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A. FEDERAL AGENCIES

CFMC	CARIBBEAN FISHERIES MANAGEMENT COUNCIL
CFSA	CONSOLIDATED FARM SERVICE AGENCY (USDA)
COE	U.S. CORPS OF ENGINEERS
EPA	ENVIRONMENTAL PROTECTION AGENCY
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FS	US FOREST SERVICE (USDA)
FWS	FISH AND WILDLIFE SERVICE OR USFWS
MGD	MARINE GEOLOGY DIVISION (USGS)
NMFS	NATIONAL MARINE FISHERIES SERVICE
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NRCS	NATURAL RESOURCES CONSERVATION SERVICE (USDA)
OCRM	OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT (NOAA)
SCS	SOIL CONSERVATION SERVICE (now NRCS)
USCG	U.S. COAST GUARD
USDA	U.S. DEPARTMENT OF AGRICULTURE
USGS	U.S. GEOLOGICAL SURVEY
WRD	WATER RESOURCES DIVISION (USGS)

B: COMMONWEALTH AGENCIES

ADA	AGRICULTURAL DEVELOPMENT ADMINISTRATION (DA)
AExpS	AGRICULTURAL EXPERIMENT STATION (UPR)
AExtS	AGRICULTURAL EXTENSION SERVICE (UPR)
ASA	AGRICULTURAL SERVICES ADMINISTRATION (DA)
CES	COOPERATIVE EXTENSION SERVICE (UPR)
CMO	COASTAL MANAGEMENT OFFICE (DNER)
CODREMI	MINERAL RESOURCES DEVELOPMENT CORPORATION (DNER)
DA	DEPARTMENT OF AGRICULTURE
DC	DEPARTMENT OF COMMERCE
DH	DEPARTMENT OF HEALTH
DNER	DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES
DOSR	DEPARTMENT OF SPORTS AND RECREATION
DTPW	DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
EAA	ENERGY AFFAIRS ADMINISTRATION (DNER)
EDA	ECONOMIC DEVELOPMENT ADMINISTRATION ("FOMENTO")
EQB	ENVIRONMENTAL QUALITY BOARD
HTA	HIGHWAY AND TRANSPORTATION AUTHORITY (DTPW)
LA	LAND AUTHORITY (DA)
LAd	LAND ADMINISTRATION

LIST OF ACRONYMS (cont.)

MUN	MUNICIPALITIES
ORDI	OFFICE OF REGULATION OF THE DAIRY INDUSTRY (DA)
PA	PORTS AUTHORITY (DTPW)
PB	PLANNING BOARD
PRASA	P.R. AQUEDUCT AND SEWER AUTHORITY
PREPA	P.R. ELECTRIC POWER AUTHORITY
PRIDCO	P.R. INDUSTRIAL DEVELOPMENT COMPANY
RDC	RECREATION DEVELOPMENT COMPANY (DOSR)
RPA	REGULATIONS AND PERMITS ADMINISTRATION
SWA	SOLID WASTE AUTHORITY (DNER)
TC	TOURISM COMPANY
UPR	UNIVERSITY OF PUERTO RICO

C: PROGRAMS AND TERMS

ACP	AGRICULTURAL CONSERVATION PROGRAM (CFSA)
AST	ABOVEGROUND STORAGE TANK
CBRA	COASTAL BARRIER RESOURCES ACT
CNPCP	COASTAL NONPOINT POLLUTION CONTROL PROGRAM (NOAA/EPA)
CPWS	COMMUNITY POTABLE WATER SYSTEM
CRP	CONSERVATION RESERVE PROGRAM (CFSA)
CWA	CLEAN WATER ACT (EPA)
CZMA	COASTAL ZONE MANAGEMENT ACT (NOAA)
DEIS	DRAFT ENVIRONMENTAL IMPACT STATEMENT
D-N	DETERMINATION OF NO SIGNIFICANT ENVIRONMENTAL IMPACT (N-D or FONSI)
EA	ENVIRONMENTAL ASSESSMENT
EIS	ENVIRONMENTAL IMPACT STATEMENT
ERP	ENVIRONMENTAL REVIEW PROCESS (EQB)
ESA	ENDANGERED SPECIES ACT (FWS)
FACTA	FOOD, AGRICULTURE, CONSERVATION, AND TRADE ACT (USDA)
FCC	FEDERAL CONSISTENCY CERTIFICATION (PB/PRCZMP)
FEIS	FINAL ENVIRONMENTAL IMPACT STATEMENT
FONSI	FINDING OF NO SIGNIFICANT IMPACT (N-D or D-N)
FSA	FOOD SECURITY ACT (USDA)
FWCA	FISH AND WILDLIFE COORDINATION ACT
IA	INTERAGENCY AGREEMENT
IACES	INTERAGENCY AGREEMENT CES PROGRAM
LWCF	LAND AND WATER CONSERVATION FUND
MM	MANAGEMENT MEASURE (6217)
MOA	MEMORANDUM OF AGREEMENT
MOU	MEMORANDUM OF UNDERSTANDING

LIST OF ACRONYMS (cont.)

MTZ	MARITIME TERRESTRIAL ZONE (DNER/PRPA)
N-D	DETERMINATION OF NO SIGNIFICANT ENVIRONMENTAL IMPACT (D-N or FONSI)
NEP	NATIONAL ESTUARY PROGRAM (EPA/EQB/DNER)
NPDES	NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (EPA/EQB)
NSP	NONPOINT SOURCE PROGRAM (EQB) (CWA 319) also PRNSP OR PRNSMP
NSCS	NONPOINT SOURCE CONTROL SUBCOMMITTEE (of WRC; DNER)
NR	NATURAL RESERVE (PB/DNER/PRCZMP)
OCN	OFFICE OF THE COMMISSIONER OF NAVIGATION (DNER)
OPA	OIL POLLUTION ACT
PRCNPCP	PR COASTAL NONPOINT POLLUTION CONTROL PROGRAM (EQB/DNER/PB/RPA/DA)
PRCMP	P.R. COASTAL MANAGEMENT PROGRAM (DNER/PB) [also PRCZMP]
PRCZMP	P.R. COASTAL ZONE MANAGEMENT PROGRAM (DNER/PB)
PRNSMP	P.R. NONPOINT SOURCE MANAGEMENT PROGRAM (CWA 319) (EQB) also NSP or PRNSP
PRNSP	P.R. NONPOINT SOURCE PROGRAM (CWA 319) (EQB) also NSP or PRNSMP
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT (EPA)
RHA	RIVERS AND HARBORS ACT (COE)
RPI	ROUTINE PROGRAM IMPLEMENTATION (PRCZMP)
SCORP	STATE COMPREHENSIVE OUTDOOR RECREATION PLAN (DOSR)
SEC. 303	WATER QUALITY STANDARDS PROGRAM OF CWA (EPA/EQB)
SEC. 305(b)	WATER QUALITY INVENTORY PROGRAM OF CWA (EPA/EQB)
SEC. 319	NONPOINT SOURCE MANAGEMENT PROGRAM OF CWA (EPA/EQB)
SEC. 401	WATER QUALITY CERTIFICATION BY STATE OF CWA (EQB/EPA)
SEC. 402	NPDES PERMIT PROGRAM OF CWA (EPA/EQB)
SEC. 404	DREDGED OR FILL MATERIAL PERMIT PROGRAM OF CWA (COE)
SEC. 6217	COASTAL NONPOINT POLLUTION CONTROL PROGRAM OF CZARA (NOAA/EPA/ DNER/EQB/PB/RPA/DA)
SMP[CPG]	STATE MANAGEMENT PLAN FOR THE CONTROL OF PESTICIDES IN GROUNDWATER (EQB/DA)
SPA	SPECIAL PLANNING AREA (PB/DNER/PRCZMP)
SPOC	SINGLE POINT OF CONTACT (PB)
SWPPP	STORM WATER POLLUTION PREVENTION PLAN (EPA/EQB)
UIC	UNDERGROUND INJECTION CONTROL (EQB/EPA)
UST	UNDERGROUND STORAGE TANK (EQB/EPA)
WAC	WETLAND ACTION COMMITTEE
WHP	WELLHEAD PROTECTION PROGRAM (EQB/EPA)
WQC	WATER QUALITY CERTIFICATE (EQB)
WQS	WATER QUALITY STANDARDS (EQB)
WQSR	WATER QUALITY STANDARDS REGULATION (EQB)

LIST OF ACRONYMS (cont.)

D. PRIVATE ORGANIZATIONS

CAGPR	COLLEGE OF AGRONOMISTS OF PUERTO RICO
CARPR	COLLEGE OF ARCHITECTS OF PUERTO RICO
CIAPR	COLLEGE OF ENGINEERS AND LAND SURVEYORS OF PUERTO RICO
CT	CONSERVATION TRUST
IF	IMPROVEMENT FUND ("FONDO DE MEJORAMIENTO")
PRCF	PUERTO RICAN CONSERVATION FOUNDATION
PRPS	PUERTO RICAN PLANNING SOCIETY

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VOLUME 1: PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

I. EXECUTIVE SUMMARY

BACKGROUND

A. Coastal Nonpoint Source Pollution and Major Sources

Nonpoint source pollution occurs when rainwater runs over lawns, parking lots, and farm fields, through city streets and forests, picking up and carrying pollution into rivers and oceans. Because the polluted runoff comes from many diverse sources and not from a single point (such as a pipe) it is called **NONPOINT SOURCE POLLUTION**.

In coastal areas, nonpoint source pollution is generated by several major categories of activities:

- **urban** - cities, roads, and residential areas;
- **agriculture** - crops and livestock;
- **marinas** - boat storage and service facilities;
- **hydromodifications** - shoreline protection and restoration and building dams; and
- **forestry** - timber harvesting.
- **mining** - sand and gravel and commercial mineral extraction

Principal nonpoint pollutants from these activities include sediments (soil particles), nutrients (nitrogen and phosphorus), and chemicals (pesticides, oil, salts, and metals).

Nonpoint sources of pollution are diffuse in nature and are usually associated with the indicated land use activities. The leading nonpoint land use contributors to estuarine pollution in Puerto Rico appear to be urban runoff from existing and new developments, agriculture, and onsite wastewater treatment systems. Additional significant nonpoint contributions in specific coastal areas are marinas and hydromodifications. Additional nonpoint impacts to coastal water quality are also associated to the loss and degradation of wetlands and riparian areas.

B. Section 6217 of the Coastal Zone Act Reauthorization Act and Control Program Requirements to Coastal States and Territories

To help address the problem of nonpoint sources of pollution in coastal waters, on November 5, 1990 the U.S. Congress enacted Section 6217 of the **Coastal Zone Act Reauthorization Amendments of 1990 (CZARA)** [16 USC §1455b.] **Section 6217** requires that coastal states and territories with federally approved coastal management

programs (such as Puerto Rico) develop **coastal nonpoint pollution control programs (CNPCP)**. The main purpose of the program mandated by Section 6217 is to strengthen the links between Federal and State coastal zone management and water quality programs so as to enhance state and local efforts to manage land use activities that degrade coastal waters and coastal habitats.

Section 6217 requires that such purpose be attained through the implementation of:

- **mandatory management measures (MMs)** in conformity with guidance published by the **Environmental Protection Agency (EPA)** under Section 6217(g) of the Act; and
- additional measures developed by Puerto Rico, as they may be necessary to attain and sustain applicable water quality standards.

To satisfy the Act requirements the CNPCP must include the following elements:

- An identification of **nonpoint source (NPS)** categories and subcategories that impact Puerto Rico's coastal waters for which applicable MMs will be implemented;
- A description of the MMs to be implemented, and the technical documentation for any alternative MMs selected by Puerto Rico for implementation;
- A description of the procedures that Puerto Rico will use to ensure implementation of the MMs, including operation and maintenance practices, inspection procedures, certification procedures, and monitoring;
- An identification of land uses and critical coastal areas in Puerto Rico that will require additional MMs;
- A description of additional MMs developed by Puerto Rico to be implemented to meet water quality standards and protect designated uses in critical coastal areas;
- A description of a program that ensures implementation of the MMs and additional MMs including: identification of a lead Puerto Rico Government agency for each source category and/or subcategory, a description of legal authorities to implement the MMs, and a description of how the lead agency(ies) will implement the program; and
- A schedule for full implementation of the MMs within 3 years of federal approval and full implementation of additional MM's within 8 years of approval.

C. Penalties for Failing to Comply with the Requirements of Section 6217

Section 6217 (c) (3) and (4) specify that **National Oceanic and Atmospheric Administration (NOAA)** and **Environmental Protection Agency (EPA)** grants to states and territories for implementing Section 306 of the **Coastal Zone Management Act (CZMA)** and Section 319 of the **Clean Water Act (CWA)** will be progressively reduced if approvable programs are not submitted by July 19, 1995. Puerto Rico only made a partial submittal consisting of a preliminary version of this Executive Summary, English and Spanish versions of a proposed Executive Order to implement the program, the English and Spanish text of the mandatory MM's to be adopted by Puerto Rico, and a list of synoptic descriptions of (potentially applicable) **management practices** contained in the Section 6217(g) Guidance Document prepared by EPA ("Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters", EPA,1993) [**Guidance Document**].

D. Need for the Program in Puerto Rico and the National Situation

Aside from the Congressional mandate to develop the **Puerto Rico Coastal Nonpoint Pollution Control Plan (PRCNPCP)**, there is overwhelming evidence that such a program is badly needed in Puerto Rico. Based on the 1990-91 and 1992-93 assessments of Puerto Rico's waters conducted by the **Environmental Quality Board (EQB)**, about 87% of the estuarine waters assessed are not supporting their overall intended use and about 8-11% of them are threatened. In contrast, assessment of National estuarine waters in 1990-91 indicated that 32% were not supporting their designated uses and 12% were threatened. Puerto Rico's estuarine waters are affected by both point and nonpoint sources of pollution, but, in many cases, nonpoint sources are the dominant form of pollution affecting the estuarine environment. Coastal waters, on the other hand, are fully supporting only about 44-51% of their intended uses in Puerto Rico while at the National level it is about 80%.

E. Section 6217 Mandatory Management Measures and Management Practices

Section 6217 (g) mandatory MM's to be incorporated into the PRCNPCP, are just general succinct statements of nonpoint source control, in general terms, independent of individual management practices that may be implemented. To achieve the intended pollutant reduction, one or more **best available nonpoint pollution control practices (management practices)**, technologies, processes, siting criteria, operating methods, or other alternatives will have to be implemented. Puerto Rico needs not specify or require the application of a particular management practice for any given category or subcategory of nonpoint sources, but, as a practical matter, EPA and NOAA expect that the implementation of each MM be achieved by applying one or more management practices appropriate to the source, location, and climate of Puerto Rico.

The summary of the PRCNPCP that follows is presented under the following headings which represent the principal areas of program development and implementation concern of the federal agencies:

Interagency Coordination

Threshold Review

Management Boundary

Overall Approach to Program Development

Public / Local Government Participation

Exclusions

Alternative Measures

Monitoring

Critical Coastal Areas

Additional Measures

Program Timing, Support, and Cost

SUMMARY

The main statutory mandate of Section 6217 of CZARA and a synthetic concept of the PRCNPCP are summarized in **Figure 1** [this figure is meant to be read from top to bottom and left to right.]

F. Interagency Coordination

Puerto Rico's **Coastal Zone Management Agency**, designated under the CZMA, is the **Department of Natural and Environmental Resources (DNER)** and the **Nonpoint Source Management Agency**, designated under the CWA, is the EQB. These two Commonwealth agencies have a dual and co-equal role and responsibility in developing and implementing the PRCNPCP. The two agencies subscribed a **Policy Agreement for program development and implementation** that was sent to the federal agencies with a letter dated February 3, 1994. [**Appendix A**] The federal agencies responsible for approving the PRCNPCP are NOAA and EPA.

The **Lead Commonwealth Agencies** involved in the development and/or implementation of the program are not only the DNER and EQB, but also include the **Planning Board (PB)**, **Regulations and Permits Administration (RPA)**, and **Department of Agriculture (DA)**. **Cooperating Commonwealth Agencies** that will be involved include: the **Solid Waste Authority (SWA)**, **Office for Regulation of the Dairy Industry (ORDI)**, **Soil Conservation Districts (SCD's)**, the **University of Puerto Rico (UPR) Agricultural Extension Service (AExtS)**, **UPR Agriculture Experiment Station (AExpS)**, **Puerto Rico Aqueduct and Sewer Authority (PRASA)**, **Puerto Rico Electric Power Authority (PREPA)**, **Department of Health (DH)**, **Department of Transportation and Public Works (DTPW)**, **Highways and Transportation Authority (HTA)** and the **Tourism Department (TD)**.

Federal Cooperating Agencies expected to play various roles stemming from their statutory mandates are the **Natural Resources Conservation Service (NRCS)** [formerly Soil Conservation Service], **Consolidated Farm Service Agency (CFSA)** [formerly Soil Stabilization and Conservation Agency], **US Geological Survey (USGS)**, **Federal Highway Administration (FHWA)**, **US Fish and Wildlife Service (FWS)**, **US Corps of Engineers (COE)**, **US Forest Service (USFS)**, and the **National Marine Fisheries Service (NMFS)**.

Some of the above mentioned Lead and Cooperating Agencies have played several roles in the PRCNPCP development process: assisting to workshops for discussion of the mandatory management measures of Section 6217, commenting and/or participating in the discussion of the early Informal Review document with NOAA/EPA representatives [See Threshold Review below], and commenting the proposed Executive Order. [These agencies are also being requested to review and comment the present draft PRCNPCP document before submitting it to public review.]

The **primary role for program implementation** resides on the EQB, DNER, PB, RPA, and DA. Interagency coordination of PRCNPCP implementation at the Commonwealth level is expected to be facilitated and achieved through the mandates of a **proposed Executive Order (EO)**, currently under evaluation by the Office of the Governor of Puerto Rico [See Overall Approach to Program Development below and **Appendix B**].

Interagency coordination for full program development, implementation and evaluation is expected to be carried out through the **Water Resources Committee (WRC)** created under Article 6 of the Act for the Conservation, Development and Use of the Water Resources of Puerto Rico. The Secretary of the DNER activated the Water Resources Committee on May 10, 1995 (Administrative Order 95-05, See DNER-A16-AO1 in Vol. 2), to provide advice to the Secretary of the DNER in the preparation of the **Integral Plan for the Use, Conservation and Development of the Water Resources of Puerto Rico** and to assist him in any other function that the indicated Act assigns.

The Secretary of the DNER will determine if representatives from any Lead or Cooperating Agencies that are not currently members of the WRC need to be incorporated to be formed into work groups or subcommittees of the WRC, to attack specific or unresolved program elements and obtain full approval of the PRCNCP from NOAA/EPA. Program coordination at the DNER is carried out by the **Coastal Management Office (CMO)** and its counterpart at EQB is the **Water Quality Area (WQA)**. Two additional offices of EQB are also expected to play important roles in program implementation, the **CEST Plan Program** of the Air Quality Area and **Scientific Assessment Office (SAO)**.

G. Threshold Review

Puerto Rico underwent an **Informal Consultation Process** with NOAA/EPA during April 1994. On April 11, 1994, the DNER and EQB submitted to NOAA and EPA a document titled "**Puerto Rico Coastal Nonpoint Pollution Control Plan (PRCNCP) - Informal Consultation Package.**" That document was prepared by the DNER and the EQB, as part of the initial review process required by Section 6217 of CZARA. Said document was discussed with NOAA/EPA in San Juan, on April 21 and 22, 1994 with the participation of representatives from the PB, RPA, DA and NRCS. All Section 6217 nonpoint source categories and subcategories were discussed and reviewed by the agencies (NOAA/EPA) and their official comments on the Informal Consultation Package were received by the DNER and EQB on June 13, 1994. The PRCNCP described herein incorporates **responses to those comments. [Appendix C]**

Puerto Rico had planned to conduct a Threshold Review of its Draft PRCNCP in the spring of 1995, but program development was delayed and the document was not ready by March 14, 1995 to be submitted to NOAA/EPA, therefore, an interagency meeting scheduled for April 25-26, 1995 was cancelled by Puerto Rico. As indicated above this Draft PRCNCP document is being submitted for review of Lead and Cooperating Agencies at the same time it is submitted to NOAA/EPA, before subjecting it to public hearings.

H. Management Boundary

The boundary recommended by NOAA/EPA, for the required **Section 6217 Management Area [Appendix D]**, suggested that the upper parts of several major watersheds might be excluded from regulation of nonpoint sources of pollution. The results of a DNER investigation, however, led to the conclusion that the entire island must be included in any program to control nonpoint sources of pollution affecting coastal water quality; and that the landward boundary of the Puerto Rico Coastal Management Plan (PRCMP) should be modified accordingly. The island is small enough that whatever occurs in the interior hills and valleys will eventually impact on coastal aquifers as well as surface waters, and hence will affect coastal waters. Therefore, **Puerto Rico's proposed 6217 Management Area is the complete Island.**

The EQB and DNER are also proposing the expansion of the Coastal Zone boundary to islandwide, if approved by the PB after proper public review. Because at least one Cooperating Agency - PREPA - has expressed opposition to the expansion, there is no assurance that the PB will modify the PRCMP landward boundary to islandwide or any other level, despite this proposal. The designated agencies are required to demonstrate that authorities exist, including enforceable policies and mechanisms to ensure implementation of the coastal nonpoint pollution control program mandatory management measures, within the entire Section 6217 Management Area. Since most existing programs and authorities contemplated to be used for program implementation are of islandwide application they provide ample coverage. Other existing programs and/or plans are fairly specific and provide limited geographic coverage (Special Planning Areas, Natural Reserves, etc.) but, in most cases, they provide stronger and more specific controls.

I. Overall Approach to Program Development

1. General

The federal agencies expect Puerto Rico to show complete and specific enforcement authorities to implement the very specific language of all the mandatory management measures contained in the Guidance Document. It was clear from the onset of the PRCNPCP development efforts that, despite the very strong, broad and specific authorities vested upon the EQB and DNER to regulate environmental affairs and natural resources management in the Commonwealth of Puerto Rico, gaps in enforceable policies were likely to exist in the legal foundation upon which Puerto Rico expected to base its CNPCP. Both these agencies certainly have an extensive statutory and regulatory base. But, not even with the addition of those of the PB and RPA, on regulation of land use and construction activities, and that of the DA, on regulation and promotion of agricultural activities, the other lead agencies that were selected for program development and implementation, Puerto Rico could reasonably satisfy the federally required demonstration.

To meet the Act mandate and the federal agencies expectations, Puerto Rico would need to adopt the mandatory management measures, at least, as a public policy of the Government of Puerto Rico. Consonant with the Government's deregulation policy, **Puerto Rico is basing its CNPCP upon existing or already proposed and significantly developed programs and authorities [Appendix E], but is adopting the mandatory MM's of the Guidance Document [Appendix F] as a coherent Commonwealth policy, and the recommended management practices**, also contained in the guidance document, **as a non-mandatory Technical Manual [Appendix G]**. The public policy adoption process will be implemented through the Executive Order proposed to be signed by the Governor of Puerto Rico. As indicated above, the Spanish and English versions of the proposed text of the Executive Order, which already incorporates comments received from Lead and Cooperating Agencies, are included in Appendix B.

The proposed Executive Order, when approved, will adopt the MM's of Section 6217 (g) as a public policy of the Government of Puerto Rico and mandates the lead agencies to incorporate the MM's into their existing decision-making processes within two (2) years of the Executive Order approval, and to jointly develop the public policies, plans, programs, or organizational structures that may be needed to assure the implementation of those management measures which may so require. Until such time as the agencies comply with the incorporation process mandated in the proposed EO, agency roles within existing programs will be clarified and facilitated through existing, modified or updated Memoranda of Agreement and other program descriptions mentioned or contained in this PRCNPCP submittal document.

The present draft document is submitted to NOAA and EPA with the aim of obtaining their conditional approval of the PRCNPCP, as to permit Puerto Rico to continue additional development efforts during the first two years of program implementation, consonant with the approved Executive Order, so that full approval may be achievable within statutorily allowed limits. The CMO of DNER and the WQA of EQB will work in close coordination with each other and the other Lead and Cooperating Agencies towards completing all federal law requirements for full program approval within two years of the date of obtaining conditional approval from NOAA and EPA.

The proposed Executive Order further mandates that, once the Plan is approved by the Federal agencies, the Lead Agencies shall require that proponents of projects demonstrate that one or more of the management practices included in the technical guidance, or any other currently used or futurely developed equivalent practices, have been selected for implementation, will be implemented, or have been implemented to satisfy specific management measures. Lead Agencies shall use their existing authorities when conducting assessments and granting authorizations or permits for projects or public or private actions, those which are or may be subject to the mandatory management measures under any of the above mentioned categories of sources of nonpoint pollution, as to assure that the goals of any mandatory management measure which may be applicable is attained.

2. Principal Statutory Base

As mentioned above, Puerto Rico is basing its CNPCP upon existing or already proposed and significantly developed programs and authorities - those listed in Appendix E, where they are organized by agency and chronologically by the original date of enactment of each statute. Within each statute, regulations and other related normative documents are also organized chronologically. The list in Appendix E includes all statutes and regulations that were considered for applicability to the PRCNPCP, but those that were deemed useful are highlighted in **boldface** type therein. Volume 2 contains the full text of most of those statutes, regulations and other normative documents that provide the extensive statutory base of the PRCNPCP. Only the principal or major mandates are mentioned here.

Constitutional Mandate

Article VI of the Puerto Rico Constitution, 1 L.P.R.A. § 19 [see DNER-A0 in Vol. 2] provides that: "It shall be the public policy of the Commonwealth to conserve, develop and use its natural resources in the most effective manner possible for the general welfare of the community;"

Environmental Quality Board (EQB)

Puerto Rico Environmental Public Policy Act, Act No. 9 of June 18, 1970, as amended (12 L.P.R.A. §1121, et seq.) [Act No. 9] [see EQB-A1 in Vol. 2]

Act No. 9 grants EQB authority to exercise, execute, receive and administer the delegation of federal programs and to establish and implement regulations and a permit system related to, but not limited to, the Federal Clean Water Act, Clean Air Act, Solid Waste Disposal Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act, and any other environmental legislation that might be enacted by Congress. Act No. 9 also establishes an environmental public policy, an **Environmental Review Process (ERP)** [**Appendix H** ; see also EQB-A1-R4 and EQB-A1-R4/G1 in Vol. 2] and related requirements, and provides for environmental causes of action, enforcement and penalties sufficient to assure program implementation even in the absence of other authorities.

Under Act No. 9 EQB has approved the **Puerto Rico Water Quality Standards Regulation** [EQB-A1-R1], the **Regulation on Environmental Impact Statements** [EQB-A1-R4], and Regulations for the Control of Hazardous and Non-Hazardous Solid Wastes [EQB-A1-R5 and R5A] among others relevant to the PRCNPP. Act No. 9 is also EQB's legal base for implementing its **Nonpoint Source Program**, developed and approved under Section 319 of the CWA. A **certification about the legal basis of EQB** for such a program was prepared by the legal counsel of EQB on August 3, 1988 and submitted to EPA to meet **Section 319 requirements** [**Appendix I**].

Department of Natural and Environmental Resources (DNER)

Under the **Organic Act of the Department of Natural and Environmental Resources**, Act No. 23 of June 20, 1972, as amended (3 L.P.R.A. 151, et seq.) [see DNER-A11 in Vol. 2], the DNER is responsible for implementing the natural resources protection public policy of the Commonwealth of Puerto Rico, as contained in Article VI of the Puerto Rico Constitution, in conjunction with EQB and in accordance with Act No. 9. The Organic Act of the DNER and other specific statutes (listed in Appendix E-1 and included in Vol. 2, where applicable) grant the agency regulatory authority over the use and conservation of natural resources, surface and underground waters, land resources, fish and marine resources, wildlife, plant species, submerged lands and mining resources, among others.

In addition, the DNER is the agency responsible for administering the **Puerto Rico Coastal Management Program** [see DNER-A11-PP0 in Vol. 2].

Under the **Act for the Conservation, Development, and Use of the Water Resources of Puerto Rico**, Act No. 136 of June 3, 1976, as amended (12 L.P.R.A. §1501, et seq.) [see DNER-A16 in Vol. 2] the Secretary of the DNER has the powers and duties, among others, 1) to adopt regulations pertaining to uses and areas of use of the bodies of water, the quantity which may be withdrawn or otherwise use in each water body, forestation of riparian areas, lakes, lagoons and dams, recovery of land, reclaiming of flooded areas, and other aspects; and 2) to recommend to the Planning Board the adoption of standards and regulations relative to the development and use of lands that affect the water resources. Additional information on pertinent DNER's laws and regulations is included in **Appendix J** and a full set of those relevant to the PRCNPCP are included in Vol. 2.

Puerto Rico Planning Board (PB)

Under the **Puerto Rico Planning Board Organic Act**, Act No. 75 of June 24, 1975, as amended (23 L.P.R.A. §62, et seq.) [See PB-A2 in Vol. 2], the PB is responsible for guiding Puerto Rico's integral development and promoting the efficient use of land and other natural resources. The Puerto Rico Planning Board Organic Act grants the agency specific powers and duties such as preparing an Integral Development Plan, Land Use Plans and a Four Year Investment Program; promulgating zoning maps and regulations, as well as for ruling on land use and development projects siting proposals. The PB is bound by the environmental public policy and the environmental review process mandated by EQB's Act No. 9. On the other hand, EQB's public policies must conform with the PB policies and objectives contained in the **Integral Development Plan for Puerto Rico**. In addition, the PB is the agency responsible for adopting the **Puerto Rico Coastal Zone Management Program** [See PB-A2-PP2 in Vol. 2] and issuing **Federal Consistency Certifications under the Puerto Rico Coastal Management Plan**. [See PB-A2-HB in Vol. 2] The **Objectives and Public Policies of the Land Use Plan of Puerto Rico** adopted on June 1977, which have provided the conceptual framework for land use planning and regulations in Puerto Rico during the past 18 years have been finally revised by the PB, after undergoing extensive agency review and formal public hearing processes.

The 1977 policies and objectives, as contained in the 1978 PRCMP were included in Appendix D of the Informal Consultation Package and are included here as Appendix K1. The revised document provides specific goals and objectives related to the control of nonpoint pollution from the sources intended to be controlled under the PRCNPCP. It is currently pending the approval by the Governor of Puerto Rico of an Executive Order [this is not the proposed Executive Order for implementing the PRCNPCP] which will provide for its implementation by the PB and adherence by all agencies and instrumentalities of the Government of Puerto Rico. The Spanish version of the document is included in Volume 2 [See PB-A2-PP1]. An English translation of a selected number of pertinent goals and

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objectives, which provide fundamental land use policy elements for implementing the PRCNPCP, are included in Appendix K2.

The referred document constitutes the governing public policy document whose radius of influence encompasses the totality of the physical-spatial context of Puerto Rico. It is intended to orient and ordain in harmonious form the different status, being them physical, social and economic, that emerge from the Puerto Rican society. Those goals and objectives, thereby adopted, serve to guide public agencies and instrumentalities in the formulation of policies, plans and programs, and in the decision making and actions about public and private projects, as well as in the zoning process and that of other planning instruments, and for other public interest purposes.

A list of relevant PB's laws and regulations is included in Appendix E-3. Copies of those deemed to be applicable to the PRCNPCP are included in Volume 2.

Regulations and Permits Administration (RPA)

Under the **Organic Act of the Regulations and Permits Administration**, Act No. 76 of June 24, 1975, as amended (23 L.P.R.A. §71, et seq.) [See RPA-A1 in Vol. 2], the RPA mandate is to carry out the **operational phase of the PB programs and regulations** and the enforcement of subdivision of parcels, land use, construction and building code regulations and the implementation of the **Regulation for Certification of Construction Projects** [See RPA-A1-R2]. Since its creation in 1975, and more now that is an agency adscribed to the PB, RPA may also exert duties delegated by the parent agency that do not require policy determination. PB Regulations clearly specify which land use cases and other decisions are to be seen and taken by RPA and which by PB, but **the law mandates that no land subdivision, development or urbanization may be conducted in Puerto Rico unless the work has been previously authorized by RPA.** A list of RPA's laws and regulations, other than those of the PB, is included in Appendix E-4. Copies of those expressly applicable to the PRCNPCP are included in Volume 2.

Department of Agriculture (DA)

Organic Act of the Department of Agriculture, Act No. 60 of April 25, 1940 (3 L.P.R.A. §381, et seq.) [See DA-A2 in Vol. 2]; **Act of the Soil Conservation Districts**, Act 211 of March 26, 1946 (5 L.P.R.A. §241, et seq.) [See DA-A3 in Vol. 2]; the **Pesticides Act of Puerto Rico**, Act No. 49 of June 10, 1953, as amended (5 L.P.R.A. §1001, et seq.) [See DA-A6 in Vol. 2]

The DA is responsible for the formulation and implementation of the public policy and general directives related to the agricultural development of Puerto Rico. It is the agency responsible for regulating, planning, coordinating and supervising the agricultural sector. Among the specific statutory and regulatory responsibilities of the DA that are relevant to

coastal nonpoint source control are: pesticide and herbicide sale, distribution and application under the **Pesticides Act of Puerto Rico and its Regulation** [See DA-A6-R1]; milk and beef cattle, swine and poultry and horse industries [See DA-A15 and Regulations]; and fertilizers manufacturing, sale, distribution and application [See DA-16 and Regulations]. The list of DA laws and regulations that may have direct or indirect relevance and pertinency to coastal nonpoint pollution control is included in Appendix E-5. The full text of those applicable to the PRCNPCP are included in Volume 2.

Acts and Programs of Other Commonwealth and Federal Agencies

In addition to the above, there are other relevant statutory, regulatory and programmatic mandates of cooperating and/or associated Commonwealth and Federal Agencies with direct or indirect roles related to pertinent activities that may serve to control coastal nonpoint source pollution in Puerto Rico. Some of these, particularly those related to agricultural activities are identified in Appendix E-6.

3. Regulatory Structure of the PRCNPCP

With the purpose of maintaining program coherence and facilitating implementation and monitoring activities, the proposed regulatory program is to be structured as follows:

Proposed Executive Order

In the proposed Executive Order, all Section 6217(g) mandatory management measures, except those for forestry, and additional management measures that may be necessary and are eventually developed, are defined as the coastal nonpoint pollution control policy of the Commonwealth of Puerto Rico:

“...it is the public policy of the Government of Puerto Rico to develop and implement the Puerto Rico Coastal Nonpoint Pollution Control Plan (the Plan), framing this on the use of existing state programs, but adopting as public policy, as it is hereby adopted, the mandatory management measures contained in the guidance promulgated by the Environmental Protection Agency (‘Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters,’ US EPA, Office of Water, 840-B-92-002, January 1993) issued pursuant to Section 6217 (g) of the Federal Act, the English and Spanish versions of which are attached and made an integral part of this Executive Order, in collaboration and coordination with related federal agencies and programs;”

The Executive Order designates the Lead Agencies (EQB, DNER, PB, RPA and DA) and, as applicable and necessary, other Cooperating Commonwealth Agencies. It mandates them to incorporate all the mandatory management measures into their existing decision-

making processes as soon as possible, but not later than two (2) years after the date of its approval. It also provides that state and federal agencies may enter into interagency agreements, as needed.

All management practices contained in the Section 6217(g) guidance document are incorporated as a Technical Guidance Manual to the regulation, from which affected facilities or land users may select one or more combinations appropriate to the source, location and climate. Furthermore, where a management practice requires governmental policies, plans, programs and organizational structures to ensure the implementation of the management measure, the designated, lead and/or cooperating agencies will have to demonstrate that these are currently in place, are being developed or will be developed during the first tier of program implementation.

The Executive Order mandates Lead Agencies to assure that:

"...once the Plan is approved by the Federal agencies, proponents of land development projects, which are subject to the mandatory management measures of the Plan, demonstrate the sequential compliance indicated herein, as applicable, but requiring official and unequivocal proof during the effective life of any authorization or permit which allows earth movement or land alteration or the discharge of pollutants from such development project activities: (Emphasis in original)

- a. In the environmental document(s) required by the Regulation for Environmental Impact Statements of the Environmental Quality Board, promulgated pursuant to the Puerto Rico Environmental Public Policy Act [Act No. 9];
- b. In the application documents for funds, financial aid or financial incentives, or any other type of aid granted by the Department of Agriculture and its units, and other agencies, public corporations, or any other institution of the Government of Puerto Rico;
- c. In the procedures of the Planning Board's Fast-Track Processing Center and for Siting Permits ("Consulta de Ubicación"), when required by the Puerto Rico Zoning Regulation (Planning Regulation No. 4);
- d. In the State SPOC ("Single Point of Contact") Programmatic Consistency Certificate and/or in the Federal Certification of Consistency with the Puerto Rico Coastal Management Program, presented to the Planning Board for projects or actions by federal agencies;
- e. In all stages of the Building Permit required by the Building Regulation (Planning Regulation No. 7) and/or the Regulation for the Certification of Plans and Documents of the Regulations and Permits Administration [Planning Regulation No. 12];
- f. In all Construction and Operation Permits required by the Regulation for the Certification of Plans and Documents of the Environmental Quality Board to which the management measures are applicable, particularly, but not limited to, the Erosion and Sediment Control Plan (CES or CEST Plan);

g. In the Water Quality Certifications, when required for federal permits and in the Certifications of Fecal Waste Control Systems from Livestock Enterprises, which are evaluated and granted by the Environmental Quality Board;

h. In the permits and other authorizations evaluated and granted by the Department of Natural and Environmental Resources, whether directly related or not to development projects, such as Permits for the Extraction of Materials from the Earth's Crust, Water Franchises, Concessions for the Use of the Maritime Terrestrial Zone and/or Submerged Lands, Prospecting Permits and/or Mining Leases, Special Permits in the State Forests, and programmatic certifications and endorsements to official consultations by state and federal agencies;

i. In the implementation of the Interagency Agreement between the Regulations and Permits Administration and the Department of Natural and Environmental Resources on the Process to Intervene in Relation to the Legality of Structures, Uses, and Acts in the Maritime Zone, the Coastal Zone, and Lands Under the Jurisdiction of the Department of Natural and Environmental Resources;

Adoption of the mandatory management measures as Commonwealth policy assures that all government agencies must take them into consideration during project development or agency decisionmaking. **The most important tool for assuring that management measures are considered at the onset of any development project activity or action is the Environmental Review Process (ERP) of EQB**, as it is always applicable without exceptions. All other siting permits and special land use authorizations and certifications, building and/or construction permits and other related construction, operation or use permits that may be applicable are closer to the development project activity in time and space as they must obligatorily come after the conclusion of the ERP, provide for more detailed evaluations of proposed management practices and for closer project inspection. Enforcement actions, however, may make use of Act No. 9 authorities, in addition to those provided by the legal bases of other permits or authorizations, whenever the implementation of any management practice is traceable to the conditions established in the ERP Certification.

In the case of agriculture related activities, the Executive Order mandates agriculture sector and permitting agencies "to assure that proponents of agricultural activities that are subject to the management measures applicable to the agriculture nonpoint source category, whether these [activities] are development projects or not, receive adequate technical assistance prior to, and demonstrate compliance with the mandatory management measures during, the effective life of any authorization or concession of financial aid, incentives, subsidy or any other aid which allows or facilitates earth movement or the discharge of pollutants from such agricultural nonpoint sources." (Bracketed word added)

J. Public/Local Government Participation

As early as the fall of 1993, the DNER invited Lead and Cooperating agencies to participate in a series of workshops for the initial presentation of the mandatory MM's of Section 6217.

At these early workshops, participants were provided with copies of the corresponding chapter of the Guidance Document pertaining to the MM being presented at the particular workshop. Participants were also provided with copies of the Management Measure Worksheet recommended in the Program Guidance to collect the analysis of the existing programs. All the useful information received from the participants was incorporated into the Informal Review Package submitted and discussed with NOAA and EPA during April 1994.

On September 22, 1994, the DNER and EQB published a Public Notice in two major newspapers, in both Spanish and English languages [See Appendix K], informing the public, Commonwealth and Federal agencies and public corporations, the availability for public review of the Informal Consultation Package document submitted to NOAA and EPA as well as the comments received from the federal agencies, the Program Development and Approval Guidance, Section 6217(g) Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, and other related documentation. These documents were made available for public review at the Library of the Coastal Management Program of the DNER, and at the EQB Library.

To facilitate public dissemination of the relevant information pertaining to the Section 6217 Program and to promote public participation in its development and implementation, the Policy Agreement section (Section 2) of the document submitted to the federal agencies was prepared in both English and Spanish. In said Section 2, the Policy Agreement entered between the DNER and EQB and the approach proposed to be followed for the development and implementation of the PRCNPCP with the assistance of the PB, RPA, DA and other Commonwealth and Federal agencies were presented. Both versions were available for free public distribution [See Appendix L], provided that the requestor gave his/her name and postal address, for record purposes and for future distribution of CNPCP materials.

The general public was invited to actively participate in this process: (1) by learning about the plans of the Commonwealth agencies; (2) learning about the requirements of the federal guidelines on the Section 6217 Program; and (3) taking advantage of every opportunity to contribute to the development and implementation of the PRCNPCP. Despite these effort response to the Public Notice was essentially none. The announcement of the availability of documents related to the development and implementation of the PRCNPCP, was part of efforts made and that will continue to be devoted to effectively involve the public in the development and implementation process of the program.

Subsequent to the Public Notice of September 22, 1994, on December 16, 1994, the DNER submitted to the Lead and Cooperating Agencies and to selected professional and public interest groups [See Appendix M] a preliminary draft of the Executive Order proposed to implement the CNPCP. In addition to requesting the official position to the Lead Agencies and comments from Cooperating Agencies and interest groups, the latter notice also invited public participants to engage in a series of workshops to discuss the

approach to be followed in the implementation of the CNPCP and the mandatory management measures. Four (4) full day workshops were held at the DNER with a significant participation of personnel from Lead and Cooperating Agencies. Agencies comments were answered in writing [See Appendix N] and, where appropriate, such comments are already incorporated into the proposed Executive Order included in Appendix B.

The present document being submitted to NOAA for conditional approval, shall be the subject of public hearings after initial review by Lead and Cooperating Agencies. Upon submission of oral and written comments at the Public Hearings the same shall be addressed, summarized and submitted to NOAA and EPA to complete Section 6217 public participation requirements. Such responses to public comments are to be addressed and prepared by the Lead Agencies.

To assure proper interagency coordination the proposed Executive Order set forth the following:

"The Secretary of the Department of Natural and Environmental Resources shall activate the Water Resources Committee, created by Article 6 of the Act for the Conservation, Development and Use of the Water Resources of Puerto Rico, increasing its membership with representatives of those Lead Agencies that are not already its members, and of those Cooperating Agencies that he deems necessary; and he shall use it as a formal interagency mechanism to evaluate the achievements and determine the obstacles to the implementation phase of the Plan, calibrate its economic impact on the regulated community and to make recommendations for subsequent actions, including additional management measures, if deemed necessary. The Secretary shall determine, in consultation with the other Lead Agencies, the initiation and frequency of the meetings and their objectives. The Committee shall prepare and submit to the Governor's Office, through the Secretary, Achievement Reports, with their corresponding recommendations for action, at three (3) and five (5) years from the approval of this order." (Emphasis in original)

The reactivation of the Water Resources Committee (WRC) by the Secretary of the DNER, as indicated earlier, provides an excellent opportunity for the necessary interagency coordination with the support of the CMO and the WQA, CEST Plan Program and SAO of EQB.

K. Exclusions

Puerto Rico is requesting that management measures for the forestry category of nonpoint sources be excluded from the PRCNPCP, as it is understood that this land use activity is an insignificant contributor to nonpoint source pollution in the coastal waters of Puerto Rico. Both the DNER and EQB understand that it will be necessary to implement the PRCNPCP only for four of the five categories of Section 6217 nonpoint sources, that is to say, from urban areas, agriculture, marinas and hydromodification activities; and for management measures for protection of wetlands and riparian areas.

As it pertains to the above mentioned exclusion, the same was proposed to EPA/NOAA during the informal consultation conducted on April 1994. Both federal agencies agreed

to the proposed exclusion, but requested additional supporting information and statistics. The supporting documentation is referred to in the response provided here to NOAA and EPA [See Appendix C] and in the main document.

L. Alternative Measures

No alternative management measures are being proposed at this time. Management measures and practices approved by EPA under Section 319 of the CWA for the Puerto Rico Nonpoint Source Program (PRNSP) are deemed to be equivalent to similar measures and practices of Section 6217 without any justification or documentation.

M. Monitoring

EQB and DNER aim to monitor the effectiveness of the implementation of the PRCNPPC management measures using EQB's established Surface and Coastal Water Quality Monitoring Networks and, where convenient and appropriate, using information collected through the Groundwater Monitoring Network contemplated under EQB's groundwater monitoring program. Monitoring and tracking of coastal water quality will be jointly coordinated by EQB and DNER, with the assistance or collaboration of the DA and cooperating agencies such as the DH, EPA and USGS, among others. As far as monitoring also includes ensuring that management measures are implemented, inspected and maintained properly, all Lead and Cooperating agencies are expected to participate in monitoring of those activities, according to their respective field of competence and jurisdiction. Interagency agreements will be entered, reviewed and revised as needed, in particular to assess critical coastal areas.

N. Critical Coastal Areas

Puerto Rico has not completed its critical coastal areas analysis, a task to be included for evaluation by the WRC. The WRC will consider not only the main nonpoint sources creating coastal waters impairments, which appear to be urban and agricultural stormwater runoff and land disposal of wastewaters in unsewered areas, but also the role of marinas and hydromodifications.

The following coastal areas experience degradation of the ecosystems and exceedances of Ambient Water Quality Criteria or fecal coliform standards.

1. San Juan Bay Estuary

On October 22, 1992, EPA designated the San Juan Bay Estuary System an estuary of national significance. The San Juan Bay Estuary System is comprised of an

interconnected bay-canal-lagoon system linked to the Atlantic Ocean by the San Juan Bay, the Condado Lagoon and the Torrecilla Lagoon. The Estuary contains several natural reserves and critical habitat areas such as mangrove forests, coral reefs and seagrass beds which provide habitat for a variety of fish and wildlife.

The Estuary's health is threatened by many problems. **Among the worst problems are illegal sanitary connections to storm sewers, discharges from a power plant, storm water runoff from non-sewered communities, agriculture, industry, construction, port facilities, and a landfill site.** (Emphasis added)

The estuary contains habitats designated as critical wildlife areas and natural reserves. However, the estuary's health and ecological integrity is threatened by many problems such as toxicant contamination and loss of habitat. **These problems impair the estuary's recreational, commercial and tourist use.** As part of an ongoing planning effort under the auspices of the National Estuary Program, a number of studies are being conducted to better understand the problems of the estuary. Among these studies is a habitat characterization which includes a wetlands and intertidal communities inventory. An inventory of these habitats will provide information on the size of these areas, location, and type of resource, which in conjunction with a trend analysis will provide the basis for effective land use decisions and recommendations. **Characterization studies planned for FY '95 include a loading study to estimate point source and nonpoint source loads to the estuary, bivalve tissue sampling, a water quality monitoring program, and an extensive water and sediment collection to support hydrodynamic and water quality mathematic models.**

2. Arecibo

Shoreline is-polluted by paper mill discharge and **siltation from the Arecibo River.**

3. Fajardo

Discharge from the Fajardo STP and **pollution of upstream rivers, Rio Fajardo, Rio Demajagua and Quebrada Aguas Claras Basins have been degrading the water body.**

4. Guánica

Sources of pollution are urban runoff, un-sewered communities, recreational activities, and pollution of Rio Loco.

5. Guayama

It has violated WQS for fecal coliforms. **No pollution source was identified.**

6. Mayagüez

It has both nonpoint source and STP pollution.

7. Ponce

Sources of pollution include STP and seafood processing industrial discharges, **Ponce dock site, and pollution in Rio Jacaguas and Rio Bucaná-Cerrillos Basins.**

8. Yabucoa

Industrial discharge is the source of pollution.

O. Additional Measures

The need for additional management measures, if any, will be determined after the completion of the critical areas analysis.

P. Program Timing, Support, and Cost

DNER and EQB understand that probably in excess of two to three (2-3) years will be required to fully complete many of the CNPCP requirements that were intended for inclusion in the July 1995 submittal. Recognizing mounting pressures by participating coastal states, NOAA and EPA made last minute changes to the program guidance prior to the July deadline, which provide for conditional approval of state submitted CNPCPs that will allow up to 5 years for completing program requirements, hence, Puerto Rico's timing is within the current program guidance limitations.

As of today there has been no direct legislative participation on the PRCNPCP development activities, partly because of the many uncertainties that surrounded both the program development efforts in Puerto Rico, as well as the very same existence of the CNPCP at the National level. Full implementation of the PRCNPCP may be affected by lack of or insufficient funding, but that is not the only apparent problem as is the lack of strong program support that may hamper the potential availability of funds for activities not developable within agencies budgetary constraints. It is an obvious fact that most of the participating Lead and Cooperating Commonwealth agencies are currently understaffed and locally underfunded for carrying out their presently assigned duties on coastal management and water quality programs. Understandably, some agencies, including Lead Agencies, appeared to be, at best, reluctant participants in the CNPCP development efforts and, in fact, may not have been backing it firmly.

Full implementation of the CNPCP will be likely affected by unavailability of funds, as stated

above, but no estimates for implementation cost have been prepared. It is necessary to dedicate serious efforts into estimating the economic impact of program implementation, both at the participating agencies and at the regulated community level, a task that will be attempted during the first two years of program implementation. Cost estimates will be prepared by one or more work groups of the WRC.

II INTRODUCTION

DESCRIPTION OF THE 6217 MANAGEMENT AREA AND SOURCE CATEGORIES FOR NONPOINT SOURCE POLLUTION IN THE 6217 MANAGEMENT AREA

[This section was excerpted and adapted from three principal sources: (1) *Caribbean Area Water Resources Management Plan, A Water Resources Program Long Range Plan*, USDA Natural Resources Conservation Service, 1994; (2) Vachier, R.J., 1993, *Puerto Rico -- Stream Water Quality*, in R.W. Paulson, E.B. Chase, J.S. Williams, and D.W. Moody (compilers), *National Water Summary 1990-91 -- Hydrologic Events and Stream Water Quality*: U.S. Geological Survey Water-Supply Paper 2400, p. 471-476, as reviewed in *Water Resources in Puerto Rico and the U.S. Virgin Islands: A Review*, Vol. 12, No. 4, December 1993; and (3) Molina-Rivera W., 1993, *Puerto Rico Water Use Information Program in 1990*, *Water Resources in Puerto Rico and the U.S. Virgin Islands: A Review*, Vol. 12, No. 4, December 1993, p. 1-4. As the PRCNPCP Management Area is proposed to be Islandwide, the description below includes all major land resource areas of the Island of Puerto Rico.]

A. General

Puerto Rico and its offshore islands, Vieques and Culebra, have a land area of about 3,470 square miles. The topography and geology are diverse and the surface-water resources are abundant. More than 100 streams flow to the ocean. The average annual rainfall in Puerto Rico is about 70 inches; of this amount, about 31 percent (22 inches) becomes surface-water runoff. The total surface-water runoff in Puerto Rico averages about 3,700 Mgal/d (million gallons per day). Although abundant, surface-water resources are unevenly distributed; the northern part of the Island has a more abundant water supply than the southern part. In 1985, surface water provided 70.7 percent of the 598 Mgal/d withdrawn for offstream use. The principal offstream surfacewater uses were public supply (307 Mgal/d) and irrigation (107 Mgal/d). Surface water is the major source of freshwater throughout Puerto Rico and provides about three-quarters of the population's freshwater needs.

Puerto Rico's 1990 population was 3.5 million, a 9-percent increase since 1980. Twenty-three percent of the population is concentrated in four major urban areas: San Juan, Ponce, Mayagüez, and Arecibo. Estimates from the Puerto Rico Planning Board indicate that the population of Puerto Rico by the year 2000 will be about 3.9 million. The increasing population has had and will continue to have a significant effect on the quality of the Island's water resources.

Puerto Rico is surrounded by the Atlantic Ocean in the north and by the Caribbean Sea in the south. Approximately three-fourths of the island consists of mountain ranges. Cerro de Punta, the highest peak, is 1,338 m high, and the elevation of El Yunque is 1,065 m.

Other prominent physical features are limestone karst in the northwest and coastal plains of varying width along the northern and southern coasts. In about 15 percent of the Island slopes are 15 percent or less; in 25 percent, slopes range from 16 to 45 percent; and in the rest, they are more than 45 percent.

Average annual precipitation ranges from 2,100 mm (82.7 in) in the humid uplands, 1,600 mm (63 in) in the humid coastal plains, 1,150 mm (45.3 in) in the semiarid mountains and valleys, to 900 mm (35.4 in) in the semiarid coastal plains. The average annual temperature is 24°C (75°F) in the humid uplands, 25°C (77° F) in the humid coastal plains, 26°C (79°F) in the semiarid mountains and valleys, and 26°C (79°F) in the semiarid coastal plains.

The soils in Puerto Rico are extremely variable and complex. Tropepts and Humults are the principal soils in the mountainous areas, and Udults and Orthox are dominant on coastal plains. The poorly drained Aquepts, Aquolls, and Aquents are common on flood plains, and Ustolls and Udolls are on the better drained sites Rendolls and Udalfs occur in areas of limestone karst. Principal limiting characteristics of the soils in this region are shallowness to bedrock and steepness of slope.

The major land uses are pasture (35 percent) and cropland (30 percent). In the mountainous areas, the principal land uses are forest reserves, pasture, and agriculture. Only about 10 percent of the Island is undeveloped. Forest is the climax vegetation. The importance of sugar cane, once the main cash crop, has declined because many sugar mills have been closed because of inefficiency and high labor costs. Coffee grown under shade was once a prosperous enterprise, but hurricanes and labor problems have contributed to its decline. Pasture of native and improved grasses grown for dairy and beef enterprises is the main land use. Woodland, mostly unimproved, is widespread, especially on the humid uplands. Such food crops as plantains, bananas, yams, taniens, vegetables, and some citrus fruit and coconuts are grown. Some unique farmland is used for growing pineapples.

Urban developments, highways, and recreation sites are encroaching upon the better farmland, especially near the metropolitan areas.

B. Major Land Resource Areas

1. Humid Mountains and Valleys (4.910 km²) (1,895 mi²)

a. Land Use

Most of this area is in farms. About 70 percent is pasture of improved forage and native grasses. Approximately 10 percent of the area is planted to coffee. Most of the coffee is grown in the shade, but some is grown, in the sun. About 7 percent of the area is ungrazed forests. The remainder is used for growing such food crops as plantains, bananas, taniens,

yams, and pigeon peas and for orchards and other purposes. Urban expansion is not a significant land use problem. Forest is the climax vegetation.

b. Elevation and Topography

Elevation ranges from 50 to 1,340 m. Three distinct mountain ranges are in the area. The Central Ridge, Cordillera Central as it is known locally, is the highest and largest of the three. It is oriented in a general east-west direction. Cerro de Punta, its highest peak, is 1,338 m above sea level. Los Tres Picachos and Monte Guilarte are about 1,205 m high. Second in extent and elevation is the Sierra de Luquillo in the northeastern part of Puerto Rico. The three highest peaks are El Toro, 1,074 m above sea level; El Yunque, 1,065 m; and Pico del Este, 1,051 m. The third range is the Sierra de Cayey in the east-central part of Puerto Rico. The Cerro La Santa, 903 m high, and Cerro La Tabla, 880 m high, are the highest peaks of this range.

c. Climate

Average annual precipitation is 2,075 to 2,150 mm (81.7-84.6 in). Maximum precipitation is in May and in September. *Average annual temperature* is 24°C (75°F). There is little difference between the temperature in summer and that in winter.

d. Water

Surface water from precipitation, perennial streams, and lakes is abundant ground water is limited to water that seeps into the soil and is stored in the dense and massive underlying volcanic rock.

2. Semiarid Mountains and Valleys - 960 Km² (369mi²)

a. Land Use

Most of this area is in farms. About 60 percent is pasture, mainly of native adapted grasses. About 35 percent is natural forest, about 10 percent of which is in improved species of such hardwoods as mahogany, teak, cadam, and eucaliptus. Urban expansion is not a land use problem.

b. Elevation and Topography

Elevation ranges from 50 to 400m. Slopes ranges from moderately steep to very steep; near vertical slopes occur in the northernmost part of the area. These semiarid mountains are in the southern slopes of the central mountain chain that runs east and west the length of the island. All streams in this area flow to the south.

c. Climate

Average annual precipitation is 1,150 mm (45.3 in). Maximum precipitation is in May and in September. *Average annual temperature* - 26°C. The difference between the temperature in summer and that in winter is less than 5°C.

d. Water

The source of surface water is about 1,143 mm (45.7 in) of rainfall a year. Because of high evaporation rates in this area, much of this precipitation is lost in the atmosphere before reaching the small streams and rivers. The few manmade lakes are used for storing water for human consumption and for irrigation. Ground water is scarce because the steep topography and the high evaporation rates prevent sufficient quantities of water from entering the soil and establishing underground deposits.

3. Humid Coastal Plains - 2,420 km² (933 mi²)

a. Land Use

Most of this area is in farms averaging 35 acres. Pasture of native and improved grasses make up nearly 50 percent of the area. Many large dairy farms are in the Humid Coastal Plains. About 17 percent of the acreage is cropland, and sugarcane is the chief cash crop. About 7,000 acres of unique farmland is planted to pineapples on Oxisols. Rice production was also an agricultural enterprise for a while. Orchards, mainly orange trees; grapefruit; and coconut are important in some locations. Urban development is significant, especially around the large metropolitan section, and contributes to a serious land use problem.

b. Elevation and Topography

Elevation ranges from sea level to 700m, rising gradually from the beaches on the Atlantic Ocean to the hilly karst area to the south. This area is divided into two distinct zones - the flat alluvial plains and terraces along the coast and the irregular features of the karst limestone inland. Streams generally flow to the north, but most of the drainage in the karst zone is underground.

c. Climate

Average annual precipitation is 1,600 mm (63 in). Maximum precipitation is in May and August. *Average annual Temperature* is 25°C (77°F). There is little difference between the temperature in summer and that in winter.

d. Water

Surface and ground water are plentiful. Surface water consist of runoff from rainfall in the

humid uplands. Some large manmade lakes are used for hydroelectric power and as a source of water for human consumption. Ground Water supplies are derived from water in the joint land fractures of the underlying volcanic rock and the contiguous limestone aquifers of this humid coastal area.

4. Semiarid Coastal Plains - 580 km² (223 mi²)

a. Land Use

Most is in farms. More than 50 percent is pasture of native and improved grasses used mainly for beef production. The production of hay for race horses is an important enterprise in some locations. More than 80,000 acres are under different systems of irrigation, mainly for sugarcane production. Several hundred acres are drip irrigated for the production of avocados, mangoes, and oranges. Growing vegetables under irrigation is becoming of local economic importance. Urban expansion is a land use problem near the larger cities.

b. Elevation and Topography

Elevation ranges from sea level to 400 m. Most of the areas are nearly level to gently sloping. Elevation increases gradually from the beaches on the Caribbean Sea to the foothills of the semiarid mountains to the north. Limestone hills and ridges are similar to those in the Humid Coastal Plains, but they lack the striking karst features. All drainage is surficial and flows in a southern direction.

c. Climate

Average annual precipitation is 900 mm (35.4 in) Maximum precipitation is in May and in September. *Average annual Temperature* is 26°C (79°F). The difference between the temperature in summer and that in winter is small.

d. Water

Surface water is scarce because of limited rainfall and high evaporation rates. Low rainfall and the steep topography of the adjacent semiarid mountains to the north provide little additional surface water. Streams and rivers generally are intermittent. Aquifers are affected by saltwater intrusion because of overuse. In places artesian pressure brings saline and sodic ground water to the surface. Two organized irrigation districts are in southern Puerto Rico. Another irrigation district serves the north west.

DESCRIPTION OF THE MAGNITUDE, DISTRIBUTION AND POTENTIAL IMPACT ON COASTAL WATERS OF NONPOINT POLLUTION IN THE 6217 MANAGEMENT AREA.

[**Note:** This section was excerpted, highlighted [**boldface type**] and adapted from the Water Quality Summary contained in EPA'S FFY' 95 / EQB'S SFY' 95-96 WATER STRATEGIC PLAN FOR PUERTO RICO, Draft May 23, 1995. Said summary is based on data from the 1992-93 Section 305(b) Water Quality Report (referred to here as FY'94 Report, but titled *Goals and Progress of Statewide Water Quality Management Planning*, Puerto Rico, 1992-93, Environmental Quality Board Water Quality Program, Final Revised Edition, May 1994). Said Report is included in Vol. 2 and pertinent data is summarized in Figures and Tables contained in Appendix R. As the PRCNPCP Management Area is proposed to be Islandwide, the water quality discussion presented below briefly includes rivers, lakes and groundwater, but any unrelated subject matter was omitted]

C. Surface Water Quality

There are approximately 5,384 miles of rivers and streams, 38 lakes/reservoirs/ponds (comprising 10,887 acres), 175.4 square miles of estuaries, and 549.9 miles of ocean coasts. Information on the acreage of freshwater wetlands is not available; however, there are 22,971 acres of tidal wetlands.

Nonpoint sources of pollution are a major cause of water quality degradation. However, little monitoring data exists to quantify the impact of nonpoint sources of pollution. Nonpoint sources include stormwater, construction, urban, and agricultural runoff, land disposal practices, hydrologic-habitat modification, and marinas. Point sources of pollution, including industrial and municipal wastewater discharges, can also have an impact on the quality of waters in Puerto Rico, contributing pathogens, toxics, nutrients, and oxygen demanding materials. (Emphasis added)

1. **Rivers and Streams**

a. Resources

Rivers and streams were assessed in the FY'94 EQB 305(b) report for aquatic life support, swimming, secondary contact recreation, and drinking water. The assessment indicated that, reflecting the worst-case scenario for overall use support, **only 217.3 miles (4%) of rivers were determined to be fully supporting, and 366.7 miles (6.8%) to be fully supporting but threatened by potential pollution sources.** (Emphasis added)

b. Potential Pollution Problems

Flow alteration has impacted more than 10% of rivers on each designated use.

Elevated levels of pathogen indicators have been responsible for more than 50% of rivers not fully supporting swimming or secondary contact recreation uses. Organic enrichment and low dissolved oxygen have impaired more than 1,200 miles (23%) of water designated for aquatic life support, and nutrients impaired 1,340 miles (25%) of drinking water resources. **Pesticides and metals each has impaired more than 10% of waters for aquatic life support or drinking water supply.** (Emphasis added)

For each designated use, three major nonpoint sources which are wastewater land disposal (i.e., wastewater from unsewered communities, septic tank infiltration, etc), storm runoff, and agricultural runoff, are suspected to cause water quality degradation of more than 50% of rivers in Puerto Rico, while municipal and industrial discharges (point sources) cause less than 10% of water quality impairment. (Emphasis added)

2. Lakes and Lagoons

a. Resources

There are 6,678 acres of lakes and 4,209 acres of lagoons in Puerto Rico. Of these, 5,588 (51%) acres were evaluated and 5,299 (49%) acres were monitored for four designated uses. The assessment indicated that 1,056 acres (9.7%) were evaluated to be fully supporting, 2,191 acres (20.1%) to be fully supporting but threatened, and 7,640 acres (70.2%) to be partially or not supporting designated uses.

b. Problem Causes and Sources

Out of 4,023 acres of lakes impaired for aquatic life support, 3,563 acres have been impacted by pesticides, priority organics, low dissolved oxygen, metals, and other inorganics. 2,829 acres of lakes are either partially or not supporting for drinking water supply uses; and of them, **2,374 acres have been impaired by pesticides, priority organics, metals, nutrients, and other inorganics.** Causes which impair lagoons to support aquatic life include toxicity, priority organics, metals, ammonia, low dissolved oxygen, habitat alterations, and suspended solids. Causes which impair lakes and lagoons to support swimming and secondary contact recreation uses include elevated levels of pathogen indicators, habitat alterations, and suspended solids. (Emphasis added)

The common sources contributing to the impairment of water uses are wastewater land disposal, contaminated sediments, storm water runoff, agricultural and unknown sources. Contaminated sediments and stormwater runoff associated with illegal connections contribute more impact on the water quality of lagoons than on other waters. (Emphasis added)

In addition, sedimentation of islandwide lakes is also a major problem for some of these water bodies due to the reduction in the available volume of lakes and reservoirs. Lakes Loiza and La Plata lose about two percent of their capacities each year to sedimentation, and store less than half their original capacities. (Emphasis added)

3. Tidal Wetlands

a. Resources

Puerto Rico has a variety of wetland and related aquatic habitats. These include mangrove forests, freshwater wetlands (such as Pterocarpus forests), salt flats, coral communities and seagrass beds. **Wetlands in Puerto Rico play a critical role in treating non-point sources of pollution, providing wildlife and fisheries habitat (especially for a number of threatened and endangered species), shoreline stabilization, floodflow alteration and erosion control.** Wetlands and other related aquatic habitats provide economic benefits by maintaining fisheries and by providing recreational opportunities for Puerto Rico's important tourism industry. (Emphasis added)

Mangroves are mainly distributed along the coast of Puerto Rico, having a total area of 22,971 acres. Along the Atlantic Coast, there are four types of mangrove swamps:

Edge mangrove swamps develop along the border of the protected coasts of rivers, lagoons, estuaries, and other waterbodies. They protect coasts and export organic matter to waterbodies;

Island mangrove swamps serve as wildlife habitat and food supply for marine organisms;

Riverine mangrove swamps, found in wetlands having saline intrusion, act as an organic matter exporter, regulate water quality and serve as a wildlife habitat; and

Watershed mangrove swamps, found in ground depressions subject to saline intrusion and seasonal flooding, serve as an important water quality regulator.

