn what kind of assistance could be provided by the contractor. Mr. Darmoul's principal requests from the contractor were to review and comment on the draft water decree and to advise on U.S. experience with environmental standards. In the area of standards Mr. Darmoul was interested in U.S. experience with ambient standards, technology based source standards, and the use of goals versus standards. In addition, the contractor developed an outline of program elements for environmental management and a list of potential special project needs for the environmental program of Tunisia. These outlines were discussed with Mr. Darmoul who asked that the outlines be expanded and developed in several areas.

On August 15, the contractor met jointly with Mr. Majoub and Mr. Darmoul and presented a draft of the expanded outline of program elements for environmental source agreements. Copies of U.S. effluent guidelines for major sources of water pollution in Tunisia and new source performance standards for air emission sources were presented to Mr. Darmoul at the August 15th meeting.

The draft water plan, which had been translated into English on August 13 was discussed. Oral comments on the draft water decree were presented to Mr. Majoub on August 16th and draft written comments were presented on August 18th. The final meeting was held with Mr. Majoub on August 19th at which time he responded to the draft comments. During the August 18th and 19th meetings broader discussions were held concerning staff levels, future directions of the Tunisian program, future organizational needs, and content of the contractor's final report.

Mr. Majoub expressed satisfaction with the contractor's comments on the draft water decree and the proposed outline for the final report. The contractor offered to provide additional follow-up information or answer questions Mr. Majoub may have following receipt of the final report.

## IV. PROGRAM ELEMENTS FOR ENVIRONMENTAL MANAGEMENT

### 1. Introduction

This paper is intended to provide conceptual framework for a comprehensive environmental program in Tunisia. Some elements are already being implemented in Tunisia such as water pollution controls on industrial sources. Others are being considered such as environmental standards. It is suggested that efforts proceed on each element in this paper as opportunity exists. Development and implementation of the suggested elements should proceed in parallel; i.e., one element need not be developed fully before work can begin on another.

The reader of this paper should not presume that a complex, sophisticated program containing all recommended elements needs to be developed before progress can be made. To the contrary, it is far more important that incremental progress in pollution abatement and prevention be continued while other needs are addressed. In any event, the level of complexity and sophistication should always be commensurate with the need in Tunisia.

The U.S. experience is presented in this paper to simply illustrate how programs have been conducted there for whatever benefit that experience may be to others. It is not intended that Tunisia simply adopt the U.S. approach and all of its trappings. Instead, Tunisia has the opportunity to develop a more simplified, straightforward approach tailored to the needs and conditions of that country.

### 2. Monitoring of Ambient Environmental Quality

#### Recommendation:

Establish a program to monitor air and water quality in the ambient environment.

#### Discussion:

Fixed stations at which ambient air quality is measured continuously should be established with priority given to measuring the pollutants suspected of being in highest concentration at specific locations (CO and O<sub>3</sub> in Tunis, Particulates and SO<sub>2</sub> in Gabes, etc.). It is likely that only a few stations in major population and industrial centers would suffice in the

beginning. It may be desirable to augment data acquired at fixed stations with periodic short-term studies with several sampling sites in a particular area surrounding the fixed station.

~~at~~ Similarly, sampling points should be established ~~at~~ which water samples are periodically collected and analyzed. These sampling points should be established at important points of water use such as beaches, municipal water supply intakes and points of diversion for agricultural use. Intensive short term surveys to better define local circumstances may be needed periodically.

Ambient air and water quality monitoring network data will help define the status of environmental quality with respect to national goals or standards of desired quality.

Priorities for environmental cleanup and/or protection can be set using information from environmental monitoring. Ultimately the effectiveness of programs to limit pollution can be determined using ambient data.

### 3. Ambient Standards or Goals

#### Recommendation:

Ambient air quality standards or goals should be set to protect human health and welfare and ambient water quality standards or goals should be set to provide for beneficial uses.