The Puerto Rico Coastal Management Program (PRCMP) has given special protection to mangroves, identifying mangrove forests as Special Planning Areas (SPA's). The PRCMP has designated 27 natural reserves [proposed for designation 27, but only several have been officially designated by the Planning Board], virtually all of them containing valuable wetland and aquatic habitats. (Emphasis and bracketed note added)

b. Potential Pollution Problems

Unplanned dredging and filling activities for agricultural, residential, commercial, and industrial developments are the main causes of mangrove destruction. Of 74 listed critical coastal wildlife areas in Puerto Rico, 12 are listed as degraded by anthropogenically produced pollution (Characterization and Use Impairments of the U.S. Virgin Islands and Puerto Rico, EPA, 1992). (Emphasis added)

Activities affecting wetlands and related aquatic areas are regulated by a variety of Federal and Commonwealth laws and regulations, including Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act and the Coastal Zone Management Act. These regulatory programs have slowed the rate of impacts on these valuable aquatic habitats by requiring modification of proposed activities to lessen impacts and by requiring mitigation (wetland creation, enhancement and preservation) for unavoidable adverse impacts. However, there is no Commonwealth program that regulates activities in wetlands equivalent to the Federal laws. [For an expanded and more precise discussion of wetland permitting activities by Federal and Commonwealth agencies see Section IV.A.3.a.2.a) & b); and IV.A.8]

4. **Estuaries and Coastal Waters**

a. Resources and Potential Problems

[See related discussion in Section V.G.1.(b)(4)]

Puerto Rico has 175.4 estuarine miles (estuarine area could not be determined) and 549.9 coastal miles which include the principal offshore islands of Mona, Vieques and Culebra. Estuaries and coastal waters were assessed for aquatic life support, swimming and secondary contact recreation uses. **153.3 miles (87.4%) of estuaries and 89 miles (16.2%) of coast were not meeting fully supporting uses. Wastewater land disposal, urban runoff, agriculture and natural sources were major sources which impaired the water quality of estuaries;** and industrial/municipal point sources and land disposal were major contributors to the impairment of coastal waters. (Emphasis added)

On October 22, 1992, EPA designated the San Juan Bay Estuary System an estuary of national significance. The San Juan Bay Estuary System is comprised of an interconnected bay-canal-lagoon system linked to the Atlantic Ocean by the San Juan Bay, the Condado Lagoon and the Torrecilla Lagoon. The Estuary contains several natural reserves and critical habitat areas such as mangrove forests, coral reefs and seagrass beds which provide habitat for a variety of fish and wildlife.

The Estuary's health is threatened by many problems. **Among the worst problems are illegal sanitary connections to storm sewers, discharges from a power plant, storm water runoff from non-sewered communities, agriculture, industry, construction, port facilities, and a landfill site.** (Emphasis added)

D. Ground Water Quality

1. Resources

Puerto Rico aquifers provide 175 million gallons per day of freshwater, or 30% of the total amount of water used. Of that quantity, public water supply withdrawals account for 48%, agriculture 33%, industry 11%, domestic supply 8%.

There are four major aquifer types in Puerto Rico, which are (with their percentage contributions to the total ground water supply): the South Coastal Plain Aquifer (42%), the North Coast Limestone Aquifer (38%), the Alluvial Valley Aquifers (14%) and the San Sebastian Formation and Volcanic Rock Aquifers (6%). On the basis of its hydrogeologic characteristics, the limestone aquifer is the most vulnerable to contamination. There are hundreds of sinkholes in the limestone region, and illegal waste disposals to these sinkholes have been found common.

2. Current Status

Puerto Rico's Environmental Quality Board (EQB) had not performed ground water monitoring [activities] for several years prior to October 1993 due to the shutdown of its laboratory. In FY '94, with analytical work being assigned to outside laboratories, ambient ground water samples were taken from 14 public water supply wells in two watersheds (as of December 1, 1994, the results are not available). In August 1994, EQB received from the Puerto Rico Aqueduct and Sewer Authority (PRASA) a list of 8 public water supply wells at which volatile organic compounds were detected (though not Maximum Contaminant Levels (MCL) exceedances).

For FY'94 the Commonwealth of Puerto Rico has allocated \$252,000 for monitoring ground water availability, usage, and quality. The Department of Natural and Environmental Resources (DNER) has committed \$172,000 from those funds to a ground water monitoring program.

The Underground Injection Control (UIC) Program is delegated to Puerto Rico. EQB inspectors visit at least 100 facilities a year, giving highest priority to the area above the northern limestone aquifer. In addition to dry wells and industrial and multi-family septic tanks/cesspools, UIC personnel are concerned with discharges to sinkholes, which are common in limestone geologic areas.

EQB considers the following sources to have the greatest potential impact on ground water quality: septic tanks, livestock enterprises (e.g., animal feedlots), agriculture, underground storage tanks and landfills. Of lesser impact are salt-water intrusion, stormwater/urban runoff, drainage wells, and surface impoundments. (Emphasis added)

There are six (6) out of nine (9) National Priority List sites that have ground water contamination problems.

E. Geographic-specific Information

[Refer to Maps 6-11 for reference of location of monitoring stations, municipalities, rivers, major coastal ecological habitats, and degraded coastal areas]

1. Rivers

a. Upper Añasco River:

Erosion and sedimentation control project was funded by PRASA and EPA. [The NRCS's is responsible for the Río Añasco Watershed Operational Project, which purposes are watershed protection and flood prevention. It is sponsored by the DA, Oeste SCD, Culebrinas SCD, and the Municipalities of Mayaguez and Añasco. It was authorized for planning in January 1958 and for operations in August 1983. It covers an area of 129,128 acres. Construction started in July 1971, involving the following practices: channel improvement (1.7 miles installed); dams (2 structures constructed); sediment basins (8 installed); and primary flood channel construction (design work- 1994; construction-1997).

2. Lakes

a. Lake Loíza:

Lake Loíza was rated as eutrophic and its phosphorus concentrations showed degradation from 1988 to 1993. It also violated PR's Water Quality Standards Regulation (WQSR) for dissolved oxygen, phenolic substances, sulfide, lead and manganese. Pesticide Diazinon was also detected in the Lake. **Urban runoff, livestock enterprises, and wastewater from non-sewered communities are of concern to the water quality of Lake Loíza.** (Emphasis added)

The U.S. Department of Agriculture is providing accelerated technical and financial assistance for the installation of land resource management systems to reduce excessive soil erosion, nutrients, and pesticides from entering Lake Loíza. EQB is implementing an intensive instream monitoring network to evaluate the effectiveness of the Best Management Practices (BMP) being installed. (Emphasis added)

[The Puerto Rico Aqueduct and Sewer Authority (PRASA) contracted the NRCS to develop a Reforestation Plan for the Carraizo Reservoir Watershed and other water supply

reservoirs. Through a major Government effort led by Governor Pedro Rosselló, the Puerto Rico Telephone Company and Celulares Telefonica are sponsoring the planting of 125,000 trees within the Carraizo watershed. As of October 31, 1995 close to 15,000 trees had been planted.]

b. Lake La Plata:

Lake La Plata was monitored for various parameters by the United States Geological Survey (USGS). The data obtained was evaluated according to the WQSR in order to determine violations to the applicable water quality standards. Lake La Plata was found to be eutrophic, and in violation to the WQSR for phenolic substances. **With technical assistance and funding provided by [EPA] Region II, EQB is implementing a new management approach directed to the control of animal waste generated by livestock enterprises. This will be accomplished through the approval of an animal waste control regulation, and evaluation of the regulation's effectiveness through intensive education, enforcement, and assessment in the La Plata River Watershed. A processing plant which will convert poultry fecal wastes into fertilizer has been installed and running on trial basis. This will reduce the fecal wastes and chemical fertilizers that gain access to Lake La Plata.** (Emphasis added) [The NRCS Caribbean Area Water Resources Program reported the La Plata Watershed Protection Plan (1991-94) to reduce sediment damages to the reservoir through accelerated land treatment practices. La Plata watershed is also included in the Government Reforestation Plan to protect the principal drinking water supply reservoirs.]

c. Dos Bocas Reservoir and Rio de Arecibo Watershed

A watershed protection project to reduce erosion damage and protect the resource base and Dos Bocas Reservoir thru accelerated land treatment practices is in the NRCS Caribbean Area Water Resources Program schedule for 1997.

d. Caonillas Reservoir Watershed

A watershed protection project to reduce land erosion and protect land resources and the Caonillas Reservoir thru accelerated land treatment practices is in the NRCS Caribbean Area Water Resources Program for 1996.

e. Culebrinas Watershed

A watershed protection project to reduce high erosion rate and protect the resource base and downstream areas from sediment deposition thru accelerated land treatment practices is in the NRCS Caribbean Area Water Resources Program for 1995.

3. **Estuaries and Coastal Waters**

The following coastal areas experience degradation of the ecosystems and exceedances of Ambient Water Quality Criteria or fecal coliform standards.

a. San Juan Bay Estuary:

The estuary contains habitats designated as critical wildlife areas and natural reserves. However, the estuary's health and ecological integrity is threatened by many problems such as toxicant contamination and loss of habitat. These problems impair the estuary's recreational, commercial and tourist use. As part of an ongoing planning effort under the auspices of the National Estuary Program, a number of studies are being conducted to better understand the problems of the estuary. Among these studies is a habitat characterization which includes a wetlands and intertidal communities inventory. An inventory of these habitats will provide information on the size of these areas, location, and type of resource, which in conjunction with a trend analysis will provide the basis for effective land use decisions and recommendations. Characterization studies planned for FY '95 include a loading study to estimate point source and nonpoint source loads to the estuary, bivalve tissue sampling, a water quality monitoring program, and an extensive water and sediment collection to support hydrodynamic and water quality mathematic models.

b. Arecibo:

Shoreline is-polluted by paper mill discharge and siltation from the Arecibo River.

c. Fajardo:

Discharge from the Fajardo STP and pollution of upstream rivers, Rio Fajardo, Rio Demajagua and Quebrada Aguas Claras Basins have been degrading the water body.

d. Guánica:

Sources of pollution are urban runoff, un-sewered communities, recreational activities, and pollution of Rio Loco.

e. Guayama:

It has violated WQS for fecal coliforms. No pollution source was identified.

f. Mayagüez:

It has both nonpoint source and STP pollution.

g. Ponce:

Sources of pollution include STP and seafood processing industrial discharges, Ponce dock site, and pollution in Rio Jacaguas and Rio Bucaná-Cerrillos Basins.

h. Yabucoa:

Industrial discharge is the source of pollution.

F. Conclusion

Based on the water quality assessment and on discussions among senior managers at EPA, EQB, DOH, DNER, and PRASA, it has been concluded that the water program in Puerto Rico should focus on two major themes:

- * **Maintaining efficient and effective base programs; and**
- * **Implementing geographically targeted special initiatives to deal with the Island's most pressing problems.**

[See Section V.A.3.C. for a discussion of the base programs and geographically targeted initiatives.]

III. COORDINATION REQUIREMENTS UNDER SECTION 6217 (Program Guidance, Section III.A.)

DESCRIPTION OF HOW THE PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN COORDINATES WITH THE 319 NONPOINT SOURCE PROGRAM AND COASTAL ZONE MANAGEMENT PROGRAM.

A. Lead and Cooperating Agencies and Interagency Coordination in General

Puerto Rico's Coastal Zone Management Agency, designated under the CZMA, is the Department of Natural and Environmental Resources (DNER) and the Nonpoint Source Management Agency, designated under the CWA, is the EQB. These two Commonwealth agencies have a dual and co-equal role and responsibility in developing and implementing the PRCNPCP. The two agencies subscribed a Policy Agreement for program development and implementation that was sent to the federal agencies with a letter dated February 3, 1994. [**Appendix A**] The federal agencies responsible for approving the PRCNPCP are NOAA and EPA.

The Lead Commonwealth Agencies involved in the development and/or implementation of the program are not only the DNER and EQB, but also include the Planning Board (PB), Regulations and Permits Administration (RPA), and Department of Agriculture (DA). Cooperating Commonwealth Agencies that will be involved include: the Solid Waste Authority (SWA), Office for Regulation of the Dairy Industry (ORDI), Soil Conservation Districts (SCD's), the University of Puerto Rico (UPR) Agricultural Extension Service (AExtS), UPR Agriculture Experiment Station (AExpS), Puerto Rico Aqueduct and Sewer Authority (PRASA), Puerto Rico Electric Power Authority (PREPA), Department of Health (DH), Department of Transportation and Public Works (DTPW), Highways and Transportation Authority (HTA) and the Tourism Department (TD).

Federal Cooperating Agencies expected to play various roles stemming from their statutory mandates are the Natural Resources Conservation Service (NRCS) [formerly Soil Conservation Service], Consolidated Farm Service Agency (CFSA) [formerly Soil Stabilization and Conservation Agency], US Geological Survey (USGS), Federal Highway Administration (FHWA), US Fish and Wildlife Service (FWS), US Corps of Engineers (COE), US Forest Service (USFS), and the National Marine Fisheries Service (NMFS).

Some of the above mentioned Lead and Cooperating Agencies have played several roles in the PRCNPCP development process: assisting to workshops for discussion of the mandatory management measures of Section 6217, commenting and/or participating in the discussion of the early Informal Review document with NOAA/EPA representatives [See Threshold Review below], and commenting the proposed Executive Order. [These

agencies are also being requested to review and comment the present draft PRCNPCP document before submitting it to public review.]

The **primary role for program implementation** resides on the EQB, DNER, PB, RPA, and DA. Interagency coordination of PRCNPCP implementation at the Commonwealth level is expected to be facilitated and achieved through the mandates of a **proposed Executive Order (EO)**, currently under evaluation by the Office of the Governor of Puerto Rico [See Overall Approach to Program Development below and **Appendix B**].

The approach Puerto Rico is proposing for the PRCNPCP is to furtherly elaborate, refine, streamline and improve the approach that has been followed in implementing the **Puerto Rico Coastal Management Program (PRCMP)** and the **Puerto Rico Nonpoint Source Program (PRNSP)**; that is to say, to integrate all the existing statutory, regulatory and policy mechanisms that directly or indirectly call for coastal, surface and ground water nonpoint pollution control and/or for the implementation of watershed protection measures into a unified and coherent nonpoint source control program that maintains the independency of action, activities and authorities of the agencies and programs involved in the process.

The synthesis statement of the PRCNPCP is presented in **Figure 1**, where all the above mentioned Lead and cooperating agencies are shown in relation to their roles as bearers of legal authorities and programs, the PRCNPCP purpose, the nonpoint sources to be implemented and excluded and to the approach to be followed for program implementation.

B. Lead Agencies Existing Policy Making and Permitting System

The Lead Agencies policy making and permitting system interrelationships that must be streamlined, integrated and understood for the implementation of the MMs are shown in **Figure 2**. Their existing programs and the corresponding enforceable authorities and mechanisms they provide to implement Section 6217(g) management measures for all applicable categories and subcategories of nonpoint sources are presented in **Figures 3-7**. Generalized representations of the relevant existing planning and permitting processes for private and public development projects and other public improvements are presented in **Flowcharts A-C and 1-8**. The proposed generalized process for integrating existing planning and permitting programs and authorities with additional requirements to satisfy management measures for agricultural activities is presented in **Flowchart 9**.

A detailed explanation of how the existing planning and permitting programs and authorities are combined into a three component implementation approach to satisfy the management measures is included in Sections IV.A.2- General Implementation Approach, and IV.A.3- Programmatic Components of the Management Measures Implementation Approach. Further information on Lead and Cooperating Agencies responsibilities is included in Section V.F.- Administrative Coordination.

C. Adoption of Management Measures as Government Policy and Integration of Programs of Lead and Cooperating Agencies

The federal agencies (NOAA and EPA) expect Puerto Rico to show complete and specific enforcement authorities to implement the very specific language of all the mandatory management measures contained in the Guidance Document, except those that are excluded from implementation. It was clear from the onset of the PRCNPCP development efforts that, despite the very strong, broad and specific authorities vested upon the EQB and DNER to regulate environmental affairs and natural resources management in the Commonwealth of Puerto Rico, gaps in enforceable policies were likely to exist in the legal foundation upon which Puerto Rico expected to base its CNPCP. Both these agencies certainly have an extensive statutory and regulatory base. But, not even with the addition of those of the PB and RPA, on regulation of land use and construction activities, and that of the DA, on regulation and promotion of agricultural activities, the other lead agencies that were selected for program development and implementation, Puerto Rico could reasonably satisfy the federally required demonstration.

To meet the mandate of Section 6217 and the federal agencies expectations, Puerto Rico would need to adopt the mandatory management measures, at least, as a public policy of the Government of Puerto Rico. Consonant with the Government's deregulation policy, instead of creating another policy making and permitting program, **Puerto Rico is basing its CNPCP upon existing or already proposed and significantly developed programs and authorities [Appendix E], but is adopting the mandatory MM's of the Guidance Document [Appendix F] as a coherent Commonwealth policy, and the recommended management practices, also contained in the guidance document, as a non-mandatory Technical Manual [Appendix G contains a synoptic description of all the management practices in the Technical Manual]**.

1. Adoption of Mandatory Management Measures as Government Policy

The public policy adoption process will be implemented through an Executive Order proposed to be signed by the Governor of Puerto Rico. The Spanish and English versions of the proposed text of the Executive Order, which already incorporates comments received from Lead and Cooperating Agencies, are included in Appendix B.

a. Declaration of Public Policy

The proposed Executive Order, when approved, will adopt the MM's of Section 6217 (g) as a public policy of the Government of Puerto Rico and mandates the Lead Agencies to incorporate the MM's into their existing programs as follows:

THEREFORE:

I, Pedro Roselló González, Governor of the Commonwealth of Puerto Rico, pursuant to Article VI of

the Constitution and the Organic Acts of the Environmental Quality Board, the Department of Natural and Environmental Resources, the Planning Board, the Regulations and Permits Administration, and the Department of Agriculture, hereby declare that:

1. In the discharge of our duty to the Puerto Rican Community, faced with the environmental hazards, the degradation, pollution, and improper use of our terrestrial, aquatic, and living resources, it is my obligation, as trustee of said resources, to take additional measures to protect and preserve them for our and future generations;

2. In consonance with the above, I reiterate that it is the public policy of the Government of Puerto Rico to develop and implement the Puerto Rico Coastal Nonpoint Pollution Control Plan (the Plan), **framing this on the use of existing state programs**, but adopting as public policy, as it is hereby adopted, the mandatory management measures contained in the guidance promulgated by the Environmental Protection Agency ("Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters," US EPA, Office of Water, 840-B-92-002, January 1993) issued pursuant to Section 6217 (g) of the Federal Act, the English and Spanish versions of which are attached and made an integral part of this Executive Order, in collaboration and coordination with related federal agencies and programs; (Emphasis added)

b. Designation of Lead and Cooperating Agencies

Five agencies are designated as Lead Agencies by the EO; many others are designated Cooperating Agencies:

3. I designate the Environmental Quality Board, the Department of Natural and Environmental Resources, the Planning Board, the Regulations and Permits Administration, and the Department of Agriculture as Lead Agencies; and the Soil Conservation Districts, the Agricultural Experiment Station and the Agricultural Extension Service of the University of Puerto Rico, the Department of Health, the Dairy Industry Regulation Office, the Department of Transportation and Public Works, the Highways and Transportation Authority, the Aqueduct and Sewer Authority, the Electric Power Authority, the Ports Authority, and all other government institutions which may be eventually identified by the Lead Agencies, as Cooperating Agencies in the development and implementation of the Plan; and I order all departments, agencies, public corporations, and other instrumentalities of the Government of Puerto Rico to collaborate with the development and implementation of the Plan, as required by the Lead Agencies.

c. Joint Adoption of Guidance Document as Technical Manual of Lead Agencies

The EO provides flexibility for the regulated community and for focusing Lead and Cooperating Agencies and other government institutions actions:

4. To provide the regulated community, public as well as private, with the greatest possible flexibility and to clearly focus the actions of the Lead Agencies, the Cooperating Agencies, and other government institutions, I order the Lead Agencies to **jointly adopt** the document "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" as the official technical guidance of the Plan, and that, once the Plan is approved by the Federal agencies, in devising and implementing their own projects or actions and in the assessment and granting of authorizations or permits for projects or public or private actions, which are subject to the mandatory

management measures under any of the above-mentioned categories of sources of nonpoint pollution, to require that proponents demonstrate that one or more of the management practices included in the technical guidance, or any other currently used or futurely developed equivalent practices approved by the Lead Agencies, have been selected for implementation, will be implemented, or have been implemented as to assure that the goals of the mandatory management measure, which may be applicable, will be attained. (Emphasis and underlining added)

2. Integration of Corresponding Agency Actions by Executive Order

- a. Incorporation of Management Measures into Existing Programs Within Two Years of EO Approval and Establishing Sequential Compliance for Development Projects

The proposed Executive Order mandates the Lead Agencies to incorporate the MM's into their existing decision-making processes within two (2) years of the Executive Order approval and requires **sequential compliance for development projects**, once the Plan is approved by the federal agencies:

5. The Lead Agencies shall incorporate all the mandatory management measures into their existing decision-making processes as soon as possible, but not later than two (2) years after the date of approval of this Executive Order. Nonetheless, **they shall assure that, once the Plan is approved by the Federal agencies, proponents of land development projects, which are subject to the mandatory management measures of the Plan, demonstrate the sequential compliance indicated herein**, as applicable, but requiring official and unequivocal proof during the effective life of any authorization or permit which allows earth movement or land alteration or the discharge of pollutants from such development project activities: (Underlining in original, boldface added)

- a. In the environmental document(s) required by the Regulation for Environmental Impact Statements of the Environmental Quality Board, promulgated pursuant to the Puerto Rico Environmental Public Policy Act;
- b. In the application documents for funds, financial aid or financial incentives, or any other type of aid granted by the Department of Agriculture and its units, and other agencies, public corporations, or any other institution of the Government of Puerto Rico;
- c. In the procedures of the Planning Board's Fast-Track Processing Center and for Siting Permits ("Consulta de Ubicación"), when required by the Puerto Rico Zoning Regulation (Planning Regulation No. 4);
- d. In the State SPOC ("Single Point of Contact") Programmatic Consistency Certificate and/or in the Federal Certification of Consistency with the Puerto Rico Coastal Management Program, presented to the Planning Board for projects or actions by federal agencies;
- e. In all stages of the Building Permit required by the Building Regulation (Planning Regulation No. 7) and/or the Regulation for the Certification of Plans and Documents of the Regulations and Permits Administration;
- f. In all Construction and Operation Permits required by the Regulation for the Certification of Plans and Documents of the Environmental Quality Board to which the management measures are applicable, particularly, but not limited to, the Erosion and Sediment Control Plan (CES or CEST Plan);

g. In the Water Quality Certifications, when required for federal permits and in the Certifications of Fecal Waste Control Systems from Livestock Enterprises, which are evaluated and granted by the Environmental Quality Board;

h. In the permits and other authorizations evaluated and granted by the Department of Natural and Environmental Resources, whether directly related or not to development projects, such as Permits for the Extraction of Materials from the Earth's Crust, Water Franchises, Concessions for the Use of the Maritime Terrestrial Zone and/or Submerged Lands, Prospecting Permits and/or Mining Leases, Special Permits in the State Forests, and programmatic certifications and endorsements to official consultations by state and federal agencies;

i. In the implementation of the Interagency Agreement between the Regulations and Permits Administration and the Department of Natural and Environmental Resources on the Process to Intervene in Relation to the Legality of Structures, Uses, and Acts in the Maritime Zone, the Coastal Zone, and Lands Under the Jurisdiction of the Department of Natural and Environmental Resources[.]

b. **Special Requirements for Agricultural Activities - Technical Assistance Prior to Implementation and Demonstration of Compliance**

The EO requires agricultural sector agencies to provide technical assistance and to assure compliance with the management measures for both development projects and non-project agriculture activities:

6. The Department of Agriculture, its units, and other government agencies and institutions of the agricultural sector, during their processes to evaluate and grant any authorization or concession for, among others:

- a. The supply and/or application of pesticides;
- b. The supply and/or application of fertilizers, and any other soil additive;
- c. The provision of machinery for clearing and/or earth movement and site preparation;
- d. The confinement of farm animals;
- e. The lease of lands for any activity to which the mandatory management measures are applicable; and
- f. The granting of property tax exemption benefits to lands under intensive agricultural use;

shall assure that proponents of agricultural activities that are subject to the management measures applicable to the agriculture nonpoint source category, whether these are development projects or not, receive adequate technical assistance prior to, and demonstrate compliance with the mandatory management measures during, the effective life of any authorization or concession of financial aid, incentives, subsidy or any other aid which allows or facilitates earth movement or the discharge of pollutants from such agricultural nonpoint sources. (Underlining in original, boldface added)

c. Interagency Coordination through the Water Resources Committee

The approach Puerto Rico is proposing for the PRCNCP is to furtherly elaborate, refine, streamline and improve the approach that has been followed in implementing the PRCMP and the PRNSP-- **interagency coordination**; that is to say, to integrate all the existing statutory, regulatory and policy mechanisms that directly or indirectly call for coastal, surface and ground water nonpoint pollution control into a unified and coherent nonpoint source control program, while maintaining the independency of action, activities and authorities of the agencies and programs involved in the process.

For the above purpose the EO mandates:

7. The Lead Agencies, with the assistance of the Cooperating Agencies and other interested government and private institutions, shall jointly develop and execute, within their respective legal frameworks, the public policies, plans, programs, or organizational structures needed to assure the implementation of those management measures which require so; and (Emphasis added, underlining in original)

8. The Secretary of the Department of Natural and Environmental Resources shall activate the Water Resources Committee, created by Article 6 of the Act for the Conservation, Development and Use of the Water Resources of Puerto Rico, increasing its membership with representatives of those Lead Agencies that are not already its members, and of those Cooperating Agencies that he deems necessary; and he shall use it as a formal interagency mechanism to evaluate the achievements and determine the obstacles to the implementation phase of the Plan, calibrate its economic impact on the regulated community and to make recommendations for subsequent actions, including additional management measures, if deemed necessary. The Secretary shall determine, in consultation with the other Lead Agencies, the initiation and frequency of the meetings and their objectives. The Committee shall prepare and submit to the Governor's Office, through the Secretary, Achievement Reports, with their corresponding recommendations for action, at three (3) and five (5) years from the approval of this order.

9. The Lead Agencies and the Cooperating Agencies shall make all efforts within their means to strengthen linkages with each other, and with pertinent federal agencies and programs, to improve the effectiveness of the state and municipal efforts to manage land use activities which degrade coastal waters and habitats.

The reasoning behind the proposed EO, that will adopt the mandatory management measures of Section 6217 as public policy of the Government of Puerto Rico, was the recognition that, with the myriad of programs, authorities and agencies jurisdictions that are currently in place and likely to be involved in the PRCNCP, only a major and sweeping reform of the environmental and land use statutory and regulatory bases of the intervening agencies could have accomplished NOAA's and EPA's strict objectives expressed in the Section 6217 Program Guidance and supplements. Obviously, such a major reform was out of the scope of the PRCNCP development efforts or of any other governmental initiative, absent a strong and definite executive and/or legislative mandate or a strong Government Program policy to that effect. Absent all of these, the only reasonable alternative was to elaborate, refine, streamline and improve the existing integrating mechanisms so as to provide coherence to an otherwise disperse and highly complex

environmental and land use policy making and permitting system that is called to satisfy the federal requirements of Section 6217.

Until such time as the agencies comply with the incorporation process mandated in the proposed EO, agency roles within existing programs will be clarified and facilitated through existing, modified or updated Memoranda of Agreement and other program descriptions contained in this PRCNPCP submittal draft document. See Section IV.F. for a description of the roles that will be played by the Lead and Cooperating Agencies in developing and implementing the PRCNPCP; and Appendix S, which provides a compendium of Lead and Cooperating Agencies responsibilities expressed through existing interagency agreements and other programmatic documents. The referenced documents are listed under each agency authorities in Appendix E, and where available in English, included in Vol. 2.

Throughout the workshops held to discuss the opportunities to implement the management measures and the proposed EO, it became obvious that it is inescapable that the five Lead Agencies (EQB, DNER, PB, RPA, and DA) will have to be involved in assuring the implementation of the PRCNPCP management measures. As the program is conceived and proposed now, and as it may evolve in the near future, these five agencies will carry the implementation of the PRCNPCP exercising their individual and shared authorities both independently and collectively as indicated here.

D. Coordination with the 319 Nonpoint Source Program and Coastal Zone Management Program

Interagency coordination for full program development, implementation and evaluation is expected to be carried out through the **Water Resources Committee (WRC)** created under Article 6 of the Act for the Conservation, Development and Use of the Water Resources of Puerto Rico. The Secretary of the DNER activated the Water Resources Committee on May 10, 1995 through Administrative Order 95-05 [See DNER-A16-AO1 in Vol. 2], to provide advice to the Secretary of the DNER in the preparation of the **Integral Plan for the Use, Conservation and Development of the Water Resources of Puerto Rico** and to assist him in any other function that the indicated Act assigns. The Secretary of the DNER, in coordination with the President of EQB, will determine if representatives from any Lead or Cooperating Agencies that are not currently members of the WRC need to be incorporated to be formed into work groups or subcommittees of the WRC, to attack specific or unresolved program elements to obtain full approval of the PRCNPCP from NOAA/EPA within the statutory time constraints.

The PRCNPCP was conceived to be an integral part of both the PRCMP and the [CWA 319] PRNSP. Program coordination at the DNER is carried out by the **Coastal Management Office (CMO)** and its counterpart at EQB is the **Water Quality Area (WQA) and its Nonpoint Source Program (NSP or PRNSP)**. Two additional offices of EQB are also expected to play important roles in program implementation, the **CEST Plan Program**

of the Air Quality Area and **Scientific Assessment Office (SAO)** for their roles in the CES[T] Plan/Permit and ERP processes.

1. EQB's Role in Coordination

As a designated local Agency for administering the Section 6217 PRCNPCP EQB will assure that its role in the intended coordination is achieved through the **designation and consequent participation of at least two (2) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC)** designated by the Secretary of the DNER.

As the designated local Agency for administering the Section 319 Puerto Rico State Nonpoint Source Program (PRNSP), **EQB, in coordination with the DNER and other Lead Agencies, will provide the necessary leadership for continuing subsequent PRCNPCP and PRNSP development and implementation actions**, including, but not limited to:

- integrating the PRCNPCP into the PRNSP, so as to have a single integrated and coherent nonpoint source program, as to make the PRCNPCP eligible for Section 319(h) grant funding; and,
- identifying appropriate programmatic and financial strategies and systems to assure that the essential components of these nonpoint source programs are adequately staffed and funded to achieve their objectives.

Through its Puerto Rico Nonpoint Source Program (PRNSP; under CWA Section 319), with the indicated support and assistance of EPA, EQB will do the following:

EPA will use available resources (e.g., CWA Section 319 Funds, CWA Section 604(b) Funds, Abatement Compliance and Control [AC&C]) to support Commonwealth, municipal and local nonpoint source implementation actions.

- To provide guidance to Commonwealth on the need to update Nonpoint Source Management Program in order to continue to receive funds.
- To utilize consolidated Commonwealth work plans as basis for obtaining commitments and tracking performance.

EPA to encourage/facilitate EQB to obtain maximum 319(h) funding

- Negotiate with other Commonwealth, municipal, and local agencies that have Nonpoint Source responsibilities to utilize their nonpoint source program expenditures not matched for other Federal program funds (e.g. DA, DNER, UPR,

etc.) as PR's required match.

EPA will encourage/facilitate involvement of other Federal, Commonwealth, and municipal agencies in the Commonwealth Nonpoint Source Management Program.

- Enter into a Cooperative Agreement with USDA, Natural Resources Conservation Service (formerly SCS) to assist in carrying out the Commonwealth's Nonpoint Source Management Program and by thoroughly familiarizing EQB and other agencies with all of NRCS's and other Conservation Agencies Water Quality/Resources projects.

EQB to seek out local agencies and Municipalities with nonpoint source related programs to apply for and receive Section 604(b) Pass-Through Fund, as required by the Clean Water Act and intended by Congress

Maintain working relationship between environmental and coastal zone management staffs on how to effectively implement CZARA Section 6217 to control Nonpoint Pollution in the coastal zone and the coastal watershed boundary in Puerto Rico.

- Develop Memoranda of Understanding with/between appropriate Federal, Commonwealth, municipal, and local agencies with nonpoint source responsibilities, to assist in effectively implementing the PRCNPP.
- EQB to work to insure that development of the 6217 Program is consistent with Nonpoint Source Management Program and implementation activities.

Participate actively in selected Nonpoint source planning and implementation initiatives in geographically targeted areas.

- Increase program oversight of nonpoint source special Initiative Projects to determine progress and need for technical assistance.

2. DNER's Role in Coordination

The DNER will assure that its role in the intended coordination is achieved through the **designation and consequent participation of at least two (2) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC) designated by the Secretary of the DNER.**

As a designated local Agency for administering the Section 6217 PRCNPP, together with EQB, as the designated agency for the administration of the PRNSP, and as Lead Agency

for the implementation of the PRCMP together with the PB, and in coordination with other Leading Agencies, the DNER will provide the necessary leadership for continuing subsequent PRCNPP and PRNSP development and implementation actions, including, but not limited to:

- integrating the PRCNPP into the PRNSP, so as to have a single integrated and coherent nonpoint source program, as to make the PRCNPP eligible for Section 319(h) grant funding; and
- identifying appropriate programmatic and financial strategies and systems to assure that the essential components of these nonpoint source programs are adequately staffed and funded to achieve their objectives;
- Assist EPA and EQB in identifying and negotiating with other Commonwealth, municipal, and local agencies that have Nonpoint Source responsibilities to utilize their nonpoint source program expenditures not matched for other Federal program funds as PR's required match Section 319(h) grants; specially within DNER own programs.

Maintain intimate working relationship between EQB's WQA and SAO and CMO management staffs on how to effectively implement the PRCNPP in the coastal zone, within the coastal watershed boundary in Puerto Rico and, ultimately, islandwide.

- Develop Memoranda of Understanding with/between appropriate Federal, Commonwealth, municipal, and local agencies with nonpoint source responsibilities, to assist in effectively implementing the PRCNPP.
- DNER to work to insure that subsequent development of the PRCNPP is consistent with the PRNSP and implementation activities.

Participate actively in selected Nonpoint source planning and implementation initiatives in geographically targeted areas.

- Increase participation and assume an oversight role of nonpoint source Special Initiative Projects to determine progress and need for technical assistance.

Provide leadership to actively continue to re-examine, re-interpret, extract and integrate everything that is good, efficient and effective about the existing environmental and land use policy making and permitting system, those that lend themselves to integration without major modifications, so that a coherent and streamlined process can emerge that is well understood by the agency participants and reasonably understandable to the regulated community.

IV. IMPLEMENTATION APPROACH OF THE PRCNPCP

IMPLEMENTATION OF SECTION 6217 (g) MANAGEMENT MEASURES THROUGH INTEGRATION OF PROGRAMS OF LEAD AND COOPERATING AGENCIES

A. Introduction

As indicated in Section III., NOAA and EPA expect Puerto Rico to show complete and specific enforcement authorities to implement the very specific language of all the mandatory management measures contained in the Guidance Document, except those that are finally excluded from implementation. For each Section 6217(g) management measure, NOAA and EPA expect the preparation of a matrix listing each element of the measure and state and local laws, regulations and programs applicable to each element. From the onset of the PRCNPCP development efforts it was clear that, despite the very strong, broad and specific authorities vested upon the EQB and DNER to regulate environmental affairs and natural resources management in the Commonwealth of Puerto Rico, gaps in enforceable policies were likely to exist in the ample legal foundation upon which Puerto Rico expected to base its CNPCP.

Despite the extensive statutory and regulatory base of both agencies plus the addition of those of the PB and RPA, on regulation of land use and construction activities, and that of the DA, on regulation and promotion of agricultural activities, Puerto Rico could not have reasonably satisfied the federally required demonstration without multiple amendments to all five agencies regulations and statutes. Obviously, that approach was out of consideration for practical reasons, in the same manner that was the consideration of a major overhaul to the existing environmental and land use policy making and permitting system. Therefore, to meet the mandate of Section 6217 and the federal agencies expectations, and in view that the statutory and regulatory bases of the Lead Agencies provide an ample foundation, the designated agencies decided to recommend the adoption of the mandatory management measures as a public policy of the Government of Puerto Rico.

Consonant with the Government's deregulation policy, instead of creating another policy making and permitting program, **Puerto Rico is basing its CNPCP upon existing or already proposed and significantly developed programs and authorities [Appendix E], but is adopting the mandatory MM's of the Guidance Document [Appendix F] as a coherent Commonwealth policy, and the recommended management practices, also contained in the Guidance Document, as a non-mandatory Technical Manual [Appendix G contains a synoptic description of all the management practices in the Technical Manual].**

B. General Implementation Approach

1. Adoption of Mandatory Management Measures by Executive Order

As indicated in Section III.- Coordination Requirements, the public policy adoption process will be implemented through an Executive Order proposed to be signed by the Governor of Puerto Rico. The Spanish and English versions of the proposed text of the Executive Order, already incorporating comments received from Lead and Cooperating Agencies, are included in Appendix B.

The proposed Executive Order, when approved, will adopt the MM's of Section 6217 (g) as a public policy of the Government of Puerto Rico and mandates the lead agencies to incorporate the MM's into their existing decision-making processes within two (2) years of the Executive Order approval, and to jointly develop the public policies, plans, programs, or organizational structures that may be needed to assure the implementation of those management measures which may so require. Until such time as the agencies comply with the incorporation process mandated in the proposed EO, agency roles within existing programs will be clarified and facilitated through existing, modified or updated Memoranda of Agreement and other program descriptions mentioned or contained in this PRCNCP submittal document.

The proposed Executive Order further mandates that, once the Plan is approved by the Federal agencies, the Lead Agencies shall require that proponents of projects demonstrate that one or more of the management practices included in the Technical Manual, or any other currently used or futurely developed equivalent practices, have been selected for implementation, will be implemented, or have been implemented to satisfy specific management measures. **Lead Agencies shall use their existing authorities when conducting assessments and granting authorizations or permits for projects or public or private actions, those which are or may be subject to the mandatory management measures under any of the categories of sources of nonpoint pollution, as to assure that the goals of any mandatory management measure which may be applicable is attained.**

2. ^{APPLICABLE} Streamlining the Policy Making and Permitting System

As indicated in Section II.F., based on the interpretation of the 305 (b) water quality assessment and on discussions among senior managers at EPA, EQB, DH, DNER, and PRASA, it was concluded that the water program in Puerto Rico should focus on two major themes: 1) maintaining efficient and effective base programs; and, 2) implementing geographically targeted special initiatives to deal with the Island's most pressing problems.

Throughout the workshops held to discuss the opportunities to implement the management measures and the proposed EO, it became obviously inescapable that the five Lead

Agencies (EQB, DNER, PB, RPA, and DA) will have to be involved in assuring the implementation of the PRCNPCP management measures. As the PRCNPCP is conceived and proposed now, and as it may evolve in the near future, these five agencies will carry the implementation of the PRCNPCP exercising their individual and shared authorities both independently and collectively as indicated here.

The overall approach Puerto Rico is proposing for the PRCNPCP is to furtherly elaborate, refine, streamline and improve the approach that has been followed in implementing the PRCMP and the PRNSMP— **interagency coordination**. That is to say, to integrate all the existing statutory, regulatory and policy mechanisms, that directly or indirectly call for coastal, surface and ground water nonpoint source pollution control and/or for the implementation of watershed protection measures, into a **unified and coherent nonpoint source control and watershed protection program that maintains the independency of action, activities and authorities of the agencies and programs involved in the process.**

C. Programmatic Components of the Management Measures Implementation Approach

After the proposed EO is signed by the Governor of Puerto Rico, all Section 6217 (g) management measures would be binding government policy to the Lead and Cooperating Commonwealth agencies and applicable as well to federal cooperating agencies, and all other government agencies and instrumentalities of Puerto Rico. The specific language of the (g) measures as adopted by the proposed EO is included in Appendix F, as indicated above. Therefore, it is understood that no further demonstration of how the existing authorities meet the specific elements of the (g) measures is necessary.

To implement the management measures, each one of them was discussed and explained during workshops with the Lead and Cooperating Agencies. During these workshops, Lead and Cooperating Agencies were identified and proposed for each management measure, based on the roles and known authorities of each agency. Upon the discussion of the existing and potential mechanisms available to implement the management measures, the corresponding lead agencies and programs, and identifying implementation opportunities and difficulties in demonstrating potential compliance, it was determined that each management measure could be assigned one major implementation approach out of three that were deemed necessary to cover all potentially available management practices in the Guidance Document. That is, each management measure was judged to be implementable through:

- * the existing **development project permitting (DPP)** system;
- * the proposed **agricultural practices (AP)** approach of Flowchart 9; and/or

- * the proposed coordination and integration of nonpoint source planning and educational activities and programs through a **Nonpoint Sources Control Subcommittee (NSCS) within the WRC.**

The resulting assignments of implementation approaches and Lead and Cooperating agencies for each management measure are listed in **Table 4**. As can be seen from the table, most measures were deemed to be implementable with a single approach, but some measures, particularly those of the agriculture category, require more than one. Likewise, very few management measures were deemed to be implementable through a single Lead Agency.

1. The Existing Development Project Permitting (DPP) Approach

The Existing **Development Project Permitting (DPP)** approach Puerto Rico is proposing for implementation of management measures related to that type of nonpoint sources is, short of developing and implementing individual watershed protection plans except those that are already in place through Commonwealth and Federal efforts, to integrate all the existing statutory, regulatory, and policy mechanisms that directly or indirectly call for nonpoint source pollution control and/or for implementation of watershed protection measures into a coherent and effective policy making and permitting review program. And doing that while maintaining the independency of action, activities, programs and authorities of the agencies involved in the process.

Obviously, such an approach requires that the participants in the process (the staff of the Lead and Cooperating agencies; the professionals that carry out design work, conduct permit inspections and provide required certifications and other functions; and the regulated community) reasonably understand the policy and permitting interrelationships that govern such a complex unrationalized system.

a. Comprehension of the Existing Environmental and Land Use Policy Making and Permitting System as a Necessary First Step Towards Integration of Agency Actions

The complexity of the environmental and land use policy making and permitting system is such that very few people can claim complete or thorough knowledge of its details and inner workings, including the participating agencies themselves and its most experienced users. As indicated in Section III.B., **Figure 2** presents the principal highlights of the interrelationships that exists between the Lead and Cooperating Agencies permitting programs and decision making actions regarding project development activities. Agencies roles as Lead agencies for the PRCMP, PRCNCP, PRNSMP and their interrelationships through federally consultative and financing(implicit) programs are shown as two-way lineal paths to facilitate its comprehension by both the unfamiliar and knowledgeable reader. The real thing is much more complicated as can be seen through **Figures 3-7**, which intend to depict the enforceable authorities of the Lead Agencies and their pertinence to the

implementation of Section 6217(g) [PRCNPCP] management measures; through **Flowcharts A-C and 1-8**, which generalize the process flow diagrams for the existing permitting system components applicable to development projects; and through **Flowchart 9**, which presents a generalized proposed approach for dealing with agricultural activities, including agricultural development projects.

The above indicated figures and flowcharts constitute the descriptive statement of the environmental and land use policy making and permitting system under which the PRCNPCP will operate (it is also the same system under which the PRCMP, the PRNSMP and other similar programs operate, including those applicable to point sources), as it exists today (except for some components of Flowchart 9 which are necessarily new) and as it is likely to continue. **All agencies should review these figures and flowcharts carefully and submit comments to the designated agencies about any omissions, inaccuracies or misinterpretations.** These figures and flowcharts may be additionally refined and expanded or supplemented, if necessary and convenient, as they will become the basis for determining optimization opportunities, for training regulatory staff, professional participants and the regulated community. **Lead and Cooperating Agencies input on the above is necessary at this stage of plan development, and hereby requested.**

Notwithstanding the system complexity indicated above, most portions of such a complex policy making and permitting system are traveled by nearly every project, public or private, large or small, whether they create significant impact to the environment or not. That the system sometimes works well or appears to be working well may reflect two sides of a coin, an issue that needs not be addressed here. Suffice to say that, It has been severely criticized as being unprotective of the environment ; and targeted for deregulation because it is seen as an impediment to needed project development activities important to the economic development and well being of Puerto Rico, due to its complexity, lack of flexibility, unreliability and tardiness.

b The Proposed Integration System for Development Projects Permits

At this point in time, nothing exceptionally new is being proposed, but just the foundation upon which, after **significant, consistent and sincere additional efforts is devoted by the Lead and Cooperating Agencies, one or more streamlined integration mechanisms may emerge** as a lasting contribution for the well being of the coastal and overall island environment, the economy and the quality of life in Puerto Rico. The declared objective is to re-examine, re-interpret, extract and integrate everything that is good, efficient and effective about the intervening existing programs, those that lend themselves to integration without major modifications, into a coherent and streamlined process that is well understood by the agency participants and reasonably understandable to the regulated community and other system travelers.

Obviously, that is not a simple feat to accomplish given the acknowledged complexity of

the system, the incomplete understanding of the interrelationships by many participants and the understandable apprehension of the intervening agencies. But, perhaps, it is time to recognize that it may be due to the multitude of individual reactive initiatives to federal programs, such as this mandate of Section 6217 of CZARA, and to others of local origin, that the system has become so cumbersome that it may be traveled as well (or as bad) by both experts and novices traveling it by trial and error.

There is no question that individual agencies generally understand their own programs, although there are signs that substantial incoherence and need for streamlining efforts exist within programs of individual agencies. The real and potential incoherence and need for streamlining are larger between programs of different agencies, sometimes alleged to be justified by the individual statutory mandates of the agencies, but most often because of a lack of understanding or comprehension of the interrelationships between programs and authorities, and sometimes, simply because of lack of trust on the performance of the other Lead or Cooperating Agencies. An apparent major problem in some programs is the lack of resources (human and other) to accomplish the intended tasks.

That the present effort could have resulted in additional and significant overburdening of the system may be realized by examining the large list of programs and authorities (laws, regulations, programs and other type of policy making instruments) that had to be considered as sources of potential authorities for implementing the management measures or that may be candidates for revisions or amendments for that purpose [See Appendix E, E-1 through E-6].

Any streamlining efforts of the PRCNPCP approach presented herein will be spearheaded by the **WRC, as the Interagency Coordination mechanism**, with the participation of all Lead Agencies and Cooperating Agencies that are designated to be members by the Secretary of the DNER.

DETAILS OF THE APPROACH FOR DEVELOPMENT PROJECTS PERMITTING (DPP)

The day to day policy and decision making for the implementation of the PRCNPCP management measures as well as other land use and environmental review requirements for DPP actions shall be as follows: [See Figure 2]

- 1) PB's Siting Permit and Interagency Endorsement Review Mechanism When Required by the Zoning Regulation

Implementation of MM's will be guided and assured in the light of the goals and public policies contained in the March 1, 1995 *Objectives and Public Policies of the Land Use Plan for Puerto Rico*, as interpreted through PB's Regulations, particularly through **PB's own decision making process as aided by the interagency review mechanism of endorsements** provided by the **Siting Permits** procedure of the Zoning Regulation and other PB's land use planning and decision making

instruments (land use plans and the like) taking into consideration the following: [See Figure 4A, B, C and Flowchart 3]

a) DNER Coastal Programs and other Resource & Jurisdictional Areas Endorsement (And Other Agencies Endorsements)

The **DNER views** about the MTZ, PRCZ, water bodies, wetlands, earth crust and other natural resources attributes, functions and agency jurisdictional areas, as well as those of other agencies are properly evaluated and considered; [See Figure 5 and Flowchart 3]

b) COE Dredged or Fill Material Permit Application or Preapplication Meeting at the PB Siting Permit Level of Review

Proponents of major development projects that entail a **Dredged and Fill Material Permit from the COE** (marinas, hydromodifications, roads, highways and bridges and other construction projects affecting water bodies or wetlands): [See Flowchart 9 and 33 CFR 320-30] will be required to file a **concurrent permit application** to the COE **or, at least, to conduct a preapplication meeting, where the federal agency formally states (in writing)** the approximate or preliminary extent of its jurisdiction for the proposed project, the type of permit that would be involved (individual, general, nationwide, letter, etc.) and any other condition or limitation the COE understands may be applicable for project approval. In which case, the following apply:

(1) Federal Consistency Certification with the PRCMP

An application for a **Federal Consistency Certification with the PRCMP** will be required and the case will be simultaneously evaluated by the PB for this regulatory purpose; [See PB-A2-HB in Vol. 2]

(2) Water Quality Certificate (WQC)

A Water Quality Certificate (WQC) as per Section 401 of the Clean Water Act (CWA) must be requested and obtained by the COE from EQB [See EQB-A1-AO4 in Vol. 2]; and

(3) DNER Endorsement under FWCA

A **favorable endorsement from the DNER** must be requested and obtained by the COE as per the requirements of the **Fish and Wildlife Coordination Act (FWCA)** prior to issuing any COE permit; [See 33 CFR 320.3(e) and 320.4(c);

2) RPA's Subdivision and Construction Permits and Interagency Endorsement Review Mechanism

Implementation of MM's will be furtherly guided and assured through all phases of RPA's Subdivision and Construction Permits where the corresponding interagency review mechanism of endorsement is always carried out, whether a PB Siting Permit has been previously required, evaluated, or not, to take into consideration the following: [See Figure 6 and Flowchart 4]

a) EQB's Endorsement for Simple Subdivisions

EQB's views and requirements on the **wastewater treatment system or OSDS for simple subdivisions** will be properly evaluated and considered; [See EQB-A1-R3; EQB-A1-R8, R8A and R8B in Vol. 2]

b) DNER Coastal Programs and other Resource & Jurisdictional Areas Endorsement

The **DNER views** about the MTZ, PRCZ, water bodies, wetlands, earth crust and other natural resources attributes and/or functions and agency jurisdictional areas, as well as those of other agencies, are properly evaluated and considered, specially, but not only, when a Siting Permit has not been previously evaluated by the PB or is not needed [See DNER-A11-R1; A11-PP1; A11-PP2; A16-R1; and A9-R1];

c) Concurrent COE Dredged or Fill Material Permit Application

Proponents of development projects that entail a **Dredged or Fill Material Permit** from the COE (construction projects affecting water bodies or wetlands), where a PB Siting Permit has been evaluated or not, or is not needed, will be **required to show that a concurrent permit application** to the COE has been filed. No RPA Permit will be issued unless, at least, **a preapplication meeting has been conducted with the COE and the federal agency has formally stated (in writing) the approximate or preliminary extent of its jurisdiction for the proposed project, the type of permit that would be involved (Individual, General, Nationwide, Letter, etc.) and/or any other condition or limitation the COE understands may be applicable.** The three Commonwealth requirements indicated above will also apply, as follows:

(1) Federal Consistency Certification with the PRCMP

An application for a **Federal Consistency Certification with the PRCMP** will be required and the case will be simultaneously evaluated by the PB for this regulatory purpose; [See PB-A2-HB in Vol. 2]

(2) Water Quality Certificate (WQC)

A Water Quality Certificate (WQC) as per Section 401 of the Clean Water Act (CWA) must be requested and obtained by the COE from EQB [See EQB-A1-AO4 in Vol. 2]; and

(3) DNER Endorsement under FWCA

A **favorable endorsement from the DNER** must be requested and obtained by the COE as per the requirements of the **Fish and Wildlife Coordination Act (FWCA)** prior to issuing any COE permit; [See 33 CFR 320.3(e) and 320.4(c);

and

3) DNER's MTZ or Submerged Lands Concessions and/or Earth Crust Materials Extraction Permits

The MM's will furtherly be guided, assured and implemented through the evaluation and issuance of MTZ or submerged lands concessions and/or earth crust materials extraction permits issued by the DNER, when these activities are evaluated and processed concurrently or independently of PB's Siting Permits , RPA's Subdivision or Construction Permits, and/or COE Dredged or Fill Material Permits; [See Figures 5A and 5B]

4) Environmental Review Process (ERP) of the Regulation for Environmental Impact Statements of EQB

The most important thing about the integration of the previously indicated permits procedures, as it pertains to the implementation of the PRCNPCP management measures (to watershed protection and to environmental protection in general) is that, **notwithstanding all other considerations of the above procedures, they must be carried out and evaluated** in the light of Puerto Rico's Environmental Public Policy as contained in EQB's Act No. 9 of June 18, 1970, as amended. That is, **while concurrently and fully complying with the substance and procedures of the Environmental Review Process (ERP) included in the Regulation for Environmental Impact Statements of EQB [EIS Regulation] and before making a final determination that may compromise any applicable resources.** [See Appendices H and O; Flowcharts 5, 6 and 7; and EQB-A1-R4 and R4/G1]

Any public agency or public corporation or other government organism or instrumentality that is the proponent of any public improvement work, or that grants funds or issues permits or other authorizations to private and public proponents of development projects or any government sponsored private project or any other applicable government action **must first comply with the mandate of Article 4© of Act No. 9 of June 18, 1970, as amended, [See EQB-A1 in Vol. 2; and Appendices H and O] prior to taking any action** that may significantly affect the environment.

Proponent Government entities (Proponent Agencies) shall show evidence to the permitting agencies that they have complied or have initiated compliance with the indicated Article 4© through an appropriate EQB letter or Certification. The Article 4© Compliance Certification [4© Certification] shall indicate which of the following forms of compliance were [or are been] considered by EQB at the time of filing of the permit application: [applies to PB's Siting Permit, RPA's Subdivision and/or Construction Permits, DNER MTZ and/or Earth Crust Extraction Permits, COE Dredged or Fill Material Permits, and any other permit or actions of these and other Commonwealth and federal permitting agencies]]

a) Categorical Exclusion

The 4(C) Certification for CEs is [shall be] deemed satisfied by the submission of a copy of the letter submitted to EQB indicating the intention of the Proponent Agency to use one or more of the previously EQB-approved CEs that are be applicable; and a copy of the corresponding EQB letter or Certification accepting such determination. [See Appendix O for the CE's approved by EQB for several of the Lead Agencies and other Government entities]

b) Declaration of No-Significant Environmental Impact (D-N or FONSI) Based on an Environmental Analysis (EAn)

The 4© Certification for D-Ns or FONSI is [shall be] deemed satisfied by the submission of a copy of the transmittal letter and the EA document submitted to EQB indicating the reasons for which the Proponent Agency determined that an Environmental Assessment (EA) or Draft Environmental Impact Statement (DEIS); and a copy of the corresponding EQB letter or Certification accepting such determination.

c) Declaration of No-Significant Environmental Impact (D-N or FONSI) Based on an Environmental Assessment (EA)

The 4© Certification for D-Ns or FONSI is [shall be] also deemed satisfied by the submission of a copy of the transmittal letter and the EAn document submitted to EQB indicating the reasons for which the Proponent Agency determined that the preparation of a Draft Environmental Impact Statement

(DEIS) was not necessary; and a copy of the corresponding EQB letter or Certification accepting such determination.

d) Draft Environmental Impact Statement (DEIS) ✓

In those cases where the preparation of a DEIS is necessary for the public improvement work or the government sponsored private project, be it as an expressed requirement of the EIS Regulation, the Zoning Regulation, the MTZ Regulation and/or the Earth Crust Extraction Regulation or at the request of any of the permitting agencies, by themselves or through an Order to Do issued by EQB, the Proponent Agency shall include with the corresponding permit application [PB's Siting Permit, RPA's Subdivision and/or Construction Permits, DNER MTZ and/or Earth Crust Extraction Permits, COE Dredged or Fill Material Permits, and any other permit or actions of these and other Commonwealth and federal permitting agencies], as may be applicable, a copy of the DEIS that was prepared and the evidence that said DEIS has been filed at the Scientific Advising Office (SAO) of EQB [a copy of the Public Notice shall suffice for this purpose, but other forms may also be appropriate]. To be acceptable for the permitting agencies purposes the DEIS shall be a Joint DEIS where the Proponent Agency is identified as Principal Agency and the applicable permitting agencies are identified as Participating Agencies. In addition, the Joint DEIS document shall show that prior to its preparation, the Principal Agency determined its scope in conjunction with the other Participating Agencies. [See Sections 5.1.2 and 5.4.2 of the EIS Regulation]

The permitting agencies shall issue their final permitting decisions after full compliance with the ERP, but may evaluate and process applications submitted by proponent or sponsoring government entities only when they [the Proponent Agencies] have certified the ERP compliance through one of the forms explained above:

- * Categorical Exclusion (CE);
- * Environmental Analysis (EAn) and Declaration of No-Significant Environmental Impact (N-D or FONSI);
- * Environmental Assessment (EA) and Declaration of No-Significant Environmental Impact (N-D or FONSI); or,
- * Compliance has been initiated through the filing of a joint Draft Environmental Impact Statement (DEIS).

5) Sequential Addressing and Proper Discussion and Implementation of Management Measures and Practices

Furthermore, as mandated by the EO, **all of the above** (permits and ERP) require the **sequential addressing** (proper discussion and evaluation during ERP and permits review proceedings and timely implementation and monitoring) of all applicable **management measures and practices**, particularly but not limited to:

a) EQB's CES(T) Plan/Permit

Control of Erosion and Sedimentation (CES) considerations shall be properly and progressively discussed and reviewed in ERP documents and permits; [See EQB-A1-R8; A1-R10 and R10A]

Specific erosion and sedimentation control practices proposed to be implemented an included in a CES[T] Plan/Permit shall be properly discussed and evaluated during the permitting process [See EQB-A1-R10 and R10A]. The CES[T] Plan/Permit for the consideration and evaluation and to be issued by EQB shall be presented to RPA or DNER **before** their issuance of any permit that allows **any earth movement or site preparation activities** [See EQB-A1-R10 IA0]; and

b) Standard or Special Conditions Incorporated in ERP and/or Permit Documents to Protect Instream and Riparian Habitat and Wetlands

Any other standard or special condition which implementation is deemed necessary by one or more of the permitting agencies (PB, RPA, EQB, DNER, COE) shall be properly addressed and discussed in ERP and/or permit documents.

c. Discussion on How the DPP Approach Applies to Typical Site Development and Construction Activities

In analyzing proposals for development projects [including land subdivision and urbanization projects; construction activities; roads, highways and bridges; new onsite disposal systems; marinas; channelization and channel modifications; dams; and those near to or affecting wetlands, where the respective applicable management measures elements may be involved, the designated Lead Agencies (PB, RPA, EQB and DNER, and as applicable, the DA and some Cooperating Agencies) at the present time consider most of the elements indicated in the management measures for: planning; siting and design; site development; construction activities and projects; protection of wetlands and riparian areas; watershed protection; and streambank and shoreline erosion.

In zoned areas, the PB will consider in first instance Siting Permits ("Consulta de Ubicación") for projects not otherwise allowed by the Zoning Regulation - Planning Regulation No. 4 [See PB-A2-R10] or by a Municipal Ordinance Plan, including public improvement projects except those for which government organisms are exempted, including Municipalities that have obtained autonomy under Act No. 81 of August 30, 1991, as amended, and those delegated to RPA through expressed resolution of the PB [See Figure 4A]. RPA considers Subdivision and Construction Permits (Phases: Consultation, Preliminary Plans, Earth Movement) and Use Permits for all projects, including those going through the Siting Permit process. RPA will consider in first instance those cases that do not require Siting Permits (as allowed by PB's Regulations No. 3, 4, 13, and 17, [See PB-A2-R13, R10, R9 and R6] but will refer to the PB for Siting Permit proceedings any case not allowed by these regulations [See Figure 6A].

In unzoned areas, the PB will consider, in first instance, projects that by their nature and magnitude have a significant impact in the physical, economic, and social environment of the sector where they will be located as a result of which a change in the general conduct pattern of the sector (including but not limited to environmental concerns) may be expected. It also includes all public improvement projects, except those exempted or delegated as stated above for zoned areas. Table 2, which is an [unofficial] translation of a table provided in §3.03 of the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 in Vol. 2] indicates as guidance only, without being exhaustive, the projects that the PB will consider in first instance as Siting Permits.

Note from Table 2 that certain specific type of projects that are subject to siting permits are likely to be located at or near **wetland areas**, such as marinas for more than 10 boats, or in areas of **special resources** (Section 10.19 of Reg. No. 4 includes the following as special resources in R-0 Zoning Districts, among others: forests, springs, creeks, rivers, lakes, lagoons, and other areas or water bodies that merit protection for their preservation as water sources or recreational resources; those that require the preservation of their flora and fauna due to its economic, ecologic or scientific importance; those that are susceptible to flooding, landslides, avalanches or swells; those that are areas whose topographical features or their vegetation have a special meaning for the community; and, those that are beach areas).

1) Areas Particularly Susceptible to Erosion and Sediment Loss

If the proposed location involves **areas that are particularly susceptible to erosion or sediment loss**, the potential environmental impact of the proposed action on erosion and sedimentation, when they are relevant to such sensitive location, must be addressed during: [See EQB-A1-R4, §3.3.6, §3.4.7, §4.2.2 and §5.3.6 (I) and (II)]

- * the ERP of EQB;
- * during the Siting Permit process of the PB, if one is required;

- * in the Subdivision or Construction Permit review of RPA; and,
- * in the CEST Plan that must be prepared if the action is approved.

An improvement that is expected to result from the adoption of the management measures as Government policy, in the evaluation of the indicated susceptible areas, is that the Lead Agencies will have to require a more thorough analysis of this consideration during the ERP of the project, prior to making the "conversion decision," and not just requiring the subsequent submittal of the CES[T] Plan/Permit. The CES[T] Plan/Permit that follows during the construction phase is just the mitigation component to the "conversion decision" (approving the ERP document and granting the Siting Permit) made on an otherwise stable site. The correct design of a CEST Plan or specification of a CES Permit and its proper subsequent implementation as part of a Construction Permit of RPA (or a COE Permit or a DNER Earth Crust Extraction Permit for that matter) is very important once the development project or equivalent action is approved, but this mechanism by itself does not necessarily assure watershed protection if the "conversion decision" of a sensitive area was inappropriately evaluated at the ERP level.

2) Areas That Provide Important Water Quality Benefits And/or Are Necessary to Maintain and Protect Wetlands and Riparian, Aquatic or Marine Biota

A similar situation exists regarding the **preservation of areas that provide important water quality benefits and/or are necessary to maintain and protect wetlands and riparian, aquatic or marine biota**, in terms of critical project evaluation through the ERP, the Siting Permit and the Construction Permit phases. Considering that the intention of any preservation management measure is to "[p]reserve ...," any such measure is achieved when the review process generally does not allow a "conversion decision" or when the lands that merit preservation have been set aside through **special designations** that "preserve" the areas and their water quality benefits.

To that end, there are many ways in which this type (preservation) of measure is satisfied to different extents, but not necessarily on a case by case basis by special land use designations such as: State forests, natural reserves, special planning areas, critical wildlife areas, estuarine sanctuaries, national estuary, biosphere reserve and certain zoning districts. PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R10 in Vol. 2] - and Planning Regulation No. 17 - Zoning Regulation for the Coastal Zone and Access to Beaches [See PB-A2-R6 in Vol. 2] - contains several special zoning districts that also provide equivalent or similar protection as that intended by preservation management measures [See Appendix P].

3) Protection of the Natural Integrity of Water Bodies and Natural Drainage Systems

The protection of the natural integrity of water bodies and natural drainage systems is a major consideration of the ERP to the extent that “[a]ny project or action which may significantly affect an area in which there are natural resources or values of ecological, recreational, social, cultural or archeological importance[.]” is an action that requires the preparation of an Environmental Impact Statement [See EQB-A1-R4 , §5.2.1 (d)]. In addition, any project that affects any water body or natural drainage system must obtain a favorable endorsement from the DNER, an agency that evaluates those proposals from several points of view including: ecological values or natural resources affected, flood control, water quality and water supply, and the mandatory 5 meter belt of land that must be dedicated (transferred and registered to the DNER as required by PB’s Planning Regulation No. 3 - Subdivision and Urbanization Regulation [See PB-A2-R13; §15.08] for public use measured from both edges of beds of rivers, brooks, creeks and other water bodies.

4) Onsite Disposal Systems (OSDS) and Wastewater Treatment Systems for Simple Subdivision Permits and Construction Permits of RPA

Simple Subdivisions or Construction Permits applications **must** receive the endorsement of EQB, for which purpose the proponent must submit the following information to EQB:

- ** **Explanatory Memorandum**; indicating the address, number of lots, the type of OSDS (wastewater treatment system) to be used;
- ** **Subdivision Plans** and plans of the wastewater treatment system, duly signed and stamped by a Professional Engineer (PE) in good standing to practice in Puerto Rico;
- ** Certification issued by EQB that the project complied with **Article 4© [the Environmental Review Process (ERP)]** of the Puerto Rico Environmental Public Policy Act, Act No. 9 of June 18, 1970, as amended [See EQB-A1 in Vol. 2];
- ** Location of the **water table** at the proposed site, duly signed and stamped by a PE in good standing;
- ** **Percolation Tests**, duly signed and stamped by a PE in good standing; and
- ** **A Certification of Non-floodable Zone**, duly signed and stamped by a PE in good standing.

5) Hydromodifications, Marinas, and other Types of Development Activities that Have the Potential of Creating Adverse and Significant Environmental Impacts to the Aquatic, Coastal and Marine Environments, Including Wetland Areas

a) Environmental Impact Statement Requirement (EIS)

Hydromodifications, marinas, as well as all other types of activities that have the potential of creating adverse and significant environmental impacts to the aquatic, coastal and marine environments, including wetland areas, most often require fulfilling the most rigorous ERP analysis. That is, these type of projects require the preparation of an Environmental Impact Statement (EIS) as per EQB's Regulation on Puerto Rico Environmental Impact Statements [See EQB-A1-R4], an evaluation and documentation process that would generally assure satisfying all of the principal elements of the management measures included under the Hydromodification, Marinas (Siting and Design) and Protection of Wetlands and Riparian Areas, in addition to most subcategories of the Urban Areas Source Category.

b) Siting Permit Requirement

In addition, these type of projects will always require a Siting Permit ("Consulta de Ubicación") or Special Consultation ("Consulta Especial") as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2] and the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 (in Spanish) in Vol. 2], unless the proposing government organism is specifically exempted by resolution of the PB.

c) Construction Permit Requirement

Subsequent to fulfilling the Siting Permit requirements of the PB, these projects require a Construction Permit from RPA, as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2]; PB's Regulation No. 13 - Regulation About Flood Susceptible Zones [See PB-A2-R9 in Vol. 2]; PB's Regulation No. 17 - Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto Rico [See PB-A2-R6 in Vol. 2]; and any other applicable regulation or resolution of the PB; and RPA's Regulation for the Certification of Construction Projects - Planning Regulation No. 12 [See RPA-A1-R2 in Vol. 2]; and RPA's Building Regulation [RPA-A1-R1 (only a portion included in Vol. 2)].

d) CES[T] Plan/Permit Requirement

Finally, prior to initiating construction, a CES[T] Plan [or CES Permit] from EQB is needed, as per the Control of Erosion and Sedimentation (CES) Program [CES Regulation in the near future [see EQB-A1-R11 and R-11A in Vol. 2]].

e) Permit for Extraction of Materials from the Earth Crust

In some cases, when the dredged material is intended to be used outside the project limits, an additional Permit for Extraction of Materials from the Earth Crust, issued as per the requirements of the Bylaws to Regulate the Extraction of Materials from the Earth Crust [See DNER-A9-R1 in Vol. 2] must also be obtained from the DNER. This permit is only waived or deemed to be part of an RPA Construction Permit (Incidental Permit), when no material is going to be taken out of the project site and the DNER has evaluated the project and given its favorable endorsement.

f) MTZ and or Submerged Lands Concessions under the MTZ Regulation

The Regulation for the Use, Surveillance, Conservation and Management of the Territorial Waters, Submerged Lands Thereunder and the Maritime Zone (Maritime Zone/Maritime Terrestrial Zone Regulation or MTZ Regulation) [See DNER-A11-R1 in Vol. 2] is just one of the many laws and regulations that are and will be applicable not only to the Marinas Siting and Design but also to the Marina Boat Operation and Maintenance management measures. The strong point about the use of the MTZ Regulations as a major authority in this case is that, invariably, all new and existing marinas have to obtain a concession ("Use Permit") from the DNER to make use of any portion of the MTZ and submerged lands under the territorial waters of Puerto Rico and that those concessions are renewable on a periodic basis. Based on the above, the DNER has a major coercive authority to require the implementation of any reasonable management practices to implement the marina management measures, specially for those components of the management measure where other available authorities may be lacking.

g) Related Federal Permits

(1) COE's Dredged or Fill Material Permit

As per Section 404 of the CWA and/or Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) [33 U.S.C. §401, et seq.] a Dredged or Fill Material Permit from the COE is also required. This federal permit requirement triggers three additional Commonwealth Agencies review and approval requirements:

(a) Water Quality Certificate (WQC) of EQB

[See EQB-A1-AO4 in Vol 2 (in Spanish)], as per Section 401 of the CWA;

(b) Federal Consistency Certificate of the PB

[See PB-A2-HB in Vol 2], as per Section 307 of CZMA; and

(c) FWCA favorable endorsement from the DNER

As per the requirements of the Fish and Wildlife Coordination Act (FWCA) [16 U.S.C. §661-666c, 33 CFR 320.3 (e) and 320.4 ©], any federal agency that proposes to control or modify any body of water must first consult with the head of the appropriate state agency exercising administration over the wildlife resources of the affected state. The DNER is the agency exercising authority over the wildlife resources of Puerto Rico, hence the COE District Engineer consults with the Secretary of the DNER with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the activity proposed in a permit application. The COE must give full consideration to the views of the DNER on fish and wildlife matters in deciding on the issuance, denial, or conditioning of individual or general permits. Such considerations may involve mitigation and enhancement recommendations made to the COE or other involved federal agency whose action or permit would control or modify a stream or other body of water, including wetlands.

(2) EPA's NPDES Storm Water (Point Source) Permit

Coverage under a NPDES storm water (point source) permit is also required for construction activities (when the land area to be disturbed equals or exceeds 5 acres) as per the NPDES General Permit for Storm Water Discharges from Construction Sites under the Clean Water Act (CWA), as amended, [33 U.S.C. 1251, et. seq.]. A Storm water Pollution Prevention Plan (SWPPP) must be prepared and certain information and certifications must be submitted to both EPA and EQB, as required by the General Permit and the corresponding WQC issued by EQB. There may be situations in which an Individual (point source) NPDES Permit (other than the General Permit for Storm Water) may also be required for the discharge waters associated with the dredging or construction activities, This type of federal permit also require an individual WQC from EQB and a favorable FWCA endorsement from DNER.

Those nonpoint sources properly covered under the NPDES General Permit for construction activities are not presently exempted from the CES[T] Plan/Permit requirement or vice versa, but need not be considered as part of the PRCNPCP. Nonetheless, as the CES[T] Plan/Permit mechanism is part of the PRCNPCP, all of these activities are also under its purview.

2. The Proposed Agricultural Practices Approach

The **Agricultural Activities (AA)** approach Puerto Rico is proposing for implementation of management measures related to that type of nonpoint sources relies on:

- * Using Existing Applicable DPP Requirements
 - ** Requiring existing DPP requirements applicable to agricultural projects and project-like agricultural activities;
 - ** Requiring CES[T] Plan preparation and implementation for agricultural soil movement activities when a duly prepared and certified Soil Conservation Plan has not been prepared and implemented;
 - ** Requiring Materials of the Earth Crust Extraction Permit application for agricultural soil movement activities when a duly prepared and certified soil conservation plan has not been prepared and implemented;

- * Special Requirements for Agricultural Activities
 - ** Providing Technical Assistance for the Development and Implementation of Management Measures and Requiring Demonstration of Compliance Before
 - *** Granting Financial Aid, Incentives, Subsidies, or
 - *** Any Other Aid That Facilitates Earth Movement or the Discharge of Pollutants

The conceptual process flow for this approach is presented in Flowchart 9.

a. Using Existing Applicable DPP Requirements

1) Requiring Existing DPP Requirements Applicable to Agricultural Projects and Project-like Agricultural Activities

Agricultural projects, such as agricultural products industrial processing facilities, dairies, poultry and confined animal facilities, storage facilities and any other activity that requires the construction of buildings or structures are subject to the same development permitting process (DPP) requirements indicated above. EQB's many years of coordination efforts with agricultural agencies and programs, implementing 208 and 319 nonpoint source control programs have paid off in the sense that many norms, rules and regulations of agriculture agencies already expressly require that, farmers requesting economic assistance or services from these agencies must show or demonstrate that they own or have applied for permits or other type of authorizations from EQB, RPA and other pertinent agencies. Through the years, EQB has entered into cooperative agreements with the Department of Health (DH), the Office of Regulation of the Dairy Industry (ORDI), and the DA and affiliated agencies to assure that these agencies do not issue endorsements or provide incentives to such agricultural activities unless they can show that they have complied with the permitting requirements of RPA and EQB [See Appendix S].

Once these agricultural activities enter the regulatory process through the ERP or a permit, the applicable PRNSMP requirements for fecal waste disposal of confined animal facilities, grazing practices, soil conservation practices and any other permitting requirements are triggered for which compliance is immediately sought. DPP compliance will follow the process indicated above, but, as indicated in Flowchart 9, agricultural agencies are expected to provide technical guidance to farmers in developing and certifying the corresponding soil conservation plans (SCP), animal waste control systems (AFWCS), fertilizer management plan (FMP) and/or pesticide management plan (PMP), as applicable. Agricultural agencies are also expected to provide technical assistance on satisfying ERP documentation.

2) Requiring CES[T] Plan Preparation and Implementation for Agricultural Soil Movement Activities When a Duly Prepared and Certified Soil Conservation Plan Has Not Been Prepared and Implemented

Under the proposed CES Regulation, the 900 square meter threshold excludes from its application construction and demolition of structures for agricultural use, but not other agricultural activities, in which case best practices for the prevention of erosion, as recommended by a competent organization or person must be implemented. The unofficial translation of the pertinent language excluding agricultural and other activities that is contained in the most recent draft of the CES Regulation [See EQB-A1-R11 and R11A in Vol. 2], Rule 1210 C reads as follows:

Exclusions

The following activities are excluded from the application of this Regulation:

1. Excavations for water extraction wells duly authorized by the Department of Natural and Environmental Resources.
2. Agricultural practices and methods, provided that best practices for the prevention of erosion recommended by the **Natural Resources Conservation Service, Department of Agriculture, Agriculture Extension Service**, or other person with capacity to develop and recommend them, are implemented. (Emphasis in original)
3. Emergency actions...[requires prompt notification to EQB]
4. Any activity, except those covered by clause C.2 of this Rule, in which the total volume of the **components of the earth crust** that will be used as fill or extracted, stored, disposed, cleared, piled or removed does not exceed forty (40) cubic meters (1412.4 cubic feet) and does not obstruct any **water body**. (Emphasis in original)
5. Activities to construct or demolish structures for agricultural use, provided that the total area of these does not exceed 900 square meters (9,682 square feet).

6. The construction or demolition of a single family house that is carried out in a plot where the area to be affected does not exceed a capacity of 900 square meters (9,682 square feet).
7. [One year grandfather clause for approved CEST Plans]...

Therefore, the proposed way of implementing the management measure applies to all agricultural lands, except the limited case indicated as per the proposed Rule 1210 C. 5, which appears to be similar to the general exclusion applicable to construction or demolition of single family houses as per Rule 1210 C. 6. **[The current language of 1210 C. 5 needs a revision to better reflect what appears to be EQB's intention, that is to say, that construction and demolition of structures for agricultural use are excluded provided that the size of the lot does not exceed 900 square meters.]**

The coordination of activities as per the proposed CES Regulation is provided for in Rule 1250 C., which reads (unofficial translation) as follows:

Inspections and joint actions

The **Board** [EQB], represented by its officials, shall be able to jointly conduct inspections and investigations with authorized officials of other state and federal agencies, instrumentalities or public corporations with the purpose of expanding and facilitating its capacity to enforce the compliance of laws and regulations that it administers. In addition, the **Board** shall be able to establish agreements and coordinate with other public agencies any assistance that may be necessary to achieve a larger and more efficient surveillance or enforcement of the compliance with these requirements." (Emphasis in original; bracketed note added)

The *Interagency Agreement for the Implementation of the Soil Erosion and Sedimentation Control Program (IACES)*, by which interagency coordination is currently achieved, and where individual cooperating agencies roles and responsibilities are described, is expected to continue under the CES Regulation. Among the responsibilities or obligations of the agriculture agencies, such as the DA, NRCS, UPR's AExtS, and any other that may later be added to the IACES are:

- 1) To provide assistance, free of charge, to any farmer requesting such assistance, and to suggest the best available practices to prevent and control soil erosion and sedimentation[;]" and
- 2) To immediately submit to the Board copies of all the plans or practices suggested to the farmers referred to in the previous paragraph.

The IACES also contain other requirements for joint inspections and compliance actions, similar to the ones included in the proposed CES Regulation indicated above,.

Under the proposed CES Regulation EQB retains the authority to take enforcement action, except that DNER Rangers are also authorized by law to carry out enforcement actions under the Earth Crust Regulation or any other applicable Commonwealth environmental

law and will be able to assist EQB in surveillance and enforcement actions. The proposed CES Regulation went through Public Hearing the Fall of 1994 and EQB produced an internal updated draft on August 1995 which is still pending further action by the agency.

3) Requiring Materials of the Earth Crust Extraction Permit Application for Agricultural Soil Movement Activities When a Duly Prepared and Certified Soil Conservation Plan Has Not Been Prepared and Implemented

Agricultural earth moving activities are not exempted by law from the provisions of DNER's Regulation for the Extraction of Materials of the Earth Crust [See DNER-A9-R1 in Vol. 2] and could be required to comply with the full permitting provisions of the Regulation. Under Administrative Order COM-94-58 [See DNER-A9-R2], the Secretary of the DNER established the following: (Unofficial translation)

This directive exempts earth movement [activities] associated to construction of drainage swales, oxidation ponds, irrigation and cattle watering ponds, grubbing works, plowing and preparing furrows; provided that the proponent is a bona fide agricultural entity or farmer and has received all the orientation and technical recommendations from the agronomists of the [Soil] Conservation Service (SCS) [now the Natural Resources Conservation Service, NRCS], Department of Agriculture [DA], Agricultural Extension Service (AES) [AExtS], or Agricultural Stabilization [and Conservation Service] (ASCS). [now the Consolidated Farm Service Agency, CFSA]

✓ **These earth movements must be carried out using soil conservation best management practices, avoiding indiscriminate deforestation and controlling erosion and water bodies sedimentation.**

In those cases that, as the result of the activity, hauling out of [earth crust] material from the farm is required, or it involves road construction and land grading or in which a natural resource administered by the Department of Natural and Environmental Resources [DNER] , such as creeks, rivers, mangroves, and other natural resources or ecosystems, a permit will be required from the Department to carry out the earth movement. Depending on the magnitude of this work, the Secretary may exempt the earth movement from [the] permit [requirement]. (Emphasis and bracketed notes added)

b. Special Requirements for Agricultural Activities

The proposed EO requires agricultural sector agencies to provide technical assistance and to assure compliance with the management measures for both agriculture development projects and non-project agricultural activities:

The Department of Agriculture, its units, and other government agencies and institutions of the agricultural sector, during their processes to evaluate and grant any authorization or concession for, among others:

a. The supply and/or application of pesticides;

- b. The supply and/or application of fertilizers, and any other soil additive;
- c. The provision of machinery for clearing and/or earth movement and site preparation;
- d. The confinement of farm animals;
- e. The lease of lands for any activity to which the mandatory management measures are applicable; and
- f. The granting of property tax exemption benefits to lands under intensive agricultural use;

shall assure that proponents of agricultural activities that are subject to the management measures applicable to the agriculture nonpoint source category, whether these are development projects or not, receive adequate technical assistance prior to, and demonstrate compliance with the mandatory management measures during, the effective life of any authorization or concession of financial aid, incentives, subsidy or any other aid which allows or facilitates earth movement or the discharge of pollutants from such agricultural nonpoint sources. (Underlining in original, boldface added)

To comply with the requirements of the EO and assure that the management measures requirements are satisfied, the DA and affiliated agencies will only provide incentives or other benefits when the proponent (bona fide farmer or agricultural entity) has:

- * demonstrated that he (she or it) has submitted its proposed activity to the pertinent DPP procedures indicated above, and, in so doing, has satisfied EQB and other permitting agencies requirements, as applicable; or
- * when the services (earth moving equipment, pesticide application, fertilizer supply, etc.) are to be provided by the DA, affiliated agricultural agencies or duly authorized contractors, the specifications or guidelines of the corresponding soil conservation, pesticide or fertilizer management plan, previously prepared or evaluated by a DA field agronomist or other competent certified agriculture or soil conservation professional shall be followed and certified.

The Lead and Cooperating Agencies will review and revise existing interagency agreements, if necessary, to clearly provide for the previous requirements until such time as the DA and affiliated agencies have incorporated these into their norms, rules and procedures, as mandated by the EO. Interagency agreements will also be reviewed and revised to furtherly define the agency roles in conducting monitoring and certification activities; and in conducting education activities.

The approval of EQB's proposed **Animal Fecal Waste Control Regulation** [See EQB-A1-R11 in Vol. 2] and proposed companion **Guidelines for the Construction, Operation, Maintenance and Emergency Measures for the Management of Animal Fecal Matter in Livestock Enterprises** [See EQB-A1-R11/HB in Vol. 2] will furtherly formalize the

current certification procedure performed by EQB. Likewise, the approval of EQB's Control of Erosion and Sedimentation Regulation Plans will also formalize and make more binding the requirements for development and implementation of Soil Conservation Plans and certification requirements currently applicable to agricultural activities with voluntary compliance with the assistance of cooperating agricultural agencies.

c. Proposed Use of Incentive, Education and Technical Assistance Based Approaches to the Implementation of Management Measures Related to the Agriculture Source Category

In addition to the above, education and technical assistance programs will be coordinated with both Federal and Commonwealth agriculture agencies to facilitate the publication of regulatory and/or technical requirements and/or any other aids or support available to farmers and the overall regulated community. As the application of many management measures or practices require substantial degree of expertise or technical knowledge, procedures, analysis, etc., not likely to be widely known or generally practiced within the regulated community, except for sophisticated agricultural operations, education and technical assistance is considered to be one of the most important components of the approach to the control of the agriculture source category.

3. The Proposed Coordination and Integration of Nonpoint Source Planning and Educational Activities and Programs Through a Nonpoint Sources Committee within the Water Resources Committee (WRC)

As indicated in Section III, the approach Puerto Rico is proposing for the PRCNPP is to furtherly elaborate, refine, streamline and improve the approach that has been followed in implementing the PRCMP and the PRNSMP-- **interagency coordination**; that is to say, to integrate all the existing statutory, regulatory and policy mechanisms that directly or indirectly call for coastal, surface and ground water nonpoint pollution control into a unified and coherent nonpoint source control program, while maintaining the independency of action, activities and authorities of the agencies and programs involved in the process.

The DPP Approach for development projects, as described above, takes care of the major portion of the initial coordination of existing public policies, plans, programs and organizational structures needed to assure the implementation of most of the management measures related to site development and construction activities. It also provides for assuring the implementation of certain management measures applicable to agriculture activities, as indicated in the previous section. However, satisfying the management measures for other agricultural activities requires that, upon the mandate of the EO, the DA and affiliated agencies of the agriculture sector, use as leverage the incentives and other aids and supports they provide to the farmers and agricultural entities, to assure compliance with the implementation of management practices that should permit meeting the objectives of those management measures.

There are a limited number of management measures that still require further analysis and discussion by the Lead and Cooperating Agencies in order to decide a suitable approach to their implementation. In addition, another limited set of management measures involve certain coordinated planning activities by the Lead Agencies. Furthermore, there are some concerns about the potential economic impact of the implementation of some of the measures, particularly those that require implementation of significant structural practices; and some concerns about the sources of funds for actually achieving the majority of the objectives of the management measures.

Following the proposed EO mandates, the Secretary of the DNER will determine the need to increase the membership of the WRC with representatives of those Cooperating Agencies that he deems necessary, upon recommendation from the Lead Agencies, so as to establish a Nonpoint Source Control Subcommittee (NSCS) within the WRC. The NSCS will be composed of the permanent and alternate representatives from the Lead Agencies and the representatives from those Cooperating Agencies that are subsequently designated by the Secretary of the DNER. The NSCS will then be used as a formal interagency mechanism to evaluate the achievements of the PRCNCP, to determine the obstacles to the implementation phase of the Plan, calibrate its economic impact on the regulated community and to make recommendations for subsequent actions, including additional management measures, if deemed necessary.

As indicated in the proposed EO, the Secretary of the DNER will determine, in consultation with the other Lead Agencies, the initiation and frequency of the meetings and their objectives. The Committee shall prepare and submit to the Governor's Office, through the Secretary, Achievement Reports, with their corresponding recommendations for action, at three (3) and five (5) years from the approval of the EO.

The NSCS will operate as the formal interagency coordination mechanism for the PRCNCP, but it expects to draw support from the participating agencies programs and staffs. Among the first tasks that are expected to be handled by the NSCS are:

- * Participating in an initial meeting to fully discuss the proposed PRCNCP
- * Reviewing this draft document and preparing any appropriate comments and recommendations;
- * Reviewing and responding to comments and recommendations submitted by participating agencies;
- * Reviewing and responding to comments and recommendations submitted by EPA and NOAA; and
- * Determining the opportunities for implementing an integrated educational, training and public outreach program; including mandatory training for professionals responsible for inspections and certifications relevant to the PRCNCP.

- * Developing a Work Plan for the first year of operation, including those items that are determined to be the priority, based on the federal agencies comments and recommendations and other appropriate concerns.

V. PROGRAM CONTENTS

A. Discussion of Management Measures Categories and Subcategories Covered by the State's Coastal Nonpoint Program, the State Should Address the Following Five Items for Each Individual Management Measure.

1. Management Measures for Agricultural Sources

a. Erosion and Sediment Control Management Measure >

Apply the erosion component of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS) [formerly Soil Conservation Service, SCS]; see Appendix 2A of Chapter 2 of Section 6217 (g) Guidelines Document) to minimize the delivery of sediment from agricultural lands to surface waters, or

Design and install a combination of management and physical practices to settle the settleable solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.

1) Applicability

This management measure is intended to be applied to activities that cause erosion on agricultural land and on land that is converted from other land uses to agricultural lands. Agricultural lands include:

- Cropland;
- Irrigated cropland;
- Range and pasture;
- Orchards;
- Permanent hayland;
- Specialty crop production; and
- Nursery crop production.

2) Management Practices

Erosion and Sediment Control Management Practices that could be used include:

(Numbers within parentheses refer to the number given to that practice in the NRCS Field Office Technical Guide. Additional information about the practices, including cost information may be found in the Guidance Document.)

- a) Conservation cover (327)
- b) Conservation cropping sequence (328)
- c) Conservation tillage (329)
- d) Contour farming (330)
- e) Contour orchard and other fruit areas (331)
- f) Cover and green manure crop (340)
- g) Critical area planting (342)

- h) Crop residue use (344)
- l) Delayed seed bed preparation (354)
- j) Diversion (362)
- k) Field border (386)
- l) Filter strip (393)
- m) Grade stabilization structure (410)
- n) Grassed waterway (412)
- o) Grassed and legumes in rotation (411)
- p) Sediment basins (350)
- q) Contour strip cropping (585)
- r) Field strip-cropping (586)
- s) Terrace (600)
- t) Water and sediment control basin (638)
- u) Wetland and riparian zone protection

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DA, DNER

Cooperating Agencies:

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

This MM will be implemented by a combination of the DPP and AP approaches [See Section IV].

EQB's proposed CES Regulations will only exclude agricultural activities from coverage if a Soil Conservation Plan certified by the NRCS, AES, or DA is developed and implemented, following a technical manual equivalent to the NRCS's.

Under the proposed CES Regulation, a 900 square meter threshold excludes from its application construction and demolition of structures for agricultural use, but not other agricultural activities, in which case best practices for the prevention of erosion, as recommended by a competent organization or person must be implemented. The unofficial translation of the pertinent language excluding agricultural and other activities that is contained in the most recent draft of the CES Regulation [See EQB-A1-R11 and R11A in Vol. 2], Rule 1210 C reads as follows:

Exclusions

The following activities are excluded from the application of this Regulation:

1. Excavations for water extraction wells duly authorized by the Department of Natural and Environmental Resources.
2. Agricultural practices and methods, provided that best practices for the prevention of erosion recommended by the **Natural Resources Conservation Service, Department of Agriculture, Agriculture Extension Service**, or other person with capacity to develop and recommend them, are implemented. (Emphasis in original)
3. Emergency actions...[requires prompt notification to EQB]
4. Any activity, except those covered by clause C.2 of this Rule, in which the total volume of the **components of the earth crust** that will be used as fill or extracted, stored, disposed, cleared, piled or removed does not exceed forty (40) cubic meters (1412.4 cubic feet) and does not obstruct any **water body**. (Emphasis in original)
5. Activities to construct or demolish structures for agricultural use, provided that the total area of these does not exceed 900 square meters (9,682 square feet).
6. The construction or demolition of a single family house that is carried out in a plot where the area to be affected does not exceed a capacity of 900 square meters (9,682 square feet).
7. [One year grandfather clause for approved CEST Plans]...

Therefore, the proposed way of implementing the management measure applies to all agricultural lands, except the limited case indicated as per the proposed Rule 1210 C. 5, which appears to be similar to the general exclusion applicable to construction or demolition of single family houses as per Rule 1210 C. 6. [***The current language of 1210 C. 5 needs a revision to better reflect what appears to be EQB's intention, that is to say, that construction and demolition of structures for agricultural use are excluded provided that the size of the lot does not exceed 900 square meters.***]

The coordination of activities as per the proposed CES Regulation is provided for in Rule 1250 C., which reads (unofficial translation) as follows:

Inspections and Joint Actions

The Board [EQB], represented by its officials, shall be able to jointly conduct inspections and investigations with authorized officials of other state and federal agencies, instrumentalities or public corporations with the purpose of expanding and facilitating its capacity to enforce the compliance of laws and regulations that it administers. In addition, the Board shall be

able to establish agreements and coordinate with other public agencies any assistance that may be necessary to achieve a larger and more efficient surveillance or enforcement of the compliance with these requirements.” (Emphasis in original; bracketed note added)

The *Interagency Agreement for the Implementation of the Soil Erosion and Sedimentation Control Program* (IACES), by which interagency coordination is currently achieved, and where individual cooperating agencies roles and responsibilities are described, is expected to continue under the CES Regulation. Among the responsibilities or obligations of the agriculture agencies, such as the DA, NRCS, UPR’s AExtS, and any other that may later be added to the IACES are:

- 1) "To provide assistance, free of charge, to any farmer requesting such assistance, and to suggest the best available practices to prevent and control soil erosion and sedimentation[;]" and
- 2) "To immediately submit to the Board copies of all the plans or practices suggested to the farmers referred to in the previous paragraph."

The IACES also contain other dispositions for joint inspections and compliance actions, similar to the ones included in the proposed CES Regulation indicated above,.

Under the proposed CES Regulation EQB retains the authority to take enforcement action, except that DNER Rangers are also authorized by law to carry out enforcement actions under any of the Commonwealth environmental laws and will be able to assist EQB in surveillance and enforcement actions. The proposed CES Regulation went through Public Hearing the Fall of 1994 and EQB produced an internal updated draft on August 1995 which is still pending further action by the agency.

Existing control alternatives provided under EQB’s Puerto Rico Nonpoint Source Management Program (PRNSMP) are included in the table below:

Control Alternatives or BMP's	Implementing Agencies Responsibilities	Current Status
4. Inclusion of either one of the following for croplands: hillside ditches, grassed waterways, conservation crop systems, contour farming, minimum tillage, irrigation water management, tree planting, access roads, or crop residue use.	SCD, ASA - technical assistance USDA, ADA - cost sharing PRDA, AES - Agriculture Service Administration- provide pesticide application services.	The technical assistance and cost sharing have been implemented through a volunteer program. Grassed waterways have not been implemented

b. Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Large Units)

Limit the discharge from the confined animal facility to surface waters by:

- Storing both the facility wastewater *and* the runoff from confined animal facilities that is caused by storms up to and including a 25-year, 24-hour frequency storm. Storage structures should:
 - Have an earthen lining or plastic membrane lining, or
 - Be constructed with concrete, or
 - Be a storage tank; and
- Managing stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

1) Applicability

This management measure is intended for application to all new facilities regardless of size and to all new or existing confined animal facilities that contain the following number of head or more:

	<u>Head</u>	<u>Animal Units</u>
Beef Feedlots	300	300
Stables (horses)	200	400
Dairies	70	98
Layers	15,000	150 ¹ 495 ²
Broilers	15,000	150 ¹ 495 ²
Turkeys	13,750	2,475
Swine	200	80

¹(If facility has a liquid manure system); ²(If facility has continuous overflow watering)

except those facilities that are required by Federal regulation 40 CFR 122.23 to apply for and receive discharge permits. That section applies to "concentrated animal feeding operations," which are defined in 40 CFR Part 122, Appendix B. In addition, 40 CFR 122.23(c) provides that the Director of an NPDES discharge permit program may designate any animal feeding operation as a concentrated animal feeding operation (which has the effect of subjecting the operation to the NPDES permit program requirements) upon determining that it is a significant contributor of water pollution. In such cases, upon issuance of a permit, the terms of the permit apply and this management measure ceases to apply.

A *confined animal facility* is a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

- Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and

- Crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Two or more animal facilities under common ownership are considered, for the purposes of these guidelines, to be a single animal facility if they adjoin each other or if they use a common area or system for the disposal of wastes.

Confined animal facilities, as defined above, include areas used to grow or house the animals, areas used for processing and storage of product, manure and runoff storage areas, and silage storage areas.

Facility wastewater and runoff from confined animal facilities are to be controlled under this management measure. Runoff includes any rain that comes into contact with any manure, litter, or bedding. Facility wastewater is water discharged in the operation of an animal facility as a result of any or all of the following: animal or poultry watering; washing, cleaning, or flushing pens, barns, manure pits, or other animal facilities; washing or spray cooling of animals; and dust control.

Currently, as will be the case under the proposed Animal Fecal Waste Control Regulation, EQB applies animal fecal waste control system requirements to any confined animal facility that generates five cubic feet of animal fecal waste per day or more. This is a much smaller amount of fecal waste than that produced by the equivalent number of head described in the applicability statements for management measures B1 and B2 as can be seen in Table 1. Hence, the local threshold is more restrictive than the 6217 requirements. According to information contained in *Appendix 2* (information obtained from the American Society of Agricultural Engineers, 6/14/73) of the draft *AFWCR Guidelines* [See EQB-A1-R11/G in Vol. 2], the equivalent number of head for the 5 cubic feet of fecal waste is as included in Table 1, which also shows the values for management measures B1 and B2. As can be seen, only 3 to 4 head of mature dairy cattle, 4 to 10 head of slaughter and feeder beef cattle, 9 to 33 head of mature swine, 1429 head of layers, 2083 head of broilers and just 7 head of horses produce the 5 cubic feet threshold established by the AFWCR and the AFWCR Guidelines.

2) Management Practices

(Numbers within parentheses refer to the number given to that practice in the NRCS Field Office Technical Guide) Additional information about the practices, including cost information may be found in the Guidance Document.

- a) Dikes (356)
- b) Diversions (362)
- c) Grassed waterway (412)
- d) Heavy use area protection (561)
- e) Lined waterway or outlet (468)
- f) Roof runoff management (558)
- g) Terrace (600)
- h) Waste storage pond (425)
- i) Waste storage structure (313)
- j) Waste treatment lagoon (359)
- k) Application of manure and/or runoff water to agricultural land

- l) Waste utilization (633)
- m) Composting facility (317)
- n) Commercial rendering or disposal services
- o) Incineration
- p) Approved burial sites

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DA.

Cooperating Agencies:

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

EQB's proposed Animal Fecal Waste Control Systems (AFWCS) Regulation will implement this measure, current program under CWA section 319 provides certification to enterprises that are in compliance.

No current English translation exists of the *Regulations for the Control of Animal Fecal Waste from Livestock Enterprises* [See EQB-A1-R11 in Spanish] as EQB is currently revising the draft document referred to during the Informal Consultation which is now known as the Animal Fecal Waste Control Regulation (AFWCR). Nonetheless, it has not been circulated nor commented by the participating agencies. While EQB's revisions to the AFWCR will change the language of the previous draft regulation, it will maintain the original intent and will provide to fully meet the MM's for confined animal facilities. As soon as a reviewable draft of the AFWCR is available it will be translated and made available to NOAA and EPA. The same situation applies to the *Guidelines for the Construction, Operation, Maintenance and Emergency Measures for Animal Fecal Waste Management Systems in Livestock Enterprises* (AFWCR Guidelines) [See EQB-A1-R11/G in Vol. 2; in Spanish].

Existing control alternatives provided under EQB's Puerto Rico Nonpoint Source Management Program (PRNSMP) are included in the table that follows:

Control Alternatives or BMP's	Implementing Agencies Responsibilities	Current Status
<p>1. Construction and operation of waste treatment system for dairy, hog, and poultry farms. The following types of systems have been considered:</p> <ul style="list-style-type: none"> -disposal lagoons/ ponds -disposal lagoons with spray irrigation -tank truck systems (honey wagon) for on-land disposal -storage structures for animal waste -open lot, tractor scrape, daily surface spread, diversion, settling basin, detection basin and wastewater irrigation. -paved lots with shelters, solids handling, on-land disposal, grass infiltration. 	<p>SCD, NRCS, ASA, ADA cost sharing, provide incentives, technical assistance, and design of systems. AExtS - educational programs. DH, EQB - surveillance inspections EQB - administer permits and enforcement action if required.</p>	<p>These control alternatives are currently being implemented by the designated agencies. Additional agencies, such as the AExtS, and the private sector are also designing animal waste management systems.</p>

c. Management Measure For Facility Wastewater and Runoff from Confined Animal Facility (Small Units)

Design and implement systems that collect solids, reduce contaminant concentrations, and reduce runoff to minimize the discharge of contaminants in both facility wastewater and in runoff that is caused by storms up to and including a 25-year, 24-hour frequency storm. Implement these systems to substantially reduce significant increases in pollutant loadings to ground water.

Manage stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

1) Applicability

This management measure is intended for application to all existing confined animal facilities that

contain the following number of head:

	<u>Head</u>	<u>Animal Units</u>
Beef Feedlots	50-299	50-299
Stables (horses)	100-199	200-399
	<u>Head</u>	<u>Animal Units</u>
Dairies	20-69	28-97
Layers	5,000-14,999	50-149 ¹
		165-494 ²
Broilers	5,000-14,999	50-149 ¹
		165-494 ²
Turkeys	5,000-13,749	900-2,474
Swine	100-199	40-79

¹(If facility has a liquid manure system); ²(If facility has continuous overflow watering)

except those facilities that are required by Federal regulation 40 CFR 122.23(c) to apply for and receive discharge permits. 40 CFR 122.23(c) provides that the Director of an NPDES discharge permit program may designate any animal feeding operation as a concentrated animal feeding operation (which has the effect of subjecting the operation to the NPDES permit program requirements) upon determining that it is a significant contributor of water pollution. In such cases, upon issuance of a permit, the terms of the permit apply and this management measure ceases to apply.

Facilities containing fewer than the number of head listed above are not subject to the requirements of this management measure. Existing facilities that meet the requirements of Management Measure B1 for large units are in compliance with the requirements of this management measure. Existing and new facilities that already minimize the discharge of contaminants to surface waters, protect against contamination of ground water, and have an appropriate waste utilization system may already meet the requirements of this management measure. Such facilities may not need additional controls for the purposes of this management measure.

Facility wastewater and runoff from confined animal facilities are to be controlled under this management measure.

[Conservation]

2) Management Practices

(Numbers within parentheses refer to the number given to that practice in the NRCS Field Office Technical Guide) Additional information about the practices, including cost information may be found in the Guidance Document.

- a) Waste storage pond (425)
- b) Waste storage structure (313)
- c) Waste treatment lagoon (359)
- d) Sediment basin (350)
- e) Water and sediment control basin (638)
- f) Filter strip (393)

- g) Grassed waterway (412)
- h) Constructed wetland (ASCS-999)
- i) Dikes (356)
- j) Diversions (362)
- k) Heavy use area protection (561)
- l) Lined waterway or outlet (468)
- m) Roof runoff management (558)
- n) Terrace (600)
- o) Waste utilization (633)
- p) Composting facility (317)
- q) Commercial rendering or disposal services
- r) Incineration
- s) Approved burial sites

3) Lead and Cooperating Agencies

Lead Agencies
EQB, DA

Cooperating Agencies
Commonwealth:
PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA
Federal:
NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

See discussion under the management measure for Large Confined Animal Facilities.

d. Nutrient Management Measure

Develop, implement, and periodically update a nutrient management plan to: (1) apply nutrients at rates necessary to achieve realistic crop yields, (2) improve the timing of nutrient application, and (3) use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely. Nutrient management plans contain the following core components:

- **Farm and field maps showing acreage, crops, soils, and water bodies.**
- **Realistic yield expectations for the crop(s) to be grown, based primarily on the producer's actual yield history, State Land Grant University yield expectations for the soil series, or NRCS Soils-5 information for the soil series.**

- **A summary of the nutrient resources available to the producer, which at a minimum include:**
 - **Soil test results for pH, phosphorus, nitrogen, and potassium;**
 - **Nutrient analysis of manure, sludge, mortality compost (birds, pigs, etc.), or effluent (if applicable);**
 - **Nitrogen contribution to the soil from legumes grown in the rotation (if applicable); and**
 - **Other significant nutrient sources (e.g., irrigation water).**
- **An evaluation of field limitations based on environmental hazards or concerns, such as:**
 - **Sinkholes, shallow soils over fractured bedrock, and soils with high leaching potential,**
 - **Lands near surface water,**
 - **Highly erodible soils, and**
 - **Shallow aquifers.**
- **Use of the limiting nutrient concept to establish the mix of nutrient sources and requirements for the crop based on a realistic yield expectation.**
- **Identification of timing and application methods for nutrients to: provide nutrients at rates necessary to achieve realistic crop yields; reduce losses to the environment; and avoid applications as much as possible during periods of leaching or runoff.**
- **Provisions for the proper calibration and operation of nutrient application equipment.**

1) Applicability

This management measure is intended to be applied to activities associated with the application of nutrients to agricultural lands.

2) Management Practices

(Practices, components and sources of information)

- a) Use of soil surveys
- b) Use of producer-documented yield history and other relevant information to determine realistic crop yield expectation
- c) Soil testing for pH, phosphorus, potassium, and nitrogen
- d) Plant tissue testing
- e) Manure sludge, mortality compost, and effluent testing
- f) Use of proper timing, formulation, and application methods
- g) Use of small grain cover crops to scavenge nutrients remaining in the soil after harvest of the principal crop, particularly on highly leachable soils

- h) Use of buffer areas or intensive nutrient management practices to manage field limitations based on environmentally high risk areas
- l) Control of phosphorus losses from fields through a combination of the Erosion and Sediment Control Measure and the Nutrient Management Measure
- j) A narrative accounting of the nutrient management plan that explains the plan and its use

3) Lead and Cooperating Agencies

Lead Agencies:

DA, EQB

Cooperating Agencies:

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

No specific provision concerning a requirement for nutrient management planning in agricultural activities was found in any of the laws and regulations of the Lead and Cooperating Agencies, with the exception of the obtention of federal incentives under the programs of the Natural Resources Conservation Service (NRCS) and the Consolidated Farm Services Agency (CFSA), where a certified soil conservation plan that includes a nutrient management component is required. Nonetheless, the Agrologic Laboratory of the Department of Agriculture provides soil and foliar laboratory analysis services free of charge to farmers that are intended, among other potential uses, for determining nutrient needs for agricultural crops.

The proposed strategy for nutrient management, as well as for all other agriculture related management measures (and in fact, for all the management measures for all the nonpoint source categories to be implemented) is the adoption of the mandatory MM's as public policy of the Government of Puerto Rico through the proposed EO. This action would require that any soil conservation plan certifiable for the purposes of the PRCNCP [satisfying the proposed CES Regulation's exception for CES Permits for certain agricultural activities (see Section IV) and for obtaining incentives from agricultural programs of the Government of Puerto Rico contains a nutrient management component for the application of fertilizers. As mandated by the EO, the Lead Agencies would then incorporate the public policy into their rules and regulations within two years.

Although currently lacking in statutory authority to specifically require the adherence to nutrient management requirements, EQB could always resort to the use of its authority as per the General Prohibition Clause (Article 6.1, 6.1.1 and 6.1.2) of the Water Quality Standards Regulation (WQSR) [See EQB-A1-R1 in Vol. 2] and/or to the powers granted by Act No. 9 to immediately

restrain any person or institution from engaging in any activity which is endangering or causing damage to the public health or the environment. EQB's PRNSMP indicates that the implementation of the current control alternatives is voluntary, as indicated in the table below, which also applies to the next management measure.

Control Alternatives or BMP's	Implementing Agencies Responsibilities	Current Status
3. Control of fertilizers, pesticides and herbicides use including dosage timing and placement	SCD, ASA - technical assistance AExtS - recommendations ADA - cost sharing	Implemented through volunteer programs.

e. Pesticide Management Measure

To reduce contamination of surface water and ground water from pesticides:

- Evaluate the pest problems, previous pest control measures, and cropping history;
- Evaluate the soil and physical characteristics of the site including mixing, loading, and storage areas for potential leaching or runoff of pesticides. If leaching or runoff is found to occur, steps should be taken to prevent further contamination;
- Use integrated pest management (IPM) strategies that:
 - Apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and
 - Apply pesticides efficiently and at times when runoff losses are unlikely;
- When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;
- Periodically calibrate pesticide spray equipment; and
- Use anti-backflow devices on hoses used for filling tank mixtures.

1) Applicability

This management measure is intended to be applied to activities associated with the application of pesticides to agricultural lands.

2) Management Practices

- a) Inventory current and historical pest problems, cropping patterns, and use of pesticides for each field
- b) Consider the soil and physical characteristics of the site including mixing, loading and storage areas for potential for the leaching and/or runoff of pesticides
- c) Use IPM strategies to minimize the amount of pesticides applied
- d) When pesticide applications are necessary and a choice of materials exists, consider the persistence, toxicity, and runoff and leaching of products along with other factors, including current label requirements, in making a selection
- e) Maintain records of application of restricted use pesticides (product name, amount approximate date of application, and location of application of each such pesticide used) for a 2-year period after such use, pursuant to the requirements in section 1491 of the 1990 Farm Bill
- f) Use lower pesticide application rates than those called for by the label when the pest problem can be adequately controlled using such lower rates
- g) Consider the use of organic farming techniques that do not rely on the use of synthetically compounded pesticides
- h) Recalibrate spray equipment each spray season and use anti-backflow devices on hoses used for filling tank mixtures
- i) Integrated crop management system (Pest Management 595)

3) Lead and Cooperating Agencies

Lead Agencies

DA, EQB

Cooperating Agencies

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

DRNA,

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

DA programs provide for incentives and technical support that allow for implementation of several components of this management measure. Current EQB requirements under the PRNSMP are

included in the table that follows:

Control Alternatives or BMP's	Implementing Agencies Responsibilities	Current Status
3. Control of fertilizers, pesticides and herbicides use including dosage timing and placement	SCD, ASA - technical assistance AES - recommendations ADA - cost sharing	Implemented through volunteer programs.
5. Establish licensing program for pesticide use.	PRDA - license and train applicators, register pesticides EQB - issue restraining orders if justified. AES - educational program.	This control alternative is being implemented.
6. Disposal system for pesticide containers	SCD - technical assistance EQB - permits and enforcement PRDOH - inspections	This control alternative has not been implemented.

The *State Management Plan for the Control of Pesticides in Groundwater, Final Draft, Revised May 1995* (SMP[CPG]), is included in Volume 2 [See EQB-A1-PP2 in Vol. 2]. The implementation of the measures and proposed interagency agreements contained in the SMP[CPG] will assure the Plan to include all waters of Puerto Rico. However, in the way it is written, the SMP[CPG] appears to be directed to the protection of groundwaters and to critical ecological areas that are groundwater-dependent (See pages 4-12 of the SMP[CPG] under the heading "Statement of Philosophy"). Nonetheless, the regulatory basis used by EQB for the SMP[CPG] is Article 3 of the WQSR, applicable to the Waters of Puerto Rico (namely, surface, ground, estuarine and coastal waters) as indicated at §3.1.9 that reads as follows: [See SMP[CPG] pages 6-7 and WQSR at §3.1.9]

"3.1.9 Substances in Toxic Concentrations and Synergistic Toxic Effects:

The Waters of Puerto Rico shall not contain any substance at such concentration which, either alone or as result of synergistic effects with other substances is toxic or produces undesirable physiological responses in human, fish or other fauna or flora." (Emphasis added)

In Articles 3.1.9 (A) , 3.1.9 (B) , and 3.1.9 (C) specific substances are identified for which numeric water quality standards have been established.

Specific standards for Pesticides are identified in Article 3.1.9.(B) as follows:

- "1. Organochlorides and other persistent pesticides: Organochlorides and other persistent pesticides residues in **surface, ground, estuarine and coastal waters** shall not exceed 1/100 of the 96 hr LC50 of species approved by the Board. In the specific case of the pesticides identified on Table 1 [not included here] the concentration shall not exceed the value (micrograms per liter [$\mu\text{g}/\text{lt}$] or parts per billion [ppb]). (Emphasis added)
2. Organothiophosphorus and other non-persistent pesticides: organothiophosphorus and other nonpersistent pesticides residues in **surface, ground estuarine and coastal waters** shall not exceed 1/10 of the 96 hr LC50 of species approved by the Board. In no case the pesticides listed in Table 1 [not included here] shall exceed the concentration (micrograms per liter [$\mu\text{g}/\text{L}$] or parts per billion [ppb]). Also, Article 3.1.9 (B) establishes that pesticides in groundwater Class SGI shall be free of all persistent pesticides that affect human." (Emphasis added)

Nothing prevents EQB from extending the SMP[CPG] to all waters of Puerto Rico as already provided for in the WQSR. [*However, a more universal approach in the so called "Statement of Philosophy" of the SMP[CPG] is advisable and certainly recommended.*]

f. Grazing Management Measure

Protect range, pasture and other grazing lands:

- **By implementing one or more of the following to protect sensitive areas (such as streambanks, wetlands, estuaries, ponds, lake shores, and riparian zones):**
 - **Exclude livestock,**
 - **Provide stream crossings or hardened watering access for drinking,**
 - **Provide alternative drinking water locations,**
 - **Locate salt and additional shade, if needed, away from sensitive areas,**
 - or**
 - **Use improved grazing management (e.g., herding)**

to reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and

- **By achieving either of the following on all range, pasture, and other grazing lands not addressed under (1):**
 - **Implement the range and pasture components of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the USDA-NRCS (USDA-NRCS; see Appendix 2A of Chapter 2 of Section 6217 (g) Guidelines Document) by applying the progressive planning approach of the USDA-Natural Resources**

- **Conservation Service (NRCS) to reduce erosion, or
Maintain range, pasture, and other grazing lands in accordance with
activity plans established by either the Bureau of Land Management of
the U.S. Department of the Interior or the Forest Service of USDA.**

1) Applicability

The management measure is intended to be applied to activities on range, irrigated and nonirrigated pasture, and other grazing lands used by domestic livestock.

Range is those lands on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing use. Range includes natural grassland, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. Pastures are those lands that are primarily used for the production of adapted, domesticated forage plants for livestock. Other grazing lands include woodlands, native pastures, and croplands producing forages.

The major differences between range and pasture are the kind of vegetation and level of management that each land area receives. In most cases, range supports native vegetation that is extensively managed through the control of livestock rather than by agronomy practices, such as fertilization, mowing, irrigation, etc. Range also includes areas that have been seeded to introduced species (e.g., crested wheatgrass), but which are extensively managed like native range. Pastures are represented by those lands that have been seeded, usually to introduced species (e.g., tall fescue) or in some cases to native plants (e.g., switchgrass), and which are intensively managed using agronomy practices and control of livestock.

2) Management Practices

Alternate Water Supply Practices

(Numbers within parentheses refer to the number given to that practice in the NRCS Field Office Technical Guide) Additional information about the practices, including cost information may be found in the Guidance Document.

- a) Deferred grazing (352)
- b) Planned grazing system (556)
- c) Proper grazing use (528)
- d) Proper woodland grazing (530)
- e) Pasture and hayland management (510)
- f) Pipeline (516)
- g) Pond (378)
- h) Trough or tank (614)
- i) Well (642)
- j) Spring development (574)

Livestock Access Limitation Practices

- k) Fencing (382)
- l) Livestock exclusion (472)

- m) Stream crossing (interim)

Vegetative Stabilization Practices

- n) Pasture and hayland planting (512)
- o) Range seeding (550)
- p) Critical area planting (342)
- q) Brush (and weed) management (314)
- ~~r) Prescribed burning (338)~~

3) Lead and Cooperating Agencies

Lead Agencies:

DA, EQB

Cooperating Agencies:

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

Current EQB requirements applicable to this management measure is as indicated in the table below:

Control Alternatives or BMP's	Implementing Agencies Responsibilities	Current Status
2. Pasture management practice to minimize overgrazing	USDA - advises on optimum livestock head per acre SCD - advises on soil conservation practices	This practice is a requirement for the approval of animal waste management systems

The proposed Executive Order mandates local Agricultural Agencies to limit access to incentives to farmers that do not implement agriculture management practices, grazing management system practices included. Federal agricultural incentives granted by the US Department of Agriculture are already restricted to the implementation of grazing management practices as part of Soil Conservation Plans. The Lead Agencies for this management measure (EQB and DA), in conjunction with Cooperating Agencies of the agriculture sector will implement an educational

campaign about the importance of the management measure in controlling soil erosion and sedimentation and reducing nutrient loadings into water bodies. As in the present, EQB will require grazing management as part of its certification process for AFWCS.

For those cases not subject to the AFWCS Certification/Regulation, there appears to be no other mechanisms available to EQB than to exercise its enforcement authority under the WQSR if they merit the attending administrative process and, if necessary, the subsequent judicial review process.

g. Irrigation Water Management Measure

To reduce nonpoint source pollution of surface waters caused by irrigation:

- **Operate the irrigation system so that the timing and amount of irrigation water applied match crop water needs. This will require, as a minimum: (a) the accurate measurement of soil-water depletion volume and the volume of irrigation water applied, and (b) uniform application of water.**
- **When chemigation is used, include backflow preventers for wells, minimize the harmful amounts of chemigated waters that discharge from the edge of the field, and control deep percolation. In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.**

The following limitations and special conditions apply:

- **In some locations, irrigation return flows are subject to other water rights or are required to maintain stream flow. In these special cases, on-site reuse could be precluded and would not be considered part of the management measure for such locations.**
- **By increasing the water use efficiency, the discharge volume from the system will usually be reduced. While the total pollutant load may be reduced somewhat, there is the potential for an increase in the concentration of pollutants in the discharge. In these special cases, where living resources or human health may be adversely affected and where other management measures (nutrients and pesticides) do not reduce concentrations in the discharge, increasing water use efficiency would not be considered part of the management measure.**
- **In some irrigation districts, the time interval between the order for and the delivery of irrigation water to the farm may limit the irrigator's ability to achieve the maximum on-farm application efficiencies that are otherwise possible.**
- **In some locations, leaching is necessary to control salt in the soil profile. Leaching for salt control should be limited to the leaching requirement for the root zone.**

- Where leakage from delivery systems or return flows supports wetlands or wildlife refuges, it may be preferable to modify the system to achieve a high level of efficiency and then divert the "saved water" to the wetland or wildlife refuge. This will improve the quality of water delivered to wetlands or wildlife refuges by preventing the introduction of pollutants from irrigated lands to such diverted water.
- In some locations, sprinkler irrigation is used for frost or freeze protection, or for crop cooling. In these special cases, applications should be limited to the amount necessary for crop protection, and applied water should remain on-site. *Est. needed lands this region FSA. see criteria a & b*
Conditions of P.P.

1) Applicability

This management measure is intended to be applied to activities on irrigated lands, including agricultural crop and pasture land (except for isolated fields of less than 10 acres in size that are not contiguous to other irrigated lands); orchard land; specialty cropland; and nursery cropland. Those landowners already practicing effective irrigation management in conformity with the irrigation water management measure may not need to purchase additional devices to measure soil-water depletion or the volume of irrigation water applied, and may not need to expend additional labor resources to manage the irrigation system.

2) Management Practices

Irrigation Scheduling Practices

(Numbers within parentheses refer to the number given to that practice in the NRCS Field Office Technical Guide) Additional information about the practices, including cost information may be found in the Guidance Document.

- a) Irrigation water management (449)
- b) Water-measuring device
- c) Soil and crop water use data

Practices for Efficient Irrigation Water Application

- d) Irrigation system, drip or trickle (441)
- e) Irrigation system, sprinkler (442)
- f) Irrigation system, surface and subsurface (443)
- g) Irrigation field ditch (388)
- h) Irrigation land leveling (464)

Practices for Efficient Irrigation Water Transport

- Irrigation water conveyance, ditch and canal lining (428)
- Irrigation water conveyance, pipeline (430)
- Structure for water control (587)

Practices for Utilization of Runoff Water or Trailwater

- l) Irrigation system, tailwater recovery (447)

Practices for Drainage Water Management

- j) Filter strip (393)
- k) Surface drainage field ditch (607)
- l) Subsurface drain (606)
- m) Water table control (641)
- n) Controlled drainage (335)

Practices for Backflow Prevention

- o) The American Society of Agricultural Engineers recommends, in standard EP409, safety devices to prevent backflow when injecting liquid chemicals into irrigation systems

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DA

Cooperating Agencies

Commonwealth:

PB, RPA, DH, SCD's, UPR AExpS, UPR AExtS, ORDI, ADA, ASA, LA and PREPA

Federal:

NRCS, CFSA and USGS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

Puerto Rico needs to further evaluate this management measure to determine the specific approach to be followed. There appears to be no specific provisions, other than the mandate to manage irrigation water, in the laws enabling the three existing irrigation districts under the purview of the Puerto Rico Electric Power Authority (PREPA) to implement the different elements of this management measure. The real and potential role of the DA needs also to be clarified. Additional information regarding the approach to be followed for the implementation of the irrigation management measure will be developed and submitted as part of the implementation process of the mandate of the EO.

2. Urban Areas Source Category

URBAN RUNOFF New Development

a. New Development Management Measure

- **By design or performance:**
 - **After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80 percent. For the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis, or**
 - **Reduce the post development loadings of TSS so that the average annual TSS loadings are no greater than pre development loadings, and**
- **/ To the extent practicable, maintain post development peak runoff rate and average volume at levels that are similar to pre development levels.**

Sound watershed management requires that both structural and nonstructural measures be employed to mitigate the adverse impacts of storm water. Nonstructural Management Measures II.B and II.C can be effectively used in conjunction with Management Measure II.A to reduce both the short- and long-term costs of meeting the treatment goals of this management measure.

1) Applicability

This management measure is intended to be applied to control urban runoff and treat associated pollutants generated from new development, redevelopment, and new and relocated roads, highways, and bridges.

{ For design purposes, post development peak runoff rate and average volume is to be based on the 2-year/24-hour storm. }

2) Management Practices

- a) **Develop training and education programs and materials for public officials, contractors, and others involved with the design, installation, operation, inspection, and maintenance of urban runoff facilities.**
- b) **Ensure that all urban runoff facilities are operated and maintained properly**
- c) **Infiltration Basins**
- d) **Infiltration Trenches**
- e) **Vegetated Filter Strips**

- f) Grassed Swales
- g) Porous Pavement and Permeable Surfaces
- h) Concrete Grid Pavement
- i) Water Quality Inlets
- j) Extended Detention Ponds
- k) Wet Ponds
- l) Constructed Wetlands
- m) Filtration Basins and Sand Filters
- n) Educate the public about the importance of runoff management facilities

3) Lead and Cooperating Agencies

Lead Agencies

PB/RPA, EQB, DNER

Cooperating Agencies

Commonwealth:

DA

Federal:

COE

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

After discussing and reviewing this management measure with Lead and Cooperating Agencies and considering Puerto Rico's climate, the frequency and intensity of storm events over the Island, its topography, extremely variable and complex soils and limited territorial space, it was concluded that this management measure will require significant additional study and analysis to determine its true achievability. The measure was included to be adopted as public policy by Executive Order, as were all other Section 6217(g) management measures, as there are certain practices that may be implementable on a case by case basis. However, there is no question that, given Puerto Rico's peculiarities previously indicated, many of the practices are likely to be inappropriate or prohibitively expensive for implementation.

This measure may need to undergo additional discussion and review by all concerned agencies, and most probably, undergo a relatively long development and evaluation process before Puerto Rico can indicate for sure how it is going to be implemented; that is, specifying the minimum requirements to be satisfied by new development proponents.

b. Watershed Protection Management Measure

Develop a watershed protection program to:

- **Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;**
- **Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and**
- **Site development, including roads, highways, and bridges, to protect to the extent practicable the natural integrity of waterbodies and natural drainage systems.**

1) Applicability

This management measure is intended to be applied to new development or redevelopment including construction of new and relocated roads, highways, and bridges that generate nonpoint source pollutants.

2) Management Practices

Watershed Protection and Cost Information

- a) Resource Inventory and Information Analysis
- b) Development of Watershed Management Plan
- c) Plan Implementation
- d) Cost of Planning Programs

Land or Development Rights Acquisition Practices and Cost Information

- a) Fee Simple Acquisition/Conservation Easements
- b) Transfer of Development Rights
- c) Purchase of Development Rights
- d) Land Trusts
- e) Agricultural and Forest Districts
- f) Cost and Effectiveness of Land Acquisition Programs

3) Lead and Cooperating Agencies

Lead Agencies

PB/RPA, EQB, DNER

Cooperating Agencies

Commonwealth:

DA, PRASA, HTA
Federal:
COE, USGS, NRCS, FWS

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

The approach Puerto Rico is proposing for implementing this management measure is consonant with the proposed overall approach to the PRCNPCP implementation [See Section IV - Implementation of Section 6217(g) Management Measures Through Integration of Programs of Lead and Cooperating Agencies]. Short of developing and implementing watershed protection plans for specific watersheds, other than those that are already in place through Commonwealth and Federal efforts, Puerto Rico is attempting to integrate all the existing statutory, regulatory and policy mechanisms that directly or indirectly call for watershed protection into a coherent program, while maintaining the independency of action, activities, programs and authorities of the agencies involved in the process.

These efforts will be spearheaded by the WRC and shall be guided by the objectives and public policies contained in the March 1, 1995 *Objectives and Public Policies of the Land Use Plan for Puerto Rico* [See PB-A2-PP1 in Vol. 2, in Spanish; an English translation of those deemed applicable to the PRCNPCP is included in Appendix K-2], in addition to the Watershed Protection Act [See DNER-A5 in Vol.2], the Watershed Protection and Flood Prevention Act [See DNER-A6 in Vol. 2], the Act for the Conservation, Development, and Use of the Waters of Puerto Rico and pertinent PB's planning regulations, as well as other applicable statutory and regulatory provisions referred to below.

The proposed Executive Order that enacts the above referred PB document states the following: (unofficial translation)

Ninth Whereas: The Objectives and Public Policies of the Land Use Plan for Puerto Rico constitutes the document that governs public policy whose radius of influence encompasses the totality of the physical-spatial context of Puerto Rico, orients and ordains in harmonious form the different physical, social and economic, statuses that emerge from the Puerto Rican society.

Tenth Whereas: The Objectives and Public Policies of the Land Use Plan for Puerto Rico so adopted shall serve as guidance to public agencies and instrumentalities in the formulation of policies, plans and programs, and in the decision making and actions about public and private projects, as well as in the zoning process and that of other land use planning instruments, and for other public interest purposes.

In analyzing proposals for development projects, the designated Lead Agencies for this management measure (EQB, PB, RPA and DNER) at the present time consider all the

factors indicated in the three management measures as indicated under each one.

- ~~If the proposed location involves areas that are particularly susceptible to erosion or sediment loss,~~ the potential environmental impact of the proposed action on erosion and sedimentation, when they are relevant to such sensitive location, must be addressed during 1) the ERP of EQB; 2) during the Siting Permit process of the PB, if required; 3) in the Construction Permit review of RPA; and, 4) and in the CEST Plan that must be prepared if the action is approved. [See EQB-A1-R4, §3.3.6, §3.4.7, §4.2.2 and §5.3.6 (i) and (l)] An improvement expected to result from the adoption of the management measures as Government policy, for the indicated susceptible areas, is that the Lead Agencies may have to require a more thorough analysis of this consideration during the ERP of the project, prior to taking the "conversion decision," and not just requiring the subsequent submittal of the CES[T] Plan (the CES[T] Plan will become a CES Permit as per the proposed CES Regulation). The CES[T] Plan/Permit that follows during the construction phase is just the mitigation component to the "conversion decision" (approving the ERP document and granting the Siting Permit). While the CEST Plan or CES Permit is very important for other management measures, this mechanism by itself does not necessarily satisfy the management measure requirement.

- ~~A similar situation exists regarding the preservation of areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota, in terms of critical project evaluation through the ERP, the Siting Permit and the Construction Permit phases.~~ Considering that the intention of the management measure is to "[p]reserve ...," this measure is achieved when the review process does not allow a "conversion decision" or when the lands have been set aside through special designations that "preserve" the areas and their water quality benefits. To that end, there are many ways in which this measure is satisfied to different extents, but not necessarily on a case by case basis: State forests, natural reserves, special planning areas, critical wildlife areas, estuarine sanctuaries, national estuary, biosphere reserve and certain zoning districts. PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R10 in Vol. 2] - and Planning Regulation No. 17 - Zoning Regulation for the Coastal Zone and Access to Beaches [See PB-A2-R6 in Vol. 2] - provide several special zoning districts that also provide equivalent or similar protection as that intended by the management measure [See Appendix P].

- The protection of the natural integrity of ~~water bodies and natural drainage systems~~ is a major consideration of the ERP to the extent that "[a]ny project or action which may significantly affect an area in which there are natural resources or values of ecological, recreational, social, cultural or archeological importance[.]" is an action that requires the preparation of an Environmental Impact Statement [See EQB-A1-R4 , §5.2.1 (d)]. In addition, any project that affects any water body or natural drainage system must obtain a favorable endorsement from the DNER, that evaluates those proposals from several points of view including: ecological values or natural resources affected, flood control, water quality and water supply, and the mandatory 5 meter belt of land that must be dedicated for public use, measured from both edges of beds of rivers, brooks, creeks and other water bodies, which must be transferred and registered to the DNER as required by PB's Planning Regulation No. 3 - Subdivision and Urbanization Regulation [See PB-A2-R13;

§15.08].

c. **Site Development Management Measure**

Plan, design, and develop sites to:

- **Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;**
- **Limit increases of impervious areas, except where necessary;**
- **Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and**
- **Limit disturbance of natural drainage features and vegetation.**

1) **Applicability**

This management measure is intended to be applied to all site development activities including those associated with roads, highways, and bridges.

2) **Management Practices**

Practices and Cost Information for Control of Erosion During Site Development

- a) Erosion and Sediment Control Plans and Programs
- b) Phasing and Limiting Areas of Disturbance
- c) Require vegetative stabilization
- d) Minimum Disturbance/Minimum Maintenance

Site Planning Practices

- a) Clustering
- b) Performance Criteria
- c) Site Fingerprinting
- d) Preserving Natural Drainage Features and Natural Depressional Storage Areas
- e) Minimizing Imperviousness
- f) Reducing the Hydraulic Connectivity of Impervious Surfaces
- g) Xeriscape Programs

3) **Lead and Cooperating Agencies**

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Federal:
COE

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

Policies and specific objectives, and regulatory requirements to satisfy the management measure exist in PB policy documents and regulations, DNER laws and regulations, and the matter must also be addressed during the Environmental Review Process of EQB, as explained in the previous measure.

CONSTRUCTION ACTIVITIES

a. Construction Site Erosion and Sediment Control

- Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1) Applicability

Federal guidelines indicated that this management measure was intended to be applied to all construction activities on sites less than 5 acres in areas that do not have an NPDES stormwater permit in order to control erosion and sediment loss from those sites. Guidelines also indicated that this management measure was not to apply to: (1) construction of a detached single family home on a site of ½ acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. In addition, the guidelines indicated that all construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan, which are covered by the NPDES stormwater regulations, were to be excluded from these requirements. However, neither the existing Control of Erosion and Sedimentation (CES) Program nor the Proposed Control of Erosion and Sedimentation Regulations of the EQB provide such exclusions. Therefore, until such time when agreements are entered between the Environmental Quality Board and the Environmental Protection Agency, regarding the NPDES stormwater program, these requirements will be applicable to all construction site erosion [producing] activities regardless of size (and sediment control measures need to be implemented), except as follows:

The latest draft of the CES Regulation provides the following:

Exclusions

The following activities are excluded from the application of this [CES] Regulation:

1. Excavations for water extraction wells duly authorized by the Department of Natural and Environmental Resources.
2. Agricultural practices and methods, provided that best practices for the prevention of erosion recommended by the **Natural Resources Conservation Service, Department of Agriculture, Agriculture Extension Service**, or other person with capacity to develop and recommend them, are implemented. (Emphasis in original)
3. Emergency actions to preevent loss of life or property, or to react to [the effects of] natural disasters. In these cases a verbal notification about the emergency and the actions taken must be provided to the **Board**, immediately if during **working days** of the **Board** or immediately the next **working day**. (Emphasis in original)
4. Any activity, except those covered by clause C.2 of this Rule, in which the total volume of the **components of the earth crust** that will be used as fill or extracted, stored, disposed, cleared, piled or removed does not exceed forty (40) cubic meters (1412.4 cubic feet) and does not obstruct any **water body**. (Emphasis in original)
5. Activities to construct or demolish structures for agricultural use, provided that the total area of these does not exceed 900 square meters (9,682 square feet). [*Note: The current language of 1210 C. 5 needs a revision to better reflect what appears to be EQB's intention, that is to say, that construction and demolition of structures for agricultural use are excluded provided that the size of the lot does not exceed 900 square meters.*]
6. The construction or demolition of a single family house that is carried out in a plot where the area to be affected does not exceed a capacity of 900 square meters (9,682 square feet).
7. Activities at the site of **existing projects** for which the **Board** has approved a **CEST Plan** prior to the effective date of this Regulation and that will be completed in a term not greater than one year after the effective date of this Regulation. This exclusion is only applicable to the **CES Permit** application, and does not relieve the **project owner** [or operator] from implementing the approved **CEST Plan** and the application of the provisions of Rules 1220, 1250, 1270 and 1280 of this Regulation.