#### Discussion:

Ambient standards or goals are useful as a reference point to determine whether or not measured environmental quality is adequate to serve beneficial uses. If the standards or goals are exceeded, priority for improvement can be set on the basis of the most serious violations as measured by the degree of violation, the frequency of violations, or the area of violation.

In the U.S. uniform ambient air quality standards have been set to protect human health and welfare. These standards apply throughout the country. These standards were theoretically set without regard to the cost of compliance on the basis that human health cannot be compromised for monetary savings. In

practice, some form of recognition for costs was considered in two ways. First, arguments can be made that the only truly safe level of some pollutants is zero to protect all people at all times. Because a level of zero pollutants is totally infeasible, standards were set to protect most people most of the time. These standards are highly protective of public health but not totally protective under every conceivable condition. A second way in which economics were considered was to allow time for compliance to be achieved thus spreading costs over time.

Ambient water quality standards in the U.S. are set by the individual states based on national water quality criteria and approved by the federal government. The national criteria set forth the water quality conditions needed to support various uses. The states decide which bodies of water are to be used for which purposes and then adopt the appropriate water quality standards based on the criteria. The federal government may disapprove the state standards if they are judged too lenient to meet the overall goals of the federal act or would allow a major degradation of state water quality.

In the U.S. ambient standards rather than goals are now used. The probable reason is that adequate progress in pollution abatement was not being made without standards. The public reacted to this through the democratic process and the result was legislation which demands a variety of strict measures, including compliance with ambient standards.

Under U.S. conditions, standards are much more action-forcing than are goals because they have the force of law behind them. On the other hand, standards are quite inflexible and can be difficult to enforce. An example of difficulty of enforcement is the complexity of relating source emissions to ambient standards, particularly when several sources are involved.

#### 4. Inventory of Pollution Sources

##### Recommendation:

Inventories of pollution sources should be established showing the location of each significant pollution source; the nature of the wastes discharged to air, water or land; the quantities of each constituent discharged and the type of waste treatment

employed.

Discussion:

Inventories of pollution sources are invaluable in understanding the causes of ambient levels of pollutants and in developing a program for control and prevention of pollution. Inventory efforts should begin with major municipal and industrial sources and when appropriate, other significant sources such as automobile emissions in large cities. As the need arises, smaller sources can be added. Provision needs to be made for periodic updating of the inventory.

5. Technology Based Standards

Recommendation:

Technology based emission/effluent standards should be developed to control air and water pollution at the source on an equitable basis between like sources.

Discussion:

It seems desirable to define the basic expectations of the Government of Tunisia regarding the level of control technology to be applied to air and water discharges by various sources. Where only one or a few sources exist or are expected in the reasonable future, technology based standards could take the form of a simple policy statement rather than // complex regulatory standards.

In the U.S. technology based standards, sometimes called effluent or emission standards, have been set for municipalities and most industrial categories. These standards apply throughout the country even when air or water quality conditions would not otherwise require the degree of control imposed by the technology standards. Reasons for this uniformity include: 1) equal economic costs to all sources of the same type, hence no competitive advantage based on location; and 2) a philosophy of doing the best treatment job that can reasonably be done to allow for future industrial growth without exceeding ambient standards. More stringent effluent limits than specified by the technology standards can be required if needed to meet ambient standards.

Technology standards are set by reviewing the

currently available industrial process improvements and treatment techniques, the costs of the new control techniques, and the general availability of the equipment. A proposed standard is then set based on technology and cost so that environmental improvement will result but without severe economic dislocation. The standard is specified in terms of numeric limits on effluent quality rather than specific equipment or process to allow industry to make its own choices regarding pollution control techniques. The proposed standard is then subject to public and industry comment, revised if necessary, then issued as a final standard. Often a few older, less efficient plants will close rather than install the required technology, but widespread plant closures have been avoided by judicious selection of standards.