The earlier version of the Regulation, the one that went through the public hearing process provided the following exclusions:

1. Excavation of tombs or graves at duly authorized cemeteries;

2. Sanitary landfills in duly authorized solid waste disposal facilities. This exclusion does not include construction of new or expanded facilities nor earth cutting and extraction adjacent to the activities for solid waste disposal;
3. Drilling of wells for duly authorized water extraction;
4. Emergency actions to prevent the loss of life or damage to property or to react to natural disasters;
5. Any activity (construction or other) in which the total volume of components of the earth crust to be used as fill or extracted, stored, disposed of, cleared or removed does not exceed 40 cubic meters (52 cubic yards) and it does not obstruct the natural drainage of the water.
6. Earth movements for the construction of structures to be used for agricultural use in dairy farms, swine farms, poultry farms, rabbit farms, agricultural shops, warehouses for agricultural products and others, provided that the area of the structure does not exceed 900 square meters (9,682 square feet) and that agricultural practices recommended by the Natural Resources Conservation Service, the Department of Agriculture or the Agriculture Extension Service are followed; and
7. All internal construction or remodeling activity, provided that the components of the earth crust to be extracted are not exposed to the [rain] effects of erosion and sedimentation.

2) Management Practices

Erosion Control Practices

- a) Schedule projects so clearing and grading are done during the time of minimum erosion potential
- b) Stage construction
- c) Clear only areas essential for construction
- d) Locate potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas
- e) Route construction traffic to avoid existing or newly planted vegetation
- f) Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells
- g) Stockpile topsoil and reapply to revegetate site
- h) Cover or stabilize topsoil stockpiles
- i) Use wind erosion controls
- j) Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain
- k) On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff
- l) Use retaining walls
- m) Provide linings for urban runoff conveyance channels

- n) Use check dams
- o) Seed and fertilize
- p) Use seeding and mulch/mats
- q) Use mulch/mats
- r) Use sodding
- s) Use wildflower cover

Sediment Control Practices

- a) Sediment Basins
- b) Sediment Trap
- c) Filter Fabric Fence
- d) Straw Bale Barrier
- e) Inlet Protection
- f) Construction Entrance
- g) Vegetated Filter Strips

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, RPA, DNER

Cooperating Agencies:

Commonwealth:
SCD

Federal:
EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

Current authorities are adequate and exceed Section 6217 requirements. They will be furtherly strengthened when the CES Regulation is finally approved.

If the proposed location involves **areas that are particularly susceptible to erosion or sediment loss**, the potential environmental impact of the proposed action on erosion and sedimentation, when they are relevant to such sensitive location, must be addressed during: [See EQB-A1-R4, §3.3.6, §3.4.7, §4.2.2 and §5.3.6 (I) and (I)]

- * the ERP of EQB;
- * during the Siting Permit process of the PB, if one is required;
- * in the Subdivision or Construction Permit review of RPA; and,
- * in the CEST Plan that must be prepared if the action is approved.

b. Construction Site Chemical Control

- **Limit application, generation, and migration of toxic substances;**
- **Ensure the proper storage and disposal of toxic materials; and**
- **Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.**

1) Applicability

This management measure is intended to be applied to all construction sites and to new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. (Please refer to the Applicability Section for the previous MM -- Construction Site Erosion and Sediment Control -- for an expanded explanation and applicable exclusions.)

2) Management Practices

- a) Properly store, handle, apply, and dispose of pesticides
- b) Properly store, handle, use, and disposed of petroleum products
- c) Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff
- d) Provide sanitary facilities for constructions workers
- e) Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water
- f) Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan
- g) Maintain and wash equipment and machinery in confined areas specifically designed to control runoff
- h) Develop and implement nutrient management plans
- l) Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction
- j) Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, RPA, DNER

Cooperating Agencies:

Federal:
EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

CES[T] Plans Applicants can be specially required to address chemical control in CES Plan as they do fugitive dust for air pollution control purposes, and other environmental control matters.

EXISTING DEVELOPMENT

a. Existing Development Management

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development:

- Identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures;
- Contain a schedule for implementing appropriate controls;
- Limit destruction of natural conveyance systems; and
- Where appropriate, preserve, enhance, or establish buffers along surface waterbodies and their tributaries.

1) Applicability

This management measure is intended to be applied to all urban areas and existing development in order to reduce surface water runoff pollutant loadings from such areas.

2) Management Practices

- a. Priority NPS pollutants should be targeted, and implementation strategies for mitigating the effects of NPS pollutants should be developed.
- b. Policies, plans, and organizational structures that ensure that all surface water runoff management facilities are properly operated and maintained should be developed. Periodic monitoring and maintenance may be necessary to ensure proper operation and maintenance.
- c. Remnant pervious areas in already-built areas should be subject to enforceable preservation requirements. For example, set green space goals to promote tree plantings and pavement reclamation projects
- d. Developed areas in need of local or regional structural solutions should be identified and put in priority order
- e. Regional structural solutions, retrofit opportunities, and nonstructural alternatives should be identified, inventoried, and put in priority order

- f. Where possible, modify existing surface water runoff management structures to address water quality
- g. As capital resources allow, implement practices such as those in Table 4-17

3) Lead and Cooperating Agencies

Lead Agencies:

EQB PB, DNER

Cooperating Agencies:

Commonwealth:
DTPW, MUN

Federal:
COE, USGS

4) Enforceable Policies and Mechanisms

DNER has clear legal authority under several existing statutes. Emphasis as a coherent program has been placed in flood control matters; PB/RPA/DNER regulations require setbacks/buffer zones along waterbodies, tributaries and beaches for development projects.

After discussing and reviewing this management measure with Lead and Cooperating Agencies, as was the case of the New Development Management Measure, it was concluded that the Existing Development Management Measure needs to undergo significant discussion and review by concerned agencies' planning-staff, and most probably, undergo a relatively long development and evaluation process before Puerto Rico can indicate for sure the details of its implementation. An initial action plan based on the recommended practices will be worked out by the WRC with the assistance of the agencies staffs.

ONSITE DISPOSAL SYSTEMS

a. New Onsite Disposal Systems Management Measure

- Ensure that new Onsite Disposal Systems (OSDS) are located, designed, installed, operated, inspected, and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives: (a) discourage the installation of garbage disposals to reduce hydraulic and nutrient loadings; and (b) where low-volume plumbing fixtures have not been installed in new developments or redevelopments, reduce total hydraulic loadings to the OSDS by 25 percent. Implement OSDS inspection schedules

for preconstruction, construction, and postconstruction.

- **Direct placement of OSDS away from unsuitable areas. Where OSDS placement in unsuitable areas is not practicable, ensure that the OSDS is designed or sited at a density so as not to adversely affect surface waters or ground water that is closely hydrologically connected to surface water. Unsuitable areas include, but are not limited to, areas with poorly or excessively drained soils; areas with shallow water tables or areas with high seasonal water tables; areas overlaying fractured bedrock that drain directly to ground water; areas within flood plains; or areas where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive waterbodies;**
- **Establish protective setbacks from surface waters, wetlands, and flood plains for conventional as well as alternative OSDS. The lateral setbacks should be based on soil type, slope, hydrologic factors, and type of OSDS. Where uniform protective setbacks cannot be achieved, site development with OSDS so as not to adversely affect waterbodies and/or contribute to a public health nuisance;**
- **Establish protective separation distances between OSDS system components and groundwater which is closely hydrologically connected to surface waters. The separation distances should be based on soil type, distance to ground water, hydrologic factors, and type of OSDS;**
- **Where conditions indicate that nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from ground water, require the installation of OSDS that reduce total nitrogen loadings by 50 percent to ground water that is closely hydrologically connected to surface water.**

1) Applicability

This management measure is intended to be applied to all new OSDS including package plants and small-scale or regional treatment facilities not covered by NPDES regulations in order to manage the siting, design, installation, and operation and maintenance of all such OSDS.

2) Management Practices

- a) Develop setback guidelines and official maps showing areas where conditions are suitable for conventional septic OSDS installation
- b) OSDS should be sited, and constructed so that there is sufficient separation between the soil absorption field and the seasonal high water table or limiting layer, depending on site characteristics, including but not limited to hydrology, soils and topography
- c) Require assessments of site suitability prior to issuing permits for OSDS
- d) If OSDS are sited in areas where conditions indicate that nitrogen-limited waters may be adversely affected by excessive nitrogen loading, minimize densities of development in those areas and require the use of denitrification systems

- e) Develop and implement local plumbing codes that require practices that are compatible with OSDS use
- f) In areas suitable for OSDS, select, design, and construct the appropriate OSDS that will protect surface waters and ground waters
- g) Design sites so that an area for a backup soil absorption field is planned for in case of failure of the first field
- h) During construction of OSDS, soils should not be compacted in the primary or the backup soil absorption field area
- i) Perform postconstruction inspection of OSDS

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, RPA

Cooperating Agencies:

Commonwealth:

DH

Federal:

EPA

4) Enforceable Policies and Mechanisms

The Puerto Rico Aqueduct and Sewer Authority serves about 97% of the population with drinking water, but only about 47% is provided with sanitary sewer service. Due to the lack of sewer systems, mostly because of poor accessibility for their construction, many homes must rely on septic tanks for the disposal of domestic wastewater. Obviously, many rural communities use this method of domestic wastewater disposal.

PB's Planning Regulation No. 3 - Subdivision and Urbanization Regulation - requires as per §14.01 -- General Disposition -- that new developments "provide the necessary installations for the adequate disposal of wastewater from each lot in the manner that least affects the environment, in coordination with the Puerto Rico Aqueduct and Sewer Authority [(PRASA)] and its improvements plans." (Unofficial translation)

As per §14.02 - Connection Requirement - "[d]epending on the number of units, the connection of the necessary installations for the adequate disposal of wastewater to a sanitary sewer system will be required, if it is available at the following distances:

Size of Projects in Units	Distance
1	60 meters
2	120 meters
3	180 meters
4	240 meters
5 - 10	300 meters

Those developments with more than ten (10) units located at less than 1.6 kilometers [1 mile] from an existing [sanitary] sewer system must show cause for which the requisite of connection should not be imposed. For developments with more than ten (10) units located at more than 1.6 kilometers from an existing [sanitary] sewer system, it will be determined, case by case, the desirability of the connection taking into consideration the characteristics of the location, the density and the rest of the characteristics of the project and the costs involved. It may also be required the installation of blinded systems for future connection." (Unofficial translation)

But, as per §14.03 - Alternate Systems - "[w]hen the connection to the [sanitary] sewer system is not possible, the installation of septic or filtrating tanks or of package systems will be permitted in coordination with the Environmental Quality Board and the Department of Health, as it may correspond, and conditioned to, that it can be demonstrated that its cumulative effect will not surpass the carrying capacity of the site and that it is an appropriate design for the development density, the type of soil, the slope and that it is outside of the areas of protection of aquifers or drinking water supply wells." (Unofficial translation, underlining added)

RPA's Building Regulation - Planning Regulation No. 7 [See RPA-A1-R1 in Vol. 2] provides, as per Title V-B §V-B-3.0 - Individual Sewage Disposal System - size and design requirements which are dependent on the required capacity, the location of the system, the permeability of the soil and the [depth to] the water table; and establishes minimum distances from the property line (3 ft.), from sources of water supply (50 ft.) and from buildings (3 ft.). It also provides minimum distance requirements for the subsurface drainage field from any source of domestic water supply (50 ft.), **from streams (25 ft.)**, from buildings (6 ft.), from trees (5 ft.), and from property lines (3 ft.). It further provides specifications for piping, grade, trenches, lateral lines, joints and the required absorption area.

Septic tanks with seepage pits are only permitted if the results of three (3) percolation tests show that the average time required for water to fall one inch is 15 minutes or less and specifies the size of the absorption area depending on the average time required for water to fall one inch (for 5 minutes or less, 10, 15, 30, and 60 minutes it requires 30, 60, 80, 120, and 200 square feet per bedroom). Septic tanks with only seepage pits are permitted for average times of 5 minutes or less, 10 and 15 minutes. For 30 and 60 minutes a combination septic tank, seepage pit and subsurface drainage system is required. Minimum distances for seepage pits are 100 ft from sources of domestic water supply, 5 feet from buildings and property lines, and 3 times the diameter from other seepage pits. **The bottom of the seepage pit shall be no less than two (2) feet above the water table. [EQB's Design Standards and Construction Requirements for Septic Tanks, referred to below, specify "no less than four (4) feet"]** The RPA regulation also specifies how to conduct the percolation tests and provides specifications for the construction of sanitary latrines (with cesspools). Minimum distances for sanitary latrines shall be 100 feet from water wells, rivers and brooks, 50 feet from cisterns and 10 feet from dwellings.

Septic tanks are also regulated by the Underground Injection Control (UIC) Regulation of EQB [See EQB-A1-R3 in Vol. 2] as Class V-C Underground Injection Facilities (UIF's), but, "[i]ndividual or single family residential waste disposal systems such as domestic septic systems[.]" are exempted from complying with the UIC Regulation as per Rule 301 B. 2.

However, "any [other] septic tank , cesspool, or other wells used by a multiple dwelling, industry, commerce or other private, governmental or municipal establishment, community or regional system for the underground injection of wastes[.]" is covered.

Simple subdivision projects (those for not more than 10 lots, including the remnant, with simple urbanization works) proposing the use of septic tanks require a Subdivision Permit from RPA, as per PB's Planning Regulation No. 3 and 4, and/or a Construction Permit if the Subdivision had been approved earlier. Construction plans for simple subdivisions that need to include septic tanks or any other on site disposal systems (OSDS) as the means of disposal of the sanitary wastewater must have proper septic tank and drainage field designs included in construction drawings submitted for RPA permit application purposes, together with other project information. Such simple subdivisions or Construction Permits application must receive the endorsement of EQB, for which purpose the proponent must submit the following information to EQB:

1. **Explanatory Memorandum**; indicating the address, number of lots, the type of OSDS (wastewater treatment system) to be used;
2. **Subdivision Plans** and plans of the wastewater treatment system, duly signed and stamped by a Professional Engineer (PE) in good standing to practice in Puerto Rico;
3. Certification issued by EQB that the project complied with **Article 4(C) [the Environmental Review Process (ERP)]** of the Puerto Rico Environmental Public Policy Act, Act No. 9 of June 18, 1970, as amended [See EQB-A1 in Vol. 2];
4. Location of the **water table** at the proposed site, duly signed and stamped by a PE in good standing;
5. **Percolation Tests**, duly signed and stamped by a PE in good standing; and
6. A **Certification of Non-floodable Zone**, duly signed and stamped by a PE in good standing.

EQB's design standards and construction requirements for septic tanks and their attendant drainage fields are more detailed and extensive than RPA's. These are included in **Rule 304 A. 2. c.** and Appendix A of the UIC Regulation, in Chapters 3-5 of the *Standards of Design for Wastewater Treatment Systems [Design Standards, EQB-A1-R8A]* and in the *Construction Requirements for Groundwater Pollution Control Systems [Construction Requirements, EQB-A1-R8B]*. Most if not all the pertinent design requirements of RPA are included in EQB's Design Standards, except that **there appears to be conflicting requirements regarding the minimum distance specified from the bottom of the seepage tank to the water table.** RPA's Building regulation calls for 2 feet while EQB UIC Regulation, the Design Standards and the Construction Requirements call for 4 feet. As EQB must endorse subdivision applications and Construction Permits for these type of systems, it is understood that EQB's requirement is the applicable one.

Similar design standards are specified for other type of on-site wastewater treatment systems like land irrigation systems, which, in addition, must comply with the location requirement of Chapter 1.1 of EQB's Design Standards. It establishes that "the plant should be located at no less than one hundred (100) meters from present and future development areas, household units, or any other construction where people gather. Said distance shall be measured from the exterior walls of each unit of the treatment plant. The minimum distance may be reduced to fifty (50) meters with the approval of the Department of Health, the Environmental Quality Board and the Aqueduct and Sewer Authority." EQB Construction and Operation Permits are required for these plants and they are normally processed following the requirements of EQB's Regulation of Plans and Documents Certification Before the Environmental Quality Board [See EQB-A1-R8 in Vol. 2]

b. Operating Onsite Disposal Systems Management

- **Establish and implement policies and systems to ensure that existing OSDS are operated and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low-volume plumbing fixtures, and reduce total phosphorus loadings to the OSDS by 15 percent (if the use of low-level phosphate detergents has not been required or widely adopted by OSDS users). Establish and implement policies that require an OSDS to be repaired, replaced, or modified where the OSDS fails, or threatens or impairs surface waters;**
- **Inspect OSDS at a frequency adequate to ascertain whether OSDS are failing;**
- **Consider replacing or upgrading OSDS to treat influent so that total nitrogen loadings in the effluent are reduced by 50 percent. This provision applies only:**
 - **where conditions indicate that nitrogen-limited surface waters may be adversely affected by significant ground water nitrogen loadings from OSDS, and**
 - **where nitrogen loadings from OSDS are delivered to ground water that is closely hydrologically connected to surface water.**

1) Applicability

This management measure is intended to be applied to all operating OSDS. This management measure does not apply to existing conventional OSDS that meet all of the following criteria: (1) treat wastewater from a single family home; (2) are sited where OSDS density is less than or equal to one OSDS per 20 acres; and (3) the OSDS is sited at least 1,250 feet away from surface waters.

2) Management Practices

- a) Perform regular inspections of OSDS
- b) Perform regular maintenance of OSDS

- c) Retrofit or upgrade improperly functioning systems
- d) Use denitrification systems where conditions indicate that nitrogen-limited surface waters may be adversely impacted by excessive nitrogen loading.
- e) Discourage the use of phosphate in detergents
- f) Eliminate the use of garbage disposal
- g) Discourage or ban the use of acid and organic chemical solvent septic system additives
- h) Promote proper operation and maintenance of OSDS through public education and outreach programs

3) Lead and Cooperating Agencies

Lead Agencies

EQB, DNER

Cooperating Agencies

Commonwealth:

DH

Federal:

EPA

4) Enforceable Policies and Mechanisms

Construction inspection requirements of RPA and EQB should assure proper construction of septic tanks, but there are no Operation Permit requirements as per the above cited RPA regulation. Nonetheless, unless the proposed septic tank is for a single family system, Construction and Operation Permits are required for septic tanks as per **Rules 302 A. and 303 A.** of the UIC Regulation of EQB. In addition, as per **Rule 304 C. 2. f.** of the UIC Regulation EQB will determine the monitoring and reporting requirements for Class V-C UIF's (septic tanks) on a case by case basis. As Operation permits must be renewed on a periodic basis, septic tanks covered by the UIC Regulation of EQB may be made to comply with all of the applicable requirements of the management measure.

The role of the Department of Health (DH), other than endorsing alternate treatment systems to the PB and/or RPA for Subdivisions or Construction Permits and approving waivers to the 100 meter buffer zone from treatment plants, as indicated above, is related to federally backed or guaranteed Housing and Urban Development (HUD) financing or refinancing of existing homes with septic tank systems. The DH inspects and certifies Form 2753 HUD (conditions of the existing sanitary system) that the existing septic tank meets RPA's design and location requirements. Failing septic tanks detected by these inspections are not certifiable and home owners may be ordered to correct any unsanitary conditions as per the DH regulation, if necessary, or referred to EQB for independent action.

It appears that there are no other provisions that may be applied to single family septic tank systems, except than having EQB exercise its enforcement authority under the WQSR for

those cases that may merit the attending administrative process and, if necessary, the subsequent judicial review process.

As to the circumstances under which holding tanks are required, both RPA's septic tank specifications and EQB's Design Standards and Construction Requirements specify minimum distances that must be maintained from bodies of water, buildings, property lines and the water table, among others. Under EQB's Construction Requirements, retention tanks must follow the same norms as septic tanks with the following variations: 1) must be designed for 10 days minimum retention; 2) must have an alarm system that activates at a liquid volume of 7 days (70% of capacity); and 3) there shall be no discharge piping except for access manholes for repair and emptying purposes. In addition, in saturated soils where the water table may rise above one-half the height of the tank, the tank shall be designed with anti-floating provisions. Such provisions may be additional concrete on top or appropriate anchoring systems for the tank pad.

POLLUTION PREVENTION

a. Pollution Prevention Management Measure

Implement pollution prevention and education programs to reduce nonpoint source pollutants generated from the following activities, where applicable:

- **The improper storage, use, and disposal of household hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc.;**
- **Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings;**
- **Turf management on golf courses, parks, and recreational areas;**
- **Improper operation and maintenance of onsite disposal systems;**
- **Discharge of pollutants into storm drains including floatable, waste oil, and litter;**
- **Commercial activities including parking lots, gas stations, and other entities not under NPDES purview; and**
- **Improper disposal of pet excrement.**

1) Applicability

This management measure is intended to be applied to reduce the generation of nonpoint source pollution in all areas within the section 6217 management area. The adoption of the Pollution Prevention Management Measure does not exclude applicability of other

management measures to those sources covered by this management measure.

2) Management Practices

Practices, Effectiveness Information, and Cost Information

- a) Promote public education programs regarding proper use and disposal of household hazardous materials and chemicals
- b) Establish programs such as Amnesty Days to encourage proper disposal of household hazardous chemicals
- c) Develop used oil, used antifreeze, and hazardous chemical recycling programs and site collection centers in convenient locations
- d) Encourage proper lawn management and landscaping
- e) Encourage proper onsite recycling of yard trimmings
- f) Encourage the use of biodegradable cleaners and other alternatives to hazardous chemicals
- g) Manage pet excrement to minimize runoff into surface waters
- h) Use storm drain stenciling in appropriate areas
- i) Encourage alternative designs and maintenance strategies for impervious parking lots
- j) Control commercial sources of NPS pollutants by promoting pollution prevention assessment and developing NPS pollution reduction strategies or plans and training materials for the workplace
- k) Promote water conservation
- l) Discourage the use of septic system additives
- m) Encourage litter control
- n) Promote programs such as Adopt-a-Stream to assist in keeping waterways free of litter and other debris
- o) Promote proper operation and maintenance of OSDS through public education and outreach programs

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
SWA, MUN

Federal:
EPA

4) Enforceable Policies and Mechanisms

EQB, the Solid Waste Authority (SWA) of the DNER and every municipality of Puerto Rico have general jurisdiction to implement this measure. Emphasis is currently placed in education and used oil collection, but pilot programs for household hazardous chemical collection/disposal are also being implemented. A bill applying a surcharge for used oil disposal to be added to the price of each quart of oil was under consideration by the legislative branch.

A pilot plan for collecting used motor oil was announced on August 25, 1995 by the SWA and the Puerto Rico National Guard. A used oil collection center located at the National Guard Armory in Hato Rey (San Juan) opened on September 23-24 from 9a.m. to 4 p.m. The pilot program is part of an educational campaign to raise awareness of regulatory requirements that makes illegal to dump used oil into the sewers, waterways or ground. About 4,500 gallons of used motor oil and a substantial number of used oil filters have been collected in five previous activities.

The SWA has also published three brochures for public education about used oil handling and disposal. This is joint effort of the SWA and EPA. The emphasis on used oil stems from the fact that an estimated amount of 4.5 million gallons of used motor oil appear to be incorrectly managed in Puerto Rico, most of which is believed to be discharged on the ground, to the water bodies and to the sanitary and storm sewers.

In addition, under the promotion of the SWA the municipalities of Bayamón and Ponce announced in February 1995 that they were starting pilot projects for the collection of household hazardous chemical within the two municipalities aiming to involve the community in the proper and safe disposal of paints, pesticides, detergents, batteries and other similar materials that are serious contaminants. At the same time the SWA announced a public educational program that consists of talks, conferences, brochures and other activities by the participating municipalities.

ROADS, HIGHWAYS, AND BRIDGES

The Federal Highway Administration (FHWA) adopted the American Association of State Highway and Transportation Officials (AASHTO) publication Highway Drainage Guidelines, Volume III, "Erosion and Sediment Control in Highway Construction" as the erosion control guidelines for states to follow when carrying out Federal-aid transportation construction projects (23 CFR Part 650.211). The FHWA directed State highway agencies (23 CFR Part 650.211) to use as guidance document for the design of projects within the coastal zone management areas the "Guidance Specifying Management Measures for Sources of Nonpoint Source Pollution in Coastal Waters," 84-B-92-002, U.S. EPA, January 1993 (Guidance Document). Therefore, the (g) management measures for roads, highways and bridges are incorporated into the federal design standards.

The Department of Transportation and Public Works (DTPW) and its Puerto Rico Highway and Transportation Authority (HTA) have indicated their willingness to enter a Memorandum of Agreement with EQB and DNER to extend the implementation of the above mentioned guidelines (the management measures) in all transportation projects constructed with state funds. To insure

the application of said measures during construction, the preliminary language of the proposed MOA [See HTA-A1-IA1 in Vol. 2; also included in Appendix N] calls for the DTPW to include in the construction plans detailed sheets indicating the specific erosion and sediment control practices to be implemented in each project. Furtherly, to insure the implementation of said practices during construction the DTPW and HTA shall direct the projects to see that the contractors comply with all the erosion and sediment control practices indicated in the construction plans.

As the mandatory management measures of Section 6217(g) to be implemented in the PRCNCP also include categories dealing with planning; siting; developing roads, highways and bridges; management of construction projects, including site chemical control; and operation and maintenance of roads, highways and bridges, the DTPW and its HTA are being requested to also agree to follow through and demonstrate sequential compliance with those applicable management measures and implement the required management practices. To such end the DTPW and its HTA will cooperate with the DNER and EQB in identifying the most appropriate practices for implementation in Puerto Rico, from those included in the Guidance Document.

The EQB, DNER and DTPW-HTA intend to agree to promote research for the development of specific erosion and control measures and practices locally applicable to transportation projects, according to the topographic, hydrological and soil characteristics of each region of the Island.

Based on the above The existing DPP Approach, with or without the interagency agreement, provides for satisfying all the elements of this and all subsequent management measures.

a. **Management Measure for Planning, Siting, and Developing Roads and Highways**

Plan, site, and develop roads and highways to:

- **Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;**
- **Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and**
- **Limit disturbance of natural drainage features and vegetation.**

1) **Applicability**

This measure is intended to be applied to site development and land disturbing activities for new, relocated, and reconstructed (widened) roads (including residential streets) and highways in order to reduce the generation of nonpoint source pollutants and to mitigate the impacts of urban runoff and associated pollutants from such activities.

2) **Management Practices**

- a) Consider type and location of permanent erosion and sediment controls (e.g., vegetated filter strips, grassed swales, pond systems, infiltration systems, constructed urban runoff wetlands, and energy dissipators and

- velocity controls) during the planning phase of roads, highway, and bridges. (AASHTO, 1991; Hartigan et al., 1989)
- b) All wetlands that are within the highway corridor and that cannot be avoided should be mitigated. These actions will be subject to Federal Clean Water Act section 404 requirements and State regulations
 - c) Assess and establish adequate setback distances near wetlands, water bodies, and riparian areas to ensure protection from encroachment in the vicinity of these areas
 - d) Avoid locations requiring excessive cut and fill
 - e) Avoid locations subject to subsidence, sink holes, landslides, rock outcroppings, and highly erodible soils
 - f) Size rights-of-way to include space for siting runoff pollution control structures as appropriate.
 - g) Plan residential roads and streets in accordance with local subdivision regulations, zoning ordinances, and other local site planning requirements (International City Manager Association, Model Zoning/ Subdivision Codes). Residential roads and street should be designed with minimum widths
 - h) Select the most economic and environmentally sound route location
 - i) Use appropriate computer models and methods to determine urban runoff impacts with all proposed route corridors
 - j) Comply with National Environmental Policy Act requirements including other Puerto Rico ERP and local requirements
 - k) Coordinate the design of pollution controls with appropriate State and Federal environmental agencies
 - l) Develop local official mapping to show location of proposed highway corridors

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Commonwealth:
HTA, MUN

Federal:
FHWA, EPA, COE, FWS, NRCS, FHWA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

The three elements of this management measure must be considered during the ERP and other DPP Approach procedures applicable to roads, highways and bridges projects. Where the projects may significantly affect wetland areas, coordination with the COE and

the Interagency Committee is a normal practice.

b. Management Measure for Bridges

Site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects.

1) Applicability

This management measure is intended to be applied to **new, relocated, and rehabilitated bridge structures** in order to control erosion, streambed scouring, and surface runoff from such activities.

2) Management Practices

- a) Coordinate design with FHWA, USCG, COE, and other State and Federal agencies as appropriate
- b) Review National Environmental Policy Act requirements to ensure that environmental concerns are met (FHWA, T6640.8A and 23 CFR 771)
- c) Avoid highway locations requiring numerous river crossings
- d) Direct pollutant loadings away from bridge decks by diverting runoff waters to land for treatment
- e) Restrict the use of scupper drains on bridges less than 400 feet in length and on bridges crossing very sensitive ecosystems
- f) Site and design new bridges to avoid sensitive ecosystems
- g) On bridges with scupper drains, provide equivalent urban runoff treatment in terms of pollutant load reduction elsewhere on the project to compensate for the loading discharged off the bridge

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Commonwealth:
HTA, MUN

Federal:
EPA, COE, FWS, NRCS, FHWA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

To satisfy EQB's ERP and NEPA procedures, as well as design considerations related to construction costs and energy conservation, among others, the HTA normally conducts route studies for proposed road, highway and bridge projects. These route studies in coordination with Section 404 review requirements, when applicable, together with all other applicable components of the DPP review process provide for the adequate implementation of this measure.

c. Management Measure for Construction Projects

- **Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction and**
- **Prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.**

1) Applicability

This management measure is intended to be applied to **new, replaced, restored, and rehabilitated road, highway, and bridge construction projects** in order to control erosion and offsite movement of sediment from such project sites.

2) Management Practices

- a) Write erosion and sediment control requirements into plans, specifications, and estimates for Federal aid construction projects for highways and bridges (FHWA, 1991) and develop erosion control plans for earth-disturbing activities.
- b) Coordinate erosion and sediment controls with FHWA, AASHTO, and State guidelines
- c) Install permanent erosion and sediment control structures at the earliest practicable time in the construction phase
- d) Coordinate temporary erosion and sediment control structures with permanent practices
- e) Wash all vehicles prior to leaving the construction site to remove mud and other deposits. Vehicles entering or leaving the site with trash or other loose materials should be covered to prevent transport or dust, dirt, and debris. Install and maintain mud and silt traps
- f) Mitigate wetland areas destroyed during construction
- g) Minimize the area that is cleared for construction
- h) Construct cut-and-fill slopes in a manner that will minimize erosion
- i) Minimize runoff entering and leaving the site through perimeter and onsite sediment controls
- j) Inspect and maintain erosion and sediment control practices (both on-site and perimeter) until disturbed areas are permanently stabilized.
- k) Divert and convey offsite runoff around disturbed soils and steep slopes to stable area in order to prevent transport of pollutants off site

- l) After construction, remove temporary control structures and restore the affected area. Dispose of sediments in accordance with State and Federal regulations
- m) All storm drain inlets that are made operable during construction should be protected so that sediment-laden water will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Commonwealth:
HTA, MUN

Federal:
FHWA, EPA, COE

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

NPDES Storm water requirements for construction projects and EQB's CES[T] Plan/Permit requirements provide for the implementation of this measure for any size of project through the DPP Approach.

d. Management Measure for Construction Site Chemical Control

- **Limit the application, generation, and migration of toxic substances;**
- **Ensure the proper storage and disposal of toxic materials; and**
- **Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.**

1) Applicability

This management measure is intended to be **applied to new, resurfaced, restored, and rehabilitated road, highway, and bridge construction projects** in order to reduce toxic and nutrient loadings from such project sites.

2) Management Practices

- a) Properly store, handle, apply, and dispose of pesticides
- b) Properly store, handle, use, and disposed of petroleum products
- c) Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff
- d) Provide sanitary facilities for constructions workers
- e) Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water
- f) Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan
- g) Maintain and wash equipment and machinery in confined areas specifically designed to control runoff
- h) Develop and implement nutrient management plans
- i) Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction
- j) Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Commonwealth:

HTA, MUN

Federal:

FHWA, EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

EQB's CES[T] Program requirements is deemed to be generally extended to cover the control of chemicals used during construction, in the same way that it cover fugitive dust emissions. In addition, SWPPP under the NPDES general permit for storm water must address all potential sources of pollution.

e. Management Measure for Operation and Maintenance

Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.

1) Applicability

This management measure is intended to be applied to existing, restored, and rehabilitated roads, highways, and bridges.

2) Management Practices

- a) Seed and fertilize, seed and mulch, and/or sod damaged vegetated areas and slopes
- b) Establish pesticide/herbicide use and nutrient management programs
- c) Restrict herbicide and pesticide use in highway rights-of-way to applicators certified under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) to ensure safe and effective application
- d) The use of chemicals such as soil stabilizer, dust palliatives, sterilants, and growth inhibitors should be limited to the best estimate of optimum application rates. All feasible measures should be taken to avoid excess application and consequent intrusion of such chemicals into surface runoff
- e) Sweep, vacuum, and wash residential/urban streets and parking lots
- f) Collect and remove road debris
- g) ~~Cover salt storage piles and other deicing materials to reduce contamination of surface waters. Locate them outside the 100-year floodplain. [Not Applicable in PR]~~
- h) ~~Regulate the application of deicing salts to prevent oversalting of pavement. [Not Applicable in PR]~~
- i) ~~Use specially equipped salt application truck [Not Applicable in PR]~~
- j) ~~Use alternative deicing materials, such as sand or salt substitutes, where sensitive ecosystems should be protected. [Not Applicable in PR]~~
- k) ~~Prevent dumping of accumulated snow into surface waters [Not Applicable in PR]~~
- l) Maintain retaining walls and pavements to minimize cracks and leakage
- m) Repair potholes
- n) Encourage litter and debris control management
- o) Develop an inspection program to ensure that general maintenance is performed on urban runoff and NPS pollution control facilities
- p) Ensure that energy dissipators and velocity controls to minimize runoff velocity and erosion are maintained
- q) Dispose of accumulated sediment collected from urban runoff management and pollution control facilities, and any waste generated during maintenance operations, in accordance with appropriate local, State, and Federal regulations
- r) Use techniques such as suspended tarps, vacuum, or booms to reduce, to the extent practicable, the delivery to surface waters of pollutants used or

- s) generated during bridge maintenance (e.g., paint, solvents, scrapings)
Develop education programs to promote the practices listed above

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies

Commonwealth:

HTA, MUN

Federal:

FHWA, EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

The DTPW, the HTA and all municipalities of Puerto Rico have implemented operation and maintenance (O&M) programs for the roads, highways and residential streets under their respective jurisdictions. The designated agencies will coordinate with these entities to assure that the requirements of this measure are incorporated into the existing O&M programs, where applicable. As indicated elsewhere, the designated agencies will coordinate an interagency agreement with the HWTA and DPTW for implementing all the Roads, Highways and Bridges management measures, including this measure.

f. Management Measure for Road, Highway, and Bridges

Develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

- **Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures; and**
- **Establish schedules for implementing appropriate controls.**

1) Applicability

This management measure is intended to be applied to existing, resurfaced, restored, and rehabilitated roads, highways, and bridges that contribute to adverse effects in surface waters.

2) Management Practices

- a) Locate runoff treatment facilities within existing rights-of-way or in medians and interchange loops.
- b) Develop multiple-use treatment facilities on adjacent lands (e.g., parks and golf courses).
- c) Acquire additional land for locating treatment facilities
- d) Use underground storage where no alternative is available
- e) Maximize the length and width of vegetated filter strips to slow the travel time of sheet flow and increase the infiltration rate of urban runoff.

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, EQB, DNER

Cooperating Agencies:

Commonwealth:
HTA, MUN

Federal:
FHWA, EPA,

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

As indicated elsewhere, the designated agencies will coordinate an interagency agreement with the HWTA and DPTW for implementing all the Roads, Highways and Bridges management measures, including this measure. However, if such existing resurfaced, restored, and rehabilitated roads, highways, and bridges that contribute to adverse effects in surface waters exist in Puerto Rico, it is anticipated that because of the frequency and intensity of rain events and due to the limited land resources of the island, this measure may present significant difficulties in its achievement.

3. Marinas Source Category

SITING AND DESIGN

Marina siting and design activities, particularly those that meet Section 6217 applicability threshold of 10 slips or more, are such potentially impacting activities to sensitive marine environments that they trigger the application of a significantly large number of laws and regulations. On the other hand, very few new proposals for marinas of this type occur or are likely to occur at any time, a situation that permits these proposals to be handled on a case by case basis. Even existing facilities that meet the applicability requirement of the Operation and Maintenance component of the management measure are not an extraordinary number.

New marinas, as well as all other types of activities that have the potential of creating adverse and significant environmental impacts (such is also the case with hydromodifications) they most often require fulfilling the most rigorous ERP analysis. That is, these type of projects require the preparation of an Environmental Impact Statement (EIS) as per EQB's Regulation on Puerto Rico Environmental Impact Statements [See EQB-A1-R4], an evaluation and documentation process that would assure satisfying most if not all of the management measures included under the Siting and Design subcategory of Marina nonpoint sources.

In addition, these type of projects will always require a Siting Permit ("Consulta de Ubicación") or Special Consultation ("Consulta Especial") as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2] and the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 (in Spanish) in Vol. 2] Subsequent to fulfilling the Siting Permit requirements of the PB, these projects require a Construction Permit from RPA, as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2]; PB's Regulation No. 13 - Regulation About Flood Susceptible Zones [See PB-A2-R9 in Vol. 2]; PB's Regulation No. 17 - Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto Rico [See PB-A2-R6 in Vol. 2]; and any other applicable regulation or resolution of the PB; and RPA's Regulation for the Certification of Construction Projects - Planning Regulation No. 12 [See RPA-A1-R2 in Vol. 2]; and RPA's Building Regulation [RPA-A1-R1 in Vol. 2]. Finally, prior to initiating construction, a CES[T] Plan [or CES Permit in the near future] from EQB is needed, as per the Control of Erosion and Sedimentation (CES) Program [CES Regulation in the near future [see EQB-A1-R11 and R-11A in Vol. 2]. Because of their location inherent location in the MTZ and/or submerged lands, all new marinas will likely require a concession from the DNER to use these public resources (The importance of this last permit is furtherly discussed below).

In some cases, when the marina siting proposal involves the removal of dredged material and it is intended to be used outside the project limits, an additional Permit for Extraction of Materials from the Earth Crust, issued as per the requirements of the Regulation for the Extraction of Materials from the Earth Crust [See DNER-A9-R1 in Vol. 2] must also be obtained from the DNER. This permit is only waived or deemed to be part of an RPA Construction Permit (Incidental Permit), when no material is going to be taken out of the project site and the DNER has evaluated the project and given its favorable endorsement.

Under the Fish and Wildlife Coordination Act (FWCA), any federal agency that proposes to control or modify any body of water must first consult with the head of the appropriate state agency exercising administration over the wildlife resources of the affected state. The DNER is the agency exercising authority over the wildlife resources of Puerto Rico, hence the COE District Engineer

consults with the Secretary of the DNER with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the activity proposed in a permit application. The COE must give full consideration to the views of the DNER on fish and wildlife matters in deciding on the issuance, denial, or conditioning of individual or general permits. Such considerations may involve mitigation and enhancement recommendations made to the COE or other involved federal agency whose action or permit would control or modify a stream or other body of water.

Other permits from PREPA, PRASA or DTPW/HTA may occasionally be required if the subject project affects or interferes with electric lines or facilities, water or sewer lines or highways, roads or bridges, or simply to receive these services.

From the federal government, a NPDES storm water (point source) permit is also required for the construction activities (when the land area to be disturbed equals or exceeds 5 acres) as per the NPDES General Permit for Storm Water Discharges from Construction Sites under the Clean Water Act (CWA), as amended, [33 U.S.C. 1251, et. seq.]; a dredged or fill materials permit from the COE as per Section 404 of the CWA and Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) [33 U.S.C. §401, et seq.]. This last federal permit requirement triggers three additional Commonwealth approval requirements: the Water Quality Certification (WQC) of EQB [See EQB-A1-AO4 in Vol 2 (in Spanish)], as per Section 401 of the CWA; the Federal Consistency Certification of the PB [See PB-A2-HB in Vol 2], as per Section 307 of CZMA; and the favorable endorsement from the DNER, as per the requirements of the Fish and Wildlife Coordination Act (FWCA) [16 U.S.C. §661-666c, 33 CFR 320.3 (e) and 320.4 (c)]. There may be situations in which an NPDES permit (point source) may be required for the discharge waters associated with the dredging or the construction activities, other than a stormwater general permit.

The Regulation for the Use, Surveillance, Conservation and Management of the Territorial Waters, Submerged Lands Thereunder and the Maritime Zone (Maritime Zone, Maritime Terrestrial Zone or MTZ Regulation) [See DNER-A11-R1 in Vol. 2] is just one of many laws and regulations that are and will be applicable to the Marinas Siting and Design and Marina Boat Operation and Maintenance subcategories of nonpoint sources. Although the MTZ Regulations do not specifically incorporate the specific language of the management measures, that does not mean that they cannot be incorporated or that the measures cannot be satisfied through its provisions.

The strong point about the use of the MTZ Regulations as a major authority in this case is that, invariably, all new and existing marinas have to obtain a concession ("Use Permit") from the DNER to make use of any portion of the MTZ and submerged lands under the territorial waters of Puerto Rico and that those concessions are renewable on a periodic basis. Based on the above, the DNER has a major coercive authority to require the implementation of reasonable management practices to implement the marina management measures, specially for those components of the management measure where other available authorities may be lacking.

The DNER and EQB do not discard the need or convenience of developing a technical manual based on the management measure, that could be used in conjunction with the MTZ Regulation. In fact, as a result of the participation in the workshops of personnel from the Tourism Company (TC) of the Department of Economic Development and Commerce (DEDC) [of Puerto Rico], Mr. Luis G. Fortuño, Executive Director of the TC and Secretary of the DEDC recommended to the designated agencies the development of a Guidance Document for marinas that:

- “1. Formalize the marina review process.
2. Establish the parameters for the siting, planning and design of marinas in the Puerto Rico Coastal Zone.
3. Provide the techniques for the preparation of an Environmental Impact Statement for marina proponents.
4. Establish the environmental engineering techniques that minimize adverse environmental impacts.
5. Provide standards for the management and administration of marinas with the purpose of protecting the environment.”

According to the TC, such initiative will serve to protect the environment as well as to facilitate access to the water through the development of marinas.

The TC also enclosed an outline [in Spanish] for the contents of the Guidance Document for the Establishment of Marinas which included five major headings:

1. Marinas Approval Process
2. Requirements for Location and Design of Marinas
3. Planning and Design Requirements
4. Piers and Wharfs Systems
5. Licenses for the Operation of Marinas.

The designated agencies understand that the TC recommendations are a wholehearted endorsement to their proposal of adopting the mandatory management measures (MM's) as government policy, and the Section 6217 Guidance Document as the Technical Manual for implementation. The designated agencies see the value of such a detailed manual, but as a more long term activity or, perhaps, as a project activity related to the evaluation of a new marina siting and design proposal, one meeting the applicability requirements of the marina management measure. Another approach is to conduct a one- or two-day workshop with both regulators and marina developers and operators with the specific intent of putting together, discussing and organizing the core information that could set the basis for the manual.

That is not to say that most of the information the TC proposed to be contained in the manual is not already contained in regulatory, policy, and general information documents of the lead and cooperating agencies, but a recognition that such information may not be readily available to the uninformed public, including lead and cooperating agencies personnel. The subject matter is indeed specialized, both technically and legally, and not necessarily is subject of common knowledge. Competent marina developers and operators, on the other hand, cannot claim to be unaware of most of the current siting, environmental, and operational requirements of the lead and cooperating agencies, including, at least in general terms, those related to the management measures.

Once the management measures are adopted as public policy by the Executive Order, and even without such authority, **nothing precludes the DNER from adopting the Section 6217(g) marina management measures as the minimum requirements for new marinas, as is intended here, and the management practices included in Section 6217(g) Guidance Document as a recommended technical manual to be consulted and used to satisfy DNER requirements for marinas making use of the Puerto Rico MTZ and/or submerged lands.**

a. Marina Flushing Management

Site and design marinas such that tides and/or currents will aid in flushing of the site or renew its water regularly.

1) Applicability

This management measure is intended to be applied to new and expanding marinas.

2) Management Practices

- a) Site and design new marinas such that the bottom of the marina and the entrance channel are not deeper than adjacent navigable water unless it can be demonstrated that the bottom will support a natural population of benthic organisms
- b) Design new marinas with as few segments as possible to promote circulation within the basin
- c) Consider other design alternatives in poorly flushed water bodies (open marina basin over semi-enclosed design; wave attenuators over a fixed structure) to enhance flushing
- d) Design and locate entrance channels to promote flushing.
- e) Establish two openings, where appropriate, at opposite ends of the marina to promote flow-through currents
- f) Designate areas that are and are not suitable for marina development; i.e., provide advance identification of water bodies that do and do not experience flushing adequate for marina development

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, EQB, PB, RPA

Cooperating Agencies:

Commonwealth:
TC

Federal:
COE

4) Enforceable Policies and Mechanisms

This measure is covered by the DNER Marina Siting Guidelines, which are currently used by DNER and other agencies personnel in evaluating siting proposals or existing marinas modifications. **The full set of the marinas management measures will be used by the**

DNER and participating agencies in evaluating new marina proposals and concession applications for such activities as well as to revisions and renewals of existing concessions through the DPP Approach explained in Section IV.C.1.

b. Water Quality Assessment Management Measure

Assess water quality as part of marina siting and design.

1) Applicability

This management measure is intended to be applied to **new and expanding marinas.**

2) Management Practices

- a) Use a water quality **monitoring methodology** to predict postconstruction water quality conditions
- b) Use a water quality **modeling methodology** to predict postconstruction water quality conditions
- c) Perform **preconstruction inspection and assessment**

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER, PB, RPA

Cooperating Agencies:

Commonwealth:
TC

Federal:
COE, EPA, USGS

4) Enforceable Policies and Mechanisms

EQB's Environmental Review Process requires assessing water quality as part of a marina siting and design. Both EQB and DNER evaluate water quality data for this purpose. The full set of the marinas management measures will be used by the DNER and participating agencies in evaluating new marina proposals and concession applications for such activities as well as to revisions and renewals of existing concessions through the DPP Approach explained in Section IV.C.1.

c. Habitat Assessment Management Measure

Site and design marinas to protect against adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or Federal governments.

1) Applicability

This management measure is intended to be applied to new and expanding marinas where site changes may impact on wetlands, shellfish beds, submerged aquatic vegetation (SAV), or other important habitats. The habitats of non indigenous nuisance species, such as some clogging vegetation, are not considered important habitats.

2) Management Practices

- a) Conduct surveys and characterize the project site
- b) Redevelop coastal waterfront sites that have been previously disturbed; expand existing marinas or consider alternative sites to minimize potential environmental impacts
- c) Employ rapid bioassessment techniques to assess impacts to biological resources
- d) Assess historic habitat function (e.g., spawning area, nursery area, mitigation pathway) to minimize indirect impacts
- e) Minimize disturbance to indigenous vegetation in the riparian area
- f) Encourage the redevelopment or expansion of existing marina facilities that have minimal environmental impacts instead of new marina development in habitat areas that local, State, or Federal agencies have designated important
- g) Develop a marina siting policy to discourage development in areas containing important habitat as designated by local, State, or Federal agencies

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, EQB, PB, RPA

Cooperating Agencies

Commonwealth:
TC

Federal:
COE, EPA, FWS, NMFS

4) Enforceable Policies and Mechanisms

This measure is covered by the DNER Marina Siting Guidelines, which are currently used by DNER and other agencies personnel in evaluating siting proposals or existing marinas modifications. EQB's Environmental Review Process requires detailed site assessment as part of the ERP for a marina siting and design proposal. **The full set of the marinas management measures will be used by the DNER and participating agencies in evaluating new marina proposals and concession applications for such activities as well as to revisions and renewals of existing concessions through the DPP Approach explained in Section IV.C.1.**

d. Shoreline Stabilization Management Measure

Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other shorelines and offshore areas.

1) Applicability

This management measure is intended to be applied to new and expanding marinas where site changes may result in shoreline erosion.

2) Management Practices

Detailed information on practices and the cost and effectiveness of structural and vegetative practices can be found in chapter 6 - Hydromodification... and chapter 7 - Wetlands,... , of the Guidance Document, and Subsections 4 and 5 below.

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, PB/RPA, EQB

Cooperating Agencies:

Commonwealth:

TC

Federal:

COE, USGS

4) Enforceable Policies and Mechanisms

The DNER may require shoreline stabilization works as a condition to approving modifications to existing marinas or new marina siting proposals. DNER personnel will conduct careful inspections of new sites and proposed sites modifications. The DNER recently contracted two professors from the UPR Marine Sciences Department at Mayaguez to conduct a broad study over how land erosion has affected Puerto Rico's coasts. Approximately within two years there will be enough information to better judge the award of permits within coastal areas and to make specific recommendations to the PB. In addition, through a cooperative program with the DNER the USGS Marine Geology Division (MGD) conducts marine geology research work focused, among other things, on coastal erosion processes. On February 1995, The USGS announced a detailed study of the Rincón shoreline from Punta Higuero to Punta Cadena between 1954 and 1994 where the data revealed a sevenfold jump in erosion rates on the coast just south of a marina, located at Punta Ensenada, after its construction in 1983. The erosion rate at that location is the highest rate in the island according to the MGD of the USGS. Therefore, shoreline erosion concerns will play a major role in any new marina siting decision making by the DNER and the other Lead and Cooperating Agencies, whether the erosion is or is not a source of nonpoint pollution. All these requirements to be implemented through the DPP Approach.

e. Storm Water Runoff Management Measure

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas.

Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent. For the purposes of this measure, an 80 percent reduction of TSS is to be determined on an average annual basis.

1) Applicability

This management measure is intended to be applied to **new and expanding marinas, and to existing marinas for at least the hull maintenance areas**. If boat bottom scraping, sanding, and/or painting is done in areas other than those designated as hull maintenance areas, the management measure applies to those areas as well. This measure is not applicable to runoff that enters the marina property from upland sources. **However, for new marina siting proposals, storm waters from hull maintenance areas must be separated from offsite runoff. New and existing marinas must also demonstrate that they are exempted from having to implement a storm water pollution prevention plan (SWPPP) and comply with other requirements of the NPDES General Permit applicable to marinas.**

2) Management Practices

- a) Design boat hull maintenance areas to minimize contaminated runoff
- b) Implement source control practices

- c) Sand Filter
- d) Wet Pond
- e) Constructed Wetland
- f) Infiltration Basin/Trench
- g) Chemical and Filtration Treatment Systems
- h) Vegetated Filter Strip
- l) Grassed Swale
- j) Porous Pavement
- k) Oil-Grit Separators
- l) Holding Tanks
- m) Swirl Concentrator
- n) Catch Basins
- o) Catch Basin with Sand Filter
- p) Adsorbent in Drain Inlets

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, PB, RPA, DNER

Cooperating Agencies:

Commonwealth:

TC

Federal:

EPA, COE

4) Enforceable Policies and Mechanisms

Where maintenance operations are conducted in existing marinas or where they will be conducted for new proposals, the Lead Agencies will seek that these existing and new marinas diligently comply with the NPDES storm water General Permit. The DNER will establish a special condition to that effect in any new, revised or renewed concession for use of the MTZ or submerged lands under its MTZ Regulation. All these requirements to be implemented through the DPP Approach.

f. Fueling Station Design Management Measure

Design fueling stations to allow for ease in cleanup of spills.

1) Applicability

This management measure is intended to be applied to new and expanding marinas where fueling stations are to be added or moved.

2) Management Practices

- a) Locate and design fueling stations so that spills can be contained in a limited area
- b) Design a Spill Contingency Plan
- c) Design fueling stations with spill containment equipment

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, RPA, DNER

Cooperating Agencies:

Commonwealth:
TC

Federal:
EPA, COE

4) Enforceable Policies and Mechanisms

Where maintenance operations are conducted in existing marinas or where they will be conducted for new proposals, the Lead Agencies will require that these existing and new marinas diligently comply with the NPDES storm water General Permit requirements, including the submittal of pertinent information and certifications to EPA and EQB. The DNER will establish a special condition to that effect in any new, revised or renewed concession for use of the MTZ or submerged lands for marinas under its MTZ Regulation. Compliance with SPCC requirements of 40 CFR 112 may also apply depending on amount of fuel/oil stored and the type of tank used (UST or AST). All these requirements to be implemented through the DPP Approach.

g. Sewage Facility Management Measure

Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

1) Applicability

This management measure is intended to be applied to **new and expanding marinas in areas where adequate marine sewage collection facilities do not exist**. Marinas that do not provide services for vessels that have marine sanitation devices (MSDs) do not need to have pumpouts, although dump stations for portable toilets and restrooms should be available. This measure does not address direct discharges from vessels covered under CWA section 312.

- 2) Management Practices
 - a) Fixed-Point Systems
 - b) Portable Systems
 - c) Dedicated Slipside Systems
 - d) Adequate Signage

- 3) Lead and Cooperating Agencies

Lead Agencies:

EQB, PB, RPA, DNER

Cooperating Agencies

Commonwealth:
PRASA, DH, TC

Federal:
EPA, COE

- 4) Enforceable Policies and Mechanisms

EQB's Environmental Review Process and the combined provisions of the PB, RPA and DH Regulations serve to address the matter of this measure. But the DNER will establish special conditions in order to consider granting or renewing concessions for marinas that incorporate this measure. All these requirements to be implemented through the DPP Approach.

MARINA AND BOAT OPERATION AND MAINTENANCE

a. Solid Waste Management Measure

Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes to surface waters.

- 1) Applicability

This management measure is intended to be applied to **new and expanding marinas**.

- 2) Management Practices

- a) Perform boat maintenance/cleaning above the waterline in such a way that no debris falls into the water
- b) Provide and clearly mark designated work areas for boat repair and maintenance. Do not permit work outside designated areas

- c) Clean hull maintenance areas regularly to remove trash, sanding, paint chips, etc. (Vacuuming is the preferred method of collecting these wastes)
- d) Perform abrasive blasting within spray booths or plastic tarp enclosures to prevent residue from being carried into surface waters. If tarps are used, blasting should not be done on windy days.
- e) Provide proper disposal facilities to marina patrons. Covered dumpsters or other covered receptacles are preferred
- f) Provide facilities for the eventual recycling of appropriate materials

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
SWA, TC

Federal:
COE

4) Enforceable Policies and Mechanisms

An operation plan for solid wastes will be required from marinas under EQB's Non-Hazardous Solid Waste Regulations. RPA's Building Regulation also addresses the need to properly collect and store solid wastes . The DNER will reinforce these requirement by establishing them as a standard condition for obtaining and renewing MTZ and/or submerged land concessions. For those marinas that must prepare a SWPPP under the NPDES General Permit, this measure must also be addressed in said documentation. All these requirements to be implemented through the DPP Approach.

b. Fish Waste Management Measure

Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste.

1) Applicability

This management measure is intended to be applied to marinas where fish waste is determined to be a source of water pollution.

2) Management Practices

- a. Establish fish-cleaning areas
- b. Issue rules governing the conduct and location of fish-cleaning operations
- c. Educate boaters regarding the importance of proper fish-cleaning practices
- d. Implement fish composting where appropriate

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:

Federal:
COE, FWS, NMFS

4) Enforceable Policies and Mechanisms

Proper collection and disposal of fish waste may be included as one of the items to be covered in the operation plan for solids waste that will be required from marinas under EQB's Non-Hazardous Solids Waste Regulations and DNER standard condition for MTZ and/or submerged lands concessions for marinas. All these requirements to be implemented through the DPP Approach.

c. Liquid Material Management Measure

Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage recycling of these materials.

1) Applicability

This management measure is intended to be applied to marinas where liquid materials used in the maintenance, repair, or operation of boats are stored.

2) Management Practices

- a) Build curbs, berms, or other barriers around areas used for the storage of liquid materials to contain spills. Store materials in areas impervious to the type of material stored

- b) Separate containers for the disposal of waste oil; waste gasoline; used antifreeze; and waste diesel, kerosene, and mineral spirits should be available and clearly labeled
- c) Direct marina patrons as to the proper disposal of all liquid materials through the use of signs, mailings and other means

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
TC

Federal:
COE, EPA

4) Enforceable Policies and Mechanisms

Depending on the type and quantities of the liquid materials stored and on the applicability or not of the NPDES General Permit for storm water, this measure may be approached from multiple angles: SPCC requirements, SWPPP requirements, Solid Waste Operation Plan, DNER standard or special condition.

d. Petroleum Control Management Measure

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

1) Applicability

This management measure is intended to be applied to boats that have inboard fuel tanks.

2) Management Practices

- a) Use automatic shut-off nozzles and promote the use of fuel/air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling of boats
- b) Promote the use of oil-absorbing materials in the bilge areas of all boats with inboard engines. Examine these materials at least once a year and replace

as necessary. Recycle them if possible, or dispose of them in accordance with petroleum disposal regulations

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
SWA, TC

Federal:
COE, EPA

4) Enforceable Policies and Mechanisms

The Boating Safety Act and Regulations provide coverage to implement this measure. Emphasis will be placed on adding pertinent material to existing mandatory training for boating license applicants, to promote the use of fuel/air separators on air vents or tank stems of inboard fuel tanks and the use of oil-absorbing materials in the bilge areas of all boats with inboard engines.. The DNER will require the use of automatic shut-off nozzles for fuel dispensing at marinas with DNER concessions.

e. Boat Cleaning Management Measure

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) paint from in-water hull cleaning.

1) Applicability

This management measure is intended to be applied to marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems.

2) Management Practices

- a) Wash the boat hull above the waterline by hand. Where feasible, remove the boat from the water and perform cleaning where debris can be captured and properly disposed of.
- b) Detergents and cleaning compounds used for washing boats should be phosphate-free and biodegradable, and amounts used should be kept to a minimum

- c) Discourage the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye
- d) Do not allow in-the-water hull scraping or any process that occurs underwater to remove paint from the boat hull

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:

TC

Federal:

USCG

4) Enforceable Policies and Mechanisms

Training on the subject of this measure may be added to mandatory training for boating license applicants. DNER will enjoin the cooperation of marina owners and operators in assisting in the development and implementation a strong education campaign for marina patrons. Mass mailings to boating licensees will be contemplated also.

f. Public Education Management Measure

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

1) Applicability

This management measure is intended to be applied to all environmental control authorities in areas where marinas are located.

2) Management Practices

- a) Signage
- b) Recycling/Trash Reduction Programs
- c) Pamphlets or Flyers, Newsletters, inserts of billings
- d) Meetings/Presentations

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, EQB

Cooperating Agencies:

Commonwealth:

TC

UPR/SEA GRANT

Federal:

USCG, COE, OTHERS

4) Enforceable Policies and Mechanisms

A public education strategy will be developed and implemented for the overall Section 6217 program [See Section V.E.1.d.]

g. Maintenance of Sewage Facilities Management Measure

Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.

1) Applicability

This management measure is intended to be applied to marinas where marine sewage disposal facilities exist.

2) Management Practices

- a) Arrange maintenance contracts with contractors competent in the repair and servicing of pumpout facilities
- b) Develop regular inspection schedules
- c) Maintain a dedicated fund for the repair and maintenance of marina pumpout stations. (Government-owned facilities only)
- d) Add language to slip leasing agreements mandating the use of pumpout facilities and specifying penalties for failure to comply
- e) Place dye tablets in holding tanks to discourage illegal disposal

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
DH, TC

Federal:
EPA

4) Enforceable Policies and Mechanisms

Sewage pumpout facilities at marinas will require construction and operation permits from EQB's Water Quality Area. Special conditions are usually attached to these authorizations requiring proper maintenance of facilities, including record keeping of maintenance and disposal, and the submittal of a letter accepting the responsibility for the operation of the facility. DNER will also reinforce this requirements through its MTZ and/or submerged land concession.

h. Boat Operation Management Measure

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

1) Applicability

This management measure is intended to be applied in non-marina surface waters where evidence indicates that boating activities are impacting shallow-water habitats.

2) Management Practices

- a) Exclude motorized vessels from areas that contains important shallow-water habitat
- b) Establish and enforce no-wake zones to decrease turbidity.

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, EQB

Cooperating Agencies:

Commonwealth:
TC

Federal:
USCG, COE

4) Enforceable Policies and Mechanisms

Both EQB and DNER will evaluate the areas that merit such protection and consider whether the best legal approach to the designation of the exclusion areas is by a combined designation of PB, EQB and DNER. In addition, a public education strategy will be developed and implemented for the overall Section 6217 program. Subject matter of measure to be a concern of the strategy.

4. Hydromodification Source Category

Hydromodification activities such as channelization, channel modification and dam construction are major activities that in Puerto Rico are almost always planned and carried out by or under the direct control of Commonwealth or Federal agencies or public corporations. But even if this were not the case, these activities are and would be subject to a large and detailed number of planning, funding and environmental review requirements that assure that the applicable (mostly benign) management measures are satisfied even in the absence of any new requirement.

Hydromodifications, as well as all other types of activities that have the potential of creating adverse and significant environmental impacts (such is also the case with the construction of marinas) they most often require fulfilling the most rigorous ERP analysis. That is, these type of projects require the preparation of an Environmental Impact Statement (EIS) as per EQB's Regulation on Puerto Rico Environmental Impact Statements [See EQB-A1-R4], an evaluation and documentation process that would invariably assure satisfying all of the management measures included under the Hydromodification category of nonpoint sources.

In addition, these type of projects will always require a Siting Permit ("Consulta de Ubicación") or Special Consultation ("Consulta Especial") as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2] and the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 (in Spanish) in Vol. 2], unless the proposing government organism is specifically exempted by resolution of the PB. Subsequent to fulfilling the Siting Permit requirements of the PB, these projects require a Construction Permit from RPA, as per PB's Planning Regulation No. 4 - Zoning Regulation [See PB-A2-R6 in Vol. 2]; PB's Regulation No. 13 - Regulation About Flood Susceptible Zones [See PB-A2-R9 in Vol. 2]; PB's Regulation No. 17 - Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto Rico [See PB-A2-R6 in Vol. 2]; and any other applicable regulation or resolution of the PB; and RPA's Regulation for the Certification of Construction Projects - Planning Regulation No. 12 [See RPA-A1-R2 in Vol. 2]; and RPA's Building Regulation [RPA-A1-R1 (only a portion included in Vol. 2)]. Finally, prior to initiating construction, a CES[T] Plan [or CES Permit in the near future] from EQB is needed, as per the Control of Erosion and Sedimentation (CES) Program [see EQB-A1-R11 and R-11A in Vol. 2].

In some cases, when dredging operations are involved and the dredged material is intended to be used outside the project limits, an additional Permit for Extraction of Materials from the Earth Crust, issued as per the requirements of the Bylaws to Regulate the Extraction of Materials from the Earth Crust [See DNER-A9-R1 in Vol. 2] must also be obtained from the DNER. This permit is only waived or deemed to be part of an RPA Construction Permit (Incidental Permit), when no material is going to be taken out of the project site and the DNER has evaluated the project and given its favorable endorsement. The applicability of the DNER's MTZ Regulation may also need to be considered in some other cases.

Under the Fish and Wildlife Coordination Act (FWCA), any federal agency that proposes to control or modify any body of water must first consult with the head of the appropriate state agency exercising administration over the wildlife resources of the affected state. The DNER is the agency exercising authority over the wildlife resources of Puerto Rico, hence the COE District Engineer consults with the Secretary of the DNER with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the activity proposed in a permit application. The COE must give full consideration to the views of the DNER on fish and wildlife

matters in deciding on the issuance, denial, or conditioning of individual or general permits. Such considerations may involve mitigation and enhancement recommendations made to the COE or other involved federal agency whose action or permit would control or modify a stream or other body of water.

Other permits from PREPA, PRASA or DTPW/HTA may occasionally be required if the subject project affects or interferes with electric lines or facilities, water or sewer lines or highways, roads or bridges.