Technology based standards, especially air emission standards, usually are more stringent for new plants than for existing plants. The reason being that modern processes and treatment techniques can be employed in new plants at lower cost than for existing plants.

## 6. Environmental Planning

### Recommendation:

Environmental planning should be conducted to develop a program for control and prevention of pollution to meet environmental standards or goals.

### Discussion:

An effective environmental plan requires several elements:

- 1) Ambient standards or goals.
- 2) Ambient data to define the environmental status compared to the goals or standards.
- 3) Information on sources of pollution causing ambient concentrations.
- 4) The ability to control pollution sources through technology standards and/or other means.

The concept of an environmental plan is relatively straight forward but difficulty can be encountered in determining source reductions needed to produce the desired ambient improvements. In many cases the relationship is direct, i.e., a 20% reduction in emissions will produce a 20% reduction in ambient

levels. In some cases the relationship is more complex and requires a sophisticated level of technology to predict. Tunisia should consider developing technical expertise in this area augmented by consultant assistance in the near term. In the meantime, progress in improving environmental quality can be made by controlling pollution sources even if the precise degree of ambient improvement cannot be predicted.

In the U.S. environmental planning procedures differ for air quality and water quality because differing laws apply, each of which specify detailed procedures. In Tunisia no such detailed procedural requirements are specified by law, hence flexibility exists to adopt approaches which may be more workable.

## 7. Implementation and Authority

### Recommendation:

Authority should be established to implement the actions identified in the environmental plan.

### Discussion:

This section is included in simple recognition of the fact that plans are of no practical value if they cannot be placed in effect. It is recognized that Tunisia has existing codes and decrees of a general nature which are useful in regulating pollution and that additional decrees such as the water decree are being developed. Further, the nature of the Tunisian economic and government system is such that government participates in ownership and management of industry, thus providing inherent authority to regulate pollution.

Even given the above situation, it would be desirable to evaluate the need for broad enabling authority for environmental protection of the nature proposed by Taubenfeld and/or additional specific authority like the water decree for air pollution and land pollution.

## V. POSSIBLE SPECIAL PROGRAM NEEDS

### 1. Introduction

This section was developed to identify possible special program needs which may not be covered in the previous section on Program Elements for Environmental Management. It is not suggested that intensive efforts begin on special program needs at this time. Instead, they should be considered as issues to evaluate and consider and to follow up on as is appropriate. Two items, PCBs and hazardous waste sites are considered more urgent than the others.

### 2. Polychlorinated Biphenyls (PCBs)

#### Recommendation:

The Government of Tunisia should determine whether or not PCBs are contained in products used in Tunisia and if needed, develop a control program.

#### Discussion:

PCBs were manufactured and used extensively in the U.S. before the health dangers of the compound were recognized. PCBs are chemically very stable and thus persist for a long time in the environment. In recent years the health effects of PCBs, even in small concentrations, were recognized and a control program was developed to address the problem. The manufacture of PCBs is now banned in the U.S. and a concerted program developed to control the use and disposal of PCBs.

One of the largest uses of PCBs in the U.S. was in electrical equipment, particularly transformers, where it was used as a coolant. Current practice in the U.S. is to systematically check for PCBs in transformer coolant and to label transformers containing PCBs. When a transformer or other electrical equipment containing PCBs is retired from service, the PCBs are removed and transported using special precautions to an approved storage site in preparation for ultimate disposal. Approved methods for ultimate disposal of high level PCB materials such as transformer coolants are: 1) special high temperature incineration; and 2) special chemical neutralization.

Note: Mr. Majoub asked if a product named "Pyralene" was a PCB compound. Upon returning to the

U.S. the contractor found that Pyralene is in fact a PCB compound manufactured by the French company Prodelec.

3. Hazardous Waste Disposal

Recommendation:

The need for a special program to address hazardous wastes should be evaluated and if appropriate, follow up steps taken.