From the federal government, a NPDES storm water (point source) permit is also required for the construction activities (when the land area to be disturbed equals or exceeds 5 acres) as per the NPDES General Permit for Storm Water Discharges from Construction Sites under the Clean Water Act (CWA), as amended, [33 U.S.C. 1251, et. seq.]; a dredge and fill permit from the COE as per Section 404 of the CWA and Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) [33 U.S.C. §401, et seq.]. This last federal permit requirement triggers three additional Commonwealth approval requirements: the Water Quality Certification (WQC) of EQB [See EQB-A1-AO4 in Vol 2 (in Spanish)], as per Section 401 of the CWA; the Federal Consistency Certification of the PB [See PB-A2-HB in Vol 2], as per Section 307 of CZMA; and the favorable endorsement from the DNER, as per the requirements of the Fish and Wildlife Coordination Act (FWCA) [16 U.S.C. §661-666c, 33 CFR 320.3 (e) and 320.4 ©]. There may be situations in which an NPDES permit (point source) may be required for the discharge waters associated with the dredging or the construction activities, other than a storm water general permit.

The above indicated permitting and review procedures permit the full implementation of the Hydromodification management measures.

CHANNELIZATION AND CHANNEL MODIFICATION MANAGEMENT MEASURES

a. Management Measure for Physical and Chemical Characteristics of Surface Water

- Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in coastal areas;
- Plan and design channelization and channel modification to reduce undesirable impacts; and
- Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

1) Applicability

This management measure is intended to be applied to public and private channelization and channel modification activities in order to prevent the degradation of physical and chemical characteristics of surface waters from such activities. This management measure applies to any proposed channelization or channel modification

projects, including levees, to evaluate potential changes in surface water characteristics, as well as to existing modified channels that can be targeted for opportunities to improve the surface water characteristics necessary to support desired fish and wildlife.

2) Management Practices

- a) Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modifications projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans, and new development plans
- b) Identify and evaluate appropriate BMPs for use in the design of proposed channelization or channel modification projects or in the operation and maintenance programs of existing projects. Identify and evaluate positive and negative impacts of selected BMPs and include cost:

- Streambank Protection
- Levee Protection
- Channel Stabilization and Flow Restrictors
- Check Dam Systems
- Grade Control Structures - Streambank and Channel Stabilization
- Vegetative Cover
- Instream Sediment Load Control
- Noneroding Roadways
- Setback Levees and Flood Walls

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:

PA

Federal:

COE, EPA, USGS

4) Enforceable Policies and Mechanisms

The first and second elements of this management measure will be covered by the DPP Approach.

The Operation and Maintenance Program of the Flood Control Program of DNER will be evaluated and documented as to the extent of compliance with the third element of this measure. The programs of other agencies or entities that may also be involved in these type of activities will be identified, evaluated and documented for compliance with this measure.

*Final Meeting
12/14/95
12/14/95*

b. Instream and Riparian Habitat Restoration Management Measure

- Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;
- Plan and design channelization and channel modification to reduce undesirable impacts; and
- Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

1) Applicability

This management measure pertains to surface waters where channelization and channel modification have altered or have the potential to alter instream and riparian habitat such that historically present fish or wildlife are adversely affected. This management measure is intended to apply to any proposed channelization or channel modification project to determine changes in instream and riparian habitat and to existing modified channels to evaluate possible improvements to instream and riparian habitat.

2) Management Practices

- a) Use models/methodologies to evaluate the effects of proposed channelization and channel modification projects on instream and riparian habitat and to determine the effects after such projects are implemented.
Expert Judgment and Check Lists
Biological Methods/Models
- b) Identify and evaluate appropriate BMPs for use in the design of proposed channelization or channel modification projects or in the operation and maintenance programs of existing projects. Identify and evaluate positive and negative impacts of selected BMPs and include costs.

3) Lead and Cooperating Agencies

Lead Agencies:
DNER, EQB

Cooperating Agencies:

Commonwealth:
PA

Federal:
COE, USGS

4) Enforceable Policies and Mechanisms

The first and second elements of this management measure will be covered and satisfied by the DPP Approach to compliance.

The Operation and Maintenance Program of the Flood Control Program of DNER will be evaluated and documented as to the extent of compliance with the third element of this measure. The programs of other agencies or entities that may also be involved in these type of activities will be identified, evaluated and documented for compliance with this measure. Discussions have been initiated between the DNER and the COE regarding the opportunities to evaluate the issuance of a General Permit to conduct maintenance activities in creeks and other existing channels. Data on these general sites may have to be assembled to support the general permit application which also serve to support the third element of this measure.

DAMS MANAGEMENT MEASURES

a. Management Measure for Erosion and Sediment Control

- Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1) Applicability

This management measure is intended to be applied to the construction of new dams, as well as to construction activities associated with the maintenance of dams. Dams are defined as constructed impoundments which are either:

- a) 25 feet or more in height *and* greater than 15 acre-feet in capacity, or
- b) six feet or more in height *and* greater than 50 acre-feet in capacity.

Although this measure does not need to apply to projects that fall under NPDES storm water jurisdiction, as per Section 6217 (g) Guidance indications, EQB Control of Erosion and Sedimentation Program CES[T] Plan/Permit requirements do apply anyway.

2) Management Practices

- a) Preserve trees and other vegetation that already exist near the dam construction site
- b) Control runoff from the construction site and construction-related areas
- c) Control soil and surface water runoff during construction

- d) Other practices (Many other practices for the control of erosion and sediment loss are discussed in Chapter 4 of the Guidance Document)
- Revegetation
 - Mulching
 - Soil Bioengineering

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
PRASA, PREPA

Federal:
NRCS, EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

This measure is satisfied by the concurrent compliance with NPDES requirements applicable to construction activities and CES[T] Plan/Permit requirements of EQB. Subject matter is also reviewed in EQB's ERP and through the DPP Approach.

b. Management Measure for Chemical and Pollutant Control

- Limit application, generation, and migration of toxic substances;
- Ensure the proper storage and disposal of toxic materials; and,
- Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1) Applicability

This management measure is intended to be applied to the construction of new dams, as well as to construction activities associated with the maintenance of dams. Dams are defined as constructed impoundments which are either:

- a) 25 feet or more in height *and* greater than 15 acre-feet in capacity, or
- b) 6 feet or more in height *and* greater than 50 acre-feet in capacity.

This management measure addresses fuel and chemical spills associated with dam construction, as well as concrete washout and related construction activities.

2) Management Practices

- a) Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities associated with the dam construction project that store, handle, or transport fuel, oil, or hazardous materials should have a spill response plan, especially if large quantities of oil or other polluting liquid materials are used.
- b) Maintain and wash equipment and machinery in confined areas specifically designed to control
- c) Establish fuel and vehicle maintenance staging areas located away from surface waters and all drainages leading to surface waters, and design these areas to control runoff
- d) Store, cover, and isolate construction materials, refuse, garbage, sewage, debris, oil and other petroleum products, mineral salts, industrial chemicals, and topsoil to prevent runoff of pollutants and contamination of ground water

3) Lead and Cooperating Agencies

Lead Agencies:

EQB, DNER

Cooperating Agencies:

Commonwealth:
PRASA, PREPA

Federal:
NRCS, COE, EPA

4) Enforceable Policies and Mechanisms

This measure is satisfied by the concurrent compliance with NPDES requirements applicable to construction activities and CES[T] Plan/Permit requirements of EQB. Subject matter is also reviewed in EQB's ERP and through the DPP Approach.

c. Management Measure for Protection of Surface Water Quality and Instream and Riparian Habitat

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

- **Surface water quality and instream and riparian habitat and potential for improvement and**
- **Significant nonpoint source pollution problems that result from excessive surface water withdrawals.**

1) Applicability

This management measure is intended to be applied to dam operations that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat. Dams are defined as constructed impoundments which are either:

- a) 25 feet or more in height *and* greater than 15 acre-feet in capacity, or
- b) 6 feet or more in height *and* greater than 50 acre-feet in capacity.

This measure does not apply to projects that fall under NPDES jurisdiction. This measure also does not apply to the extent that its implementation under State law is precluded under *California v. Federal Energy Regulatory Commission*, 110 S. Ct. 2024 (1990) (addressing the supersedence of State instream flow requirements by Federal flow requirements set forth in FERC licenses for hydroelectric power plants under the Federal Power Act).

2) Management Practices

Practices for Aeration of Reservoir Waters and Releases

- a) Pumping and Injection Practices
- b) Turbine Venting

Practices to Improve Oxygen Levels in Tailwaters

- a) Gated Conduits
- b) Spillways
- c) Spillway Modifications
- d) Reregulation Weir
- e) Labyrinth Weir

Practices for Adjustment in the Operational Procedures of Dams for Improvement of Water Quality

- a) Selective withdrawal
- b) Turbine Operation

Watershed Protection Practices

- a) Land Use Planning
- b) Nonpoint Source Screening and Identification
- c) Soil Erosion Control
- d) Ground-Water Protection
- e) Mine Reclamation
- f) Animal Waste Control
- g) Failing Septic Systems

Practices to Restore or Maintain Aquatic and Riparian Habitat

- a) Flow Augmentation
- b) Riparian Improvements
- c) Aquatic Plant Management

Practices to Maintain Fish Passage

- a) Behavior Barriers
- b) Physical Barriers
- c) Fish Collection Systems
- d) Fish Diversion Systems
- e) Spill Water Budget
- f) Fish Ladders
- g) Transference of Fish Runs
- h) Constructed Spawning Beds

3) Lead and Cooperating Agencies

Lead Agencies:

DNER, EQB

Cooperating Agencies

Commonwealth:
PRASA, PREPA

Federal:
NMFS, FWS, EPA

See Interagency Agreements Compendium in Appendix S

4) Enforceable Policies and Mechanisms

Most of the practices implemented by Puerto Rico to satisfy this measure are concentrated on watershed protection. Interagency agreements with PRASA and PREPA may have to be entered for development and implementation of required program. PRASA currently limits withdrawals as to avoid disturbing sediments in its reservoirs

STREAMBANK AND SHORELINE EROSION MANAGEMENT MEASURE

a. Management Measure for Eroding Streambanks and Shorelines

- **Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative**

methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.

- **Protect streambank and shoreline features with the potential to reduce NPS pollution.**
- **Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.**

1) Applicability

This management measure is intended to be applied to eroding shorelines in coastal bays, and to eroding streambanks in coastal rivers and creeks. The measure does not imply that all shoreline and streambank erosion must be controlled. Some amount of natural erosion is necessary to provide the sediment for beaches in estuaries and coastal bays, for point bars and channel deposits in rivers, and for substrate in tidal flats and wetlands. The measure, however, applies to eroding shorelines and streambanks that constitute an NPS problem in surface waters. It is not intended to hamper the efforts of any States or localities to retreat rather than to harden the shoreline.

2) Management Practices

- a) Use soil bioengineering and other vegetative techniques to restore damaged habitat along shorelines and streambanks wherever conditions allow
- b) Use properly designed and constructed engineering practices for shore erosion control in areas where practices involving marsh creation and soil bioengineering are ineffective
- c) In areas where existing protection methods are being flanked or are failing, implement properly designed and constructed shore erosion control methods such as returns or return walls, toe protection, and proper maintenance or total replacement.
- d) Plan and design all streambank, shoreline, and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding streambanks or shorelines
- e) Establish and enforce no-wake zones to reduce erosion potential from boat wakes)
- f) Establish setbacks to minimize disturbance of land adjacent to streambanks and shorelines to reduce other impacts. Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, DNER, EQB

Cooperating Agencies:

**Commonwealth:
DORS**

**Federal:
USGS, NRCS, COE**

4) Enforceable Policies and Mechanisms

As indicated elsewhere, the DNER commissioned an islandwide study of coastal erosion which will serve to define those areas where erosion is a severe problem that may require the implementation of shore stabilization practices and to guide decision making related to such shoreline project permitting activities as marinas and other shore structures.. That a shoreline may be eroding, however, does not necessarily imply that there is an associated nonpoint source problem. Nonetheless, the DNER, through the commissioned study and through the cooperative research efforts of the USGS MRD will evaluate this problem area to determine if any real action is needed at any specific location. Depending on the results an action plan may be developed.

5. Wetlands, Riparian Areas, and Vegetated Treatment Systems Management Measures

Permits for activities in wetland areas are issued by both Commonwealth and Federal agencies in Puerto Rico. Both the PB and RPA have jurisdiction to issue permits for unzoned (rural) and zoned areas containing or not containing wetlands.

In zoned areas, the PB will consider in first instance Siting Permits ("Consulta de Ubicación") for projects not otherwise allowed by the Zoning Regulation - Planning Regulation No. 4 [See PB-A2-R10] or by a Municipal Ordinance Plan, including public improvement projects except those for which government organisms are exempted, including Municipalities that have obtained autonomy under Act No. 81 of August 30, 1991, as amended, and those delegated to RPA through expressed resolution of the PB [See Figure 4A]. RPA considers Subdivision and Construction Permits (Phases: Consultation, Preliminary Plans, Earth Movement) and Use Permits for all projects, including those going through the Siting Permit process. RPA will consider in first instance those cases that do not require Siting Permits (as allowed by PB's Regulations No. 3, 4, 13, and 17, [See PB-A2-R13, R10, R9 and R6] but will refer to the PB for Siting Permit proceedings any case not allowed by these regulations [See Figure 6A].

In unzoned areas, the PB will consider, in first instance, projects that by their nature and magnitude have a significant impact in the physical, economic, and social environment of the sector where they will be located as a result of which a change in the general conduct pattern of the sector (including but not limited to environmental concerns) may be expected. It also includes all public improvement projects, except those exempted or delegated as stated above for zoned areas. Table 2, which is an unofficial translation of a table provided in §3.03 of the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 in Vol. 2] indicates as guidance only, without being exhaustive, the projects that the PB will consider in first instance as Siting Permits.

Note from Table 2 that certain specific type of projects that are subject to siting permits are likely to be located at or near wetland areas, such as marinas for more than 10 boats and projects in areas of special resources (Section 10.19 of Reg. No. 4 includes the following as special resources in R-0 Zoning Districts, among others: forests, springs, creeks, rivers, lakes, lagoons, and other areas or water bodies that merit protection for their preservation as water sources or recreational resources; those that require the preservation of their flora and fauna due to its economic, ecologic or scientific importance; those that are susceptible to flooding, landslides, avalanches or swells; those that are areas whose topographical features or their vegetation have a special meaning for the community; and, those that are beach areas).

The guiding policy relative to wetlands that has been used by both the PB and RPA is fairly general as it stems out from general policy statements from several sources. In Puerto Rico, protection of mangroves (but not wetlands in general) has received priority attention. In 1974, the Environmental Quality Board adopted Resolution 74-21 [EQB-A1-AO1 in Vol. 2], to protect mangrove wetlands. It states the need to:

- "1) Preserve, protect, and as far as possible, restore the mangroves of Puerto Rico;
- 2) Reduce to the minimum any changes in the quantity and quality of water that nourishes mangroves;

- 3) Protect the mangroves from dredging or the harmful effects of dredge spoils; and
- 4) Promote to the maximum environmental measures for mangrove protection.”

The PB's Objectives and Public Policies of the Land Use Plan for Puerto Rico of June 1977, which all government organisms must follow since 1977, provide at §18.00 and §18.03 [See the full 1977 text in Appendix K1; and an unofficial translation of selected objectives and policies from PB's March 1995 revision (which is pending to be approved by the Governor of Puerto Rico) in Appendix K-2; the full text of the 1995 revision is identified as PB-A2-PP1A (in Spanish) in Vol. 2] :

“§18.00 TO PROTECT NATURAL, ENVIRONMENTAL, AND CULTURAL RESOURCES FROM DESTRUCTION OR IRREPARABLE DAMAGE CAUSED BY MISUSE OR BY FAILING TO CONSIDER THE ADVERSE IMPACT OF ACTIVITIES UPON THEM.

...
...

§18.03 To avoid activities and land subdivision which could cause the deterioration or destruction of those natural systems essential for preserving the environment, such as mangroves, forests, reefs, dunes, ecological systems, and habitats of endangered species.”
(Emphasis added)

With formal adoption of the 1978 PRCMP, the PB designated all coastal mangrove areas as a "generic" type of Special Planning Area (SPA). However, there has been no systematic delineation of mangrove areas and no official maps have been prepared indicating the boundaries of the Mangrove SPA. Given the fact that a large portion of mangrove wetlands are in the maritime terrestrial zone (MTZ)[also referred to as "Maritime Zone"], some of these fall into the area of public domain for which the DNER is responsible. For a definition of the MTZ, see definition 2.108 in the MTZ Regulation [See DNER-A11-R1 in Vol. 2; under Maritime Zone].

In 1982, the Planning Board adopted Planning Regulation Number 17 (Zoning in the Coastal Zone and Access to Beaches), which provides for a Mangrove Forest Zoning District (B-2). Several coastal mangrove forest areas have been designated as Natural Reserves, and part of Jobos Bay and Mar Negro in Salinas have been made part of the Jobos Bay National Estuarine Research Reserve. In an area under intensive development pressure, the Governor enunciated a policy directed at preserving the major mangrove stand in the Boca de Cangrejos-Piñones Special Planning Area.

While there is an explicit policy basis for coastal mangrove protection, the commitment for protection of coastal wetlands or wetlands in general is less clear. In 1982 the Secretary of Justice of Puerto Rico issued an opinion indicating that at least three agencies are involved in wetlands decision making -- DNER, EQB, and the Planning Board. However, none of these agencies had formulated a specific policy for the protection of wetlands other than for mangroves. This situation is now being addressed and, based on an interagency agreement, the DNER is now preparing a draft wetlands policy with the assistance of an advisory committee from both Commonwealth and Federal agencies and the private sector.

The DNER has conducted a systematic inventory and assessment of mangrove areas, prepared

a manual for mangrove restoration, and drafted a Management Plan for the Mangroves of Puerto Rico [See DNER-A11-PP2 in Vol 2]. Although the DNER prepared the Management Plan, it has not been formally adopted by the Planning Board. A copy of the Executive Summary (in English) is included in Appendix Q. The DNER uses the Management Plan and all other information available to the Agency for evaluating projects proposed at or near the 119 mangrove areas identified therein and exercises its role in wetlands protection by responding to requests for regulatory required endorsements from the PB and RPA, and FWCA consultations from the COE and other federal action agencies.

Once the Governor approves the Objectives and Public Policies of the Land Use Plan for Puerto Rico of March 1995 [See PB-A2-PP1A in Vol. 2], the following goal and objectives will provide further policy support for efficient decision making to protect wetland areas:

- "30.00 TO PROTECT THE NATURAL, ENVIRONMENTAL AND CULTURAL RESOURCES FROM DESTRUCTION OR IRREPARABLE DAMAGES CAUSED BY THEIR UNWISE USE OR DUE TO LACK OF PREVISION TO ADDRESS THE ADVERSE IMPACT OF OTHER ACTIVITIES.**
- 30.01 To reduce the adverse impact of pollution on natural resources, identifying and controlling the causes and the sources of pollution.**
- 30.02 To control land development activities, construction and subdivisions that may adversely affect water quality, particularly in the recharge areas of aquifers and in the immediate watersheds of lakes and reservoirs, including among others, activities such as excessive paving that increases the flow of surface runoff, the indiscriminate use of fertilizers and pesticides that deteriorate the quality of our water bodies, clearing and grubbing, the removal of the vegetative layer and earth movements that create erosion and sedimentation.**
- 30.03 To avoid activities that may create deterioration or destruction of natural systems that are critical for the preservation of the environment, such as mangroves, wetlands, forests, coral reefs, sinkholes, sand dunes and ecological habitats of endangered species.**
- ...
- 30.05 To protect wetland areas allowing those uses that are compatible with the preservation and conservation of their natural state. (Emphasis added)**
- 32.00 TO DEVELOP PLANS FOR THE CONTROL AND MANAGEMENT OF AQUATIC AND MARINE POLLUTION FROM NONPOINT POLLUTION SOURCES ASSOCIATED TO THE CATEGORIES OF URBAN DEVELOPMENT, AGRICULTURE, CONSTRUCTION AND OPERATION OF MARINAS, HYDROMODIFICATIONS AND TO THE DESTRUCTION AND ALTERATION OF WETLANDS.**

- To adopt and implement general management measures that allow for the selection and implementation of a variety of

individual management practices for the control of all the categories of nonpoint pollution sources that affect or may affect water quality and aquatic, riparian and marine ecological systems; (Emphasis and underlining added)

- To evaluate and establish special zoning in the upper watersheds of reservoirs and water bodies that serve as drinking water sources to[:] avoid the conversion of soils particularly susceptible to erosion and the generation of sediments, **preserve areas that provide important water quality benefits and/or that may be necessary to sustain aquatic and riparian biota**, and to control the development of lands to protect the natural integrity and drainage systems of those water bodies. (Emphasis added)

33.00 TO STIMULATE THE CONSERVATION OF LAND USES IN THEIR NATURAL STATE OUTSIDE THE LIMITS OF URBAN EXPANSION OR IN RUSTIC LANDS, RECOGNIZING MORE THE SOCIAL AND ECONOMIC BENEFITS OF THEM AND PROMOTING MECHANISMS THAT APPROPRIATELY VALUE SUCH RESOURCES.” (Emphasis added)

a. Management Measure for Protection of Wetlands and Riparian Areas

Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.

1) Applicability

This management measure is intended to be applied to protect wetlands and riparian areas from adverse NPS pollution impacts.

2) Management Practices

- a) Consider wetlands and riparian areas and their NPS control potential on a watershed landscape scale.**
- b) Identify existing functions of those wetlands and riparian areas with significant NPS control potential when implementing NPS management practices. Do not alter wetlands or riparian areas to improve their water quality function at the expense of their other functions**
- c) Conduct permitting, licensing, certification, and nonregulatory NPS pollution abatement activities in a manner that protects wetland functions.**

- d) Use appropriate pretreatment practices such as vegetated treatment systems or detention or retention basins (Chapter 4) to prevent adverse impacts to wetland functions that affect NPS pollution abatement from hydrologic changes, sedimentation or contaminants.

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, DNER, EQB

Cooperating Agencies:

Commonwealth:

Federal:
FWS, NRCS, COE

4) Enforceable Policies and Mechanisms

Coverage of this measure is assured by roles of designated agencies in ERP, direct evaluation and/or endorsements of PB Siting Permits, RPA Construction Permits, and COE Dredged or Fill Material Permits applications under Commonwealth mandates and CWA 401 (EQB) and FWCA (DNER).

b. Management Measure for Restoration of Wetlands and Riparian Areas

Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

1) Applicability

This management measure is intended to be applied by Puerto Rico to protect wetlands and riparian areas from adverse NPS pollution impacts.

2) Management Practices

- a) Provide a hydrologic regime similar to that of the type of wetland or riparian area being restored.
- b) Restore native plant species through either natural succession or selected planting
- c) Plan restoration as part of naturally occurring aquatic ecosystems

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, DNER, EQB

Cooperating Agencies:

Commonwealth:

Federal:
FWS, NRCS, COE

4) Enforceable Policies and Mechanisms

Coverage of this measure is assured by roles of designated agencies in ERP, direct evaluation and/or endorsements of PB Siting Permits, RPA Construction Permits, and COE Dredged or Fill Material Permits applications under Commonwealth mandates and CWA 401 (EQB) and FWCA (DNER).

c. Management Measure for Vegetated Treatment Systems

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

1) Applicability

This management measure is intended to be applied to protect wetlands and riparian areas from adverse NPS pollution impacts.

2) Management Practices

- a) Construct vegetated filter strips (VFS) in areas adjacent to water bodies that may be subject to suspended solids and/or nutrient runoff.
- b) Construct properly engineered systems of wetlands for NPS pollution control. Manage these systems to avoid negative impacts on surrounding ecosystems or ground water.

3) Lead and Cooperating Agencies

Lead Agencies:

PB/RPA, DNER, EQB

Cooperating Agencies
Commonwealth:

Federal:
NRCS, COE

4) Enforceable Policies and Mechanisms

Coverage of this measure is assured by roles of designated agencies in ERP, direct evaluation and/or endorsements of PB Siting Permits, RPA Construction Permits, and COE Dredged or Fill Material Permits applications under Commonwealth mandates and CWA 401 (EQB) and FWCA (DNER).

B. Categories and Subcategories for Which Puerto Rico Is Requesting an Exclusion from the Coastal Nonpoint Program

As explained above, to obtain approval of the PRCNPCP, the designated agencies must assure that the plan is in conformity with the Guidance Document to protect coastal waters generally. The guidance applies to five significant categories and sources of nonpoint pollution, which are: agricultural runoff; urban runoff from developing and developed areas; silvicultural (forestry) runoff; hydromodification, including shoreline erosion and dams; and siting and operation of marinas. The guidance also includes management measures for wetlands protection, riparian areas and vegetated filter strips that may be applicable to several sources.

To satisfy statutory requirements for program approval the designated agencies must identify nonpoint source categories that will be included or addressed in the PRCNPCP. NOAA and EPA may allow Puerto Rico to exclude specific categories, subcategories or sources from the requirements of the PRCNPCP. To obtain an exclusion, the designated agencies will have to demonstrate that: (1) the nonpoint source category or subcategory is neither present nor reasonably anticipated in the 6217 Management Area; or (2) the category, subcategory or source of nonpoint pollution does not and is not reasonably expected, individually or cumulatively, to present significant adverse effects to living coastal resources or human health.

1. Identification of Categories or Subcategories Specified in the (G) Guidance Which Puerto Rico Proposes to Exclude from its CNPCP

Puerto Rico is requesting that all the management measures for **the forestry category of nonpoint sources be excluded from the PRCNPCP**, as it is understood that this land use activity is an insignificant contributor to nonpoint source pollution in the coastal waters of Puerto Rico. Both the DNER and EQB understand that it will be necessary to implement the PRCNPCP only for four of the five categories of Section 6217 nonpoint sources, that is to say, from urban areas, agriculture, marinas and hydromodification activities; and for management measures for protection of wetlands and riparian areas.

As it pertains to the above mentioned exclusion, the same was proposed to EPA/NOAA during the informal consultation conducted on April 1994. Both federal agencies agreed to the proposed exclusion, but requested additional supporting information and statistics. The information provided to the federal agencies during the Informal Review of April 1994 is presented below followed by additional supporting documentation requested by NOAA and EPA in their comments. The federal agencies comments and Puerto Rico's response are included in Appendix C. Pertinent information is also addressed below.

2. Rationale to Support the Exclusion

First, silviculture activities as defined in the Guidance Document, are practically nonexistent in the 6217 management area, as nonpoint source assessments conducted by EQB have failed to identify any such sources. Second, even if some silvicultural activities may be shown to be present, their contribution cannot be reasonably expected to present adverse effects to living coastal resources or human health. In fact, the multiple use policy contained in the Puerto Rico Forest Law [See DNER-A13 in Vol.2], as amended) preclude any widespread silvicultural activity within Commonwealth forests that may produce significant nonpoint source pollution.

No significant silvicultural activity is known to exist or to be planned, except, perhaps those by the U.S. Forest Service in the Caribbean National Forest. It is reasonable to expect that the magnitude of any silvicultural activity carried out in the Caribbean National Forest, a critical habitat for the endangered Puerto Rican parrot (Amazona vittata) will not contribute, in any significant way, to adverse effects to living coastal resources or human health.

The designated agencies are hereby requesting public comments on their intention to exclude silviculture based on the above stated rationale and the information provided herein.

3. Description and Documentation of the Data Rationale Relied upon for Excluding the Sources

a. Petition to Exclude the Silviculture (Forestry) Nonpoint Source Category from the PRCNPP (essentially as included in Informal Consultation Document)

1) General

The objective of this section is to justify the exclusion of the forestry source category from the Puerto Rico Coastal Nonpoint Pollution Control Plan (PRCNPP). To accomplish this objective, the report provides an overview of forestry activity, identifies the legal framework, and assess the future of this economic activity in Puerto Rico.

The acceptance of the exclusion of the forestry activity does not limit the ability of the Commonwealth to establish management measures for forestry activity in the island and to include this category in the PRCNPP in the future if required.

2) Background

The effects of forestry activities on water quality have been documented by States

with significant forestry activities. The impact of this economic sector ranges from soil erosion to chemical application. The Management Guidelines on Forestry are concerned with the impact of this activity on water quality with regard to nutrients, forest chemicals, organic debris, increase in temperature, increase in streamflow, and sedimentation. The activities affecting NPS pollution include road construction and use, timber harvesting, mechanical equipment operation, burning, and application of fertilizers and pesticides.

Twenty-four States have identified silviculture as a source contributing to NPS pollution in their 1990 section 305 (b) assessments (EPA, 1992; b). In Puerto Rico, silviculture has never been identified as a source of pollution in 305 (b) reports. (Appendix G) The silviculture activity on the island is insignificant and the few acres of land involved in such activity are located in the center of the island. The water quality stations in the mountains do not show any particular violation associated to this activity. Map 8 and Map 9 show the water quality monitoring network of EQB and USGS.

3) Forest Resources

The most recent comprehensive forestry inventory of Puerto Rico was conducted by Richard A. Birdsey and Peter L. Weaver in 1982. The inventory had as a primary objective assessment of the timber production of potential commercial forests. Forest area, timber volume, and species composition data were obtained by a sampling method that involved a forest-non-forest classification of aerial photographs and on-the-ground measurements of trees at sample locations. Statistics are presented in Appendix U.

Puerto Rico's forest area has increased dramatically in the last 30 years, to 279,000 hectares (up to 1982). These young forests result from migration of the rural population away from marginally productive pasture and cropland. **More than half of the forest land in Puerto Rico serves important non-timber needs, including watershed protection, wildlife habitat, and recreation. (Birdsey and Weaver, 1982).**

About 130,000 hectares of forest land classified in 1980 as timberland occurs in rugged mountain regions with poor soils and high rainfall. In general, the commercial forestry region is located in the central highlands, exclusive of the steepest and wettest areas where forest cover protects critical watersheds (Map 12).

Current species composition of timberland reflects prior land use. Most of the common species tallied were once used for coffee shade, fruit production, or ornament. The large timber species common in the mature forest are generally absent.

According to the 1980 survey, about half of the trees tallied were classed as growing stock. Most of the stands develop with many poor quality, open growth trees. The highest timber volumes per hectare grow in deep volcanic soil. Sixty per cent of the timber volume involves only ten species. Because of poor site characteristics, timber volume is generally less than 50 cubic meters per hectare. Sawtimber volume, averaging 4 cubic meters per hectare, is less than one-tenth the timber volume.

The forests now beginning to reclaim the land are extremely valuable as vegetative cover, yet they carry low timber volumes and a rather unfavorable mix of species and quality. The merchantable sawtimber volumes per hectare are generally low. The timber volume per hectare averaged 53.1 cubic meters in abandoned coffee plantations 44.4 cubic meters in secondary forests, and 36.3 cubic meters in active coffee growing areas.

4) Commercial Prospects for Timberland

Prospects for harvesting commercial timber are generally limited by economic factors, such as volume per hectare of merchantable species, size of the forest tracts, operability, and distance to existing roads. Other factors, such as ownership patterns and attitudes, and distance to infrastructure, are also important.

Commercial prospects in the future will depend on the development of effective management strategies. Natural tropical forests, because of their complexity and diversity, are not as readily managed as forests in temperate regions.

Puerto Rico's secondary forests exhibit many characteristics which hinder forest management; such as, difficult working conditions, variety of species, diverse ecosystems and site characteristics, high percentage of poor quality trees, low stocking levels and variable stand structure. Management attempts have also been limited by funding, availability of appropriately trained personnel, and transportation facilities. Recent advances in understanding of the tropical forest ecosystem may provide a reasonably sound scientific basis for developing successful management practices in Puerto Rico and elsewhere.

5) Wood Imports

Puerto Rico's importance as an offshore market for US wood products is often overlooked. In 1981, wood product shipments from the US to PR totaled more than \$61 million. Softwood plywood and lumber, primarily pine, accounted for more than one-half of the total value. But, the US only share 40 percent of the total wood exports of Puerto Rico imports. Canada, South and Central America, and Asia are other suppliers of hardwood and softwood. (See Appendix V)

Puerto Rico's wood imports dependency may be viewed as representing a potential for the resurgence of a modest wood manufacturing industry on the island, based upon the utilization of domestic timber. As mentioned before, about a third of the land area is now forested, as of 1982. However, most desirable species are in young secondary forests, and existing sawtimber, even of generally poor quality is scattered. Opportunities for small-scale production of specialty items may exist.

6) State Forests

Forestry activities on State lands are conducted by the Department of Natural and Environmental Resources (Map 13). There are no private entities operating on State lands for the purpose of timber activity. DNER conducts demonstration projects for best management practices and research projects on silviculture in State forests. All harvesting activity in State forests are performed by personnel of the Forest Area of the DNER; a Management Plan is required for each area to be harvested. The Plan includes the objectives of the activity, description of the site, and management practices to be implemented.

The Commonwealth Forest System now contains 14 separate units of immeasurable value. These forests, comprising 55,921 acres were purchased primarily during the late 1930's and early 1940's, mainly for protection of watersheds.

The Master Plan for the Commonwealth Forest of Puerto Rico (1976) is based on a multiuse planning approach, but mainly focused on recreation. It basically identified for each forest the different opportunities that might be generated in the state forests. Silviculture is not identified as a priority in this Plan. The activities enhanced by it are: recreation, wildlife, watershed protection, education and research. This Plan is still in effect; it has not been updated.

The annual production of (sawtimber) in state forests has decreased from 1990 when 7,000 board foot were produced to only 1,700 board foot (BF) in 1993. The same trend also is observed in the amount of timber brought by farmers to DNER'S sawmill, only 375 BF were produced last year. In the poletimber sector the amount extracted is insignificant.

7) Legal framework

The policy on forestry of the Commonwealth of Puerto Rico considers forests to be unique natural resources because of their capacity to conserve and restore the ecological balance of the environment; conserve soils, water, flora and fauna; provide timber products; provide open space recreation contributing to spiritual inspiration and growth of humans; and, in addition, provide a source of rural employment. Forests, therefore, constitute an essential heritage, which must be maintained, conserved, protected, and expanded to provide for full benefits and enjoyment by this generation, as well as a legacy for future generations.

- * Forest products and benefits shall be completely and efficiently utilized.
- * Forested lands belonging to the State, in which the products, services, and uses indicated above constitute an actual or potentially high value, shall be declared and designated as State Forests, and shall be maintained in their wooded state and rationally managed to obtain an optimum sustainable yield.
- * Owners or tenants of privately owned forested lands should contribute to the maintenance and conservation of forests, avoiding their unnecessary destruction or elimination and avoiding their conversion to other, less essential uses.
- * It shall be the responsibility of the Government to develop and establish the measures necessary for conservation of forests and to stimulate private initiatives toward those ends.

The Secretary of the DNER is charged with the protection and management of Commonwealth Forests. These areas are sanctuaries for wildlife, native or migratory birds and game animals.

The forest statute provides tax incentives to promote the establishment of Auxiliary Forests on private lands. Auxiliary forest lands are exempted from property tax and the income derived from the sale of their products is exempted from income tax. In order to qualify, these lands must consist of more than 5 "cuerdas" (4.85 acres), must border lands dedicated to the production and development of forests, and the landowner must submit a forest protection and management plan to the DNER.

8) Federal Programs

The Consolidated Farm Service Agency (CFSA) [formerly Agricultural Stabilization and Conservation Service (ASCS)] administers the Forestry incentives Program (FIP) and Stewardship Incentives Program (SIP). Under FIP, ASCS provides cost-share funds to develop, manage, and protect eligible forest land, with emphasis on enhancing water quality, wildlife habitat, and recreational resources, and producing softwood timber. In order to obtain funds under these programs, a farmer must develop a management plan. The plan must be endorsed by the DNER and the NRCS (SCS).

9) Conclusion

The DNER and EQB have analyzed the impact of the forestry activity on water quality and have concluded that it does not have significant impact. Forestry activity in Puerto Rico is insignificant and no major development is foreseen in the near future.

Some of the reasons to exclude this category from the PRCNPCP are:

- * Silviculture has not been identified as a source of pollution by EQB. (305 b Reports)
 - * More than half of the forest land in PR serves important nontimber needs, including watershed protection, wildlife habitat, and recreation (Birdsey And Weaver, 1982).
 - * There is not an established timber industry. According to Wadsworth (1982), the local production is insignificant.
 - * Wood production in State forests and by private enterprises is limited, and there is not a foreseeable surge of this economic activity.
 - * According to the 1980 survey, most of the stands develop with many poor quality, open grown trees. Because of poor site characteristics, timber volume is generally less than 50 cubic meters per hectare.
 - * Commercial prospects for harvesting timber are generally limited by economic factors, such as volume per hectare of merchantable species, size of the forest tracts, operability, and distance to existing roads. (Birdsey & Weaver)
 - * State and Federal incentives programs to promote timber production require the submission to and approval by the DNER and SCS of a forest protection and management plan.
 - * Timber and forest products have never been significant factors in Puerto Rico's economy. (Puerto Rico Forest Resource Program, 1980, draft)
- b. Response to NOAA and EPA "Comments on the Puerto Rico Coastal Nonpoint Pollution Control Plan (PRCNPCP) Informal Consultation Package and Meeting of April 21-22, 1994;" Dated June 13, 1994

NOAA/EPA comments are shown boldface and double indented; Puerto Rico responses follow in normal type.

Based on the information provided, it appears that Puerto Rico may wish to exclude forestry as a nonpoint source category for the purposes of the coastal nonpoint program. As discussed at the meeting on Friday, April 22, [1994] additional information to supplement the material provided in the document will provide

NOAA and EPA with the necessary detail to fully evaluate the Commonwealth's proposal.

Puerto Rico is submitting limited additional information regarding forestry activities. Such information should suffice to confirm that Puerto Rico's timber activities are at most artisanal endeavors that cannot have any significant impact on coastal waters even if no reliable water quality data exists.

As discussed at the meeting, Puerto Rico may wish to present the forestry exclusion by providing separate sections of forestry activities occurring on private lands and activities occurring on Commonwealth lands. This should include a discussion of the policy shift which has occurred over the past several years which favors promotion of forested land for watershed protection over increased harvesting activity. A discussion of the plan to re-introduce two endangered species into the Río Abajo Forest will further support this policy shift.

There has been no policy shift over the past several years as indicated by the federal agencies, since it has always been one of the principal purposes of the State Forests Program to provide watershed protection benefits. At the April 22, 1994 meeting the federal agencies were informed that the Commonwealth has always had a multiple use policy for all its State Forests and that timber production, regardless of many efforts to stimulate its development, had never been one of the significant uses. The re-introduction of the Puerto Rican Parrot (*Amazona vittata*) and the Plain Pigeon (*Columba inornata wetmorei*) at the Río Abajo State Forest indeed affects the way the forest is managed although it does not mean that no timber is harvested. The change in management practices is directed towards creating and maintaining a habitat that facilitates the establishment of a population of the endangered species in Rio Abajo. The purpose of this action is to provide additional protection to these species from potential major natural disasters such as high intensity hurricanes.

To further justify the proposed exclusion, it would be helpful if Puerto Rico could provide additional statistics on the size and number of forestry operations. At the consultation, there was mention of only one saw mill which is currently "out of order" . It would also be helpful for Puerto Rico to include a discussion of water quality data from USGS sampling stations shown on Map 8 in relation to forested lands forestry activities.

The size of Puerto Rico's timber production activities are easy to judge from the data

included in Table 4 and Figures C-1 and C-2 , which include production statistics for both state forests and private producers processed at the DNER Forest Products Center at Rio Abajo State Forest. Note that except for external events (Hurricane Hugo in 1990 and Highway 10 construction in 1994), production statistics show that timber harvesting have been systematically decreasing from 1988 through 1994. The production levels represented by the data for the best year in the series (1988) cannot be considered to be a significant industrial operation by any standards, much less the highly depressed production levels of the last year in the series.

Puerto Rico discussed a concern regarding the continuing practice of burning and use of herbicides and pesticides as a means of site preparation in lieu of mechanical preparation. Puerto Rico should further evaluate the relative frequency and extent of such activity to ensure that these practices do not represent a significant impact to coastal waters.

There is no sufficient monitoring data available on the use of herbicides that lend itself to be used for a reasonable evaluation and analysis to determine the potential effects of herbicide application at forest plantations. The DNER does not use herbicides in its operations nor recommends such practices to others. The Director of the DNER Forest Area estimates that, perhaps about no more than 2% of the 500 "cuerdas" (0.97 acre per "cuerda") under active forest plantation activities per year in Puerto Rico may make use of herbicides in lieu of manual control of weeds. The most common herbicide use to control weeds in forest plantations is Round-up.

Based on the information provided and overflight of the island, forestry does not appear to be a significant source of nonpoint source pollution for coastal waters in Puerto Rico. Should forest harvesting activity change in the future, Puerto Rico should be prepared to address any change in such activity through the application of management measures for forestry, if warranted.

For many years, there has been public discussions and legislative proposals favoring the creation of a timber industry in Puerto Rico. Any project for the creation of such a condition must be intimately coordinated with the DNER in one way or another. The current policy is towards massive reforestation projects, a result of the realization that the sedimentation problem is rooted in soil erosion resulting from deforestation associated with all kind of development and construction projects and from agricultural activities. But more than that, On September 29, 1995, the PB held Public Hearings on the Regulation for Planting and Forestation of Puerto Rico - Planning Regulation No. 25 [See PB-A2-R18 (in Spanish) in Vol. 2], a regulation intended to be administered by the DNER. The purposes of this regulation are: 1) to promote planting and forestation in Puerto Rico; 2) to provide a harmonious environment between man and its natural surroundings; 3) to regulate the cutting

and the planting of trees [in public and private property]; and, 4) to establish and conserve green areas in lands where projects are proposed.

Notwithstanding the above, an occasional legislative project promoting "a timber industry" may come now and then in Puerto Rico, as is the case of the Joint Resolution of the House No. 183 of August 10, 1994 [(R.C. de la C. 183, in Spanish) identified as DA-A23 in Vol. 2], in which \$70,000 were assigned to the Department of Agriculture to develop a plan to establish a timber industry using abandoned lands. The expressed intent of this measure is two-fold, to promote a timber industry by promoting the development of green areas in lands that otherwise are not producing any other environmental benefits to protect water supplies and to provide other environmental benefits by controlled harvesting.

Shall there be a need to implement forestry management measures in the future, there are sufficient safeguards provided by the ERP, the WQS Regulation and the proposed Planning Regulation No. 25, among others, to assure that the 6217 or equivalent management measures are implemented.

C. Implementation of Additional Management Measures (III.D.)

1. Identification of Land Uses and Threatened and Impaired Coastal Waters (III.D.1 and III.D.2; 6217(b)(1))

a. Identification of Land Uses in the 6217 Management Area Which Individually or Cumulatively May Cause or Contribute to a Degradation of Coastal Waters

Table 5 (which is based on information included in Appendix R) summarizes water quality data contained in the 1990-91 and 1992-93 Section 305(b) assessment reports for Puerto Rico conducted by EQB (EQB, 1992; EQB, 1994). Appendix R includes several figures and tables summarizing the data from the above mentioned Section 305(b) assessment reports. As shown in Table 5, **about 87% of the estuarine waters assessed are not supporting their overall intended use and an additional 8-11% of them are threatened.** In contrast, assessment of National estuarine waters in 1990-91 [National Water Quality Inventory, 1992 Report to Congress, EPA 841-R-94-001, March 1994] indicated that only 32% were not supporting their designated uses and an additional 12% were threatened. Puerto Rico's estuarine waters are affected by both point and nonpoint sources of pollution, but, in many cases, nonpoint sources are the dominant form of pollution affecting the estuarine environment.

The assessment of Puerto Rico's coastal waters showed, **on the other hand, that 84-86% of the coastal miles appear to be fully supporting designated uses, but a significant portion of them (about 33-44%) are threatened.** Coastal waters at the National level appear to be fully supporting designated uses at about the same level (87%) as Puerto Rico, but, in contrast, only a minor fraction (7%) of them are threatened. The data in Table 5 and Appendix R furtherly indicate that fully supportive of designated uses are only about 11-16 per cent of the river miles (7-11% of these are threatened) and 30 -37% of lake areas (20-22% of these are threatened).

The detailed reporting of sources on nonpoint source contaminants affecting water bodies in the Section 305(b) assessment reports [Summarized in Tables 6 and 7], while not fully quantitative, indicate the following as the most frequent sources cited: **land disposal of wastewater (24-26%); natural sources (17-19%); urban runoff (13-15%); animal holding lots (10%); non-irrigated crop production (10-11%); landfills (7%); and irrigated crop production (3%).** These seven categories (out of 27-29 included in the two assessment years) account for 520 of the total of 595 citations during 1990-91 and 544 of the 633 citations during 1992-93, or 86-87% of all sources cited. [Similar tables for nonpoint sources affecting groundwater are included in Appendix R]

Unplanned dredging and filling activities for agricultural, residential, commercial, and industrial developments are the main causes of mangrove destruction. Of 74 listed critical coastal wildlife areas in Puerto Rico, 12 are listed as degraded by anthropogenically produced pollution (Characterization and Use Impairments of the U.S.

Virgin Islands and Puerto Rico, EPA, 1992). (Emphasis added)
[See Section II.C. and Map 11]

The nonpoint sources cited occur in all parts of the Island, and lead to a conclusion that the entire island must be included in any program to control them and improve water quality. It is not feasible nor practical to exclude the few basins that appear to evidence the fewest sources of contaminants, because it is possible that situations may change in the future, and the entire area should be kept under regulation. That will also make it more feasible to implement such a regulation, because the various regulatory agencies will not have to make a preliminary determination of whether a specific area is covered or not.

b. Identification of Threatened and Impaired Coastal Waters Using Existing Water Quality Assessments

[Refer to Sections II.C.3, C.4 and E.3; and Map 11]

Puerto Rico has 175.4 estuarine miles (estuarine area could not be determined) and 549.9 coastal miles which include the principal offshore islands of Mona, Vieques and Culebra. Estuaries and coastal waters were assessed for aquatic life support, swimming and secondary contact recreation uses. **153.3 miles (87.4%) of estuaries and 89 miles (16.2%) of coast were not meeting fully supporting uses. Wastewater land disposal, urban runoff, agriculture and natural sources were major sources which impaired the water quality of estuaries;** and industrial/municipal point sources and land disposal were major contributors to the impairment of coastal waters. (Emphasis added)

The following coastal areas experience degradation of the ecosystems and exceedances of Ambient Water Quality Criteria or fecal coliform standards.

1) San Juan Bay Estuary

On October 22, 1992, EPA designated the San Juan Bay Estuary System an estuary of national significance. The San Juan Bay Estuary System is comprised of an interconnected bay-canal-lagoon system linked to the Atlantic Ocean by the San Juan Bay, the Condado Lagoon and the Torrecilla Lagoon. The Estuary contains several natural reserves and critical habitat areas such as mangrove forests, coral reefs and seagrass beds which provide habitat for a variety of fish and wildlife.

The Estuary's health is threatened by many problems. **Among the worst problems are illegal sanitary connections to storm sewers, discharges from a power plant, storm water runoff from non-sewered communities, agriculture, industry, construction, port facilities, and a landfill site.** (Emphasis added)

The estuary contains habitats designated as critical wildlife areas and natural reserves. However, the estuary's health and ecological integrity is threatened by many problems such

as toxicant contamination and loss of habitat. **These problems impair the estuary's recreational, commercial and tourist use.** As part of an ongoing planning effort under the auspices of the National Estuary Program, a number of studies are being conducted to better understand the problems of the estuary. Among these studies is a habitat characterization which includes a wetlands and intertidal communities inventory. An inventory of these habitats will provide information on the size of these areas, location, and type of resource, which in conjunction with a trend analysis will provide the basis for effective land use decisions and recommendations. **Characterization studies planned for FY '95 include a loading study to estimate point source and nonpoint source loads to the estuary, bivalve tissue sampling, a water quality monitoring program, and an extensive water and sediment collection to support hydrodynamic and water quality mathematic models.**

2) Arecibo

Shoreline is-polluted by paper mill discharge and **siltation from the Arecibo River.**

3) Fajardo

Discharge from the Fajardo STP and **pollution of upstream rivers, Rio Fajardo, Rio Demajagua and Quebrada Aguas Claras Basins have been degrading the water body.**

4) Guánica

Sources of pollution are urban runoff, un-sewered communities, recreational activities, and pollution of Rio Loco.

5) Guayama

It has violated WQS for fecal coliforms. **No pollution source was identified.**

6) Mayagüez

It has both nonpoint source and STP pollution.

7) Ponce

Sources of pollution include STP and seafood processing industrial discharges, **Ponce dock site, and pollution in Rio Jacaguas and Rio Bucaná-Cerrillos Basins.**

8) Yabucoa

Industrial discharge is the source of pollution.

2. **Identification of Critical Coastal Areas (III.D.3;6217(b)(2))**

a. Areas in Which New or Substantially Expanding Land Uses May Cause or Contribute to the Impairment of Coastal Water Quality

[TO BE DETERMINED]

3. **Process to implement Additional Management Measures (III.D.4; 6217(b)(3))**

[The need for additional management measures, if any, will be determined after the completion of the critical areas analysis.]

a. Immediate Implementation

- 1) *Description of the process for determining where additional management measures are most likely to be needed immediately*

[This section was excerpted, highlighted and adapted from the Water Quality Summary contained in EPA'S FFY' 95 / EQB'S SFY' 95-96 WATER STRATEGIC PLAN FOR PUERTO RICO, Draft May 23, 1995; which is included in Vol. 2. Said document is based on data from the 1992-93 Section 305(b) Water Quality Report, and represents the water quality work plan for EPA, EQB and cooperating agencies such as DNER, DH and PRASA. Items deemed to be pertinent to the PRCNPCP are presented; generally unrelated items were omitted but the overall content was maintained to show the existing interrelationships between base programs and between special initiatives]

[Conclusion of the Document of Reference]

Based on the **water quality assessment and on discussions among senior managers** at EPA, EQB, DOH, DNER, and PRASA, it was concluded that the water program in Puerto Rico should focus on two major themes:

- * **Maintaining efficient and effective base programs; and**
- * **Implementing geographically targeted special initiatives to deal with the Island's most pressing problems.**

[The portions of these base programs and initiatives related to nonpoint sources and coastal waters, areas and resources constitute, in addition to the approach presented in Section IV, the PRCNPCP response for immediate action. Nonetheless, these actions are not considered to be additional actions in the context of Section 6217 Guidelines.]

More specifically, the strategic plan includes individual strategies for the following base programs and special initiatives:

Base Programs:

NPDES

- **Permitting**
- **Compliance Assurance and Enforcement**
- Pretreatment

Surface Water Quality Management

- **Water Quality Standards**
- TMDLs/WLAs/LAs
- Clean Lakes
- **Monitoring/QA**
- Laboratory

Nonpoint Source Management

Ground Water Management

SRF/Construction Grants

Wetlands

Dredged Material Management

Public Water Supply

Underground Injection Control

Special Initiatives:

Adequate Water Quantity

San Juan Bay Estuary Program (SJBEP)

Mayaguez Watershed Initiative

PRASA Surface Water Treatment Plants

Non-PRASA CPWS

Public Outreach on FY '96 Strategic Plan

a) Base Programs

(1) NPDES Base Program

Permitting

Develop and implement watershed approach to permitting/water quality certification in accordance with NPDES Watershed Strategy Implementation Action Plan (EPA/EQB)

Issue general multi-sector and individual industrial storm water discharge permits (EPA)

Develop feedlots strategy (EPA/EQB)

Compliance and Enforcement

(2) Surface Water Quality Management Base Program

Water Quality Standards

EQB should begin major WQS revision, including the following ongoing issues for submittal to EPA during the next triennial review. (EQB)

The development and adoption of water quality standards for wetlands.

Resolve issues associated with Class SC marine waters, which currently do not have designated uses and associated water quality criteria that meet the "swimmable" goal of the CWA. Develop a water use plan for the classification and supporting criteria for all waters of PR, including SC (at least 1 year) (EQB/DNER)

Monitoring/QA

Continue to review current surface water quality monitoring efforts to ensure that they efficiently and effectively support base programs and initiatives.

Update the Ambient Monitoring Strategy

- * **Update station list to include appropriate areas based upon population and use EPA/EQB discussions on need to develop a biological program strategy to consider the utility of:**

- * Wetland assessments (e.g., extent and loss of mangrove areas).

Determine and evaluate the need for:

- * Appropriate monitoring methods for ambient marine waters, shellfish waters contaminated by storm water.

(3) Wetlands Base Program

Develop and agree upon list of Federal/Commonwealth priority wetlands

- * In FY'95, use readily available information (DNER, EQB, EPA, ACE[COE], PB)
- * In FY'96 and beyond, refine the priority wetland list using Wetland Evaluation Techniques (DNER, EPA)
- * Further sort list to identify level of protection (public, private ownership, threat, etc.)

Enhance PR wetland protection programs through State Wetland Grant Program (EPA/DNER/EQB)

Develop PR Wetland Conservation Plan

- * Form wetland advisory council (DNER, EQB, Planning Board)
- * Conduct workshop to identify and prioritize major issues on wetlands (DNER)
- * Conduct WAC meetings (ongoing) (DNER)
- * Develop and implement educational strategy (WAC)
- * Identify and evaluate existing wetland protection strategies (WAC)
- * Develop and implement recommended strategies (WAC)

Develop and adopt wetlands public policy (WAC)

- * Establish a lead Commonwealth agency to regulate wetlands (DNER)

Potential for state wetland grant with EQB to develop water quality criteria standards for wetlands

Respond to all major and/or flagrant violations tailoring the response to ensure maximum environmental/ deterrence benefit for minimum expenditure of federal/commonwealth resources

- * Initiate regular consultative meetings to agree on efficient and effective division of the enforcement caseload (EPA/ACE[COE]/FWS/DNER/EQB)

(4) Dredged Material Management Base Program

Develop and implement San Juan Bay and Mayaguez Inlet site management plans (EPA)

Reach consensus with ACE [COE], EQB, DNER on sampling and testing requirements for dredged materials (EPA/ACE [COE]/EQB/DNER)

Develop appropriate evaluation criteria for dredged material (EPA/ACE [COE]/EQB/DNER/Solid Waste Management Authority)

Support development of ACE [COE] comprehensive long-term dredged material management plan (EPA/EQB/DNER)

Identify potential dredged material disposal alternative locations within PR (EPA/ACE [COE]/DNER/EQB)

(5) Nonpoint Source Management Base Program

Use available resources (e.g., CWA Section 319 Funds, CWA Section 604(b) Funds, AC&C) to support Commonwealth, municipal and local nonpoint source implementation actions.

- * EPA to provide guidance to Commonwealth on the need to update NPS Management Program in order to continue to receive funds.
- * Utilize consolidated Commonwealth work plans as basis for obtaining commitments and tracking performance.

Encourage/facilitate EQB to obtain maximum 319(h) funding

- * Negotiate with other Commonwealth, municipal, and local agencies that have Nonpoint Source responsibilities to utilize their NPS program expenditures not matched for other Federal program funds (e.g. PRDOA, PRDNER, University of Puerto Rico, etc.) as PR's required match.

Encourage/facilitate involvement of other Federal, Commonwealth, and municipal agencies in the Commonwealth Nonpoint Source Management Program.

- * Enter into a Cooperative Agreement with USDA, Natural Resources Conservation Service (formerly SCS) to assist in carrying out the Commonwealth's Nonpoint Source Management Program and by thoroughly familiarizing EQB with all of NRCS's and other Conservation Agencies Water Quality/Resources projects.

EQB to seek out local agencies and Municipalities with NPS related programs to apply for and receive Section 604(b) Pass-Through Funds (e.g. San Juan,) as required by the Clean Water Act and intended by Congress

Maintain working relationship between environmental and coastal zone management staffs on how to effectively implement CZARA Section 6217 to control Nonpoint Pollution in the coastal zone and the coastal watershed boundary in Puerto Rico.

- * Participate in CZARA Section 6217 threshold review (4/95) [not held].
- * Develop Memoranda of Understanding with/between appropriate Federal, Commonwealth, municipal, and local agencies with NPS responsibilities, to assist in effectively implementing the Coastal NPS Pollution Control Program.
- * EQB to work to insure that development of the 6217 Program is consistent with NPS Management Program and implementation activities.

Participate actively in selected Nonpoint source planning and implementation initiatives in geographically targeted areas.

- * Increase program oversight of NPS special Initiative Projects to determine progress and need for technical assistance.

b) Support for Initiatives

(1) La Plata River Watershed

Complete all necessary work on the chicken manure processing facility, obtain operating permit to initiate processing of chicken manure, thereby, reducing the amount of nutrients entering the reservoir.

EQB/EPA involved in program management plan to reduce the amount of agricultural erosion and sedimentation entering the reservoir.

(2) Lake Loíza Agricultural BMP Implementation/Water Quality Monitoring

EQB/EPA involved in program management plan for reduction of nutrients and pesticides, and sediment.

(3) Mayagüez Bay

Implement controls in the Upper Añasco River drainage area (Atalaya Mountains) of the Añasco River Watershed. This is an ongoing project.

Restock upland areas (Atalaya Mountains) with grasses, forest trees, and other adapted vegetation to reduce soil erosion and sedimentation in the Añasco River Watershed and to the Añasco River.

(c) Other Special Initiatives

(1) Adequate Water Quantity

Comprehensive Plan for the Protection, Development and Use of the Water Resources of Puerto Rico (DNER)

- * **Prepare comprehensive plan (DNER)**
- * **Prepare appropriate water quality standards (EQB)**

(2) Aggressive Nonpoint Source Control Program In Loíza/La Plata Watershed

Participate actively in the Loíza Lake Watershed USDA Hydrologic Unit Area (HUA) and the Natural Resources Conservation Service (NRCS) La Plata River PL-566 Small Watershed Protection and Prevention Project. (Interagency workgroup- USDA, EQB, DNER, PRASA, Planning Board, EPA-CFO, USFWS, etc)

(3) La Plata/Loíza Comprehensive Watershed Plan

EQB and EPA (CFO) continue involvement in development of Comprehensive Watershed Management Plan in the La Plata and Loíza Basins. Work with key stakeholders to develop integrated strategies for restoring, protecting and managing all current and future water resources in the basins with emphasis on sediment and agricultural erosion.

- * Identify key stakeholders
- * Pollutants of concern are sedimentation, nutrients, and pesticides
- * Develop watershed management plan
- * Implement watershed management plan
- * Assess effectiveness of plan

(4) La Plata River

Complete all necessary work on the poultry manure processing facility, obtain operating permit to initiate processing of poultry manure, thereby, reducing the amount of nutrients entering the reservoir.

(5) La Plata and Loíza Reservoirs

Prepare long term dredging plans that provides for timely dredging and proper disposal.

Obtain dredging and disposal permits and contracts.

(6) San Juan Bay Estuary Program

Characterization Studies

Update existing habitat reports to fill data gaps on subtidal aquatic communities, intertidal communities, and wetlands (9/95)

Conduct biological community assessment to determine aquatic species composition, relative abundance and distribution, occurrence of endangered species, and stressors to the system (9/95)

Conduct water quality and sediment sampling in priority areas where specific pollution sources have been identified (9/95)

Conduct loading study to estimate point and non-point source contaminant loads (9/96)

Conduct stock assessment of fish populations in the estuary (9/96)

Conduct survey of bivalve populations which are fished for consumption (9/96)

Conduct pathogen identification to assess the risk to human health posed by using the estuary for recreation (9/96)

Conduct field data collection program (water and sediments) to validate the hydrodynamic/water quality model (6/96)

Pre-implementation Plans

Complete sewage discharge inventory for 7 sectors south of the San Juan Lagoon and 2 sectors in Cataño (9/95)

Develop an expedited solid waste enforcement plan (9/95)

Determine which units in the Martín Peña Channel are clearly outside the floodplain and can be connected to the sewer system (9/95)

Determine which units are clearly within the floodplain (9/95)

Develop a hydrodynamic/water quality model to evaluate present and future proposals involving flow modifications (10/97)

Using the model results, identify the remaining commercial and residential units in the Martin Peña Channel floodway which must be relocated or which can be hookup to the sewer system (9/97)

Municipal Stormwater NPDES

Develop a strategy to connect those commercial and residential units in Martin Peña Channel which are clearly not in the floodplain to the PRASA system. (1995)

Require San Juan and Carolina to submit NPDES stormwater permit applications. (1996)

Eliminate illegal connections to DNER's De Diego stormwater pump station discharging into San Juan Bay (EQB, DNER)

Wetlands

San Juan Bay Estuary: DNER will complete its study of net effect of 404 permit actions on wetland acreage in San Juan, and Carolina

- * Recommendation to improve permitting process (DNER)
- * Referral of violations to enforcement interagency group (DNER)

(7) Mayagüez Watershed Initiative

Mayagüez Comprehensive Watershed Plan

Prepare Comprehensive Watershed Management Plan for the Mayagüez Watershed. The Mayagüez Watershed includes the Mayagüez Bay and 3 tributaries including the Añasco River Drainage Basins. Work with key stakeholders to develop integrated strategies for restoring, protecting and managing all current and future water resources with the basin with emphasis on biota and sediment quality and agricultural erosion.

- * Establish workgroup - EPA (NY & CFO), EQB, DNER, NRCS [SCS], PRASA
- * Workgroup to identify problems and prepare strategy to address the Watershed management plan (major tasks, funding, etc)

Major Tasks

- ** Pollutants of concern are both toxics and conventional
- ** Develop a plan to identify, reduce impacts and track recovery of distinctive habitats such as, coral reefs and seagrass beds.
- ** Develop watershed management plan
- ** Implement watershed management plan
- ** Assess effectiveness of plan

NRCS [SCS] NPS study using PRASA Supplement Environmental Project funds

Nonpoint Source Management

Implement controls in the Upper Añasco river drainage area (Atalaya Mountains) of the Añasco River Watershed. This is an ongoing project.

Restock upland areas (Atalaya Mountains) with grasses, forest trees, and other adapted vegetation to reduce soil erosion and sedimentation in the Añasco River Watershed and to the Añasco River.

(8) Public Outreach

During the period 10/1/95 to 3/31/96 EPA, EQB, DOH, DNER, and PRASA will conduct a series of public meetings throughout Puerto Rico to obtain public input on:

- * Water quality problems in Puerto Rico;
- * Water program effectiveness; and
- * Recommendations for special initiatives.

During the same period EPA, EQB, DOH, DNER, and PRASA will also conduct meetings with individual stakeholder groups to obtain their input on the same issues

Based on public input, EPA, EQB, DOH, DNER and PRASA will prepare the FY'96 strategic plan

(9) Non-PRASA CPWS Initiative

Develop pilot project to use nonpoint source control authorities to protect non-PRASA systems (EQB, DOH)

- 2) *Description of the measures that will be implemented at time of program approval in critical areas*

[TO BE DETERMINED]

- 3) *Description of measures that will be implemented at time of program approval in cases where (g) measures (or their equivalent) are already fully implemented for certain source categories or subcategories, but water quality threats or impairments persist.*

[TO BE DETERMINED]

b. Implementation Based on Performance of (g) Measures (III.D.4.2):

- 1) *Description of the process to be used by Puerto Rico for determining the need for additional management measures to meet water quality standards or designated uses even after implementation of (g) measures.*

[TO BE DETERMINED]

4. Process for the Selection of Additional Management Measures (III.d.5)

- a. Description of the process to be used by Puerto Rico for the selection of additional management measures

[TO BE DETERMINED]

D. Technical Assistance (III.E.; 6217(b)(4))

- 1. Description of Puerto Rico's Program for Providing Technical Assistance to Localities and the Public for Implementing the Additional Management Measures**

TO BE PREPARED

E. Public Participation

1. Description and Documentation of the Process and Activities Used to Ensure Full Public Participation in the Development of the Coastal Nonpoint Program.

a. Use of Public Notices and Opportunities for Comment

As early as the fall of 1993, the DNER invited Lead and Cooperating agencies to participate in a series of workshops for the initial presentation of the mandatory MM's of Section 6217. At these early workshops, participants were provided with copies of the corresponding chapter of the Guidance Document pertaining to the MM being presented at the particular workshop. Participants were also provided with copies of the Management Measure Worksheet recommended in the Program Guidance to collect the analysis of the existing programs. All the useful information received from the participants was incorporated into the Informal Review Package submitted and discussed with NOAA and EPA during April 1994.

On September 22, 1994, the DNER and EQB published a Public Notice in two major newspapers, in both Spanish and English languages [See Appendix K], informing the public, Commonwealth and Federal agencies and public corporations, the availability for public review of the Informal Consultation Package document submitted to NOAA and EPA as well as the comments received from the federal agencies, the Program Development and Approval Guidance, Section 6217(g) Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, and other related documentation. These documents were made available for public review at the Library of the Coastal Management Program of the DNER, and at the EQB Library.

To facilitate public dissemination of the relevant information pertaining to the Section 6217 Program and to promote public participation in its development and implementation, the Policy Agreement section (Section 2) of the Informal Review document submitted to the federal agencies was prepared in both English and Spanish. In said Section 2, the Policy Agreement entered between the DNER and EQB and the approach proposed to be followed for the development and implementation of the PRCNPCP with the assistance of the PB, RPA, DA and other Commonwealth and Federal agencies were presented. Both versions were available for free public distribution [See Appendix L], provided that the requestor gave his/her name and postal address, for record purposes and for future distribution of CNPCP materials.

The general public was invited to actively participate in this process: (1) by learning about the plans of the Commonwealth agencies; (2) learning about the requirements of the federal guidelines on the Section 6217 Program; and (3) taking advantage of every opportunity to contribute to the development and implementation of the PRCNPCP. Despite these effort response to the Public Notice was essentially none. The announcement of the availability of documents related to the development and

implementation of the PRCNPCP, was part of efforts made and that will continue to be devoted to effectively involve the public in the development and implementation process of the program.

Subsequent to the Public Notice of September 22, 1994, on December 16, 1994, the DNER submitted to the Lead and Cooperating Agencies and to selected professional and public interest groups [See Appendix M] a preliminary draft of the Executive Order proposed to implement the CNPCP. In addition to requesting the official position to the Lead Agencies and comments from Cooperating Agencies and interest groups, the latter notice also invited public participants to engage in a series of workshops to discuss the approach to be followed in the implementation of the CNPCP and the mandatory management measures. Four (4) full day workshops were held at the DNER with a significant participation of personnel from Lead and Cooperating Agencies. Agencies comments were answered in writing [See Appendix N] and, where appropriate, such comments are already incorporated into the proposed Executive Order included in Appendix B.

b. Nomination Procedures, Public Hearings

The present document being submitted to NOAA for conditional approval, shall be the subject of public hearings after initial review by Lead and Cooperating Agencies. Upon submission of oral and written comments at the Public Hearings the same shall be addressed, summarized and submitted to NOAA and EPA to complete Section 6217 public participation requirements. Such responses to public comments are to be addressed and prepared by the Lead Agencies.

To assure proper interagency coordination the proposed Executive Order set forth the following:

"The Secretary of the Department of Natural and Environmental Resources shall activate the Water Resources Committee, created by Article 6 of the Act for the Conservation, Development and Use of the Water Resources of Puerto Rico, increasing its membership with representatives of those Lead Agencies that are not already its members, and of those Cooperating Agencies that he deems necessary; and he shall use it as a formal interagency mechanism to evaluate the achievements and determine the obstacles to the implementation phase of the Plan, calibrate its economic impact on the regulated community and to make recommendations for subsequent actions, including additional management measures, if deemed necessary. The Secretary shall determine, in consultation with the other Lead Agencies, the initiation and frequency of the meetings and their objectives. The Committee shall prepare and submit to the Governor's Office, through the Secretary, Achievement Reports, with their corresponding recommendations for action, at three (3) and five (5) years from the approval

of this order." (Emphasis in original)

The reactivation of the Water Resources Committee (WRC) by the Secretary of the DNER, and the designation of the Nonpoint Source Control Subcommittee (NSCS) of the WRC, as indicated earlier, provides an excellent opportunity and a convenient vehicle for the necessary interagency coordination with the support of the CMO and the WQA, CEST Plan Program and SAO of EQB.

c. Technical and Financial Assistance

[TO BE PREPARED]

d. Public Education

The following activities are contemplated as part of the Education Program of the PRCNPP. Some of these activities are currently carried out by EQB as part of its PRNSMP.

1) Agriculture

Goal:

: Reduce significant nonpoint source pollution to water bodies originating from confined animal operations, earth movement activities and pesticide and fertilizer application associated to agricultural practices.

Objectives:

1. Alert farmers and agricultural entities about the need to implement best management practices and techniques recommended by the agricultural agencies for soil conservation and protection of water bodies from unnecessary discharges of sediments, oxygen consuming substances, pesticides and nutrients from the regulated agricultural operations.

2. Alert farmers about technical and economic assistance available from the agricultural sector agencies to implement best management practices and the implications of their failure to comply with the implementation of soil conservation plans, pesticide management plans, fertilizer management plans and animal fecal waste control systems, when they are applicable to their operations.

Activities:

Farmers:

1. Coordinate with agronomists and other technical personnel of the Department of Agriculture (DA), Natural Resources Conservation Service (NRCS), Agricultural Extension Service (AExtS) of the University of Puerto Rico (UPR) and other agriculture sector agencies to offer seminars about best management practices applicable to soil conservation, pesticide handling and application, fertilizer management and confined animal fecal waste management and disposal. Seminars will be organized and presented by hydrologic basin in coordination with the Nonpoint Sources Section of the Water Quality Area (WQA) of the Environmental Quality Board (EQB).
2. Publish handout materials summarizing the principal provisions of the PRCNPCP and PRNSMP related to agricultural activities, including information as to where to go to obtain technical assistance and other kind of support. This material to be distributed cost free, through the Soil Conservation District Offices.

Communities:

1. Distribute educational material and demonstrate techniques during Agricultural Fairs and Exhibitions.
2. Seek commercial firms as sponsors and develop and place educational "spots" about best management practices for the protection of water bodies in the radio and during agricultural activities.
3. Publish articles and special supplements in the principal newspapers, regarding the contribution of agricultural nonpoint sources to surface water quality problems and measures being implemented to curb that contribution.

Local Agencies:

1. Conduct interagency meetings and workshops to discuss the most recent developments of the program, including regulatory, monitoring and economic incentives aspects, at the Puerto Rico and federal levels.
2. Conduct interagency meetings with technical personnel of the Lead and Cooperating Agencies to continue working on unresolved issues, stressing cooperative efforts to maximize the use of the available resources.
3. Coordinate joint monitoring inspections to problem areas to have a common base from which to establish an interagency work plan and avoid duplication of efforts.

4. Examine the opportunity to establish a joint permit application system to streamline and develop the corresponding permit application form and an information package.

2) Urban Areas

Urban Runoff:

1. Develop training and education programs and materials for public officials, contractors, and others involved with the design, installation, operation, inspection, and maintenance of urban runoff facilities.

2. Educate the public about the importance of providing proper maintenance to runoff management facilities.

Construction:

1. Educate construction workers about the proper handling of hazardous materials and spill response procedures. Distribute or post informational material regarding chemical control.

2. Develop a training program for engineers and architects that conduct inspections for construction activities under the Certification of Plans Act as to clarify their roles and responsibilities in terms of assuring that best management practices included in CES[T] Plans/ Permits and NPDES Storm water Pollution Prevention Plans (SWPPPs) are properly implemented in the construction projects subject of their inspections and certifications.

Pollution Prevention:

1. Promote public education activities regarding the proper use and disposal of household hazardous materials and chemicals; as well as recycling or reclamation activities for do-it-yourselfers (DIY) used oil through the existing programs of the Solid Waste Authority.

2. Promote programs such as Adopt-a-Stream to assist in keeping waterways free of litter and other debris.

3. Promote proper operation and maintenance of septic tank systems and other onsite disposal systems (OSDS) through public education and outreach programs.

Roads, Highways and Bridges
Operation and Maintenance:

1. Coordinate with the Highway and Transportation Authority (HTA) and the Department of Transportation and Public Works (DTPW) to develop education programs for the personnel of the two agencies and of municipalities to promote the use of pertinent practices listed in the Technical Manual.

3) Marinas

Activities:

1. Develop educational material to be included in the mandatory education program for boat operator license applicants and use the list licensees and/or of boat owners kept by the Office of the Commissioner of Navigation (OCN) and send educational material by mail using "nonprofit" rates.

Resources: DNER personnel

- a) Marine Education
- b) CMO
- c) Education and Publications Office

2. Establish a cooperative approach with marina owners and operators to offer periodic educational talks and seminars about the use and disposal of paints, oils and any other hazardous or toxic material used for boat maintenance purposes; and about proper maintenance of any installed control measure..

3. Offer, periodic short courses to the owners and operators of marinas about Puerto Rico and federal regulations for the control of wastewater and solids waste disposal in these areas.

Resources: Technical personnel of EQB and DNER

4. Coordinate with the Education and Publications Office the editing and publication of informative booklets (pamphlets) with subjects addressed to reduce the pollution in the maintenance areas of marinas. Materials may be distributed by mail to the boat owners using the list submitted by the Commissioner and/or during exhibitions carry out by Regional Educators and the Education Office.

5. Promote programs about signage, recycling/trash reduction programs, pamphlets or flyers, newsletters and inserts of billings, and offers meetings and presentations.

6. Establish contact with marinas equipment and materials suppliers to know more about environment friendly products and their disposal. Embark their cooperation and support to educate their clients and products users about this information. Keep an updated list of these suppliers and their products. Invite them, periodically, through newspaper announcements to educational talks and seminars.

Resources: Technical personnel of CMO, OCN and EQB

Fishermen:

1. Keep an updated list of fishermen associations and coordinate the distribution of educational material.

Resources: Personnel of DNER/CMO, Marine Education of DNER

2. Design/distribute brochures about hazardous household products pollutants (paints, oils, etc.) and the correct way of disposal.

Resources: Personnel of DNER/SWA, Education and Publications Office

3. Train the Regional Environmental Educators and Ranger Corps Educators, to design educational talks, supported by documentary films, about the importance of identifying possible pollutants used for boat maintenance and their proper disposal. The talks can be offered at community/recreational centers of coastal municipalities sponsored by different fishermen associations.

4. Educate boaters regarding the importance of proper fish-cleaning waste disposal practices.

4) Hydromodifications

Goal:

Reduce significantly the pollution and sedimentation of the water bodies, through the development of technical strategies that control the implementation of different types of hydromodifications.

Activities:

Designers and Contractors:

1. Develop and conduct workshops directed to design and construction firms that participate in hydromodification projects, including DNER Flood Control Program

Participating Agencies:

1. Give refreshing training to the technicians in charge of evaluation and inspections of constructions events through interagencies workshops about uniform regulatory measures. These workshops should be periodically with real situation practice.

2. Establish communication with university entities and the College of Engineers and Surveyors to design a continuing education curriculum addressed to engineers and technicians of agencies related to case evaluation. It should include innovating techniques to avoid damage to water bodies from erosion and sedimentation.

5) Other

1. Prepare a publication about where to find NPS information in Puerto Rico organized by MM's, by Agency and by other nonpoint source topics.

2. Make sure that every publication and material prepared for distribution, particularly those for technical personnel contains information about the availability of EPA's Nonpoint Source Electronic Bulletin Board System and related accessing information; and about periodicals such as Nonpoint Source News--Notes and Watershed Events.

e. Milestones for Public Involvement Throughout the Program

EQB and DNER expect that comments from NOAA, EPA and Lead and Cooperating Agencies will be available not earlier than around late January 1996. Providing one and a half to two additional months for document revision after receiving comments, and one month for document reproduction, a Public Notice announcing the availability of the document for public review and comments may be expected to occur at or around May 1, 1996. On that assumption, Public Hearings may be held around mid to late June 1996. Depending on the nature and magnitude of the comments received, response to comments may be expected to be ready by Oct 1, 1996.

f. Funding the Public Involvement and Education Program

It is clear at this stage that any significant allocation of funds for the public involvement and education program will have to come from either DNER CZM funds or EQB's Section 319(h) funds. Very little if any funds can be expected from Commonwealth sources.

g. Evaluation of the effectiveness of the public participation programs.

[TO BE PREPARED]

F. Administrative Coordination [III.A., III.G; 6217(b)(6)]

AGENCY ROLES AND RESPONSIBILITIES

1. The Environmental Quality Board

a. Principal Enforceable Authorities and Programs

1) Environmental Review Process (ERP)

EQB will assure that private and public proponents of development and other type of projects and activities and the intervening Lead Agencies give due consideration to all management measures that fall within the Agency's purview, as shown in Table 4. This will be principally accomplished by means of the Environmental Review Process (ERP) [See Appendix H] instituted in the Environmental Public Policy for Puerto Rico, as established in the Environmental Public Policy Act, Act No. 9 of June 18, 1970, as amended [See EQB-A1 in Vol. 2] and implemented through the Regulation for Environmental Impact Statements of Puerto Rico [See EQB-A1-R4 in Vol. 2].

2) Water Quality Standards Regulation (WQSR) Puerto Rico Nonpoint Source Program and Other Authorities

EQB will also use its authority under the Puerto Rico Water Quality Standards Regulation (WQSR) [See EQB-A1-R1 in Vol. 2]; through the Nonpoint Source Management Program for Puerto Rico [See EQB-A1-PP1 in Vol. 2], established also under Section 319 of the CWA; the Underground Injection Control Regulation (UIC) [See EQB-A1-R3 in Vol. 2], established also under Part C of the Safe Water Drinking Act (SDWA), as amended, (42 U.S.C. 300 *et seq.*); the Non-hazardous Solid Waste Management Regulation [See EQB-A1-R5A]; the Procedure for the Certification of Discharges into Bodies of Water (Water Quality Certification (WQC) Procedure) [See EQB-A1-AO4 in Vol. 2]; the Certification of Plans Acts [See EQB-A3 in Vol. 2] and its Regulation for Certification of Plans and Documents Before the Environmental Quality Board [See EQB-A3-R1]; the Rules of Administrative Procedures for Hearings at the Environmental Quality Board [See EQB-A1-R7 in Vol. 2]; and all other applicable environmental control laws, regulations, policies, resolutions, interagency agreements and instruments currently available to the Agency or proposed to be implemented [See Appendix E-2] for carrying out its mission under the Environmental Public Policy Act.

As the designated local Agency for administering the Section 319 Puerto Rico State Nonpoint Source Program (PRNSMP), EQB, in coordination with the DNER and other Lead Agencies, will provide the necessary leadership for continuing subsequent PRCNCP and PRNSMP development and implementation actions, including, but not limited to: 1) integrating the PRCNCP into the PRNSMP, so as to have a single integrated

and coherent NPS program, as to make the PRCNCP eligible for Section 319(h) grant funding; and, 2) identifying appropriate programmatic and financial strategies and systems to assure that the essential components of these NPS programs are adequately staffed and funded to achieve their objectives.

Through its Puerto Rico Nonpoint Source Program (PRNSMP; under CWA Section 319), with the indicated support and assistance of EPA, EQB will do the following:

EPA will use available resources (e.g., CWA Section 319 Funds, CWA Section 604(b) Funds, Abatement Compliance and Control [AC&C]) to support Commonwealth, municipal and local nonpoint source implementation actions.

- * To provide guidance to Commonwealth on the need to update NPS Management Program in order to continue to receive funds.
- * To utilize consolidated Commonwealth work plans as basis for obtaining commitments and tracking performance.

EPA to encourage/facilitate EQB to obtain maximum 319(h) funding

- * Negotiate with other Commonwealth, municipal, and local agencies that have Nonpoint Source responsibilities to utilize their NPS program expenditures not matched for other Federal program funds (e.g. DA, DNER, UPR, etc.) as PR's required match.

EPA will encourage/facilitate involvement of other Federal, Commonwealth, and municipal agencies in the Commonwealth Nonpoint Source Management Program.

- * Enter into a Cooperative Agreement with USDA, Natural Resources Conservation Service (formerly SCS) to assist in carrying out the Commonwealth's Nonpoint Source Management Program and by thoroughly familiarizing EQB and other agencies with all of NRCS's and other Conservation Agencies Water Quality/Resources projects.

EQB to seek out local agencies and Municipalities with NPS related programs to apply for and receive Section 604(b) Pass-Through Fund, as required by the Clean Water Act and intended by Congress

Maintain working relationship between environmental and coastal zone management staffs on how to effectively implement CZARA Section 6217 to control Nonpoint Pollution in the coastal zone and the coastal watershed boundary in Puerto Rico.

- * Develop Memoranda of Understanding with/between appropriate Federal, Commonwealth, municipal, and local agencies with NPS responsibilities, to assist

in effectively implementing the Coastal NPS Pollution Control Program.

- * EQB to work to insure that development of the 6217 Program is consistent with NPS Management Program and implementation activities.

Participate actively in selected Nonpoint source planning and implementation initiatives in geographically targeted areas.

- * Increase program oversight of NPS special Initiative Projects to determine progress and need for technical assistance.

There are two urgent actions that EQB must carry out for the most efficient implementation of both the PRNSMP and the PRCNPCP. These are to carry through final agency approval, including Public Hearings where necessary, the following regulations:

- * **the Control of Erosion and Sedimentation Regulation and its Technical Manual; and**
- * **the Animal Fecal Waste Control System Regulation and its Technical Guidelines Manual.**

b. Consideration of the Management Measures

Due consideration of the management measures from the ERP point of view **at the EQB level requires** the Agency to assure that ERP documents adequately recognize, identify and properly address the conditions that trigger the application of the management measures, and that they identify those practices that will be used by the proponents to assure the management measures objectives. As private development projects and public improvement works generally entail subsequent or sequential permitting actions by the PB, RPA, EQB itself and others, EQB's ERP responsibility will be deemed to be complete once the Agency has assured that the appropriate ERP document properly addresses the applicable management measures and specifies the required subsequent actions in the Article 4© Compliance Certification (ERP Certification). However, if the proponent fails to comply with the terms of any subsequent permit related to management practices, mitigation measures or other actions documented through the ERP, for which enforcement action is contemplated or required, EQB may intervene, if necessary.

In the case of marinas, hydromodifications or any other type of project affecting wetlands and or navigable waters, EQB will include a **standard or special condition** in its ERP Certification requiring the proponent to submit to the COE the corresponding application for a Construction Permit under Section 404 of the CWA or Section 10 of the RHA, as may be applicable, concurrently with its application to RPA for any subsequent Construction Permit phase.

c. Interagency Coordination

Through the use of the previously stated authorities and the interagency agreements contained in Appendix S, EQB will also, in coordination with other Lead Agencies, and Cooperating Agencies that may be concerned, **develop whatever additional programs [See Table 4; Implementation - PP] or additional structures that may be necessary to assure the implementation of those management measures that so require**, including participating in educational programs and reviewing its regulations and other policy documents to incorporate mechanisms to assure the implementation of said management measures. Such coordination to be achieved through the **designation and consequent participation of at least two (2) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC) designated by the Secretary of the DNER.**

Among the immediate actions that EQB will consider together with RPA, DNER and the other three agencies (PREPA, PRASA, and DTPW) that issue permits under the mandates of the Certification of Plans Act [See EQB-A3 in Vol. 2] is the clarification of duties of licensed engineers and architects that serve as project inspectors for Construction Permits and/or CES[T] Plans/Permits and/or other permits issued by these agencies. EQB and the other agencies will jointly consider whether licensed engineers and architects serving as project inspectors under the Certification of Plans Act should be required to take a 4-8 hour course related to their responsibilities about the standard and special conditions for the control of nonpoint source pollution and other aspects of the inspection certification process. EQB and the other agencies shall decide the content of the course, the frequency of its offerings, and the participation of professional associations in its development and institutionalization.

2. **The Planning Board (RPA)**

a. Principal Enforceable Authorities and Programs

- 1) Objectives and Public Policies of the Land Use Plan for Puerto Rico, Zoning Regulations and Federal Consistency Certification

The PB will assure that private and public proponents of development projects give due consideration to all management measures that fall within the Agency's purview, as indicated in Table 4. This will be accomplished by means of its declared *Objectives and Public Policies of the Land Use Plan for Puerto Rico* [See Appendix K-1 and K-2; and PB-A2-PP1 in Vol. 2] as implemented through its "Siting Permit" ("Consulta de Ubicación**") or **Special Consultation ("Consulta Especial")** procedures provided by the **Zoning Regulation -Planning Regulation No. 4** [See PB-A2-R10 in Vol. 2], the **Regulation for Adjudicative Procedures of the Planning Board** [See PB-A2-R17 in Vol. 2], and the **Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto****

Rico [See PB-A2-R6 in Vol. 2]; the Federal Consistency Certification Process, as contained in the Handbook of Federal Consistency with the Puerto Rico Coastal Management Program [See PB-A2-HB in Vol. 2]; and all other applicable laws, zoning and planning regulations, policies, interagency agreements and instruments available to the Agency [See Appendix E-3] in carrying out its mission under its Organic Act [See PB-A2 in Vol 2]; while simultaneously complying with the ERP requirements of the EQB.

b. Consideration of the Management Measures

Due consideration of the management measures at the PB's Siting Permit and simultaneous ERP analysis level **requires** recognizing, identifying and addressing in ERP and/or Permit documents the conditions that trigger the application of the management measures, and identifying those practices that will be used by the proponents to assure the objectives of the management measures. To assure that the management measures objectives are achieved, the PB will include in ERP documents (only when it is the proponent agency for ERP purposes), and in its resolution approving the Siting Permit and other applicable documents, whatever **standard (CES[T] Plan or Permit) or special permit conditions** are necessary to clearly indicate the management measures that must be satisfied by the proponent, as determined by the proponent agency, by itself and/or upon the recommendations by commenting or endorsing agencies. As private development projects and public improvement works generally entail subsequent or sequential permitting actions by RPA, and sometimes by others, the PB's responsibility will be deemed to be complete once the previous action is carried out. Nonetheless, if the proponent fails to comply with the terms or conditions of the Siting Permit or any subsequent RPA permit related to management practices, mitigation measures or other requirements for which enforcement action is contemplated or required, the PB may intervene, by itself or in a joint action with RPA and EQB, as may be necessary.

In the case of Siting Permits or Special Consultations for marinas, hydromodifications or any other type of project affecting wetlands and/or navigable waters, the PB will include a **standard or special condition** in its Resolution approving the Siting Permit requiring the proponent to submit to the COE the corresponding application for a Construction Permit under Section 404 of the CWA or Section 10 of the RHA, as may be applicable, concurrently with its application to RPA for any subsequent Construction Permit phase.

c. Interagency Coordination

Through the use of the previously stated authorities and the interagency agreements contained in Appendix S, the PB will also , in coordination with the Lead Agencies, and Cooperating Agencies that may be concerned, **develop whatever additional programs** [See Table 4; Implementation - PP] or additional structures that may be necessary to assure the implementation of those management measures that so require, including participating in educational programs and reviewing its regulations and other policy

documents to incorporate mechanisms to assure the implementation of said management measures. Such coordination to be achieved through the **designation and consequent participation of one (1) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC)** designated by the Secretary of the DNER.

3. **The Regulations and Permits Administration (RPA)**

a. Principal Enforceable Authorities and Programs

- 1) PB's Zoning Regulations, the Subdivision and Urbanization Regulation, the Regulation for the Certification of Construction Projects and the Building Regulation

The RPA will assure that private and public proponents of development projects give due consideration to all management measures that fall within the Agency's purview, as indicated in Table 4. RPA, as an agency ascribed to the PB, will exercise its responsibilities under all applicable regulations and policy documents, previously cited for the PB [See Appendix E-3], and other expressed delegations of said agency, in particular but not limited to, the **Subdivision and Urbanization Regulation - Planning Regulation No. 3 [See PB-A2-R13 in Vol. 2], the Zoning Regulation -Planning Regulation No. 4; the Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto Rico; and RPA's Regulation for the Certification of Construction Projects - Planning Regulation No. 12 [See RPA-A1-R2], the Building Regulation - Planning Regulation No. 7 [See RPA-A1-R1], the Regulation of Adjudicative Procedures of the Regulation and Permits Administration; and all other laws, zoning and planning regulations, policies, interagency agreements and any other instruments available to the Agency [See Appendix E-4] in carrying out its mission under its Organic Act [See RPA-A1 in Vol 2]; while simultaneously complying with the ERP requirements of EQB.**

b. Consideration of the Management Measures

Due consideration of the management measures at the RPA's Subdivision, Urbanization, Construction Permit, and simultaneous ERP analysis level, requires recognizing, identifying and addressing in ERP and/or Permit documents the conditions that trigger the application of the management measures, and identifying those practices that will be used by the proponents to assure the objectives of the management measures, whether the proposed project requires a previous Siting Permit or Special Consultation or not. To assure that the management measures objectives are achieved, RPA will include in ERP documents (only when it is the proponent agency for ERP purposes) and in permit documents whatever **standard (CES[T] Plan or Permit) or special permit conditions are necessary to clearly indicate the management practices that must be implemented by the proponent, as determined by the proponent agency, by itself and/or upon the recommendations by commenting or endorsing agencies. RPA will**

not issue an Earth Movement or Construction Permit unless the proponent demonstrates that a CES[T] Plan or Permit application has been filed at EQB; and the standard condition will indicate that "no earth movement or construction activity to that effect can be initiated until the CES[T] Plan or Permit has been authorized by EQB."

In the case of Construction Permits for marinas, hydromodifications or any other type of project affecting wetlands and/or navigable waters, RPA will assure that, prior to issuing any Earth Movement phase or other Construction Permit phase authorization that allows initiation of earth movement activities, that the proponent has filed to the COE the corresponding application for a Construction Permit under Section 404 of the CWA or Section 10 of the RHA, as may be applicable, for any subsequent Construction Permit phase. Such assurance may only require that the proponent shows the evidence concurrently with its application to RPA. In addition, RPA will place a standard or special condition in its Construction Permit document that will indicate that "no earth movement or construction activity affecting wetlands and/or navigable waters can be initiated until the corresponding COE Construction Permit has been authorized or a Certification has been issued that such permit is not required."

c. Interagency Coordination

Through the use of the previously stated authorities and the interagency agreements contained in Appendix S, the RPA will also , in coordination with the Lead Agencies, and Cooperating Agencies that may be concerned, **develop whatever additional programs [See Table 4; Implementation - PP] or additional structures that may be necessary to assure the implementation of those management measures that so require**, including participating in educational programs and reviewing its regulations and other policy documents to incorporate the mechanisms to assure the implementation. Such coordination to be achieved through the **designation and consequent participation of one (1) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC)** designated by the Secretary of the DNER.

Among the immediate actions that RPA will consider together with EQB, DNER and the other three agencies (PREPA, PRASA, and DTPW) that issue permits under the mandates of the Certification of Plans Act [See EQB-A3 in Vol. 2] is the clarification of duties of licensed engineers and architects that serve as project inspectors for Construction Permits and/or CES[T] Plans/Permits and/or other permits issued by these agencies. RPA and the other agencies will jointly consider whether licensed engineers and architects serving as project inspectors under the Certification of Plans Act should be required to take a 4-8 hour course related to their responsibilities about the standard and special conditions for the control of nonpoint source pollution and other aspects of the inspection certification process. RPA and the other agencies shall decide the content of the course, the frequency of its offerings, and the participation of professional associations in its development and institutionalization.

4. The Department of Natural Resources

a. Principal Enforceable Authorities and Programs

- 1) The Maritime Terrestrial Zone Regulation, the Materials of the Earth Crust Extraction Regulation, the Water Resources Committee, the Coastal Zone Management Plan and the Consultation and Endorsement Program

The DNER will assure that private and public proponents of development projects give due consideration to all management measures that fall within the Agency's purview, as indicated in Table 4. This will be accomplished by means of its evaluation processes for Concessions, Franchises, Licenses, Permits, Endorsements, Consultations and other authorizations issued under: the Regulation for the Use, Surveillance, Conservation and Management of the Territorial Waters, Submerged Lands Thereunder and the Maritime Zone (Maritime Zone Regulation or MTZ) [See DNER-A11-R1 in Vol. 2]; the Bylaws to Regulate the Extraction of Materials from the Earth Crust [See DNER-A9-R1 in Vol. 2], as it relates to both Formal and Incidental Permits; the Regulation for the Appropriation, Use Conservation and Administration of the Water Resources of Puerto Rico, and the Water Resources Committee provided for by the Act for the Conservation, Development, and Use of the Water Resources of Puerto Rico [See DNER-A16-R1 and DNER-A16 in Vol. 2]; the Act for the Protection and Preservation of Caves, Caverns or Sinkholes of Puerto Rico; the Regulation for Governing Adjudicative Procedures and Administrative Fines [See DNER-A25-R1]; the Regulation of Terms for the Permits, Franchises, Endorsements, and Similar Authorization Procedures [See DNER-A25-R2 in Vol. 2]; including its inherent authority under the federal Fish and Wildlife Coordination Act (FWCA), as the agency exercising authority over the wildlife resources of Puerto Rico; its role as the agency responsible for the implementation of the Puerto Rico Coastal Management Plan (PRCMP); and all other applicable laws and regulations, policies, interagency agreements and instruments available to the Agency [See Appendix E-1] in carrying out its mission under its Organic Act [See DNER-A11 in Vol 2]; while simultaneously complying with the ERP requirements of the EQB in those actions where it is the responsible agency .

b. Consideration of the Management Measures

Due consideration of the management measures from the ERP point of view at the DNER level requires the Agency to assure that its own ERP documents, as well as those referred to the agency for comments or endorsement by other agencies, adequately recognize, identify and properly address the conditions that trigger the application of the management measures, and that these documents identify those practices that will be used by the proponents to assure the management measures objectives. The DNER will exercise special care when private development projects and public improvement works coming to its attention have not initiated the sequential permitting actions of the PB, RPA, and others, and will advise proponents of the need to initiate those procedures prior to

taking definitive action on such proposals. DNER's ERP responsibility will be deemed to be complete once the Agency has assured that the ERP documents it has prepared and those submitted for its comments or endorsements properly address the applicable management measures. However, if the proponent fails to comply with the terms of any subsequent permit related to management practices, mitigation measures or other actions for which enforcement action is contemplated or required and where the DNER has jurisdiction, it may intervene, if necessary.

In the case of marinas, hydromodifications or any other type of project affecting wetlands, water bodies, navigable waters and/or the MTZ, for which a Construction Permit under Section 404 of the CWA or Section 10 of the RHA, as may be applicable, is likely to be required, the DNER will include a **standard or special condition** in its response to consultations or endorsement requests. Such condition will alert the proponent and intervening agencies about the need to submit to the COE the corresponding permit application concurrently with its application to RPA for any subsequent Construction Permit phase, if applicable. In the case of formal permits, concessions and other binding authorizations issued by the DNER, the Agency will assure that all other applicable Commonwealth permits and federal authorizations have been **obtained or applied for** by the proponent prior to or concurrently with its application to the DNER.

The DNER will also make use of its authority under the MTZ Regulation, the **Public Beaches and Safety Act** [See DNER-A21 in Vol. 2] and the **Regulation Regarding the Registration of Motorboats and General Safety Rules** [See DNER-A21-R1 in Vol. 2] to establish **standard or special conditions** in concessions and other MTZ permits or authorizations issued to marina owners and/or operators to assure that the management measures related to marina and boat operation and maintenance are achieved. To assure the maximum efficiency and effectiveness of these conditions the DNER will coordinate with other permitting agencies (PB, RPA, EQB, COE, PRASA, PREPA, DTPW, as applicable) to assure that DNER established conditions are also made part of other agency permit documents. The DNER will also develop a relevant education program to be incorporated into the mandatory training courses taken by all new aspirants to boating licenses, and educational materials for marina owners, operators and patrons.

c. Interagency Coordination

Through the use of the previously stated authorities and those contained in the interagency agreements of Appendix S, the DNER will also, in coordination with other Lead Agencies, and Cooperating Agencies that may be concerned, **develop whatever additional programs** [See Table 4; Implementation - PP] **or additional structures that may be necessary to assure the implementation of those management measures that so require**, including participating in educational programs and reviewing its regulations and other policy documents to incorporate mechanisms to assure the implementation of said management measures. Such coordination to be achieved through the **designation and consequent participation of at least two (2) permanent and one (1) alternate official**

to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC) designated by the Secretary of the DNER.

As the designated local Agency for administering the Section 6217 PRCNPCP, together with EQB, as the designated agency for the administration of the Puerto Rico Nonpoint Source Program (PRNSMP), and as Lead Agency for the implementation of the PRCMP together with the PB, and in coordination with other Leading Agencies, the DNER will provide the necessary leadership for continuing subsequent PRCNPCP and PRNSMP development and implementation actions, including, but not limited to: 1) integrating the PRCNPCP into the PRNSMP, so as to have a single integrated and coherent NPS program, as to make the PRCNPCP eligible for Section 319(h) grant funding; and, 2) identifying appropriate programmatic and financial strategies and systems to assure that the essential components of such NPS programs are adequately staffed and funded to achieve their objectives.

Among the immediate actions that the DNER will consider together with EQB, RPA and the other three agencies (PREPA, PRASA, and DTPW) that issue permits under the mandates of the Certification of Plans Act [See EQB-A3 in Vol. 2] is the clarification of duties of licensed engineers and architects that serve as project inspectors for Construction Permits and/or CES[T] Plans/Permits and/or other permits issued by these agencies. The DNER and the other agencies will jointly consider whether licensed engineers and architects serving as project inspectors under the Certification of Plans Act should be required to take a 4-8 hour course related to their responsibilities about the standard and special conditions for the control of nonpoint source pollution and other aspects of the inspection certification process. The DNER and the other agencies shall decide the content of the course, the frequency of its offerings, and the participation of professional associations in its development and institutionalization.

5. The Department of Agriculture

a. Principal Enforceable Authorities and Programs

- 1) Organic Act of the Department of Agriculture, the Act of the Soil Conservation Districts, the Pesticides Act of Puerto Rico and the Fertilizer Act of Puerto Rico

The DA, by itself or in conjunction with its affiliated units and other government agencies and institutions of the agricultural sector, will use its authority to formulate and implement the public policy and general directives related to the agricultural development of Puerto Rico to satisfy, to the maximum extent that is possible, the management measures applicable to agricultural activities, in carrying out its mission as provided under the **Organic Act of the Department of Agriculture [See DA-A2 in Vol. 2]; the **Act of the Soil Conservation Districts** [See DA-A3 in Vol. 2]; the **Pesticides Act****

of Puerto Rico [See DA-A6 in Vol. 2]; the Fertilizer Act of Puerto Rico [See DA-A13 in Vol. 2] and **all other applicable laws and regulations, policies, interagency agreements and instruments** available to the Agency [See Appendix E-5]; **while simultaneously complying with the ERP requirements of the EQB in those actions where it is [they are] the responsible agency[ies]** .

b. Consideration of the Management Measures

The DA, its affiliated units and government agencies and institutions of the agricultural sector will, during their processes to evaluate and grant any authorization or concession for, among others:

- 1) the supply and/or application of pesticides;
- 2) the supply and/or application of fertilizers, and any other soil additive;
- 3) the provision of machinery for clearing and/or earth movement and site preparation;
- 4) the confinement of farm animals;
- 5) the lease of lands for any activity to which the mandatory management measures are applicable; and,
- 6) the granting of property tax exemption benefits to lands under intensive agricultural use;

will assure that proponents of agricultural activities that are subject to the management measures applicable to the agriculture nonpoint source category, whether these activities are development projects or not, **receive adequate technical assistance prior to, and demonstrate compliance with said mandatory management measures** during the effective life of any authorization or concession of financial aid, incentives, subsidy or any other aid which allows or facilitates earth movement or the discharge of pollutants from such agricultural nonpoint sources.

c. Interagency Coordination

Through the use of the previously stated authorities and those contained in the interagency agreements of Appendix S, the DA will also, in coordination with other Lead Agencies, and Cooperating Agencies that may be concerned, **develop whatever additional programs [See Table 4; Implementation - PP] or additional structures that may be necessary to assure the implementation of those management measures that so require**, including participating in educational programs and reviewing its regulations and other policy documents to incorporate mechanisms to assure the implementation of said management

measures. Such coordination to be achieved through the **designation and consequent participation of at least two (1) permanent and one (1) alternate official to represent the agency in the deliberations of the Nonpoint Source Control Subcommittee (NSCS) of the Water Resources Committee (WRC)** designated by the Secretary of the DNER.

6. Other Commonwealth and Federal Agencies

[TO BE PREPARED]

G. Description of the Geographic Scope of Puerto Rico's Section 6217 Boundary (III.B.; 6217(b)(7))

1. The Puerto Rico Coastal Management Area

Based on the definition of 'coastal zone' contained in the Coastal Zone Management Act of 1972 (CZMA, as amended), Puerto Rico established seaward and landward limits for its coastal zone in the Puerto Rico Coastal Management Program (PRCMP), which was adopted by the Planning Board (PB) in June 1978 and accepted by the Secretary of Commerce in September 1978 (See Map 1). The initial limits of the 'coastal zone' were defined as follows:

Seaward limit: Three (3) nautical miles from the shore; and

Landward limit: One (1) kilometer inland from the shore, except when it is necessary to extend it further inland to incorporate elements of a significant natural ecosystem.

a. The Seaward Limit of the Puerto Rico Coastal Zone

Several Federal actions (Public Law 96-205 of 12 March 1980; Proclamation Number 5030 of March 10, 1981 and Proclamation Number 5928 of December, 27 1988, both by President Reagan; and Public Law 101-508 of November 5, 1990, known as CZARA) clearly redefined Puerto Rico's coastal zone seaward limit as three marine leagues (or 10.35 nautical miles), instead of the original 3 nautical miles (Refer to Map 1). (An expanded discussion of the specifics of the Federal actions, as they relate to the seaward limit, will be included in the Revised PRCMP document, currently under preparation by the Department of Natural Resources (DNER); but it is outside of the scope of this document). The revised seaward limit of the three (3) marine leagues (10.35 nautical miles) from the shore is already included in the definition of coastal zone contained in PB's Planning Regulation No.17, *Zoning Regulation of the Coastal Zone and Access to Beaches and Coast of Puerto Rico* [See PB-A2-R6 in Vol. 2] which regulates zoning in the coastal zone and access to beaches and coastal areas of Puerto Rico.

b. The Landward Limit of the Puerto Rico Coastal Zone

The landward limit of Puerto Rico coastal zone is still the original one kilometer inland from the shore (Refer to Map 1). However, Section 6217(e) of the Coastal Zone Act Amendments of 1990 (CZARA) requires a review of the inland coastal zone limit and an evaluation of whether the boundary should extend further inland to the extent that is necessary to control nonpoint source pollution from land and water uses that have a significant effect on coastal waters. The statute requires the Secretary of Commerce, after consultation with the Administrator of the Environmental Protection Agency (EPA), to recommend the changes necessary to each coastal jurisdiction with federally approved coastal management programs.

A joint National Oceanic and Atmospheric Administration (NOAA)/EPA task force evaluated several methods for developing uniform criteria as a basis for such recommendations. In a letter dated March 31, 1993, NOAA transmitted its recommendation for the Puerto Rico coastal zone boundary, that is, what NOAA and EPA believed should be the geographic scope of the Puerto Rico Coastal Nonpoint Pollution Control Program (PRCNPCP) [see Appendix D]. NOAA also included draft guidance regarding criteria for modification of the recommended boundary for the 6217(e) management area. The boundary recommended by NOAA included four (4) of the five (5) regional watersheds into which the U.S. Geological Survey (USGS) has divided the island, excluding the central watershed (See Map 2).

For the purposes of preparing recommendations for establishing Section 6217 limits, the adequacy of several potential landward boundaries of the coastal zone were investigated by the DNER. The following approaches were investigated for the purposes of preparing such recommendation:

1) Adequacy of the Existing Boundary

The landward limit of the coastal zone established in the original coastal zone management plan for Puerto Rico was one kilometer inland from the shore. On the basis of about 310 miles of coastline, the total area affected by that limit would be approximately 800 square kilometers, or less than ten per cent of the land area of Puerto Rico. The runoff from such an area is mostly directly into the sea, and does not allow for drainage from the interior. Hence, that alternative is seen as grossly inadequate for the purpose of the PRCNPCP.

2) Landward Boundary of Coastal Barrios (Wards)

The inland limits of the coastal barrios (wards) are irregular, and have no relation to drainage systems (Refer to Map 3). Their land area is estimated at approximately 1800 square kilometers, and their current population is about 900,000, or 25 per cent of the total. Like the one kilometer limit, the barrios have no relation to drainage that affects coastal waters from inland areas, and are not considered viable for the purpose of controlling water quality effects from nonpoint sources.

3) Landward boundary of Coastal Municipalities

The 41 coastal municipalities aggregate 4,700 square kilometers, and are occupied by 2.2 million persons, or 63 per cent of the total population (see Map 4). They include the island's port zones and airports, and a major proportion of the industrial development, which generate urban run-off and contamination from waste disposal activities and landfills. However, that area does not account for most of the agricultural activities that are major contributors of nonpoint source pollutants to the surface and coastal water systems. Therefore, it is not considered feasible to use the landward limits of coastal municipalities as a basis for regulating coastal water quality effects from nonpoint sources. This boundary, as well as the other two, have no relation to drainage basins.

4) Drainage Basins

The Water Resources Division (WRD) of the USGS maintains records for 33 river basins or combinations of basins, which are monitored, and for which USGS issues annual statistical reports (see Maps 5 & 6). On the other hand, the Puerto Rico Environmental Quality Board (EQB) has identified more than 100 large and small catchment areas, which form the basis for reporting on water quality under Section 305 of the Clean Water Act (CWA) [Section 305(b) assessment reports; those corresponding to 1988-89, 1990-91 and 1992-93 are included in Vol. 2]. Coastal water monitoring stations operated by EQB are shown in Map 7.

Table 5 (which is based on information included in Appendix R) summarizes water quality data contained in the 1990-91 and 1992-93 Section 305(b) assessment reports for Puerto Rico conducted by EQB (EQB, 1992; EQB, 1994). Appendix R includes several figures and tables summarizing the data from the above mentioned Section 305(b) assessment reports. As shown in Table 5, **about 87% of the estuarine waters assessed are not supporting their overall intended use and an additional 8-11% of them are threatened.** In contrast, assessment of National estuarine waters in 1990-91 [National Water Quality Inventory, 1992 Report to Congress, EPA 841-R-94-001, March 1994] indicated that only 32% were not supporting their designated uses and an additional 12% were threatened. Puerto Rico's estuarine waters are affected by both point and nonpoint sources of pollution, but, in many cases, nonpoint sources are the dominant form of pollution affecting the estuarine environment.

The assessment of Puerto Rico's coastal waters showed, **on the other hand, that 84-86% of the coastal miles appear to be fully supporting designated uses, but a significant portion of them (about 33-44%) are threatened.** Coastal waters at the National level appear to be fully supporting designated uses at about the same level (87%) as Puerto Rico, but, in contrast, only a minor fraction (7%) of them are threatened. The data in Table 5 and Appendix R further indicate that fully supportive of designated uses are only about 11-16 per cent of the river miles (7-11% of these are threatened) and 30-37% of lake areas (20-22% of these are threatened).

The detailed reporting of sources on nonpoint source contaminants affecting water bodies in the Section 305(b) assessment reports [Summarized in Tables 6 and 7], while not fully quantitative, indicate the following as the most frequent sources cited: **land disposal of wastewater (24-26%); natural sources (17-19%); urban runoff (13-15%); animal holding lots (10%); non-irrigated crop production (10-11%); landfills (7%); and irrigated crop production (3%).** These seven categories (out of 27-29 included in the two assessment years) account for 520 of the total of 595 citations during 1990-91 and 544 of the 633 citations during 1992-93, or 86-87% of all sources cited. [Similar tables for nonpoint sources affecting groundwater are included in Appendix R]

The nonpoint sources cited occur in all parts of the Island, and lead to a conclusion that the

entire island must be included in any program to control them and improve water quality. It is not feasible nor practical to exclude the few basins that appear to evidence the fewest sources of contaminants, because it is possible that situations may change in the future, and the entire area should be kept under regulation. That will also make it more feasible to implement such a regulation, because the various regulatory agencies will not have to make a preliminary determination of whether a specific area is covered or not.

The boundary recommendation by NOAA/EPA (see Appendix D) suggest that the upper parts of several major watersheds might be excluded from regulation of nonpoint sources of contamination. Those areas affect about 15 per cent of the land area and less than 8 per cent of the total population. Yet a review of agricultural activity and land development in recent years indicates that those are areas in which changes are occurring. Furthermore, Act No. 114 of December 9, 1993 establishes the Public Policy of the Commonwealth in relation to the integral socioeconomic development of the Central Region of Puerto Rico and gives a mandate to the PB, the Department of Commerce (DOC), the Economic Development Administration (EDA) and DA to prepare a Master Integral Plan for the Socioeconomic Development of the Central Region. Hence, the Central Region should be covered by the proposed coastal nonpoint pollution control program (CNPCP) as well as the areas further downstream, which impact on karst formations. In any event, all watersheds in Puerto Rico are coastal watersheds, hence, there is no justification for leaving any portion of them out.

5) Recommended Landward Boundary

The results of the DNER investigation lead to the conclusion that the entire island must be included in any program to control nonpoint sources of pollution affecting coastal water quality; and that the landward boundary of the PRCMP should be modified accordingly. The island is small enough that whatever occurs in the interior hills and valleys will eventually impact on coastal aquifers as well as surface waters, and hence will affect coastal waters. The possibility and implications of modifying the landward boundary of the PRCMP is discussed in Section 3 below.

2. **The 6217 Coastal Nonpoint Sources Management Area**

As directed by Section 6217 (a), the boundaries of the coastal nonpoint source management area must be sufficient to ensure implementation of management measures to "restore and protect coastal waters". Based on the discussion included in the previous section, it appears that the 6217 Management area could be defined as follows:

Seaward limit: Three (3) marine leagues (or 10.35 nautical miles) from the shore;
and
Landward limit: Islandwide.

a. The Seaward Limit of the 6217 Management Area

There is agreement between the designated agencies to recommend the establishment of the seaward limit of the 6217 Management Area as the revised seaward limit of the PRCMP; that is, three (3) marine leagues (10.35 nautical miles) from the shore.

b. The Landward Limit of the 6217 management Area

As mentioned above, the DNER investigation points to the desirability of recommending and establishing the landward limit of the Section 6217 Management Area as islandwide. There is agreement between the designated agencies to recommend the establishment of the landward limit of the Section 6217 Management Area as islandwide. **Therefore EQB and DNER are hereby proposing such designation to the PB.**

3. Modification of the PRCMP Landward Boundary to Encompass the Entire 6217 Management Area

Puerto Rico is expected to demonstrate authority to manage the final 6217 Management Area it recommends in one of two ways. **First**, Puerto Rico may modify the landward boundary of the PRCMP to encompass the entire boundary of the PRCNPP. Modification of the landward boundary would require a recommendation by the DNER and EQB to the Planning Board (PB) for the official adoption of the revised boundary.

The EQB and DNER are also hereby proposing the expansion of the Coastal Zone boundary to islandwide, if approved by the PB after proper public review. Because at least one Cooperating Agency - PREPA - has expressed opposition to the expansion [See PREPA letter and DNER Response in Appendix N], there is no assurance that the PB will modify the PRCMP landward boundary to islandwide or any other level, despite this proposal.

While the PB may be convinced by the DNER and/or the DNER and EQB of the merits of the boundary revision, the PB must also take into consideration other factors in reaching its decision. Among these are: 1) the resulting increase in requests for Federal Consistency determinations the PB will have to receive and process; 2) the potential opposition to the proposal from private and public project proponents, which may see the additional Federal Consistency determinations as a step backward in the deregulation they fervently sponsor; 3) the fact that, although preferable by NOAA and EPA, changing the PRCMP boundary to encompass the recommended 6217 Coastal Nonpoint Source Management Area is not a statutory requirement for Federal approval of the PRCNPP; and 4) the procedure for simple subdivisions ("lotificaciones") provided by Section 6.0 of PB's Planning Regulation No. 3 - *Subdivision and Urbanization Regulation* [See PB-A2-R13 in Vol. 2] may have to be eliminated as all the island would then be coastal zone, where it is not applicable, as per PB's Planning Regulation No. 17.

Because there is no assurance that the PB will modify the PRCMP landward boundary to islandwide, as proposed by the DNER and EQB, or any other level different than the existing, the designated agencies must demonstrate to NOAA/EPA that other authorities exist, including enforceable policies and mechanisms, to ensure implementation of the CNPCP mandatory management measures within the entire 6217 Management Area. For this reason, efforts were conducted to identify and summarize existing authorities to determine any legal gaps that may need to be filled to implement the mandatory or alternative management measures. In practice, the only major authorities added by the extended boundary are the PB Federal Consistency Certification requirement and the application of PB's Regulation Number 17. All other existing authorities, and even some that are in Regulation Number 17 are applicable islandwide, anyway.

The second way is for Puerto Rico to leave the PRCMP landward boundary unaltered. Under this alternative, areas outside the PRCMP boundary will fall within the 6217 Management Area anyway, as it is proposed to be islandwide, and would be managed with existing authorities networked into the PRCNPCP. As the PRCMP specific authorities (Federal Consistency Certification) will not be available outside the landward boundary of one kilometer (unless extended to incorporate elements of a significant natural ecosystem or activities outside the boundary but affecting coastal resources), the designated agencies (EQB and DNER) must also show that the necessary authorities, including enforceable policies and mechanisms, are available to ensure implementation of the program's mandatory management measures within the entire 6217 Management Area.

From a program management standpoint, modifying the landward boundary of the PRCMP to encompass the entire boundary of the PRCNPCP is the most practical and simple approach, and the preferred alternative. However, both the DNER and EQB recognize that, despite its convenience, support for the approach may have to be obtained from Commonwealth and Federal government agencies and the general public, to assure that the PB agrees to the boundary modification. Of course, if the PB accepts the DNER and EQB recommendation and modifies the boundary after program submittal, Federal Consistency Certification requirements would be applicable islandwide.

4. Request for Public Comments on the Modification of the PRCMP Landward Boundary to Encompass the Entire 6217 Management Area - A Proposal

The program evaluating agencies (NOAA and EPA) expect the public to be involved throughout the overall development process of the PRCNPCP. Therefore, as part of the public participation process, **the DNER and EQB are specifically requesting comments from the public, including Commonwealth and Federal agencies that have not expressed a position as to the desirability and convenience of establishing the landward boundary of the PRCMP as islandwide.**

This Draft PRCNPCP document will be used as the base document for requesting public comments. The draft document and pertinent program guidance documentation will be

made available at the DNER Coastal Management Office and EQB's Nonpoint Sources Division. Additionally, the document will be made available at DNER's and EQB's Regional Offices. A Public Notice announcing the availability of the document and requesting comments will be published at least 30 days prior to the celebration of Public Hearings to hear oral and receive written comments regarding the landward boundary of the PRCMP and other aspects of the PRCNPCP.

A Public Notice was published on September 22, 1994, announcing the availability for public review and comments of the Informal Consultation Document prepared by the designated agencies and submitted to NOAA/EPA on April 11, 1994. The Informal Consultation document contained a discussion of the landward boundary issue similar to that included above and indicated the intention of the designated agencies of receiving public comments on said issue. No public hearing was announced or conducted for the informal consultation and no comments were received from the public regarding the landward boundary issue.

Only one of the Cooperating Agencies, the Puerto Rico Electric Power Authority (PREPA), has officially expressed opposition or concern about the proposed modification to the PRCMP landward boundary to islandwide for purposes of the PRCNPCP. PREPA's comment, which was included in a letter dated April 13, 1995 [See Appendix N which includes all PRCNPCP correspondence between agencies and professional groups], expressing the public corporation's position on the Executive Order proposed to be signed by the Governor of Puerto Rico to facilitate implementation of the PRCNPCP, appears to be based on permitting simplification concerns. PREPA, other agencies and the general public will have a formal opportunity to influence the boundary decision, as well as any other element of the PRCNPCP, when this draft PRCNPCP document is subjected to public hearings as part of the process to complete the requirements for conditional and full approval of the program by NOAA/EPA.

It must be clear, however, that the modification of the landward boundary of the PRCMP is a decision to be made by the PB as part of the revision to the PRCMP, which is a separate process, to be also subjected to a formal public review process, but independent from the development and approval process of the PRCNPCP. Nonetheless, all comments received during the public review process of the PRCNPCP, related to the landward boundary issue, will be used to properly support the Lead Agencies recommendation to the PB on the boundary modification recommended to be made under the revised PRCMP.

Until the PRCMP boundary modification issue is settled by the PB, and giving for granted that the recommended islandwide boundary for the Section 6217 Management Area will be approved by the PB, the PRCNPCP will be implemented using the islandwide boundary definition for all regulatory purposes, excepting Federal Consistency Certification, and those PB Regulation No. 17 requirements that are exclusively applicable within the PRCMP Coastal Zone that are not otherwise implementable through other PB and other agencies authorities.

H. Water Quality Monitoring

1. Description of activities to monitor the effectiveness of management measures

EQB and DNER aim to monitor the effectiveness of the implementation of the PRCNPCP management measures using EQB's established Surface and Coastal Water Quality Monitoring Networks and, where convenient and appropriate, using information collected through the Groundwater Monitoring Network contemplated under EQB's groundwater monitoring program. Monitoring and tracking of coastal water quality will be jointly coordinated by EQB and DNER, with the assistance or collaboration of the DA and cooperating agencies such as the DH, PRASA, EPA and USGS, among others. As far as monitoring also includes ensuring that management measures are implemented, inspected and maintained properly, all Lead and Cooperating agencies are expected to participate in monitoring of those activities, according to their respective field of competence and jurisdiction. Interagency agreements will be entered, reviewed and revised as needed, in particular to assess critical coastal areas.

The Environmental Quality Board (EQB) currently operates a Water Quality Monitoring Network which is basically carried out through three (3) fixed station networks. All sampling and analytical activities are subject to a strict water Quality Assurance Program coordinated through the Quality Assurance Control Officer of the Water Quality Area.

The surface water monitoring program of EQB consists of 57 surface stations located in 25 river basins in the north, south, east, and west hydrographic regions of the island (See Map 6). Under a cooperative agreement with the Government of Puerto Rico, the USGS collects samples on a bimonthly basis. Table 8 includes the location and description of these stations.

Samples collected at these stations are analyzed for the following parameters:

Flow	Fecal Coliform
Specific Conductance	Fecal Streptococcus
Temperature	Organic Nitrogen
Alkalinity	Ammonia Nitrogen
Dissolved Oxygen	Nitrate
Turbidity	Nitrite
pH	Chemical Oxygen Demand
Hardness	Phosphorous
Suspended Solids	

Analyses for the detection of phenolic substances, cyanide and methylene blue active substances are performed twice a year and for the following metals:

Arsenic	Mercury	Iron
Barium	Selenium	Zinc
Cadmium	Silver	Manganese
Lead	Boron	Copper

Additional samples are collected for dissolved solids analyses which include:

Calcium	Magnesium
Sodium	Potassium
Carbonate	Sulfate
Silica	Fluorides
Chlorides	

Samples are collected and analyzed for the following pesticides at selected stations:

DDD	DDE
DDT	Diazinon
Endrin	Endosulfan
Heptachlor	Ethion
Methoxychlor	Lindane
Parathion	Methylparathion
Toxaphene	Naphtalene Polychlor
Aldrin	Mirex
Dieldrin	Chlordane
Heptachlor	Malathion
Methyltrithion	Perthane
Total Trithion	

Also, there are six (6) monitoring stations, located at lakes: Guajataca, Garzas, Dos Bocas, Carite, Loíza and La Plata (See Table 9).

Analyses are also performed at these stations for chlorophyll A and chlorophyll B detection.

The coastal portions of the Permanent water Quality Monitoring Network currently consists of 89 stations of which 11 were created during FY-1990, eight (8) in FY-1991, and sixteen (16) new stations, located in the South-West

coast of the Island in FY-1993. The new stations were specifically placed in areas designated as special bathing zones (SBZ) by the Puerto Rico Planning Board and are monitored six (6) times a year for bacteriology only. (See Map 7).

The coastal network stations are monitored for the following parameters:

Temperature	Copper
Turbidity	Dissolved Oxygen
Color	Manganese
pH	Iron
NO ₃ +NO ₂ -N	Zinc
Fecal Coliform	Boron
Salinity	Chromium
Cadmium	Lead

The description and frequency of monitoring of the Permanent Coastal Water Quality Network stations are listed in Table 10.

The San Juan Beachfront Special Monitoring Network is composed of twenty one (21) stations which cover the Condado, Ocean Park and Isla Verde areas of which eight (8) are included in the Permanent Coastal Monitoring Network. This Special Network is monitored monthly for bacteriology. The description of the network stations is presented in Table 11.

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[For references information about laws and regulations, please, refer to Appendix E (E-1 to E-6)]

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TABLE 1 HEAD EQUIVALENTS FOR FIVE CUBIC FEET OF FECAL WASTE

ANIMAL	ANIMAL SIZE (lb)	TOTAL FECAL WASTE PRODUCTION			5 CU FT EQ. HEAD	NUMBER OF HEAD	
		(lb/day)	cu ft/day	gal/day		B1	B2
DAIRY LIVESTOCK*	660	54	0.868	6.54	11	98	28-97
	150	12.0	0.19	1.50	26		
	250	20.0	0.32	2.40	16		
	500	41.0	0.66	5.00	8		
	1000	82.0	1.32	9.90	4		
	1400	115.0	1.85	13.90	3		
BEEF LIVESTOCK*	875	52.5	0.86	6.58	6	300	50-299
	500	30.0	0.50	3.80	10		
	750	45.0	0.75	5.60	7		
	1000	60.0	1.00	7.50	5		
	1250	75.0	1.20	9.40	4		
SWINE*	206	12.0	0.19	1.48	52	200	100-199
WEANERS	35	2.3	0.03	0.27	167		
FEEDERS	55	4.2	0.07	0.48	71		
MATURE	150	9.8	0.16	1.13	31		
	200	15.0	0.22	2.00	23		
	275	8.9	0.15	1.10	33		
FEMALE+WEANERS	375	33.0	0.54	4.00	9		
BOAR	350	11.0	0.19	1.40	26		
POULTRY							
LAYERS	4	0.21	0.00	0.03	1429	15,000	5,000-14,999
BROILERS	2	0.14	0.00	0.02	2083	15,000	5,000-14,999
HORSES	1000	45.0	0.75	5.63	7	200	100-199

* - ARITHMETIC AVERAGE FOR ALL WEIGHTS IN CATEGORY

Ref. apctb1.wk4

Note: Fecal waste information contained in Appendix 2 of the draft AFWCR Guidelines by EQB; information obtained from the American Society of Agricultural Engineers, 6/14/73.

TABLE 2 TYPE OF PROJECTS IN UNZONED (RURAL) AREAS THAT WILL BE CONSIDERED IN FIRST INSTANCE BY THE PLANNING BOARD (PB) UNDER THE CONSULTA DE UBICACION (SITING PERMIT) MECHANISM (Table Provided in §3.03 of the Regulation for Adjudicative Procedures of the Planning Board; unofficial translation) [See PB-A2-R17 in Vol. 2]

TYPE OF PROJECT	:	Category that requires siting permit from the Planning Board
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PRIVATE PROJECTS

Residential	:	Residential urbanizations, as defined by Act No 75 of June 24, 1975, as amended, except those expressly delegated due to an agreement with an autonomous municipality.
Commercial	:	Projects of commercial character with 10,000 square feet or more of raw floor space in municipalities that have not become autonomous municipalities, in those autonomous where the granted hierarchies do not allow them and in shopping centers of subregional, regional and supra-regional character with an area of construction of 100,000 square feet or more.
Industrial	:	Projects of industrial character with 15,000 square feet or more of raw floor space, including livestock projects such as: rearing of swine, rabbits and similar others, except poultry farms, which will be those with more than 30,000 square feet of raw floor space. In addition, it includes all industrial activity that in significant quantities produces smoke, dust, gases, noises, vibrations, fire or explosion hazard or other conditions that may become harmful to the adjacent areas. Among these are concrete and asphalt dosing plants, slaughterhouses, gravel extraction. (Emphasis added)
Institutional	:	Hospitals, health houses and similar projects, university level teaching institutions, civic clubs for diverse activities that require extensive land areas (more than one "cuerda" [0.97 acre]), except for religious institutions which are under the purview of RPA.

TYPE OF PROJECT : **Category that requires siting permit from the Planning Board**

Hotel like : Hotels, tourism hotels, "paradores", tourist villages, motels.

**Recreational
Vacational
Facilities** : **Marinas for more than ten (10) boats**, camping areas, mobile home or tow home areas in conformance to the criteria adopted through Resolution PB-229

**Other Type
of Projects** : Airports, heliports, hippodrome, velodromes, commercial recreation parks, cinematographic and television studios, stadia, coliseums, outdoor cinemas and similar others that require extensive land areas (more than one "cuerda"), cemeteries, solid waste disposal systems or of or toxic hazardous wastes, **projects in areas of special resources (Section 10.19 of Planning Regulation No. 4)**

PUBLIC PROJECTS

**Public
Improvements** : All public improvement, as established in this Regulation, except those for which government organisms are exempted and those delegated to the Regulation and Permits Administration through expressed resolution of the Board.

Note: The definition of Public Improvement in the Regulation for Adjudicative Procedures of the Planning Board [See PB-A2-R17 in Vol. 2] is as follows:

"All permanent improvement, all new construction, expansion or reconstruction (not including repairs) of public works authorized, paid, supervised, directed, undertaken or controlled by any government organism, including among others, every acquisition, sale, permutation, surrender of property, lease or change in the use of properties by any public officer or organism and those carried out through work contracts with private entities. Every public work which end is for private interest will not be considered a public improvement." (Unofficial translation)

**TABLE 3 PRODUCTION FROM STATE FORESTS AND PRIVATE FARMERS IN THE DNER
DNER FOREST PRODUCTS CENTER 1988 - 1994**

PRODUCT	1988		1989		1990	
	Amount	Income	Amount	Income	Amount	Income
State Forest lumber produced	13901.51	\$25,527.30	10941.43	\$25,975.94	7079.71	\$13,082.41
Private lumber produced	13505.8	\$3,398.95	10379	\$2,594.75	32829.31	\$5,542.96 **
Wood Services	5046	\$504.60	2528	\$252.80	1673.91	\$167.39
By products*	—	\$1,939.00	—	\$424.50	—	\$477.50
Posts	5115	\$11,403.14	2310	\$4,147.10	1327	\$1,629.90
Total		\$42,772.99		\$33,395.09		\$20,900.16

* include woodchips, barkcuts, etc.