Discussion:

Modern industrial society produces a variety of products and wastes which have increasingly been recognized as hazardous to human health or the environment. Examples include PCBs in electrical equipment, mercury in industrial wastes, pesticides, and a variety of toxic byproducts from the production of synthetic organic chemicals. Special provisions need to be made for the transport, storage, and ultimate disposal of these hazardous materials.

Attention should be given to determining the need for one or more disposal sites in Tunisia. Extensive requirements for hazardous materials disposal sites are evolving in the U.S. and current U.S. policies can be provided if desired. The main thrust of disposal site standards to assure that human exposure and environmental contamination are prevented over a very long period of time.

4. Disposal of Residues from the Treatment of Wastes

Recommendation:

Planning should begin to consider methods for safe disposal of sludges and other residues from treatment processes.

Discussion:

As more highly efficient treatment processes are used in Tunisia, larger volumes of treatment plant residues will be produced, requiring safe disposal methods. These residues include sludges from municipal and industrial liquid waste treatment, dry solids from particulate removal equipment for air pollution control, and sludges or slurries from liquid air pollution control processes. These residues often

contain materials including toxic constituents which can become environmental contaminants if not properly dealt with.

### Air Pollution from Vehicle Emissions

#### Recommendation:

Explore the need for reducing vehicle emissions and follow up if necessary.

#### Discussion:

Vehicle exhaust emissions are a major source of air pollution in most large cities. In many U.S. cities, vehicle emissions are the largest single remaining source of air pollution. Control of vehicle emissions is in many ways more difficult than control of large industrial sources because of the large number of individual sources involved and the impact of vehicle emission controls on individual citizens in terms of cost and/or inconvenience.

The major pollutants emitted by vehicles are:

- 1) Carbon monoxide which effects human health directly.
- 2) Unburned hydrocarbons which in the presence of nitrogen oxides and sunlight, transform to oxidents (mostly ozone) which affect human health and plant life.
- 3) Oxides of nitrogen which have direct health affects and also contribute to the transformation process described in item 2 above.
- 4) Lead which has direct health effects.

The two basic methods for reducing vehicle emissions are to reduce vehicle use in congested urban areas and to reduce emissions for each unit distance of vehicle travel. Reducing vehicle use in urban areas is generally accomplished by improving mass transportation accompanied by incentives to use mass transportation and disincentive to individual car use. Mass transportation incentives can include:

- \* comfortable, low cost, frequent service
- \* free parking at the outer terminus of transit lines
- \* designated bus only lanes or streets to improve transit speed

Disincentives to individual car use can include:

- \* limiting downtown parking (accompanied by high cost)
- \* transit only lanes cause more congestion for individual cars in remaining lanes

Carpooling can also be encouraged as a means of reducing vehicle travel.

Reducing emissions per unit distance traveled can be accomplished by improving traffic flow and by equipment installed on each new vehicle to reduce emissions. (It is not feasible to retrofit emission control equipment on existing vehicles). Model year 1976 and later vehicles sold in the U.S. (including foreign manufactured) emit approximately 90% less carbon monoxide and hydrocarbons than uncontrolled vehicles if proper maintenance is performed. The heart of the emission control technology is a catalytic converter which helps complete the combustion process. Supporting systems include crankcase and fuel system vapor recirculation to the engine intake. Catalytic converter equipped vehicles must burn unleaded fuel to prevent "poisoning" of the converter thus producing as secondary benefit ~~of~~ <sup>the</sup> elimination of lead emissions.