** include USFS wood process after Hurricane Hugo

PRODUCT	1991		1992		1993		1994***	
	Amount	Income	Amount	Income	Amount	Income	Amount	Income
State Forest lumber produced	5448.57	\$9,102.53	2015.22	\$4,172.56	1698.57	\$3,901.35	5118.26	\$9,087.46
Private lumber produced	3259.75	\$814.93	0	\$0.00	374.85	\$112.45	2805.1	\$841.49
Wood Services	223.83	\$22.38	253.48	\$25.34	374.85	\$112.45	3677.97	\$367.77
By products*	—	\$335.00	—	\$259.50	—	\$110.09	—	\$390.50
Posts	2310	\$4,820.60	485	\$524.80	588	\$944.00	2680	\$3,630.20
Total		\$15,095.44		\$4,982.20		\$5,180.34		\$14,317.42

*** include production from wood harvested as a result of construction activities for Highway PR-10.

NOTE: Wood in board foot and posts in total number of posts

**TABLE 4
PROPOSED IMPLEMENTATION APPROACH AND LEAD AND
COOPERATING AGENCIES FOR EACH MANAGEMENT MEASURE**

ref. measmedj wk4

SECTION 6217 MANAGEMENT MEASURE CATEGORY Subcategory Measure	IMPLEMENTATION DPP - Dev. Project Permit PP - PRCNCP Program AP - Agricultural Practice	LEAD AGENCIES (Those agencies with primary responsibility to assure the implementation of MM's)	COOPERATING AGENCIES	
			COMMONWEALTH (Those agencies that provide permits through which management measures are implemented)	FEDERAL (technical assistance or issue permits through which management measures are implemented)
Arabic and Roman numerals and Letters in the Management Measures Column refer to Chapters, Sections and Subsections of the 6217 Guidance Document, Source Categories start at Chapter 2, Chapter 1 is the Introduction.				
2. AGRICULTURE SOURCE CATEGORY		EQB, DA, DNER		
A. Erosion and Sediment Control	DPP, AP & PP	EQB / DA / DNER		
B1. Confined Animal Facility Management (Large Units)	DPP, AP & PP	EQB / DA	PB/RPA, DH	
B2. Confined Animal Facility Management (Small Units)	DPP, AP & PP	EQB / DA	PB/RPA, DH	
C. Nutrient Management	AP & PP	DA / EQB	SCD's UPR AExpS UPR AExtS	NRCS CFSA
D. Pesticide Management	AP & PP	DA / EQB	ORDI ADA ASA LA	
E. Grazing Management	AP & PP	DA		
F. Irrigation Water Management	AP & PP	EQB / DA	+ PREPA	+USGS
3. FORESTRY SOURCE CATEGORY	EXCLUDED	DNER, DA, PB/RPA, EQB	IF NECESSARY TO BE CONSIDERED IN THE FUTURE	
4. URBAN AREAS SOURCE CATEGORY				
II. Urban Runoff		PB/RPA, EQB, DNER		
A. New Development	DPP, PP	PB/RPA, EQB, DNER	DA	COE
B. Watershed Protection	PP	PB/RPA, EQB, DNER	DA, PRASA, HTA	COE, USGS, NRCS, FWS
C. Site Development	DPP	PB/RPA, EQB, DNER		COE
III. Construction Activities		EQB, RPA, DNER		
A. Construction Site Erosion and Sediment Control	DPP	EQB, RPA, DNER	SCD	EPA
B. Construction Site Chemical Control	DPP	EQB, RPA, DNER		EPA
IV. Existing Development		EQB, PB, DNER		
A. Existing Development	PP	EQB, PB, DNER	DTPW, MUN	NRCS, USGS
V. Onsite Disposal Systems		EQB, RPA		
A. New Onsite Disposal Systems	DPP	EQB, RPA	DH	EPA
B. Operating Onsite Disposal Systems	DPP & PP	EQB, DNER	DH	EPA
VI. Pollution Prevention		EQB, DNER		
A. Pollution Prevention	PP	EQB, DNER	SWA, MUN	EPA
VII. Roads, Highways and Bridges		PB/RPA, EQB, DNER		
A. Planning, Siting and Developing Roads and Highways	DPP	PB/RPA, EQB, DNER	HTA, MUN	FWA, EPA, COE, FWS, NRCS
B. Bridges	DPP	PB/RPA, EQB, DNER	HTA, MUN	EPA, COE, FWS, NRCS
C. Construction Projects	DPP	PB/RPA, EQB, DNER	HTA, MUN	FHWA, EPA
D. Construction Site Chemical Control	DPP	PB/RPA, EQB, DNER	HTA, MUN	FHWA, EPA
E. Operation and Maintenance	PP	PB/RPA, EQB, DNER	HTA, MUN	FHWA, EPA
F. Road, Highway, and Bridge Runoff Systems	PP	PB/RPA, EQB, DNER	HTA, MUN	FHWA, EPA

**TABLE 4
PROPOSED IMPLEMENTATION APPROACH AND LEAD AND
COOPERATING AGENCIES FOR EACH MANAGEMENT MEASURE**

ref. measmedi.wk4

SECTION 6217 MANAGEMENT MEASURE CATEGORY Subcategory Measure	IMPLEMENTATION DPP - Dev. Project Permit PP - PRCNCP Program AP - Agricultural Practice	LEAD AGENCIES (Those agencies with primary responsibility to assure the implementation of MM's)	COOPERATING AGENCIES		
			COMMONWEALTH (Those agencies that provide technical assistance or issue permits through which management measures are implemented)	FEDERAL	
Arabic and Roman numerals and Letters in the Management Measures Column refer to Chapters, Sections and Subsections of the 6217 Guidance Document; Source Categories start at Chapter 2; Chapter 1 is the Introduction.					
5. MARINAS SOURCE CATEGORY					
II. Siting and Design			PB/RPA, DNER, EQB	TC	
A. Marina Flushing	DPP	DNER, EQB, PB, RPA	TC		COE
B. Water Quality Assessment	DPP	EQB, DNER, PB, RPA	TC		COE, EPA, USGS
C. Habitat Assessment	DPP	DNER, EQB, PB, RPA	TC		COE, EPA, FWS, NMFS
D. Shoreline Stabilization	DPP	DNER, PB / RPA, EQB	TC		COE, USGS
E. Stormwater Runoff	DPP	EQB, PB, RPA, DNER	TC		EPA, COE
F. Fueling Station Design	DPP	DNER, EQB, PB, RPA	TC		EPA, COE
G. Sewage Facility	DPP & PP	EQB, RPA, DNER, PB	PRASA, DH, TC		EPA, COE
III. Marina and Boat Operation and Maintenance			EQB, DNER	TC	
A. Solid Waste Management	DPP	EQB, DNER	SWA, TC		COE
B. Fish Waste	DPP	EQB, DNER	TC		COE, FWS, NMFS
C. Liquid Material	DPP & PP	EQB, DNER	TC		COE, EPA
D. Petroleum Control	PP	EQB, DNER	SWA, TC		COE, EPA
E. Boat Cleaning	PP	EQB, DNER	TC		USCG
F. Public Education	PP	DNER, EQB	TC, UPR/SEA GRANT		USCG, COE, OTHERS
G. Maintenance of Sewage Facilities	DPP	EQB, DNER	DH		EPA
H. Boat Operation (applies to boating)	PP	DNER, EQB	PRPD		USCG
6. HYDROMODIFICATION SOURCE CATEGORY					
II. Channelization and Channel Modification			PB, DNER, EQB		
A. Physical and Chemical Characteristics of Surface Waters	DPP	EQB, DNER	PA		COE, EPA, USGS
B. Instream and Riparian Habitat Restoration	DPP	DNER, EQB	PA		COE, USGS
III. Dams			EQB, DNER		
A. Erosion and Sediment Control	DPP	EQB, DNER	PRASA, PREPA		NRCS, EPA
B. Chemical and Pollutant Control	DPP	EQB, DNER	PRASA, PREPA		NRCS, EPA
C. Protection of Surface Water Quality and Instream and Riparian Habitat	PP	DNER, EQB	PRASA, PREPA		NMFS, FWS, EPA
IV. Streambank and Shoreline Erosion			PB/RPA, DNER, EQB		
A. Eroding Streambanks and Shorelines	DPP & PP	PB/RPA, DNER, EQB			USGS, NRCS, COE
7. WETLANDS, RIPARIAN AREAS AND VEGETATED TREATMENT SYSTEMS					
A. Protection of Wetlands and Riparian Areas			PB/RPA, DNER, EQB		FWS, NRCS, COE
B. Restoration of Wetland and Riparian Areas			PB/RPA, DNER, EQB		FWS, NRCS, COE
C. Vegetated Treatment Systems			PB/RPA, DNER, EQB		NRCS, COE
IF NECESSARY TO BE CONSIDERED IN THE FUTURE					

TABLE 5 - SUMMARY OF THE LEVEL OF TOTAL USE SUPPORT OF THE WATERS
 NATIONAL LEVEL (1990-91) vs. PUERTO RICO (1990-91 Y 1992-93)

LEVEL OF USE SUPPORT	PERCENT OF SQ. MILES OF ESTUARIES		PERCENT OF OFFSHORE MILES		PERCENT OF RIVER MILES		PERCENT OF ACREAGES OF LAKES & LAGOONS	
	TOTAL NATIONAL 1990-91	TOTAL PR 1990-91 1992-93	TOTAL NATIONAL 1990-91	TOTAL PR 1990-91 1992-93	TOTAL NATIONAL 1990-91	TOTAL PR 1990-91 1992-93	TOTAL NATIONAL 1990-91	TOTAL PR 1990-91 1992-93
FULLY SUPPORTING	56	5.4 1.3	80	44.4 51.0	56	5.4 4.0	43	15.2 9.7
FULLY SUPPORTING BUT THREATENED	12	7.6 11.3	7	41.7 32.8	6	11.0 6.8	13	22.2 20.1
PARTIALLY SUPPORTING	23	18.1 20.1	9	8.5 10.3	25	17.9 17.9	32	29.4 19.0
NOT SUPPORTING	9	68.9 67.3	5	5.4 5.9	13	65.8 71.3	9	33.3 51.2

INFORMATION TAKEN AND ADAPTED FROM:

- 1) GOALS AND PROGRESS OF STATEWIDE WATER QUALITY PLANNING -PUERTO RICO- 1990-91
 ENVIRONMENTAL QUALITY BOARD, WATER QUALITY PROGRAM - (REVISED EDITION) JULY 1992
 (KNOWN AS 305(b) REPORT, AS AUTHORIZED BY THE CLEAN WATER ACT)
- 2) GOALS AND PROGRESS OF STATEWIDE WATER QUALITY PLANNING -PUERTO RICO- 1992-93
 ENVIRONMENTAL QUALITY BOARD, WATER QUALITY PROGRAM - REVISED MAY 1994
- 3) THE QUALITY OF OUR NATION'S WATER: 1992, EPA841-S-94-002
 U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF WATER, MARCH 1994
 (THIS DOCUMENT IS A SUMMARY OF THE "NATIONAL WATER QUALITY INVENTORY
 1992 REPORT TO CONGRESS - EPA 841-R-94-001, MARCH 1994; PREPARED FROM
 305(b) REPORTS OF THE STATES AND U.S. TERRITORIES)

NOTE: THE ESTUARIES EVALUATION AT THE NATIONAL LEVEL USED SQUARE MILES; PUERTO RICO USED LINEAL MILES

TABLE 6 - SUMMARY OF CATEGORIES AND SUBCATEGORIES OF NONPOINT SOURCES AFFECTING WATERBODIES IN PUERTO RICO 1990-91

CATEGORIES and subcategories	FREQUENCY	PERCENT OF CATEGORY	PERCENT OF TOTAL
AGRICULTURE	143	100.0	24.0
aquaculture	1	0.7	0.2
-agriculture	2	1.4	0.3
-animal holding management areas	59	41.3	9.9
-irrigated crop production	20	14.0	3.4
-non-irrigated crop production	58	40.6	9.7
-pasture land	3	2.1	0.5
CONSTRUCTION	6	100.0	1.0
-construction	1	16.7	0.2
-highway/road/bridge	5	83.3	0.8
HYDROMODIFICATION	5	100.0	0.8
-channelization	2	40.0	0.3
-dam construction	1	20.0	0.2
-flow regulation/modification	2	40.0	0.3
LAND DISPOSAL	204	100.0	34.3
-hazardous waste	4	2.0	0.7
-industrial land treatment	1	0.5	0.2
-landfills	43	21.1	7.2
-on-site wastewater systems(septic tanks)	1	0.5	0.2
-wastewater	155	76.0	26.1
OTHER	131	100.0	22.0
-in place contaminants	11	8.4	1.8
-natural	100	76.3	16.8
-other	7	5.3	1.2
-recreational activities	9	6.9	1.5
-spills	2	1.5	0.3
-upstream impoundment	1	0.8	0.2
-waste storage tank leaks	1	0.8	0.2
RESOURCE EXTRACTION	7	100.0	1.2
-surface mining	7	100.0	1.2
SOURCE UNKNOWN	11	100.0	1.8
URBAN RUNOFF	88	100.0	14.8
-combined sewers	2	2.3	0.3
-surface runoff	1	1.1	0.2
-urban runoff	85	96.6	14.3
TOTAL ALL CATEGORIES	595	100.0	100.0

ref. eqbrpswb.wk3

(Prepared from data in Appendix 5 of "Goals and Progress of Statewide Water Quality Management Planning Puerto Rico 1990-91, 'Environmental Quality Board, Water Quality Area, Revised Edition, July 1992).

TABLE 7 - SUMMARY OF CATEGORIES AND SUBCATEGORIES OF NONPOINT SOURCES AFFECTING WATERBODIES IN PUERTO RICO 1992-93

CATEGORIES and subcategories	FREQUENCY	PERCENT OF CATEGORY	PERCENT OF TOTAL
AGRICULTURE	159	100.0	25.1
-aquaculture	1	0.6	0.2
-agriculture	2	1.3	0.3
-animal holding management areas	65	40.9	10.3
-irrigated crop production	21	13.2	3.3
-non-irrigated crop production	67	42.1	10.6
-pasture land	3	1.9	0.5
CONSTRUCTION	6	100.0	0.9
-construction	1	16.7	0.2
-highway/road/bridge	5	83.3	0.8
HYDROMODIFICATION	5	100.0	0.8
-channelization	2	40.0	0.3
-dam construction	1	20.0	0.2
-flow regulation/modification	2	40.0	0.3
LAND DISPOSAL	199	100.0	31.4
-hazardous waste	6	3.0	0.9
-industrial land treatment	1	0.5	0.2
-landfills	42	21.1	6.6
-on-site wastewater systems(septic tanks)	1	0.5	0.2
-wastewater	149	74.9	23.5
OTHER	157	100.0	24.8
-in place contaminants	0	0.0	0.0
-natural	119	75.8	18.8
-other	1	0.6	0.2
-recreational activities	7	4.5	1.1
-spills	1	0.6	0.2
-upstream impoundment	19	12.1	3.0
-waste storage tank leaks	1	0.6	0.2
-contaminated sediments	8	5.1	1.3
-fertilizer use	1	0.6	0.2
RESOURCE EXTRACTION	14	100.0	2.2
-surface mining	14	100.0	2.2
SOURCE UNKNOWN	5	100.0	0.8
URBAN RUNOFF	83	100.0	13.1
-combined sewers	1	1.2	0.2
-surface runoff	1	1.2	0.2
-urban runoff	81	97.6	12.8
MARINAS	5	100.0	0.8
TOTAL ALL CATEGORIES	633	100.0	100.0

ref. eqbrpewb.wk3

(Prepared from data in Appendix 8 of "Goals and Progress of Statewide Water Quality Management Planning Puerto Rico 1992-93, Environmental Quality Board, Water Quality Area, Final-Revised, May 1994).

TABLE 8 - STREAM WATER QUALITY MONITORING STATIONS

<u>River Basin</u>	<u>Station Number</u>	<u>Lat/Long</u>	<u>Description</u>
NORTH			
Río Guajataca	50010500	181801/665224	Río Guajataca at Lares
	50011000	182402/665527	Principal diversion Canal at Lago Guajataca
	50011400	182831/665746	Río Guajataca above mouth near Quebradilla
Río Grande de Arecibo	50020500	181054/664412	Río Grande de Arecibo near Adjuntas
	50025000	181811/664159	Río Grande de Arecibo near Utuado
	50026050	181326/663822	Río Caonillas above Lago Caonillas near Jayuya
	50027250	182050/664002	Río Grande de Arecibo below Lago Dos Bocas near Florida.
	50028000	181802/664658	Río Tanamá, near Utuado
	50029000	182720/664210	Río Grande de Arecibo at Central Cambalache
Río Grande de Manatí	50030700	181420/662258	Río Orocovis near Orocovis
	50031200	181745/662447	Río Grande de Manatí near Morovis
	50035500	182046/662806	Río Grande de Manatí at Highway 149 at Ciales
	50035950	182018/662828	Río Cialitos at Highway 649 at Ciales
	50038100	182552/663137	Río Grande de Manatí at Highway 2, near Manatí
Río Cibuco	50038320	182113/662007	Río Cibuco below Corozal
	50039500	182653/662229	Río Cibuco at Vega Baja

TABLE 8 - STREAM WATER QUALITY MONITORING STATIONS
(Continued)

<u>River Basin</u>	<u>Station Number</u>	<u>Lat /Long</u>	<u>Description</u>
EAST			
Río La Plata	50043000	180937/661344	Río La Plata at Proyecto La Plata
	50044000	181433/661228	Río La Plata near Comerío
	50044850	181839/661328	Río Guadiana near Naranjito
	50046000	182350/661517	Río La Plata at Toa Alta
Río Hondo	50047530	182613/660936	Río Rondo at Flood Channel near Cataño
Río de Bayamón	50047600	181439/660839	Río de Bayamón near Aguas Buenas
	50047990	182232/660759	Río Guaynabo near Bayamón
	50048510	182429/660904	Río de Bayamón at Flood Channel at Bayamón
Río Piedras	50048800	182215/660340	Río Piedras near Río Piedras
	50049100	182434/660410	Río Piedras at Hato Rey
Quebrada Blasina	50050300	182327/665828	Quebrada Blasina near Carolina
Río Grande de Loíza	50055000	181433/660034	Río Grande de Loíza at Caguas
	50055250	181511/660126	Río Caguitas at Highway 30 at Caguas
	50055400	181528/660213	Río Bairoa near Caguas
	50057025	181556/665904	Gurabo near Gurabo
	50059000	181949/660100	Lago Loíza at damsite
	50059100	182135/660015	Río Grande de Loíza below Trujillo Alto
Río Espiritu Santo	50063800	182137/654849	Río Espiritu Santo near Río Grande

TABLE 8 - STREAM WATER QUALITY MONITORING STATIONS
(Continued)

<u>River Basin</u>	<u>Station Number</u>	<u>Lat/Long</u>	<u>Description</u>
Río Fajardo	50071000	181756/654142	Río Fajardo near Fajardo
	50072500	181935/653847	Río Fajardo below Fajardo
Río Humacao	50082000	180849/654937	Río Humacao at Highway 3 at Humacao
Río Guayanés	50083500	180333/655403	Río Guayanés at Yabucoa
	50086500	180345/654942	Río Guayanés above mouth at Playa de Guayanés
Río Maunabo	50091000	180024/655419	Río Maunabo at Maunabo
SOUTH			
Río Chico	50091800	175916/660018	Río Chico at Providencia
Río Grande de Patillas	50092000	180204/660158	Río Grande de Patillas near Patillas
Río Coamo	50106500	180352/662210	Río Coamo near Coamo
Río Cerrillos	50114000	1804151663451	Río Cerrillos near Ponce
Río Portugués	50115000	180445/663801	Río Portugués near Ponce
	50116200	180020/663628	Río Portugués at Ponce
Río Guayanilla	50124700	180040/664649	Río Guayanilla at Central Rufina
Río Loco	50129700	175833/665452	Río Loco at Guánica

TABLE 8 - STREAM WATER QUALITY MONITORING STATIONS
(Continued)

<u>River Basin</u>	<u>Station Number</u>	<u>Lat/Long</u>	<u>Description</u>
WEST			
Río Guanajibo	50133600	180718/670356	Río Guanajibo near San Germán
	50136400	180936/670508	Río Rosario near Hormigueros
	50138000	180836/670857	Río Guanajibo near Hormigueros
Río Yaguez	50138800	181231/670707	Río Yaguez near Mayaguez
Río Grande de Añasco	50143000	181526/665500	Río Grande de Añasco near Lares
	50144000	181705/670305	Río Grande de Añasco near San Sebastian
	50146000	181600/670805	Río Grande de Añasco near Añasco
Río Culebrinas	50147600	182051/670240	Río Culebrinas near San Sebastian
	50149100	182403/670940	Río Culebrinas near Aguada

TABLE 9 - LAKES WATER QUALITY MONITORING STATIONS

LAKE	STATION NUMBER	LAT/LONG	DESCRIPTION
Guajataca*	50010720	182205/665436	Near mouth, near Quebradillas
	50010790	182356/665523	Near dam, near Quebradillas
Dos Bocas*	50025110	181915/664011	At West Branchs, Near Utuado
	50027090	182009/664004	Near dam, near Utuado
Garzas*	50020050	180821/664435	Near dam, near Adjuntas
Carite*	50039900	180504/660603	On Río La Plata, Near Cayey
	50039950	180439/660619	Near dam, near Cayey
La Plata*	50044400	181933/661228	Near mouth, near Naranjito
	50044950	182018/661401	Near dam, near Naranjito
Loíza*	50057500	181651/660035	Near mouth, near Caguas
	50058800	181929/660047	Near dam, near Trujillo Alto
Caonillas	Lake -89001	181505/663855	Near Río Caonilla, Utuado
	Lake-89002	181533/663926	At the Center of the lake, near Utuado
	Lake-89003	181638/663918	Near dam, near Utuado
Guayo	Lake -89004	181144/665014	Near Río Guayo, near Adjuntas
	Lake-89005	181213/665006	At the center of the lake near Lares
	Lake-89006	181241/665010	Near dam, near Lares
Guineo	Lake -89007	180929/663152	Near Río Toro, near Villalba
	Lake-89008	180929/663139	Near dam, near Villalba
Matrullas	Lake -89009	181208/662847	Near Río Matrullas, near Orocovis
	Lake-89010	181240/662849	Near dam, near Orocovis
Guayabal	Lake -89011	180615/663023	Near Río Jacaguas, Juana Díaz
	Lake-89012	180557/663008	At center of the lake, Juana Díaz
	Lake-89013	180527/663012	Near dam, near Juana Díaz
Toa Vaca	Lake -89014	180655/662721	Near Río Toa Vaca, near Villalba
	Lake-89015	180508/662754	At center of the lake, Villalba
	Lake-89016	180615/662915	Near dam, near Villalba
Luchetti	Lake -89017	180628/665214	Near Yauco, near Yauco
	Lake-89018	180549/665203	At center of the lake near Yauco
	Lake-89019	180540/665151	Near dam, near Yauco

TABLE 9 - LAKES WATER QUALITY MONITORING STATIONS
(Continued)

LAKE	STATION NUMBER	LAT/LONG	DESCRIPTION
Loco	Lake -89020	180305/665304	Near Quebrada Grande
	Lake-89021	180243/665312	Near dam, near Yauco
Patillas	Lake -89022	180145/660155	Near Río Patillas
	Lake-89023	180043/660042	Between stations Lake-89022 and 89024, near Patillas
	Lake-89024	180122/660117	Near dam, near Patillas
	Lake-89025	180112/660108	Near Río Marín, near Patillas
Melania	Lake -89026	175548/660837	At the center of the lake, near Guayama
Las Curías	Lake -89027	182028/660235	East side at the end of the lake, near San Juan
	Lake-89028	182040/660259	Near dam, near San Juan
Cidra	Lake -89029	181052/660800	Near the second bridge over road 172, near Cidra
	Lake-89030	181115/660837	At the center of the lake
	Lake-89031	181153/660826	Near dam, near Cidra

TABLE 10 - ENVIRONMENTAL QUALITY BOARD COASTAL WATER QUALITY MONITORING STATIONS

<u>Region</u> <u>Station</u> <u>Number</u>	<u>Classification</u> <u>(WOSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of</u> <u>Monitoring</u>
NORTH				
043 (SBZ-001)	SC	182510/ 670930	Aguadilla Bay near Aguadilla High School-Aguadilla	6 / B T , 1/PCM
SBZ-002	SC	182735/ 670955	Crash Boat	6/BT
SBZ-003	SB	182927/ 670943	Between Pta. Borinquen and Pta. Agujereada-Aguadilla	6/BT
SBZ-004	SB	183100/ 670434	Pta. Jacinto Isabela	6/BT
044	SB	183037/ 670123	500 meters West Punta Sardinera Isabela	6 / B T , 1/PCM
SBZ-005	SB	183055/ 670359	Punta Jacinto- Isabela	6/BT
086	SB	182929/ 665733	130 meters west of Río Guajataca mouth-Isabela	1/BTPCM
047	SB	182922/ 664942	880 meters east of Río Camuy mouth near fire station - Hatillo	6 / B T P C 1/M
SBZ-006	SB	182934/ 665117	In front of Penon Brusi, Camuy	6/BT
SBZ-007	SB	182942/ 664752	Pta. Maracayo- Hatillo	6/BT

<u>Region</u> <u>Station</u> <u>Number</u>	<u>Classification</u> <u>(WQSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of</u> <u>Monitoring</u>
049	SC	182918/ 664041	Punta Caracoles near "Cueva del Indio", Arecibo	1/BTPCM
SBZ-008	SB	182912/ 663442	Playa La Criolla- Barceloneta	6/BT
SBZ-009	SB	182917/ 663403	Playa Palmas Altas- Barceloneta	6/BT
055	SB	182900/ 663208	130 meters west of Río Grande de Manatí mouth - Barceloneta	6 / B T P C , 1/M
SBZ-010	SB	182829/ 662908	Marchiquita - Manatí	6/BT
087 (SBZ-011)	SB	182938/ 662458	Puerto Nuevo Public Beach-Vega Baja	6/BT, 1/M
088 (SBZ-012)	SB	182900/ 662029	Cerro Gordo Public Beach - Vega Alta	6 / B T , 1/PCM
<u>SOUTH</u>				
083 (SBZ-041)	SB	175752/ 660220	Punta Guilarte public beach - Arroyo	6 / B T , 1/PCM
017	SB	175609/ 660853	East of Punta Ola at the end of road #710 - Guayama	6 / B T P C , 1/M
016	SC	175619/ 660927	Dock site of Phillips Petroleum - Guayama	1/BTPCM, O& G
018	SC	175713/ 661103	Jobos Bay at Puerto de Jobos Nautical Club - Guayama	1/BTPCM
019	SC	175713/ 661335	Jobos Bay at dock site of Monte Nautical Club- Salinas	6 / B T P C , 1/M
SBZ-042	SB	175802/ 662156	Jaucas Beach - Santa Isabel	6/BT

<u>Region Station Number</u>	<u>Classification (WOSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of Monitoring</u>
020	SB	175723/ 662423	At the end of road #538 - Santa Isabel	6 / B T P C , 1/M
022	SC	175821/ 663705	Playa de Ponce at dock site near National Packing Company-Ponce	6/BTPC,O&G , 1/M
023	SC	175900/ 663734	190 meters west of Río Portugués North-Ponce	6 / B T P C , 1/M
084 (SBZ-043)	SB	175822/ 664038	El Tuque public beach - Ponce	6 / B T , 1/PCM
024	SB	175933/ 664354	Tallaboa Bay at dock of CORCO - Peñuelas	1/BTPCM,O&G
025	SC	175900/ 664517	Tallaboa Bay at union Carbide Dock- Peñuelas	1/BTPCM,O&G
027	SC	175944/ 664543	Guayanilla Bay at Dock at the end of road #127 - Guayanilla	1/BTPCM,O&G
089	SC	180029/ 664608	Guayanilla Bay - Guayanilla	1/BTPCM
028	SC	175952/ 664707	Guayanilla Bay at the end of Central Rufina Street - Guayanilla	6 / B T P C , 1/M
030	SB	175803/ 664834	Punta Ventana near Central San Francisco - Guayanilla	1/BTPCM
085 (SBZ-044)	SB	175717/ 665259	Caña Gorda Beach - Guánica	6 / B T , 1/PCM
034	SC	175800/ 665431	Guánica Bay in front of stone monument - Guánica	1/BTPCM

<u>Region Station Number</u>	<u>Classification (WOSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of Monitoring</u>
SBZ-045	SB	175620/ 665720	Caleta Salinas - Guánica	6/BT
SBZ-046	SB	175824/ 670155	Area Between La Parguera and Punta Papargo - Lajas	6/BT
SBZ-047	SB	175842/ 671245	El Combate, Cabo Rojo	6/BT
SBZ-048	SB	175902/ 671256	Punta Moja Casabe - Cabo Rojo	6/BT
037 (SBZ-049)	SB	180124/ 671022	Boquerón Bay - Cabo Rojo	6 / B T , 1/PCM
<u>WEST</u>				
SBZ-050	SB	180306/ 671157	Boca Prieta - Cabo Rojo	6/BT
SBZ-051	SB	180404/ 671151	Between Pta. Boca Buey and Pta. La Mela, Cabo Rojo	6/BT
SBZ-052	SB	180547/ 671147	Punta Ostiones - Cabo Rojo	6/BT
038	SC	181148/ 670923	Mayaguez Bay near Parque Isidoro García - Mayaguez	6 / B T P C , 1/M
040	SC	181325/ 671010	Mayaguez Bay near Neptune Packing Corporation - Mayaguez	6/BTPC,O&G , 1/M
041B (SBZ-053)	SB	181710/ 671131	Añasco Beach in front of Cabañas de Añasco - Añasco	6 / B T , 1/PCM
SBZ-054	SB	181848/ 671433	Bo. Calvache - Rincón	6/BT
SBZ-055	SB	182016/ 671517	Rincón	6/BT

<u>Region Station Number</u>	<u>Classification (WQSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of Monitoring</u>
<u>EAST</u>				
061	SB	182849/ 661546	1,750 meters west of Río La Plata mouth - Dorado	6 / B T P C , 1/M
077 (SBZ-015)	SB	182828/ 661112	Punta Salinas public beach(west) - Toa Baja	6 / B T P C , 1/M
SBZ-016	SC	182826/ 661106	Punta Salinas public beach(east) - Toa Baja	6/BT
063 (SBZ-017)	SC	182722/ 661042	Ensenada de Boca Vieja Levittwon Beach -Toa Baja	6 / B T P C , 1/M
B-1 (SBZ-020)	SB	182747/ 660500	Dos Hermanos bridge - San Juan	1 2 / B T , 1/PCM
070	SB	182743/ 660456	Condado Lagoon near Condado Plaza Hotel - San Juan	1 2 / B T , 1/PCM
071	SB	181734/ 660455	Condado Lagoon near Baldorioty Statue - San Juan	1 2 / B T , 1/PCM
072	SB	182725/ 660440	Condado Lagoon near small boats pier - San Juan	1 2 / B T , 1/PCM
074	SB	182734/ 660423	710 feet west of Condado Channel - San Juan	1 2 / B T , 1/PCM
075	SB	182732/ 660410	92 feet east of Condado Channel - San Juan	1 2 / B T , 1/PCM
076	SB	182729/ 660354	360 feet west of Condominio Condado del Mar - San Juan	1 2 / B T , 1/PCM
003C	SB	182723/ 660315	550 feet west of pumping station discharge in Ocean Park	1 2 / B T , 1/PCM

<u>Region Station Number</u>	<u>Classification (WOSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of Monitoring</u>
B-2 (SBZ-021)	SB	182719/ 660254	San Juan Hotel - Isla Verde, Carolina	1 2 / B T , 1/PCM
004C (SBZ-022)	SB	182651/ 660105	Barbosa Park - San Juan	1 2 / B T , 1/PCM
B-3 (SBZ-023)	SB	182657/ 660005	Isla Verde public beach - Carolina	1 2 / B T , 1/PCM
(SBZ-029)	SB	182303/ 654406	Luquillo public beach, Luquillo	6/BT
010 (SBZ-031)	SB	182218/ 653813	Seven Seas public beach - Fajardo	6 / B T P C , 1/M
078B	SB	182010/ 653748	Isleta Marina dock - Fajardo	6/BTPC,O&G , 1/M
079	SB	181121/ 654242	Fishing dock - Naguabo	6 / B T P C , 1/M
080 (SBZ-032)	SC	181120/ 654337	Naguabo Tropical Beach - Naguabo	6 / B T P C , 1/M
081 (SBZ-035)	SC	180925/ 654539	Humacao public beach - Humacao	6/BT
011	SB	180715/ 654652	130 meters east of Río Humacao mouth - Humacao	1/BTPCM
012 (SBZ-036)	SC	180354/ 654907	Guayanés public beach Yabucoa	6 / B T P C , 1/M
013	SC	180323/ 655008	Yabucoa Port - Yabucoa	6/BTPC,O&G , 1/M
082	(SBZ-039) SB	175933/ 655344	250 east of Río Maunabo mouth - Maunabo	6 / B T P C , 1/M

<u>Region Station Number</u>	<u>Classification (WOSR)</u>	<u>Lat/Long</u>	<u>Station Name</u>	<u>Frequency of Monitoring</u>
SBZ-013	SB	182843/ 661904	Los Tocones, Dorado Beach	6/BT
SBZ-014	SB	182827/ 661728	Sardinera Beach, Dorado	6/BT
SBZ-016	SC	182827/ 661107	Punta Salinas East Side - Toa Baja	6/BT
SBZ-018	SB	182810/ 660524	Escobar Beach, San Juan	6/BT
SBZ-019	SB	182805/ 660414	Escambrón Beach, San Juan	6/BT
SBZ-024	SB	182732/ 665827	Piñones Beach, Carolina	6/BT
SBZ-025	SB	182659/ 655633	Tres Palmitas Piñones Beach, Carolina	6/BT
SBZ-026	SB	181708/ 655419	Vacia Talega, Carolina	6/BT
SBZ-027	SB	182612/ 655108	Punta Iglesias, Loíza	6/BT
SBZ-028	SB	182534/ 654948	Punta Uvero Beach Near Rio Herrera, Loiza	6/BT
SBZ-030	SB	182307/ 654315	Luquillo Beach East of Town	6/BT
SBZ-033	SC	181113/ 654347	Between Río Santiago and Anton Ruiz, Humacao	6/BT
SBZ-034	SC	181017/ 654428	Between Río Antón Ruiz and Río Boca Prieta, Humacao	6/BT
SBZ-037	SC	180235/ 655003	Lucia Public Beach, Yabucoa	6/BT
SBZ-038	SC	180152/ 654954	Punta Quebrada Honda, Yabucoa	6/BT
SBZ-040	SB	175840/ 655922	Between Quebrada Palenque and Punta Viento, Patillas	6/BT

*monitored by the U.S. Geological Survey

LEGEND:

B = Bacteriological analyses
T = Temperature (field)
PC = Physical-Chemical parameters
include salinity, turbidity,
dissolved oxygen, nitrate + nitrite,
ammonia, and pH.
O&G = Oil and grease analyses
M = Heavy metal analyses

TABLE 11 - ENVIRONMENTAL QUALITY BOARD SPECIAL MONITORING STATIONS AT CONDADO, OCEAN PARK, CONDADO LAGOON AND ISLA VERDE BEACHES

<u>Station No.</u>	<u>Lat/Long</u>	<u>Description</u>
EB-02*	182730/660413	710 feet west of storm sewer at Condado Street
EB-04	182734/660421	110 feet west of storm sewer at Condado Street
EB-07*	182734/660410	92 feet east of storm sewer Condado Street
EB-14	182734/660408	100 feet east of storm channel at Cervantes Street
EB-17	182734/660404	100 feet east of storm sewer channel at Miguel Rodriguez Serra Street
EB-19*	182735/660358	360 feet west of Condominio Condado del Mar (east-Nairn Street)
EB-23	182730/660354	120 feet east of Condominio Condado del Mar
EB-29	182724/660343	100 feet east of pumping station in Ocean Park, at the end of King Court Street
EB-31	182724/660343	Beach at the end of Carrion Court street
EB-33*	182718/660327	550 feet west of pumping station in Ocean Park (Yardly Place - Gertrudies Street)
EB-35	182725/660318	100 feet west of pumping station in Ocean Park (Santa Ana Elena Street)
EB-38	182725/660336	250 feet east of pumping station in ocean Park (near the end of Santa Cecilia St.)
B-2*	182719/660254	Barbosa Park in Ocean Park
EB-40	182646/660125	210 feet west of Tartak Street in Isla Verde
EB-41	182646/660109	In front of Tartak Street in Isla Verde
EB-42	182647/660103	204 feet east of Tartak Street in Isla Verde
070*	182740/660503	Condado Lagoon near Condado Plaza Hotel
071*	182732/660451	Condado Lagoon, near Baldorioty Statue
072*	182725/660440	Condado Lagoon, near small boats pier
B-1	182747/660503	Dos Hermanos Bridge, San Juan
B-3	182655/660005	Verde Public Beach
004C	182648/660046	Behind of San Juan Hotel

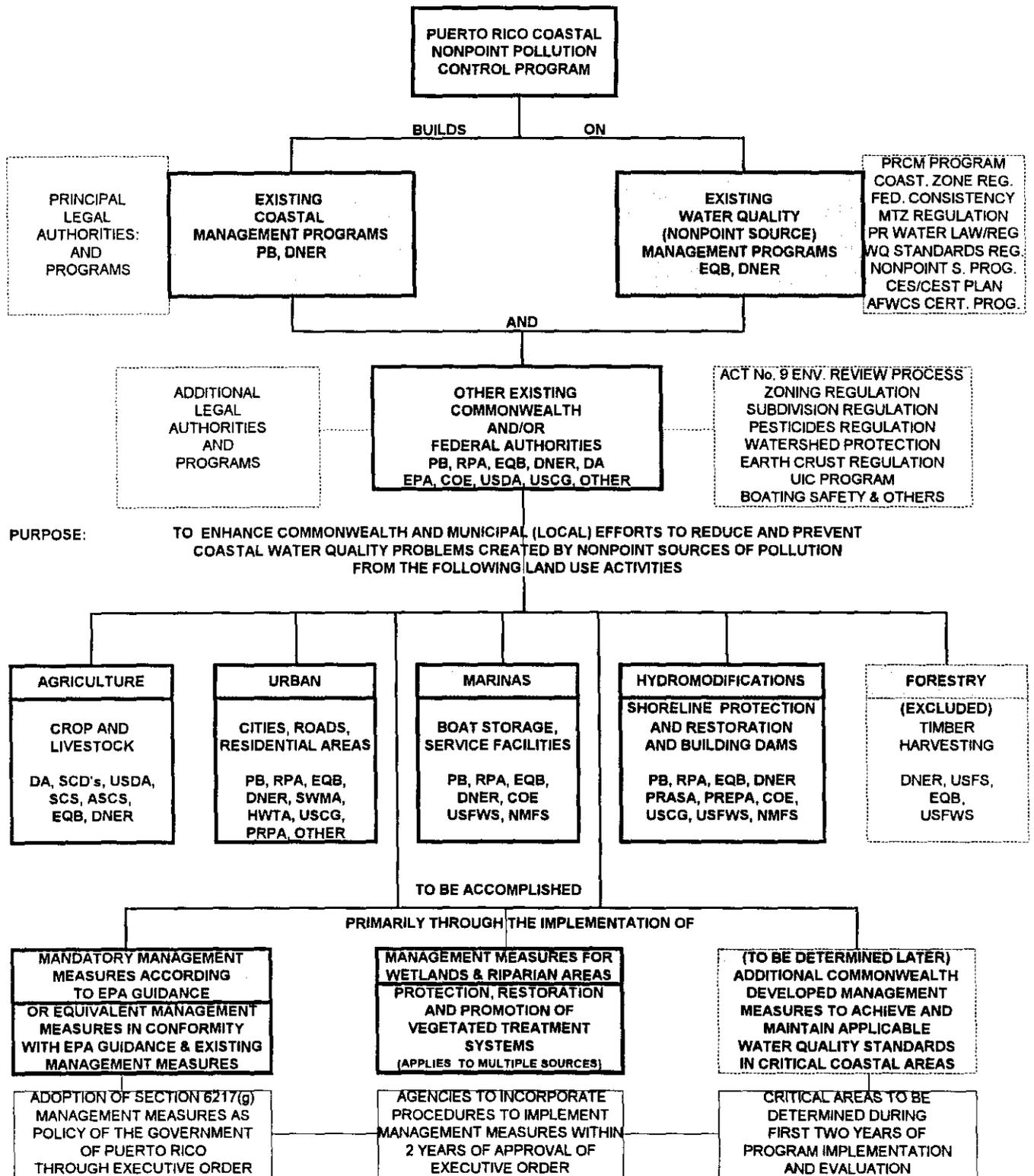
*Stations included in EQB's permanent coastal water monitoring network

FIGURES

LIST OF FIGURES

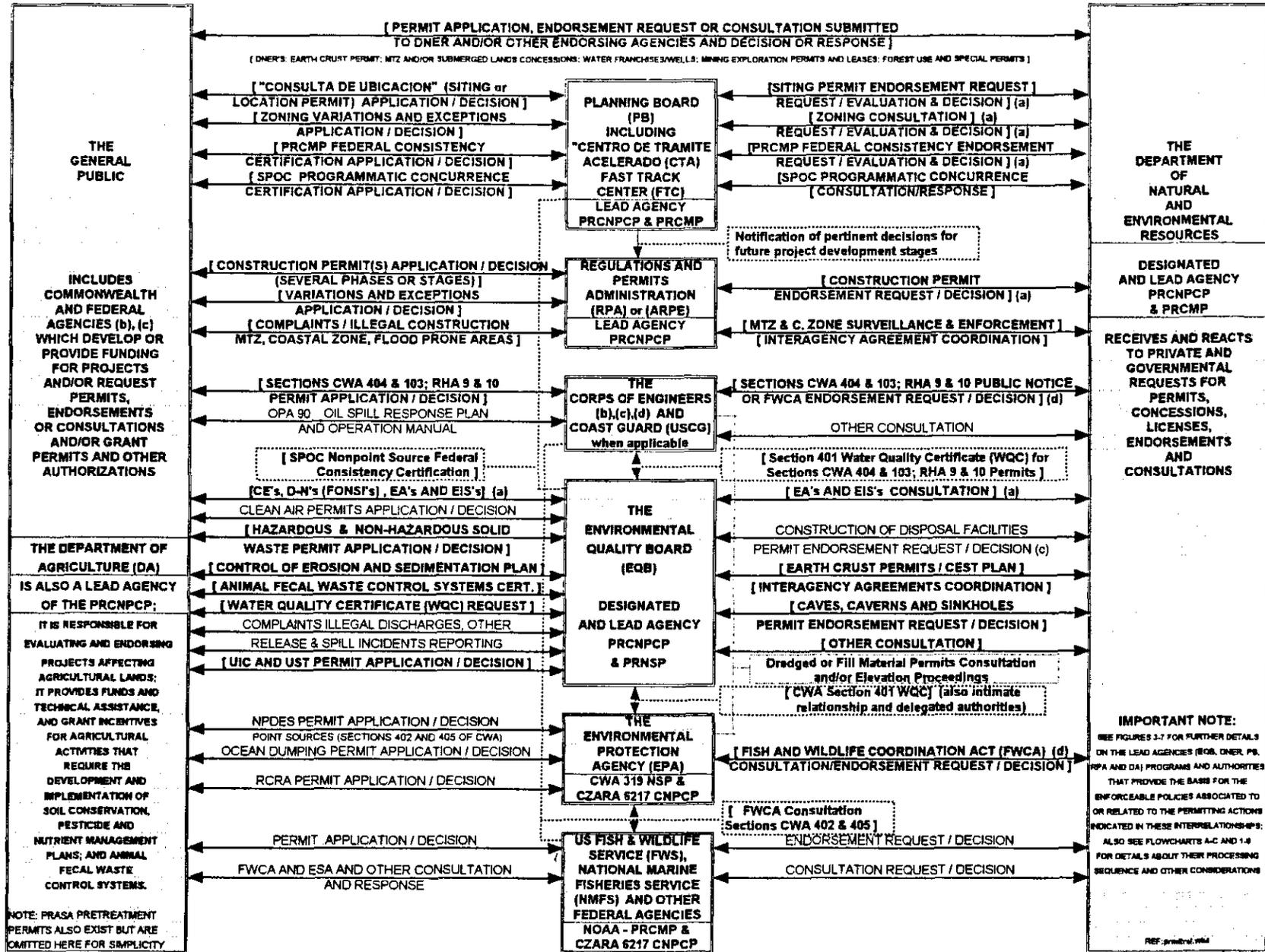
- FIGURE 1 SYNTHESIS OF THE PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PROGRAM
- FIGURE 2 HIGHLIGHTS OF DEVELOPMENT PROJECTS PERMITTING INTERRELATIONSHIPS APPLICABLE TO THE PRCNPP
- FIGURE 3 ENVIRONMENTAL QUALITY BOARD INTERVENTION IN PRCNPP ENFORCEABLE POLICIES
- FIGURE 4 PLANNING BOARD (PB) INTERVENTION IN PRCNPP ENFORCEABLE POLICIES
- FIGURE 5 DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES (DNER) INTERVENTION IN PRCNPP ENFORCEABLE POLICIES
- FIGURE 6 REGULATIONS AND PERMITS ADMINISTRATION (RPA) INTERVENTION IN PRCNPP ENFORCEABLE POLICIES
- FIGURE 7 DEPARTMENT OF AGRICULTURE (DA) AND AFFILIATED AGENCIES INTERVENTION IN PRCNPP ENFORCEABLE POLICIES
- FIGURE 8 ORGANIZATIONAL CHART OF EQB's WATER QUALITY PROGRAM

FIGURE 1
SYNTHESIS OF THE PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PROGRAM



Ref.: 6217Rev.wk4

FIGURE 2 - HIGHLIGHTS OF DEVELOPMENT PROJECTS PERMITTING INTERRELATIONSHIPS APPLICABLE TO THE PRCNCP [THOSE SHOWN BOLDFACE & WITHIN BRACKETS]



(a) - Also to/from other pertinent agencies; (b) - For the purpose of simplifying this figure, any environmental document (CE, D-N (or FONSI), EA or EIS) that is needed under EQB'S ERP, is considered to be part of the permit process, although it follows a separate process.

(c) - Federal agencies are mandated by Section 307 (c) and (d) of the Coastal Zone Management Act of 1972, as amended, to comply with PRCMP Federal Consistency Requirements of the Planning Board. (d) - The Fish and Wildlife Coordination Act (FWCA) mandates Federal action agencies to consult the DNER to request endorsement of their projects and/or permits.

FIGURE 3
ENVIRONMENTAL QUALITY BOARD INTERVENTION IN PRCNCP ENFORCEABLE POLICIES

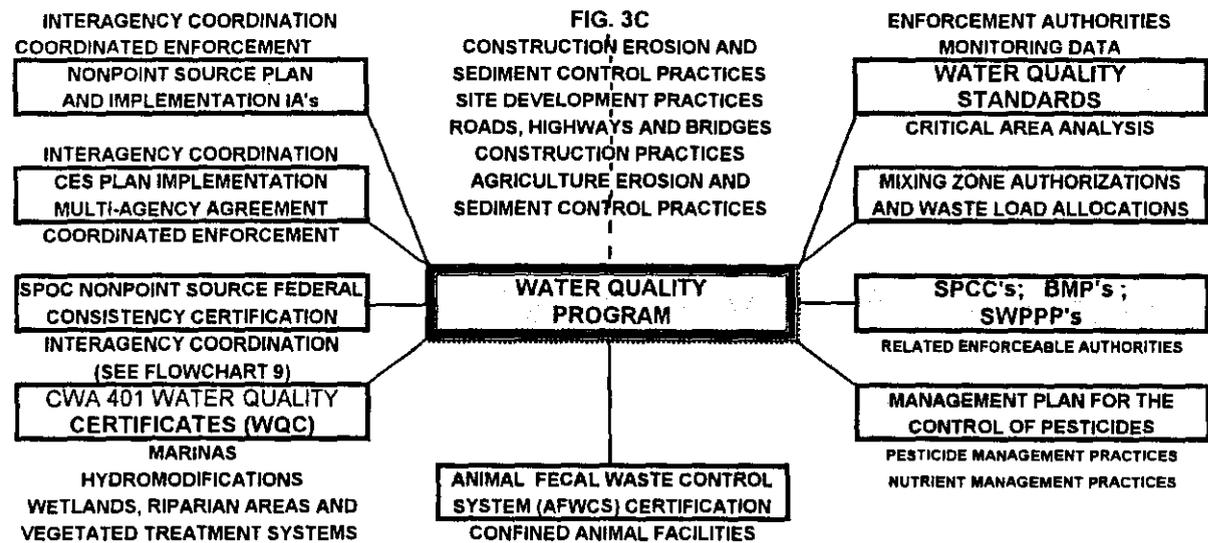
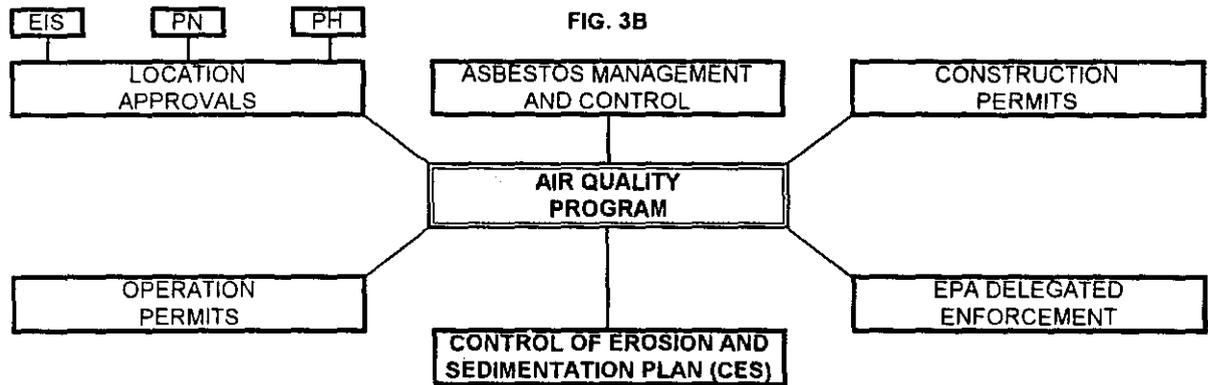
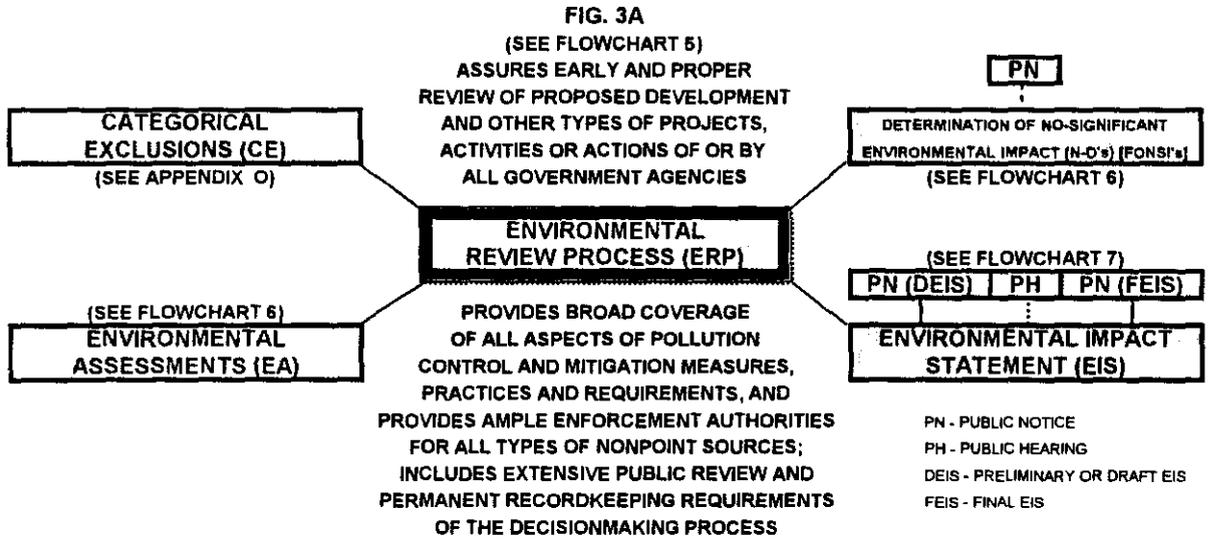


FIGURE 3
ENVIRONMENTAL QUALITY BOARD INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES

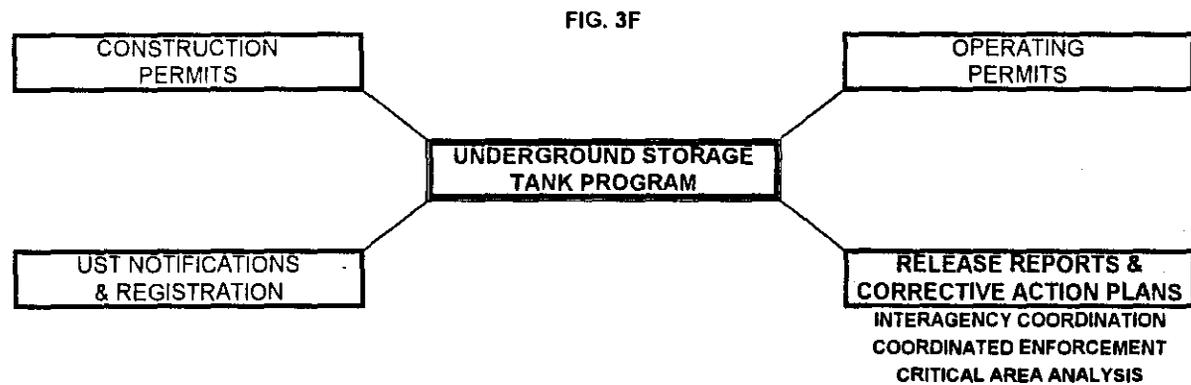
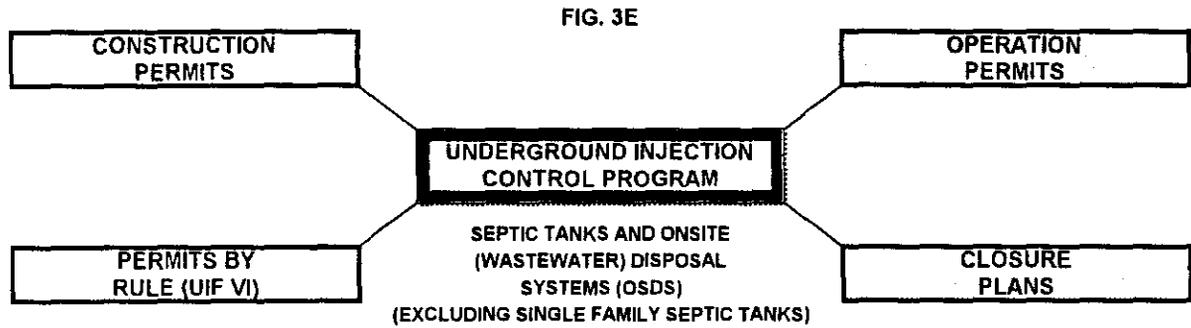
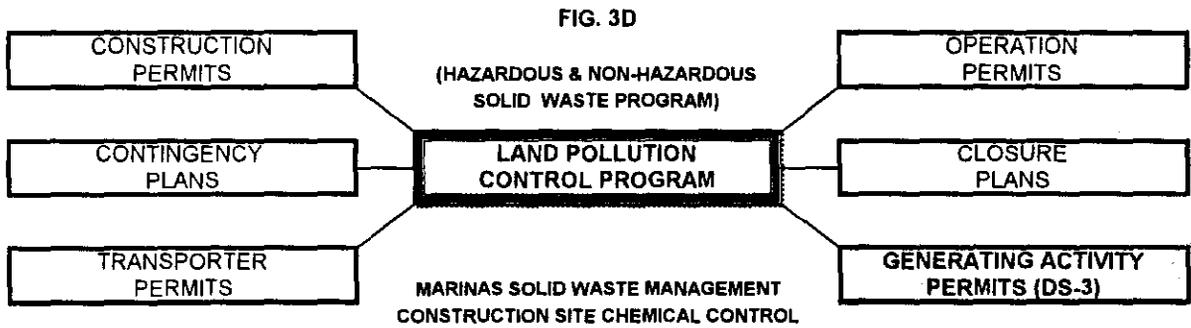
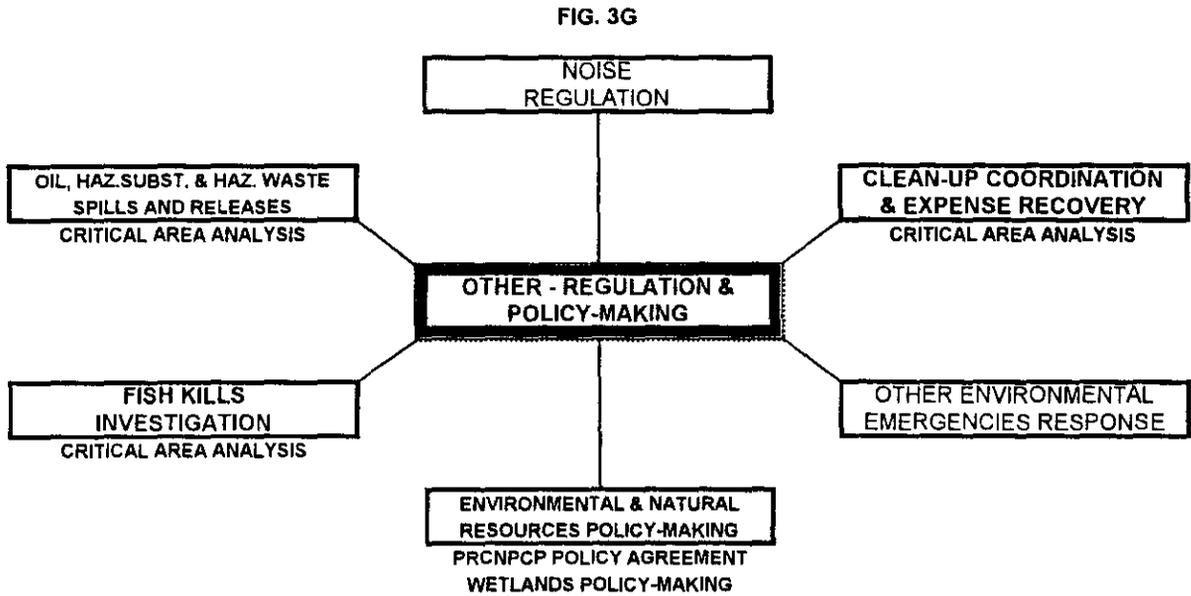


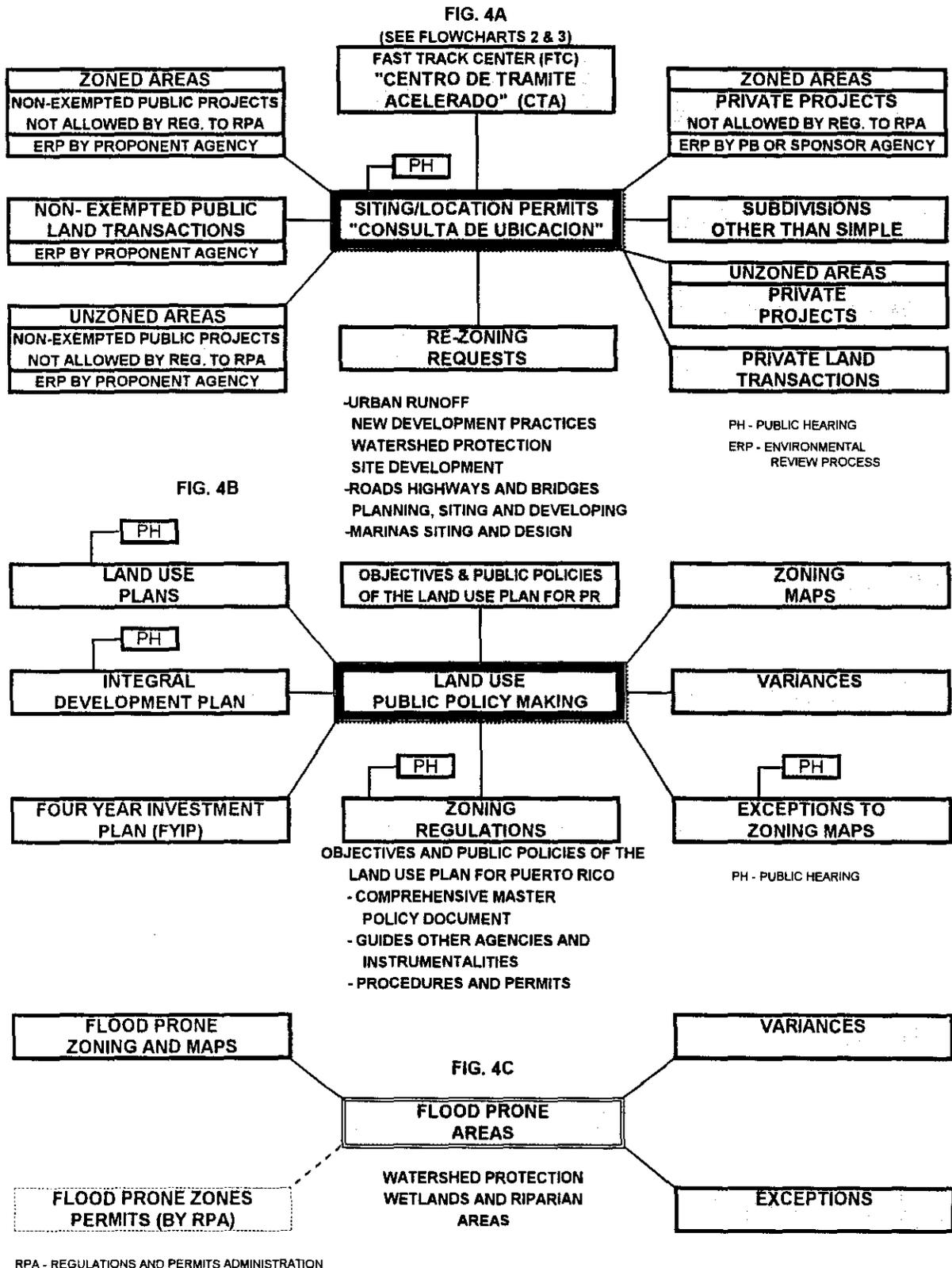
FIGURE 3
ENVIRONMENTAL QUALITY BOARD INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES



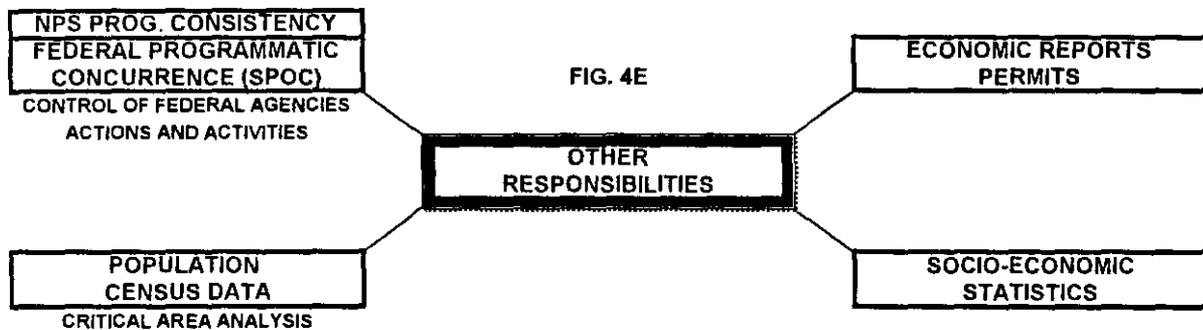
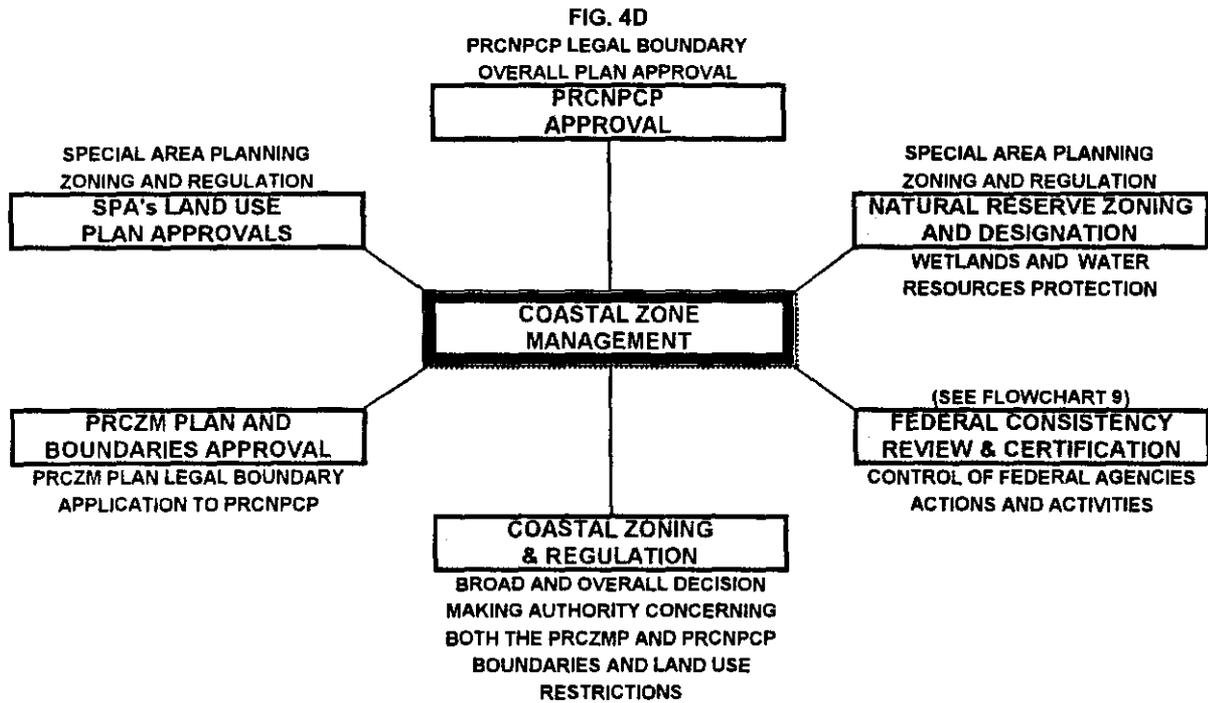
LEGEND FOR FIGURES 3-7:

SYMBOL	PERTINENCY TO THE PRCNPCP
	PRINCIPAL AUTHORITY OR PROGRAM
	PRINCIPAL ACTIVITY
	SECONDARY/ RELATED PROGRAM
	SECONDARY/ RELATED ACTIVITY
	UNRELATED ACTIVITY
.....	OPTIONAL OR INDIRECT RELATIONSHIP

FIGURE 4
PLANNING BOARD (PB) INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES



**FIGURE 4
PLANNING BOARD (PB) INTERVENTION IN PRCNPP ENFORCEABLE POLICIES**



LEGEND FOR FIGURES 3-7:

- | | |
|---|-----------------------------------|
| SYMBOL | PERTINENCY TO THE PRCNPP |
|  | PRINCIPAL AUTHORITY OR PROGRAM |
|  | PRINCIPAL ACTIVITY |
|  | SECONDARY/ RELATED PROGRAM |
|  | SECONDARY/ RELATED ACTIVITY |
|  | UNRELATED ACTIVITY |
| | OPTIONAL OR INDIRECT RELATIONSHIP |

**FIGURE 5
DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES (DNER)
INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES**