The disadvantages of vehicle emission control systems are:

- 1) Cost (several hundred dollars per vehicle)
- 2) Need for widespread availability of unleaded gasoline at higher cost (approximately 5¢ to 10¢ per gallon)
- 3) Need for periodic maintenance of vehicles (tuneups) to allow emission control equipment to function effectively

If significant air pollution from vehicles exists in Tunisia, it would be desirable to begin planning a control strategy by exploring the various available options for reducing emissions. If it is determined that vehicle emission controls are needed, discussions should be held with manufacturers of vehicles sold in Tunisia to determine the added costs for emission control equipment and models available with emission controls. Although all major free world manufacturers of vehicles produce vehicles with emission controls for export to the U.S. they do not necessarily equip all models of their vehicles with emission controls meeting U.S. standards.

6. Addressing Violations of Environmental Requirements  
(U.S. Experience)

Recommendation:

None. Information provided at the request of Mr. Darmoul.

Discussion:

Environmental requirements for industries, cities, and other sources of pollution are generally specified in a permit or other legally binding documents. Limitations on quantities of pollutants to be released are specified, prohibited practices or pollutant releases may be specified, monitoring requirements are set forth, and if appropriate, a schedule for installing environmental improvement is set forth. Monitoring is performed by the pollution source with periodic checks by the regulatory agency.

When violations of requirements are detected by the regulatory agency, an appropriate response is determined. The response could range from doing nothing for trivial violations to administrative actions such as a warning letter or administrative orders for more serious violations on to formal legal action for serious or protracted violations. U.S. environmental legislation provides for civil actions with maximum penalties of approximately \$25,000 per day of violation and criminal penalties for criminal offenses.

Civil remedies are used more frequently than criminal remedies and take the form of court orders compelling a pollution source to install needed equipment, alter its practices, cease and desist certain activities, etc. Court orders can be accompanied by fines usually significantly less than the maximum permitted by the law.

Regulatory agencies determine the level of penalties to be imposed administratively or to be sought in court using a variety of approaches which attempt to relate the size of the penalty to seriousness of the offense and the ability of the offender to pay. The most sophisticated approach to determining penalties is to try to assess a penalty equal to (or incrementally higher than) the money saved by the pollution source by not complying with the law.

Penalties seem to have the desired effect of discouraging violation of environmental laws. Potential violators are discouraged from actually causing violations by the potential size of the fine and by the adverse publicity associated with any fine.

## 7. Governmental Organization

### Recommendation:

Consideration should be given to the creation of a single agency with comprehensive responsibility for management of environmental programs in Tunisia.

### Discussion:

Responsibility of management of environmental programs in Tunisia is currently spread among several Ministries of Government (see Section II of this report). The National Commission for the Environment was established in 1978 to help coordinate the activities of the several Ministries responsible for environmental protection.

Management of environmental programs using the existing government organizational structure will become increasingly difficult as the number and size of environmental programs grows. Problems can be expected in coordination of program activities, in establishing equal priorities in the various Ministries for environmental activities, and in equal application of the codes and decrees by the several Ministries.

Experience in the U.S. and other countries which have created central agencies for environmental management suggest that the approach is useful in effective management of environmental programs.

## APPENDIX 1

### COMMENTS ON DRAFT WATER DECREE

By

DONALD P. DUBOIS

17 August 1983

#### I. Introduction

The Government of Tunisia is to be commended for moving forward with major rules to control water pollution. The choice of water pollution as the first major area of environmental regulation is logical but consideration should very soon be given to air pollution control and to other programs which may be needed to protect the environment of Tunisia.

The basic approach taken in the draft water decree to control pollution at the source of discharge and to protect water quality for a variety of uses is sound and consistent with practice in other countries. The draft decree is quite comprehensive in its coverage and should provide a sound basis for regulating water pollution in Tunisia.

Comments offered below are based on experience in the U.S. with the evolution of water pollution control activities there. The comments are intended to be constructive rather than critical in the hope that some problems encountered in the U.S. may be avoided in Tunisia by learning from U.S. mistakes.

#### II. General Comments

The draft decree contains no introductory statement of the basic theme and purpose of the decree and the major approaches to be taken in dealing with water quality issues. It provides no authority for water quality planning, ambient standard setting or environmental monitoring. Appropriately, the individual articles in the decree discuss both pollution source controls and water quality goals but the relative priority and relationships between source controls and receiving water quality goals is not clearly stated. Further, the concept of protecting existing water uses for the present and future is well established in the decree but the concept of restoring water quality where it is currently degraded to provide for new uses is not covered in the decree. It is recommended that an introductory section be

added to the decree stating the basic policy on water quality and the major approaches for achieving the policy through provisions in the decree. It is further recommended that specific authority and responsibility be added for water quality planning and studies, for water quality monitoring networks, and for establishing water quality standards. It is recognized that the water code defines the overall approach regarding water as well as many specific requirements including monitoring. It is desirable, however, to include some of the material in the decree as well.

The draft decree assigns responsibility for implementation to several Ministries of the Tunisian Government depending on the specific function involved. No lead agency is identified with overall responsibility for seeing that the decree is carried out in a consistent way. It is recommended that consideration be given to the problem of assuring proper implementation of decree by:

1) developing interagency agreements or understandings defining agency responsibilities, how agencies will relate to each other, and basic policy to be followed by all agencies in implementing the decree; and

2) designating one of the agencies identified in the draft decree as the lead agency to help assure that leadership is provided in implementing the act.

An alternative to the above approach is to create a new agency in the Tunisian Government with lead responsibility for implementation of environmental programs including programs specified in the draft water decree. Establishment of such an environmental agency will become increasingly important as additional environmental programs are developed. The federal government of the U.S., the government of most of the 50 U.S. states, as well as many other nations have chosen the concept of establishing a central agency for administering environmental protection programs. The approach seems successful.

It is noted that the draft water decree contains little or no language regarding procedures for implementation of the decree. Such information as where applicants should direct their requests for approval of water pollution control plans, times needed by the Government to review and approve plans, process for applicants to appeal rulings, etc. are not specified in the decree. It is recommended that appropriate procedural information be added to the decree or be developed in a separate document.

Several articles in the draft decree set forth explicit

requirements but then include language stating that appropriate Ministers may alter the explicit requirements as the situation warrants. The need for some flexibility in imposing requirements is understandable but the language in the decree leaves doubt as to whether stated requirements are only guidelines with actual decisions to be made on a case-by-case basis or whether the stated requirements are to be met in all but unusual circumstances. It is recommended that language regarding exceptions to stated requirements be removed from the individual articles in the draft decree and that a new article be added addressing exceptions. The new article should state the general policy under which exceptions will be considered.

The draft decree addresses discharges from point sources such as industries and cities but does not cover non-point sources of pollution or activities which can degrade water quality but which are not discharges per se. Examples of sources and activities not covered are: 1) runoff from urban or rural areas containing sediment, nutrients, pesticides, etc.; 2) construction or other activity which suspends bottom sediments such as dredging; and 3) deposits of solids from past activities which may continue to cause water quality problems. It is recommended that consideration be given to including language in the decree authorizing prevention and correction of these non-traditional sources of water quality problems.

### III. Specific Comments

#### Article 1:

The language, discussing the conditions under which wastewater may be discharged, which refers to the "degree of pollution" of the receiving water might be interpreted to mean that if the receiving water is already polluted, it would be allowed to remain polluted by permitting weak controls on discharges. It should be made clear that the intent of the decree is not to just maintain the status quo, but to improve existing conditions where needed.

#### Articles 2, 3, and 4:

Good.

#### Article 5:

This article seems to suggest that all industrial wastes should be treated in public systems. It may be more practical and feasible for industry to treat and discharge its wastes to receiving waters in some cases.

#### Article 6:

Good.

Article 7:

The numbers specified seem good for municipal wastes but would be difficult to achieve for some direct industry discharges. See general comments regarding flexibility to set more or less stringent requirements.

Article 8:

The only feasible way of regulating biodegradability of detergents is at the point of manufacture or sale.

Article 9:

It would seem more useful to set limits for quantities of these substances allowed in discharges rather than to prohibit them because they will inevitably be present at some concentration. This may eliminate the need for waivers allowed in Article 17.

Articles 10 and 11:

No problem.

Article 12:

The E. Coli limit of 1000 per 100 ml. seems high as is the allowance for 50% of the samples to be even higher with no limit specified. Further, the averaging period is not specified. Also, the language of the article is vague as to how firm the limits are and how they will be achieved.

Article 13:

No problem.

Article 14:

This article discusses treatment requirements for industry and seems incompatible with Article 5.

Articles 15 and 16:

No problem.

Article 17:

See general comments and specific comment on Article 9.

Article 18:

See general comments regarding waivers.

Article 19:

Are septic tanks feasible for treatment of wastes from isolated buildings?

Article 20:

No problem.

Article 21:

Item I, 1 "importance of discharge source" seems redundant with Item I, 4 "quantity". The material at the end of the article about taking into account water use seems unnecessary.

Article 22:

No problem.

Article 23:

It may be desirable to consolidate information requirements from Articles 23, 24, 25, and 26 in one place.

Article 24, 25, and 26:

See Article 23 comment.

Article 27:

The authorization for discharge should also include self-monitoring requirements, a schedule for installing any needed improvements, and the expiration date of the authorization.

Article 28:

The normal duration of discharge permits should be specified and unless the duration is very short, interim monitoring and inspection should be carried out.

Article 29:

The language seems to say "you must install continuous flow monitoring devices but if you do not the government will do it".

Article 30:

Under what conditions do municipalities need to inform the public?

Articles 31 and 32:

No problem.

Article 33:

If a facility just misses the schedule to be defined as a new facility do they get a full five years in additional allowed for existing facilities to comply? If so, it seems inequitable.

Articles 34 and 35:

No problem.

Article 36:

Are the other laws dealing with infractions adequate to meet the needs of this decree or do they need to be changed?

Article 37:

Is it appropriate for the Prime Minister to become involved in these activities?

Article 38:

See general comments regarding implementation.

## APPENDIX 2

### LIST OF MATERIALS PRESENTED TO MR. M. DARMOUL

1. Effluent guidelines for the following industrial categories:
  - Iron and Steel Manufacturing
  - Ore Mining and Dressing
  - Petroleum Refining
  - Phosphate Manufacturing
  - Steam Electric Power Generating
  - Sugar Processing
  - Textile Mills
2. Paper entitled "EPAs Program of Establishing Standards of Performance for New Stationary Sources of Air Pollution", by Dale Pahl, Journal of the Air Pollution Control Association, May, 1983.
3. Paper entitled "New Source Performance Standards", handout at the Regional Office for Programs Workshop, Southern Pines, N.C., July 12-15, 1983.
4. Excerpts for "Standards of Performance for New Stationary Sources", from the Federal Register Covering all Industrial Categories.

APPENDIX 3

PAPERS TRANSMITTED WITH THIS REPORT

TO BE PRESENTED TO

MR. MAJOUB AND MR. DARMOUL

1. "PCB Manufacturers and Trade Names" (to Mr. Majoub)
2. "Pesticides . . . Read the Label First", U.S. EPA, August, 1976 (to Mr. Darmoul)
3. "What You Should Know About the Pesticide Law", U.S. EPA, June, 1975 (to Mr. Darmoul)
4. "The Federal Insecticide, Fungicide, and Rodenticide Act as Ammended", U.S. EPA, April, 1976 (to Mr. Darmoul)
5. "Statement of Edwin L. Johnson, Director, Office of Pesticide Programs, U.S. EPA, Before the Subcommittee on Agriculture, Research, and General Legislation, Committee on Agriculture, Nutrition, and Forestry, U.S. Senate, Washington, D.C., May 24, 1983" (to Mr. Darmoul)