FIG. 5A

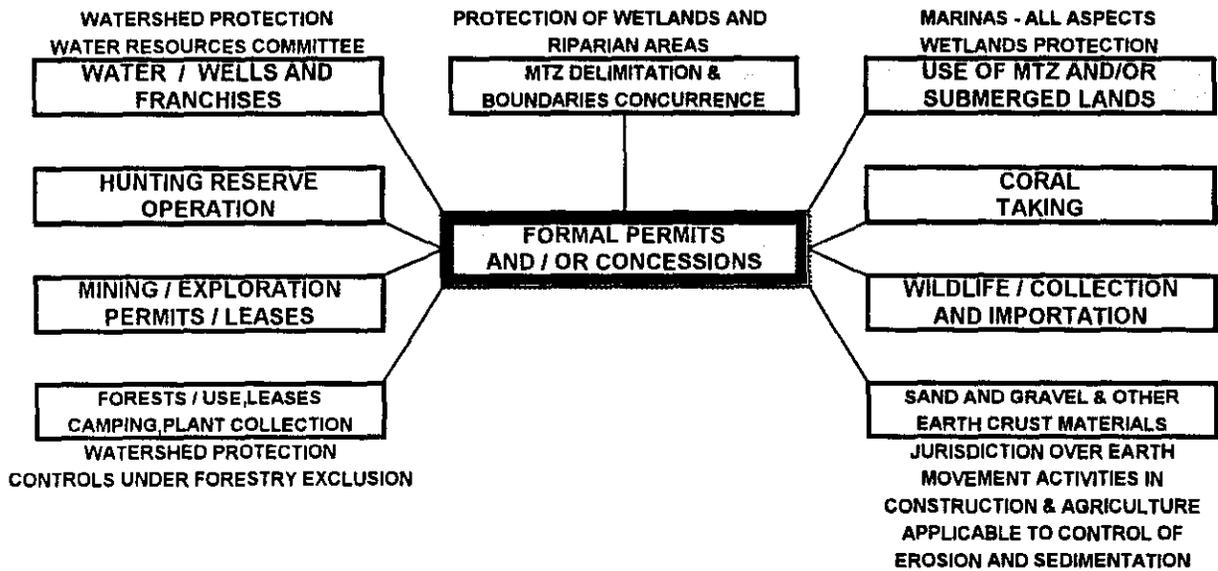
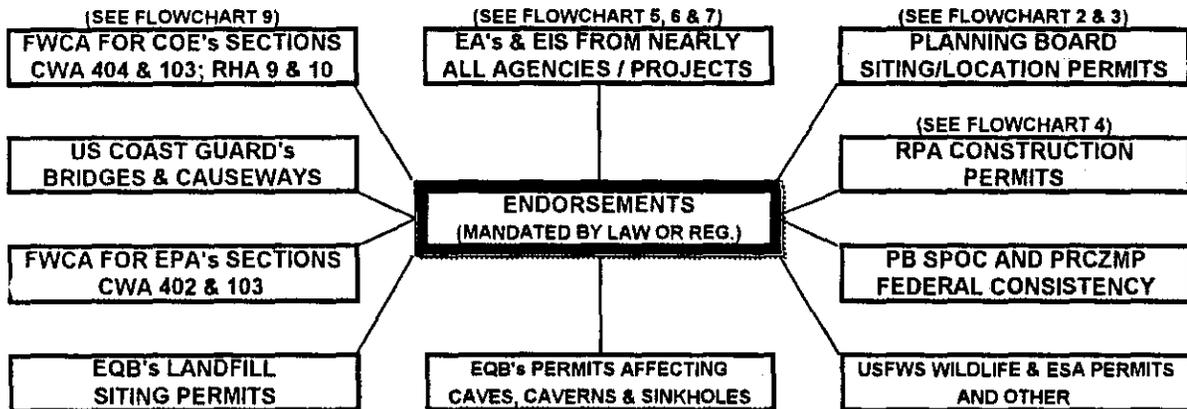


FIG. 5B



ALL OF THE ABOVE ENDORSEMENTS PROVIDE STRONG STATUTORY-BASED INFLUENCING AUTHORITY CONCERNING DECISIONS/ DECISION-MAKING AUTHORITY OF OTHER LEAD AND COOPERATING AGENCIES RELATED TO PRCZMP, PRCNPCP AND OTHER REGULATORY PROGRAMS AND ACTIONS

COE - CORPS OF ENGINEERS
EA - ENVIRONMENTAL ASSESSMENT
EIS - ENV. IMPACT STATEMENT
EQB - ENV. QUALITY BOARD
EPA - ENV. PROTECTION AGENCY
ESA - ENDANGERED SPECIES ACT
FWCA - FISH AND WILDLIFE COORD. ACT

PB - PLANNING BOARD
PRCZMP - PR COASTAL ZONE MANAGEMENT PROGRAM
RPA - REGULATIONS AND PERMITS ADMINISTRATION
SPOC - SINGLE POINT OF CONTACT

FIGURE 5
DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES (DNER)
INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES

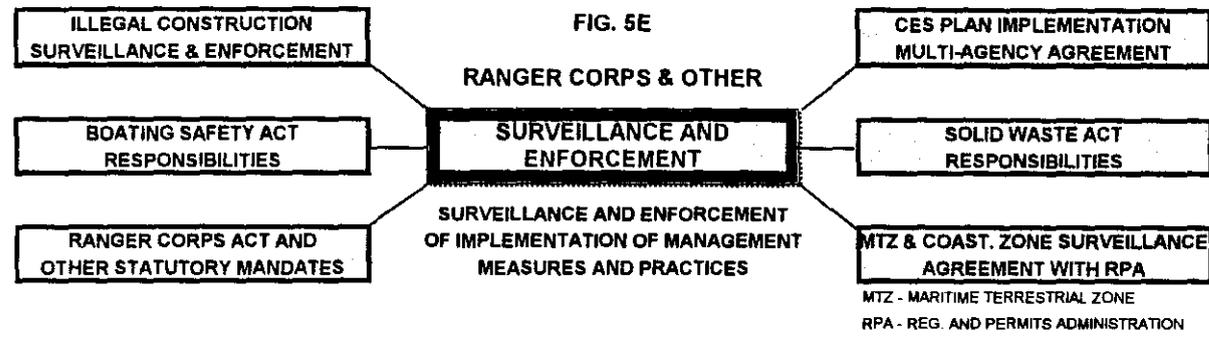
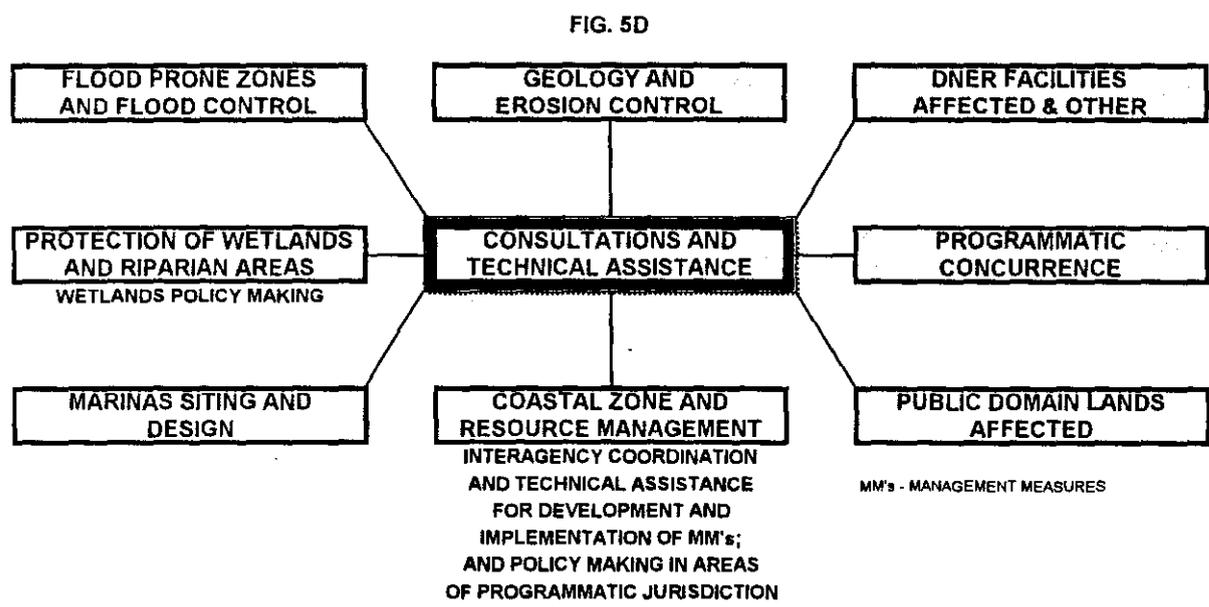
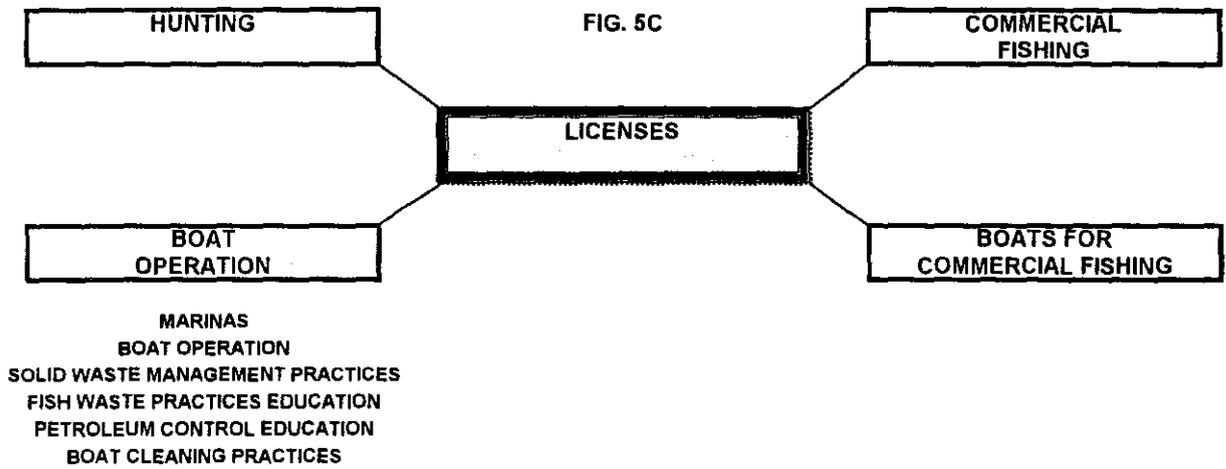


FIGURE 6
REGULATIONS AND PERMITS ADMINISTRATION (RPA)
INTERVENTION IN PRCNPCP ENFORCEABLE POLICIES
 (SEE FLOWCHART 4)

FIG. 6A

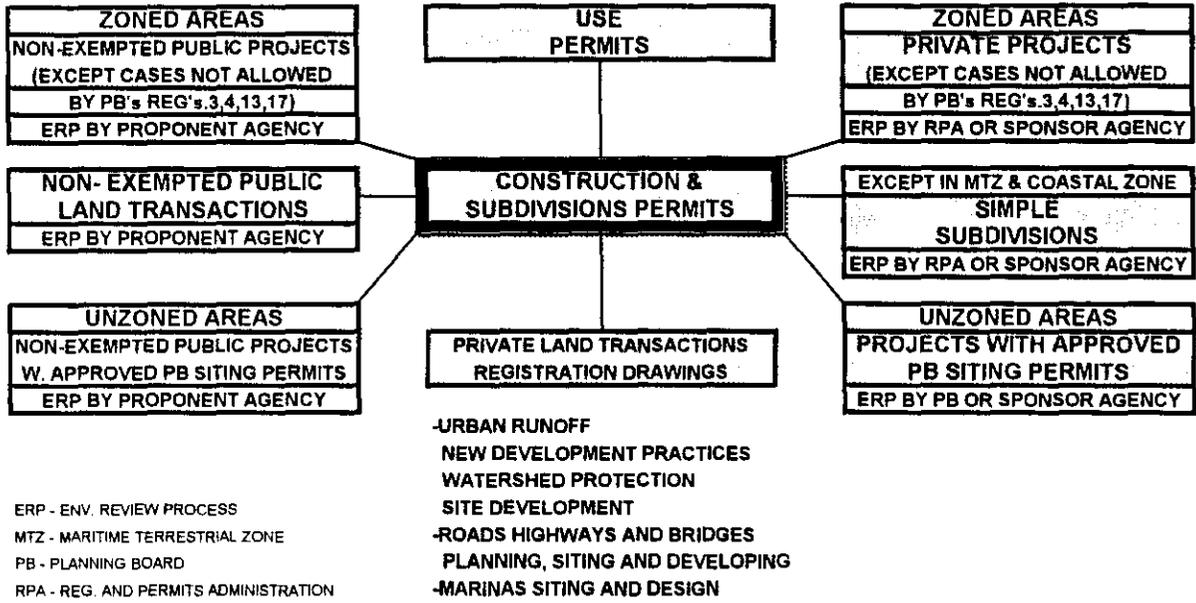
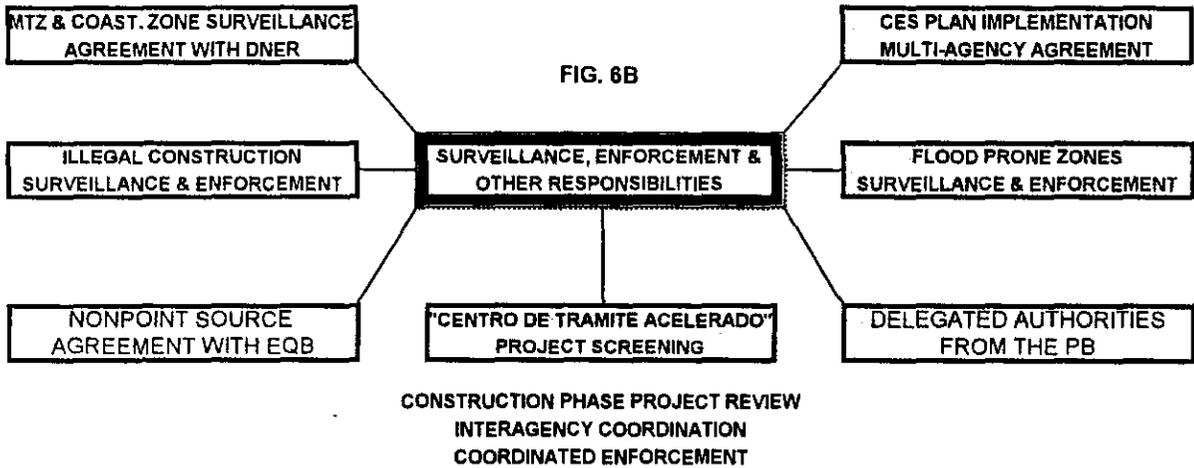


FIG. 6B



MTZ - MARITIME TERRESTRIAL ZONE

FIGURE 7
DEPARTMENT OF AGRICULTURE (DA) AND AFFILIATED AGENCIES
INTERVENTION IN PRCNCP ENFORCEABLE POLICIES

FIG. 7A

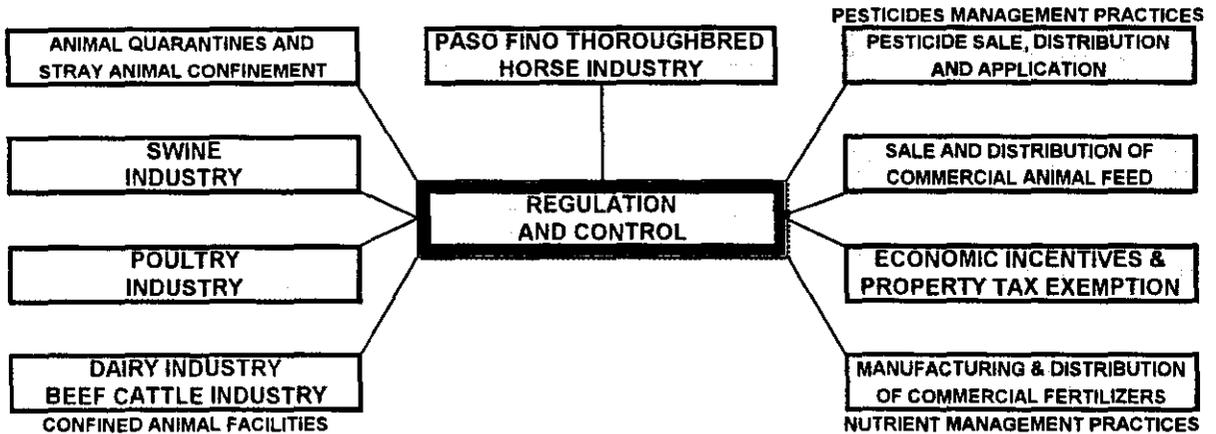
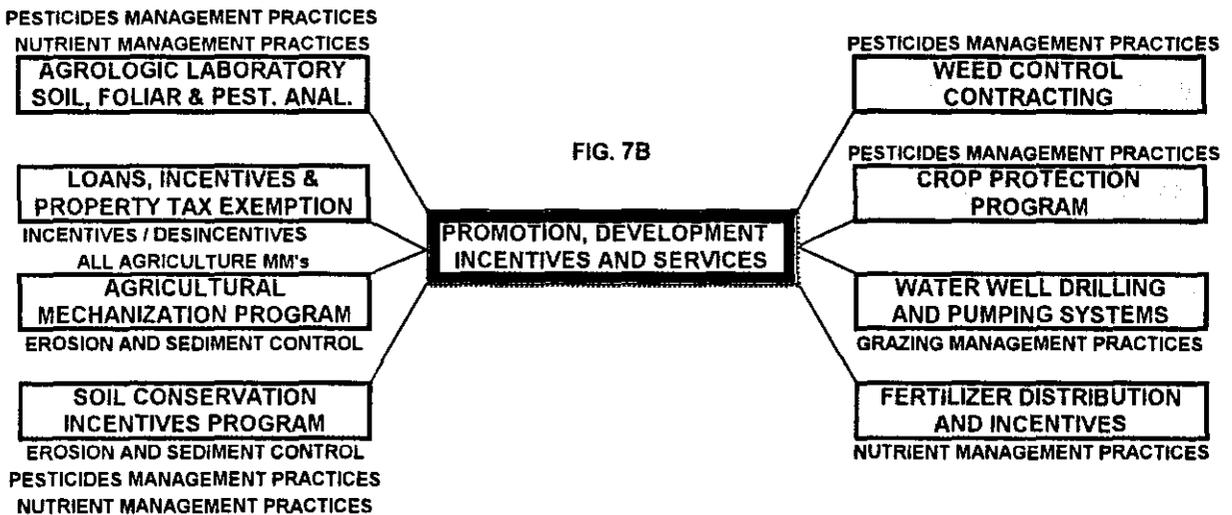


FIG. 7B



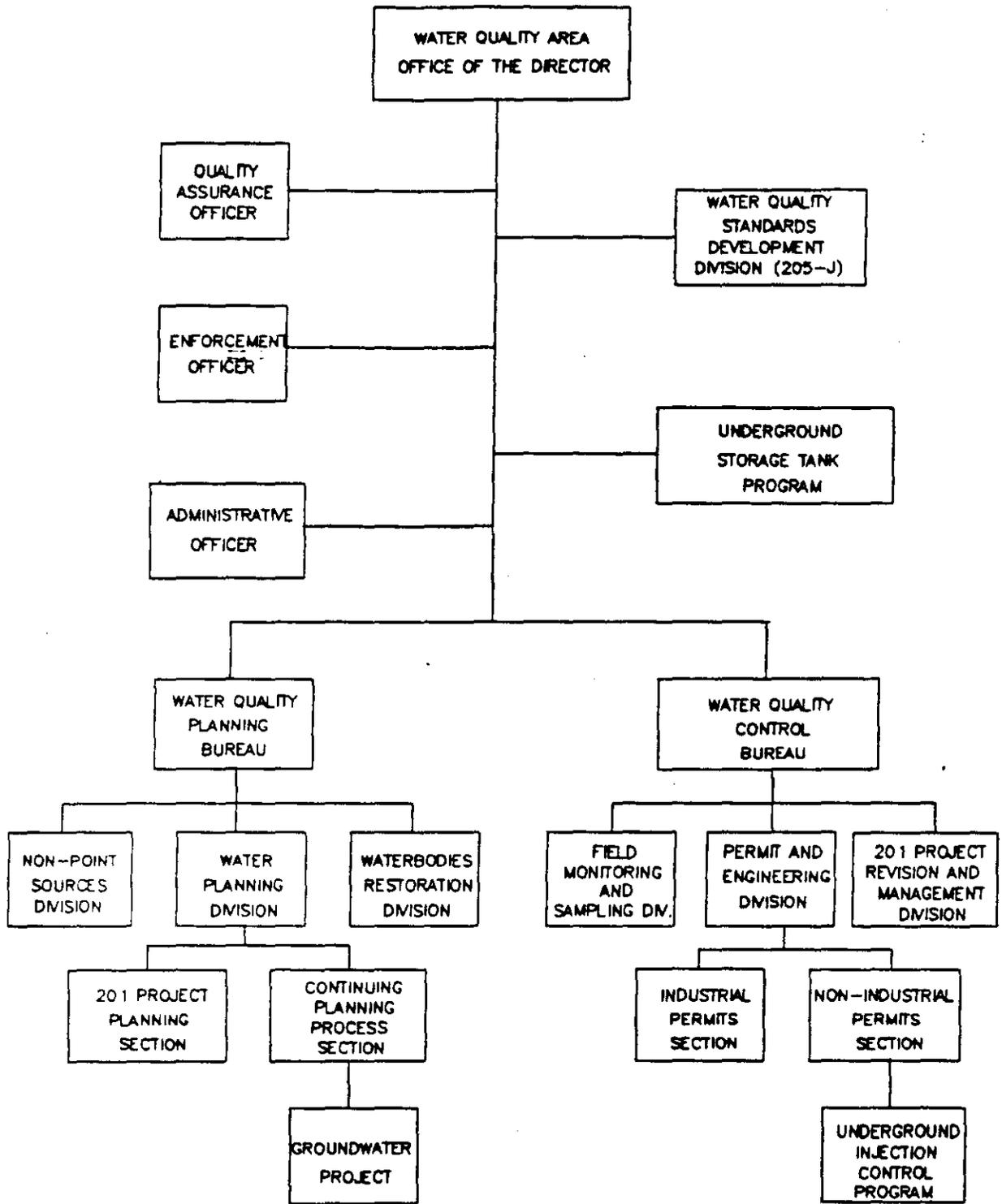


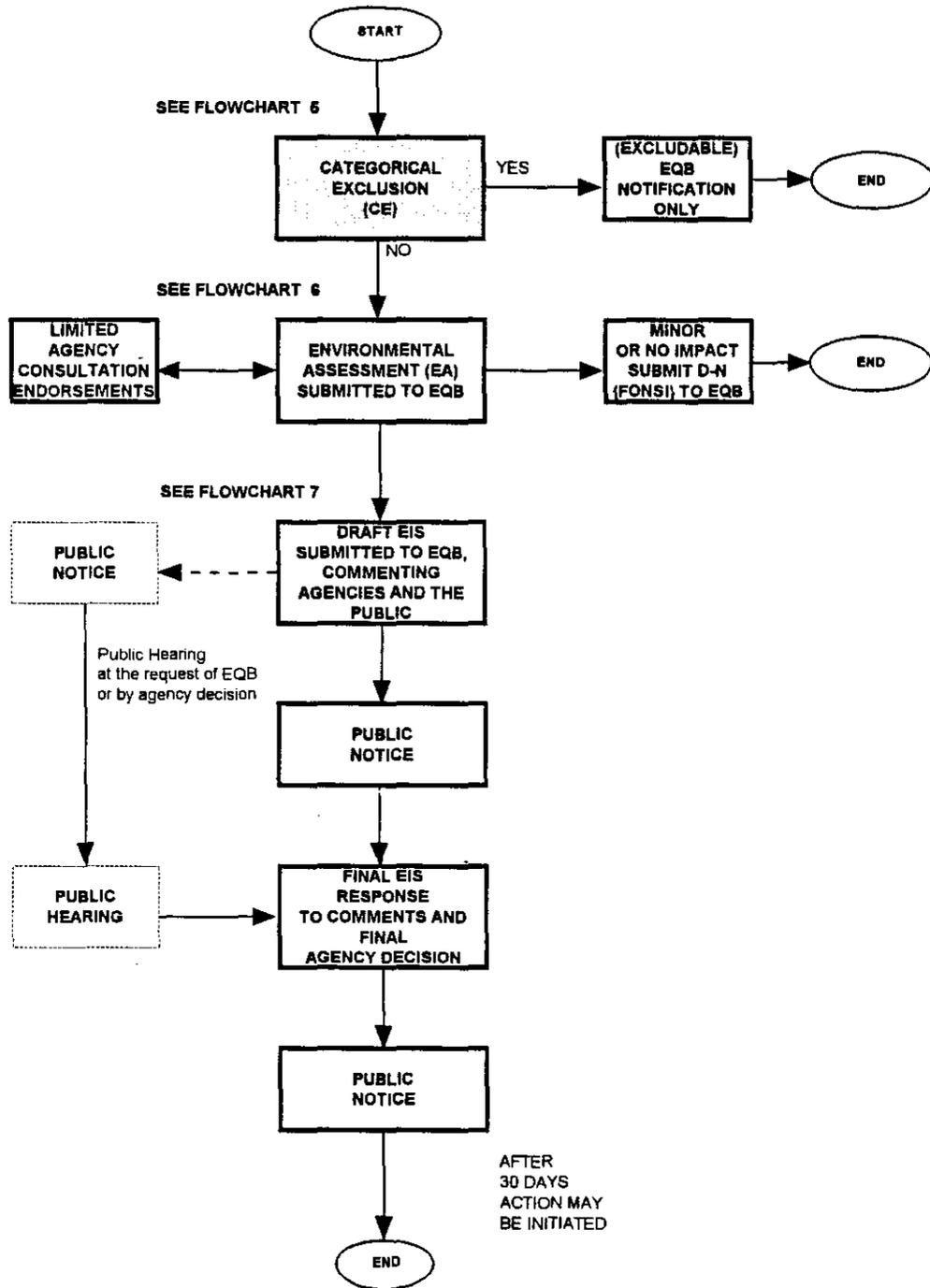
FIGURE 8 - ORGANIZATIONAL CHART OF THE WATER QUALITY AREA OF EQB

FLOWCHARTS

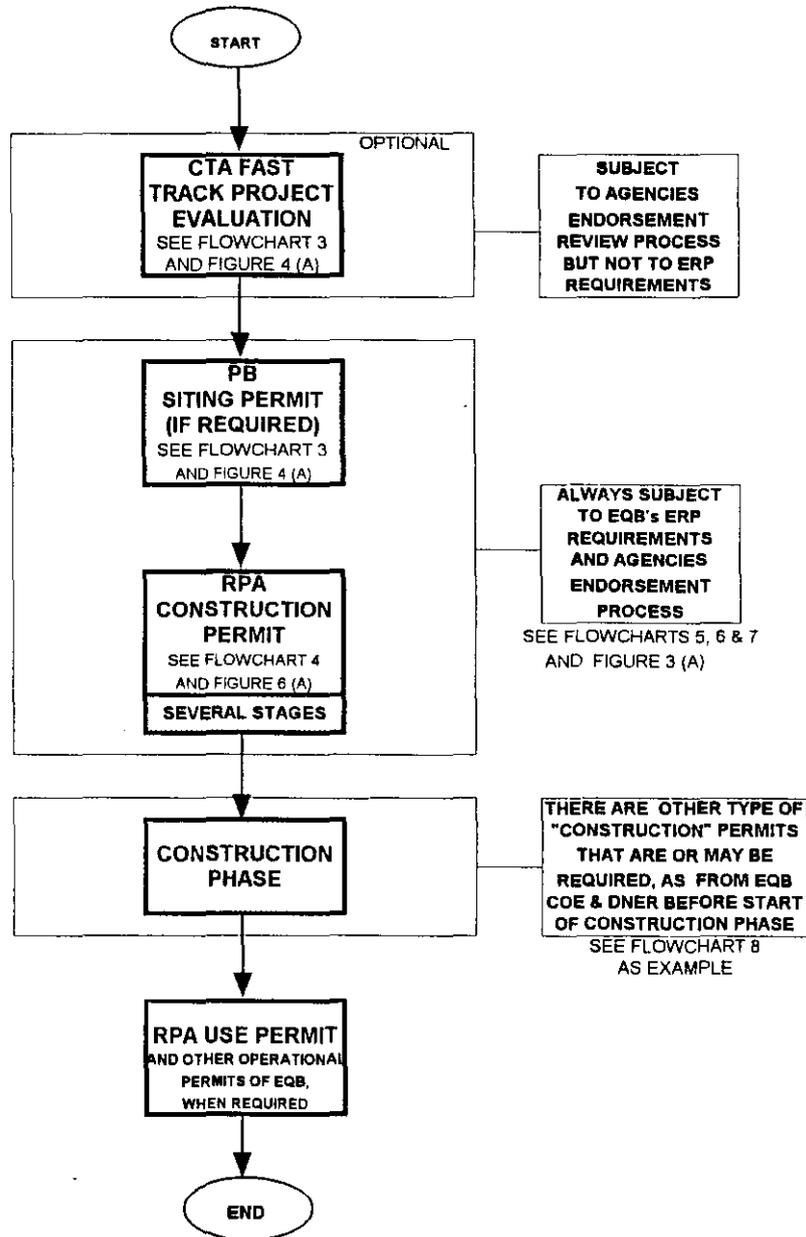
LIST OF FLOWCHARTS

- FLOWCHART A SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF EQB'S ENVIRONMENTAL REVIEW PROCESS
- FLOWCHART B SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF PUERTO RICO'S PERMITTING PROCESS FOR DEVELOPMENT PROJECTS
- FLOWCHART C SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF EQB'S CONTROL OF EROSION AND SEDIMENTATION (CES[T]) PLAN
- FLOWCHART 1 PUERTO RICO'S PERMITTING PROCESS FLOWCHART FOR DEVELOPMENT PROJECTS (GENERALIZED)
- FLOWCHART 2 PLANNING BOARD'S "CENTRO DE TRAMITE ACELERADO" [(CTA) or FAST TRACK CENTER(FTC)] SCREENING PROCESS
- FLOWCHART 3 PUERTO RICO PLANNING BOARD'S CONSULTA DE UBICACION (SITING PERMIT) FLOWCHART (GENERALIZED)
- FLOWCHART 4 RPA'S EXISTING CONSTRUCTION PERMIT PROCESS FLOWCHART (GENERALIZED)
- FLOWCHART 5 FLOWCHART OF PROPONENT AGENCY'S COMPLIANCE WITH THE ENVIRONMENTAL REVIEW PROCESS OF EQB (GENERALIZED)
- FLOWCHART 6 EQB's ERP EVALUATION OF DETERMINATIONS OF NO-SIGNIFICANT IMPACT (N-D or FONSI) AND ENVIRONMENTAL ASSESSMENTS (EA) DECISIONS
- FLOWCHART 7 EQB's ERP EVALUATION OF ENVIRONMENTAL IMPACT STATEMENTS (EIS's)
- FLOWCHART 8 CORPS OF ENGINEERS CWA SECTIONS 404 & 103 AND RHA SECTIONS 9 & 10 PERMIT RELATIONSHIPS
- FLOWCHART 9 FLOWCHART OF PROPOSED AGRICULTURAL PROJECT/ACTIVITY EVALUATION (GENERALIZED)

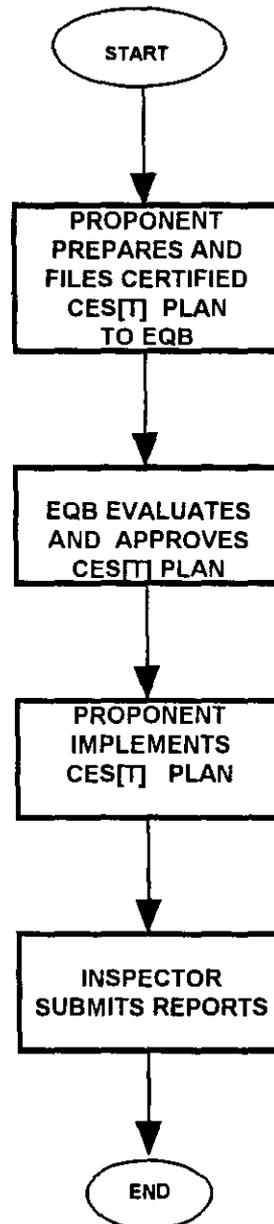
FLOWCHART A
SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF EQB'S
ENVIRONMENTAL REVIEW PROCESS
 [SEE ALSO FLOWCHARTS 5, 6 & 7 AND FIGURE 3 (A)]



FLOWCHART B
SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF PUERTO RICO'S
PERMITTING PROCESS FOR DEVELOPMENT PROJECTS
 [SEE ALSO FLOWCHART 1 AND FIGURE 2]

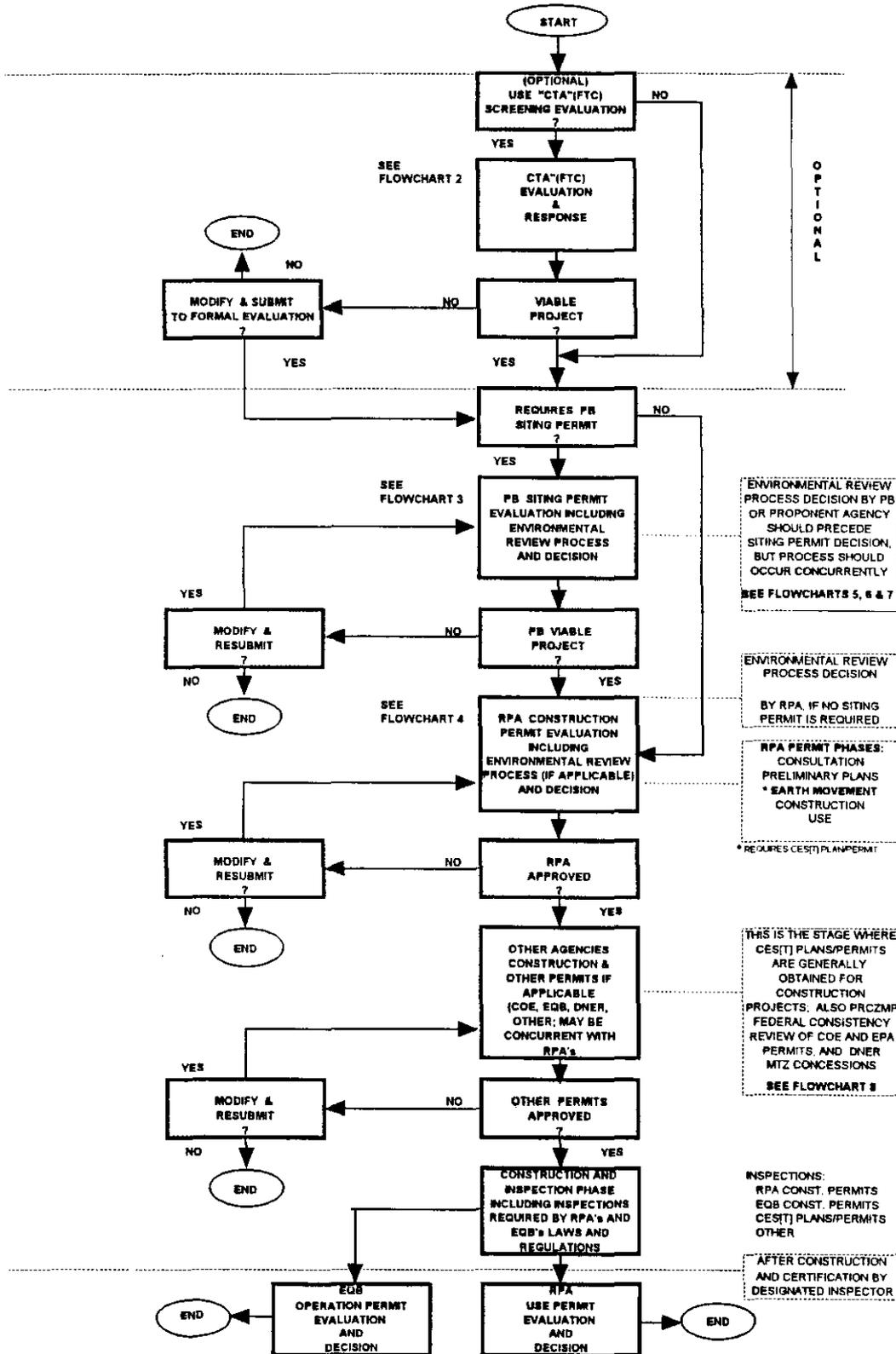


FLOWCHART C
SEQUENTIAL RELATIONSHIP OF MAJOR COMPONENTS OF EQB'S
CONTROL OF EROSION AND SEDIMENTATION (CES[T]) PLAN

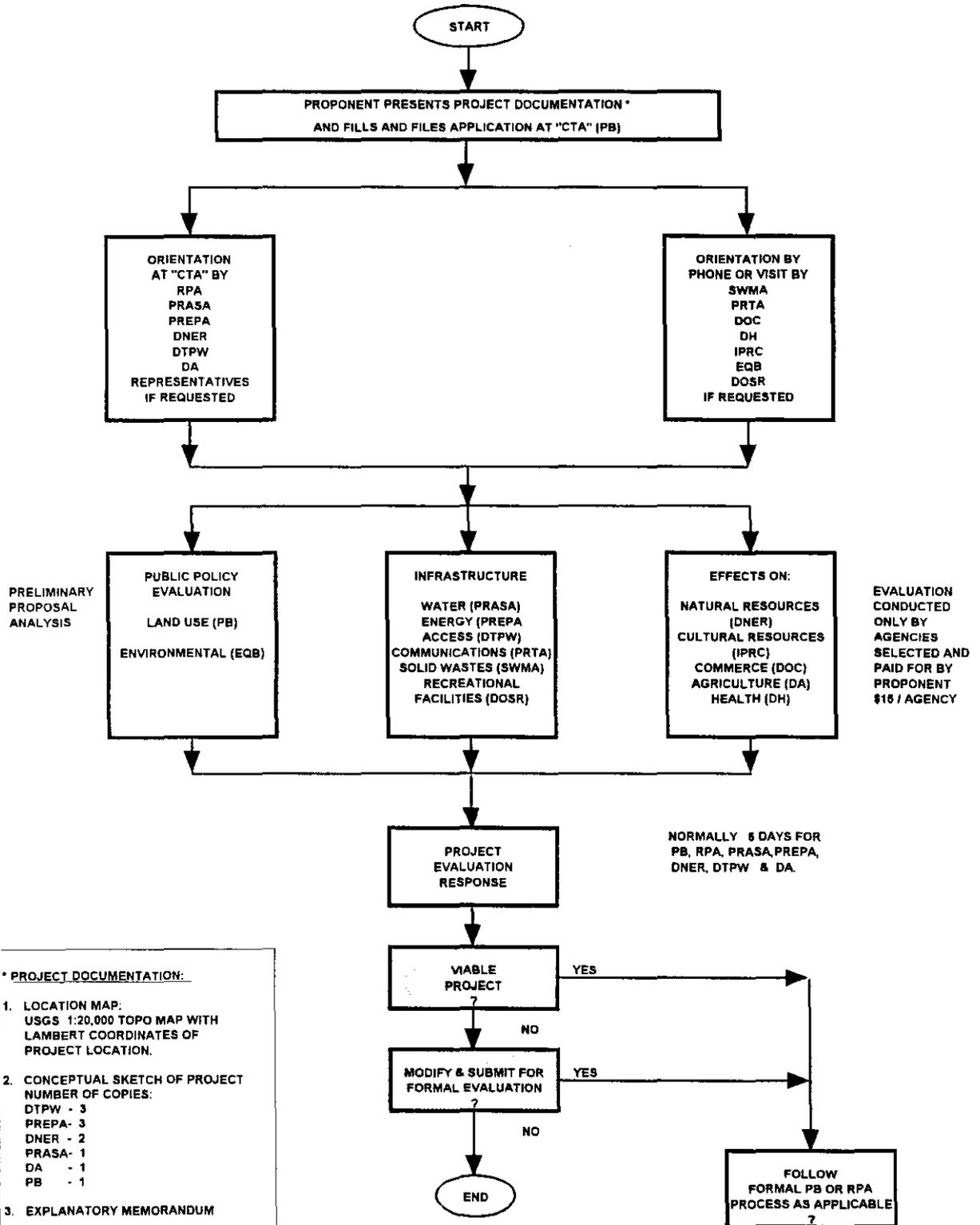


FLOWCHART 1

PUERTO RICO'S PERMITTING PROCESS FLOWCHART FOR DEVELOPMENT PROJECTS (GENERALIZED)
 [STEP WHERE ENVIRONMENTAL REVIEW PROCESS (ERP) DECISION IS REQUIRED IS SHOWN,
 BUT NOT DETAILED FOR EASE IN UNDERSTANDING; REFER TO ERP FLOWCHARTS 5, 6 AND 7]

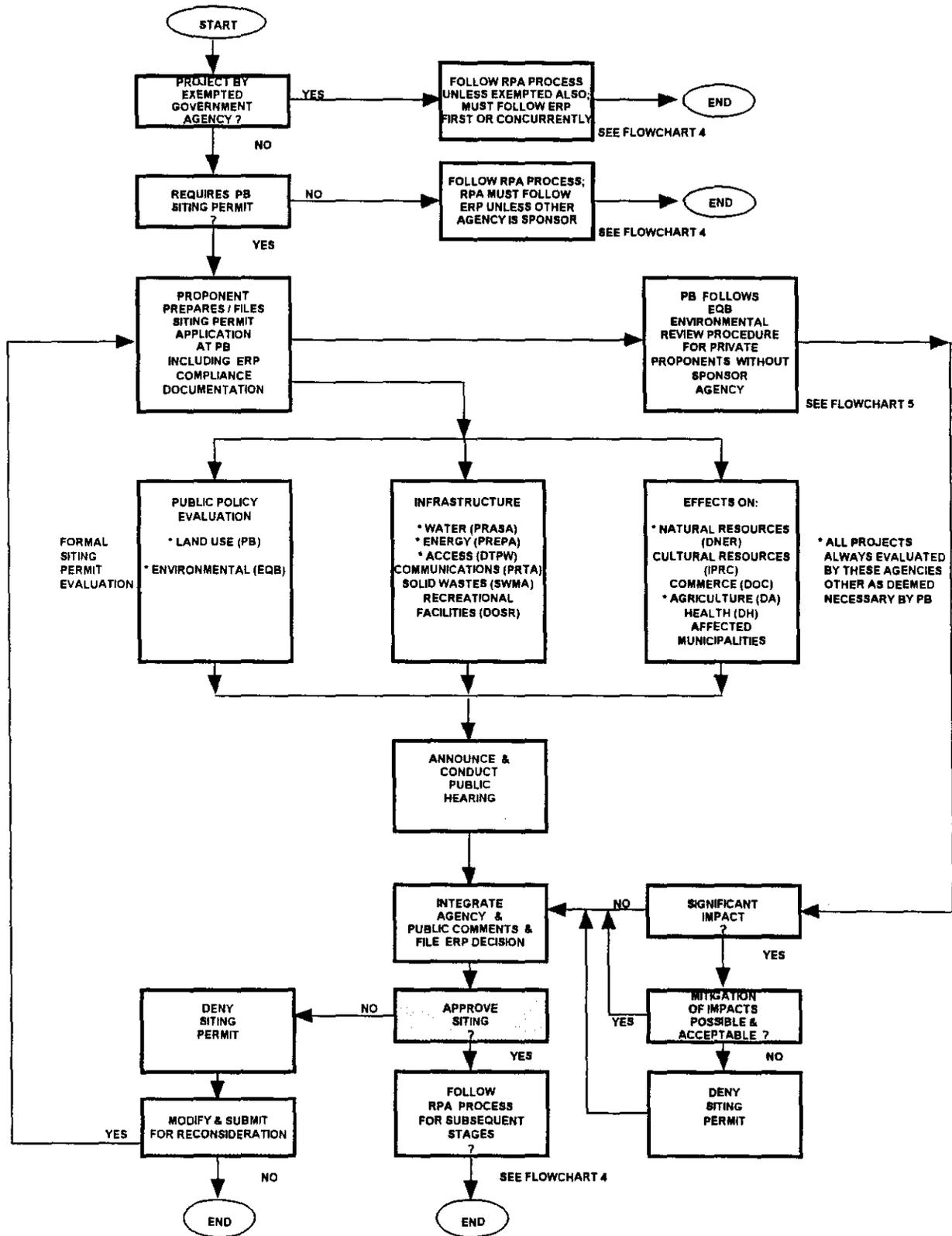


FLOWCHART 2
PLANNING BOARD'S "CENTRO DE TRAMITE ACELERADO" [(CTA) or FAST TRACK CENTER(FTC)] SCREENING PROCESS

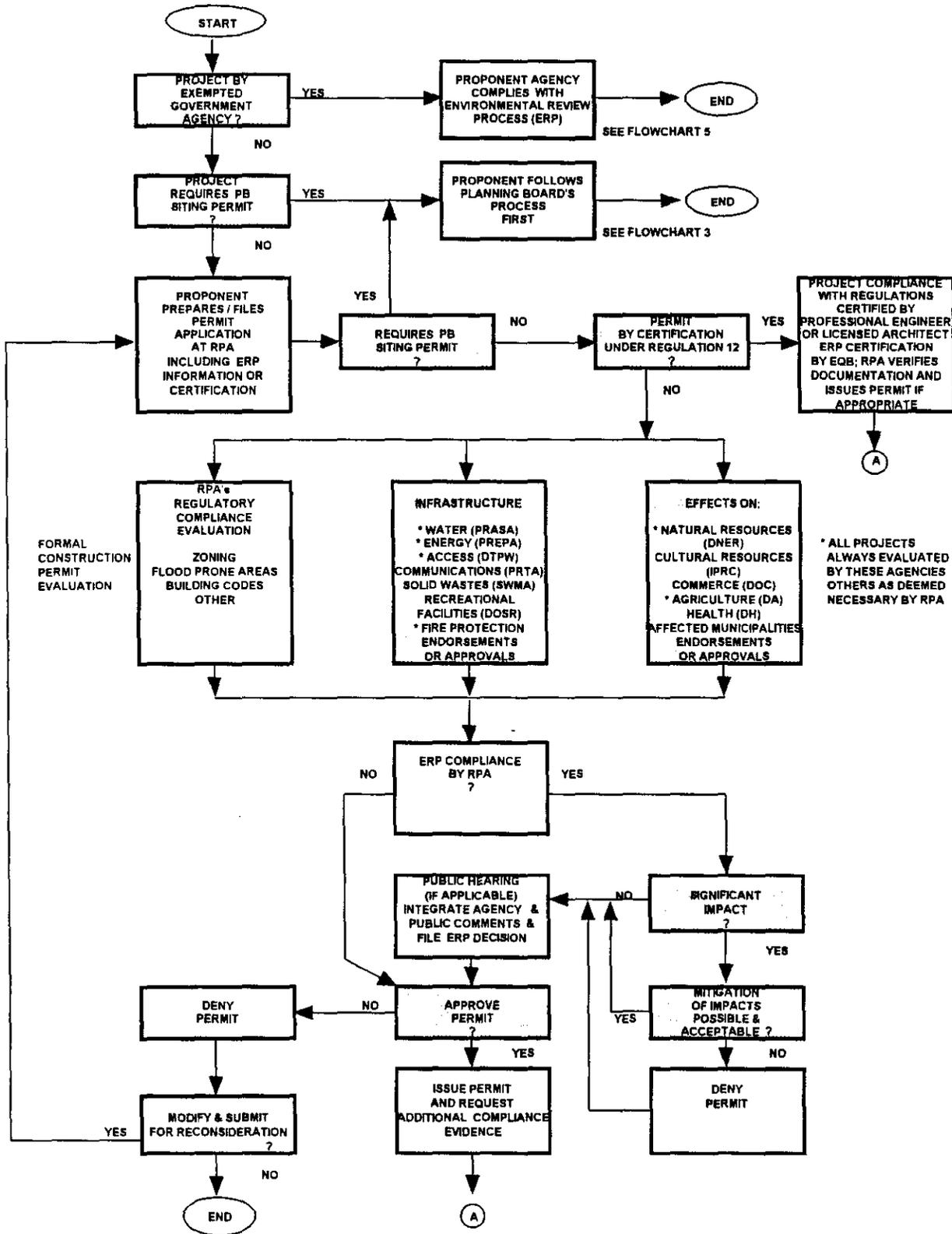


FLOWCHART 3

PUERTO RICO PLANNING BOARD'S CONSULTA DE UBICACION (SITING PERMIT) FLOWCHART (GENERALIZED)

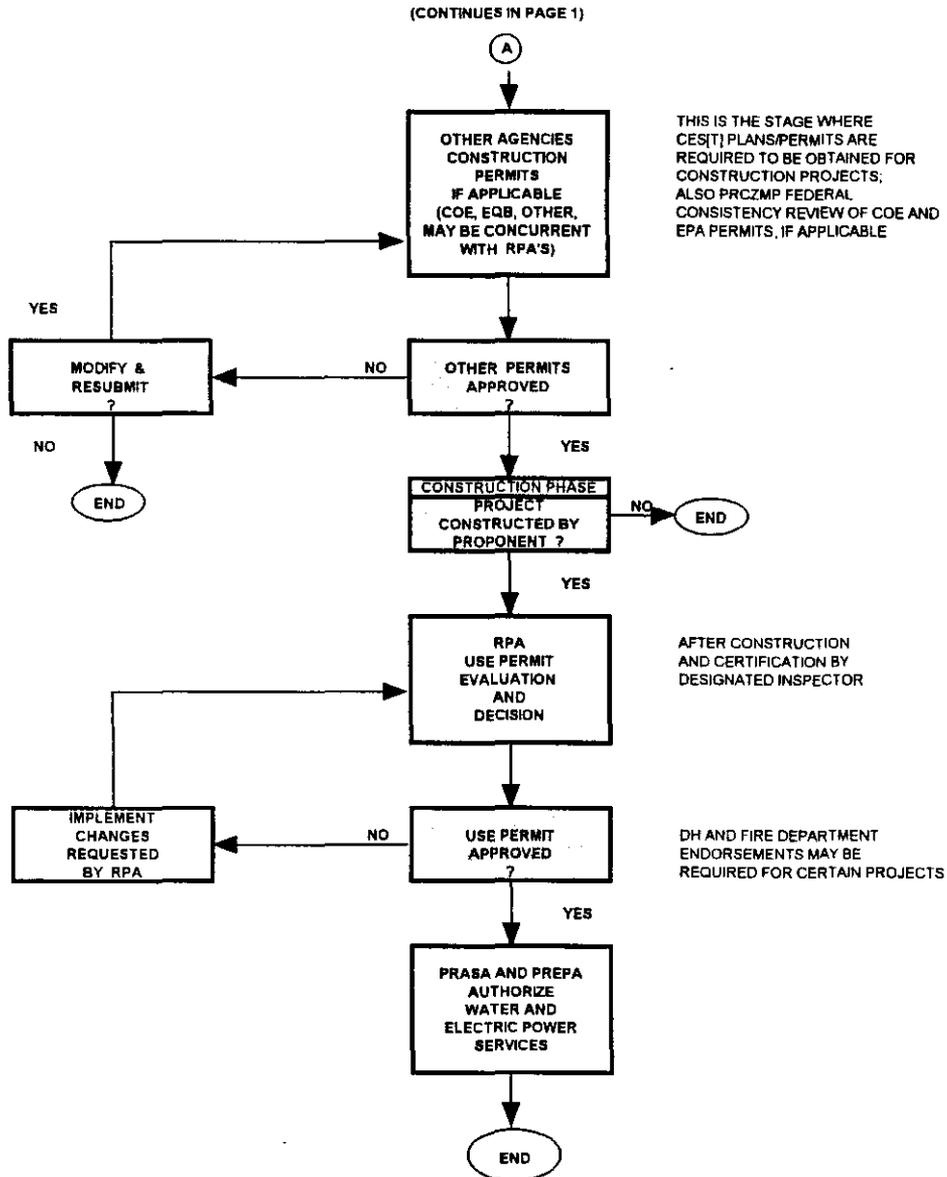


FLOWCHART 4
RPA'S EXISTING CONSTRUCTION PERMIT PROCESS FLOWCHART (GENERALIZED)
 (SEE FIGURE 6)



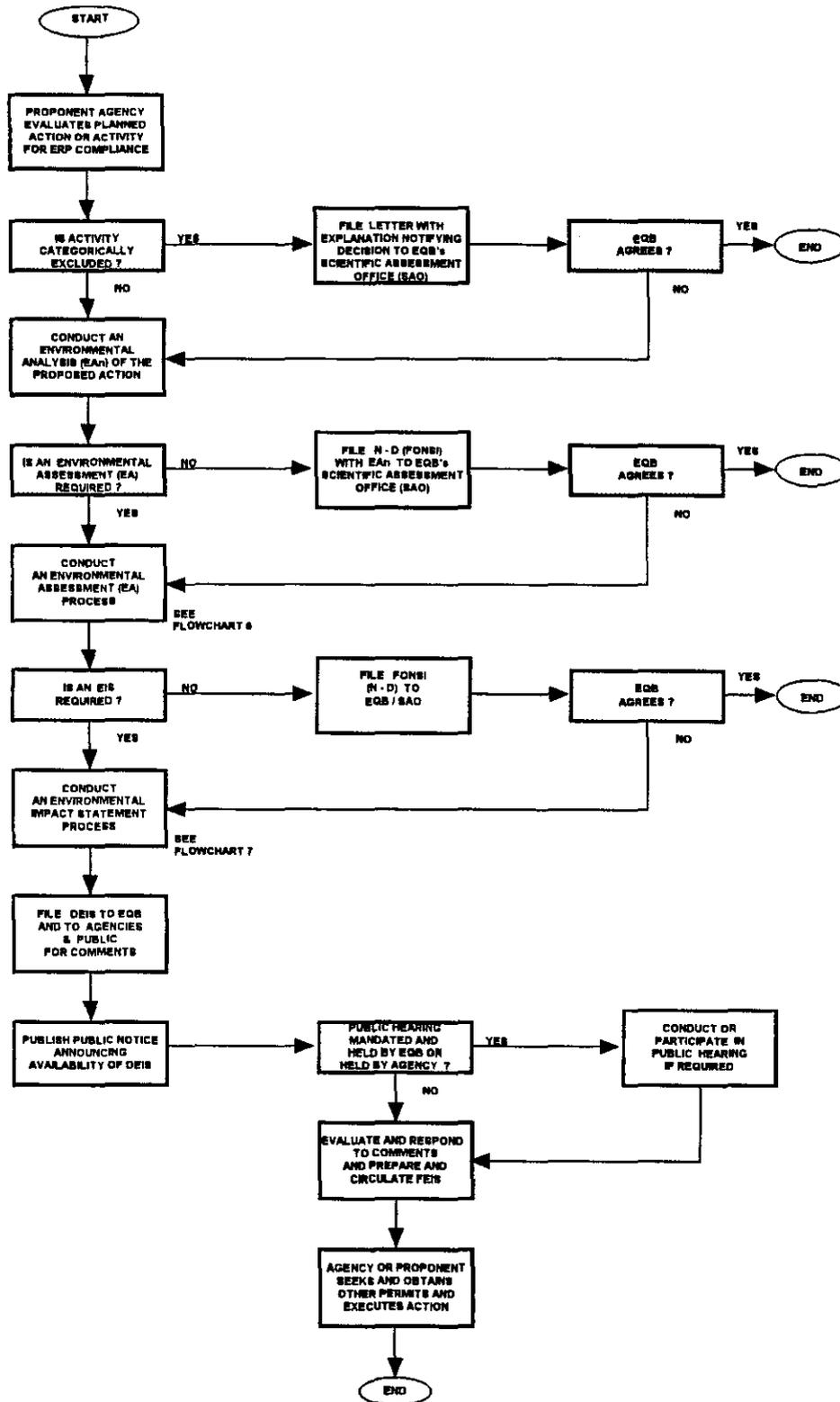
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FLOWCHART 4
RPA'S EXISTING CONSTRUCTION PERMIT PROCESS FLOWCHART (GENERALIZED)

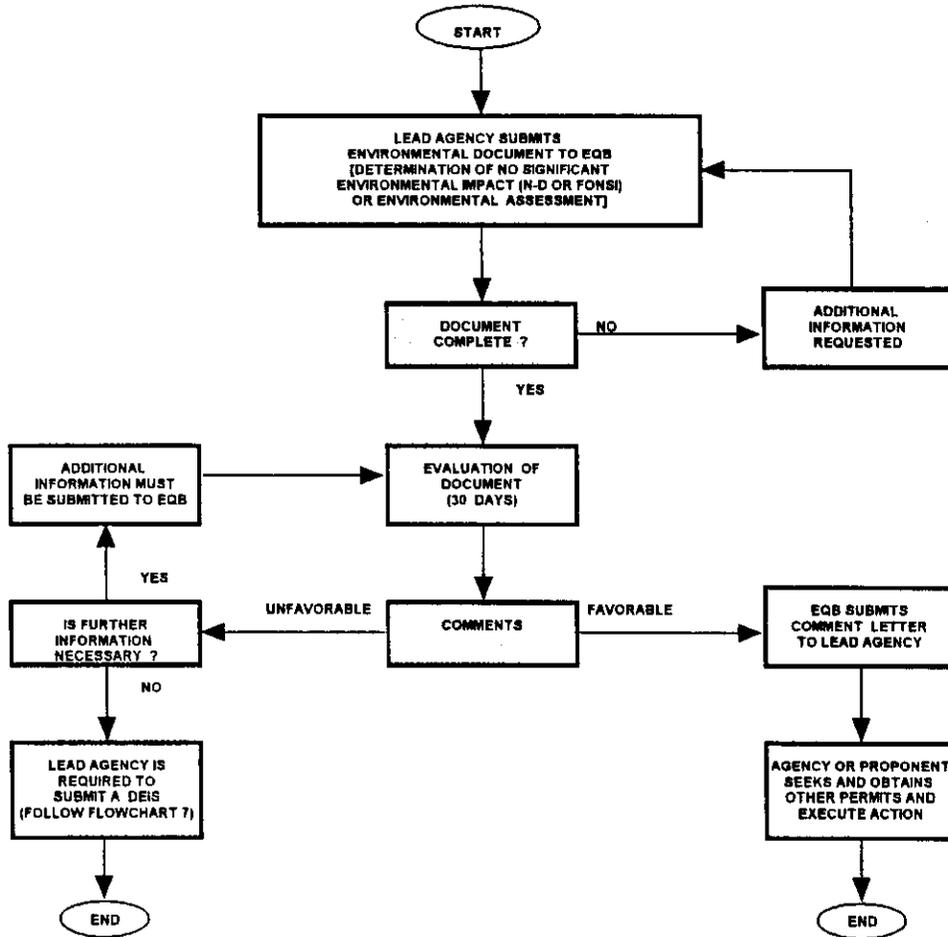


FLOWCHART 5

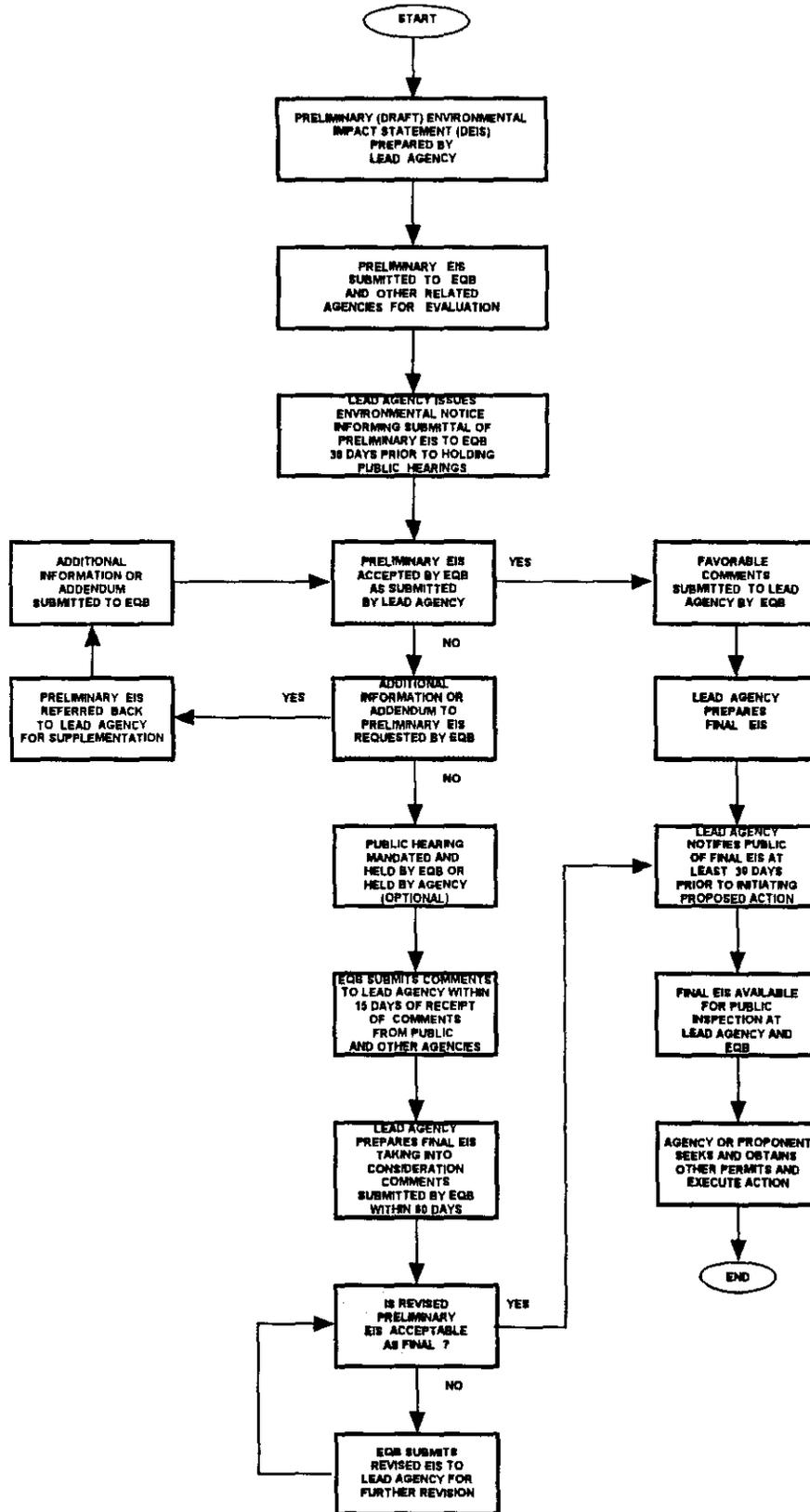
FLOWCHART OF PROPONENT AGENCY'S COMPLIANCE WITH THE ENVIRONMENTAL REVIEW PROCESS OF EQB (GENERALIZED)



FLOWCHART 6
EQB's ERP EVALUATION OF DETERMINATIONS OF NO-SIGNIFICANT IMPACT (N-D or FONSI)
AND ENVIRONMENTAL ASSESSMENT (EA) DECISIONS

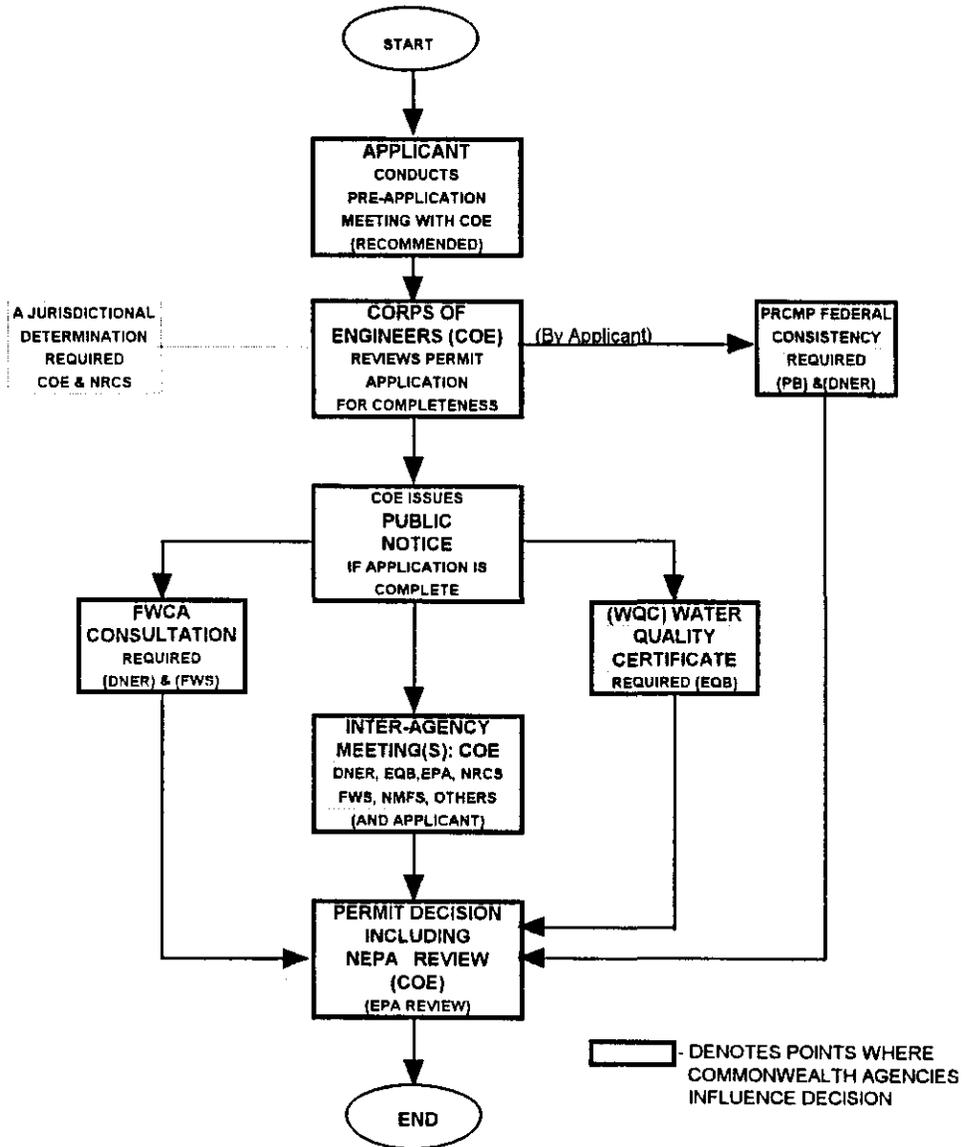


FLOWCHART 7
EQB's ERP EVALUATION OF ENVIRONMENTAL IMPACT STATEMENTS (EIS's)

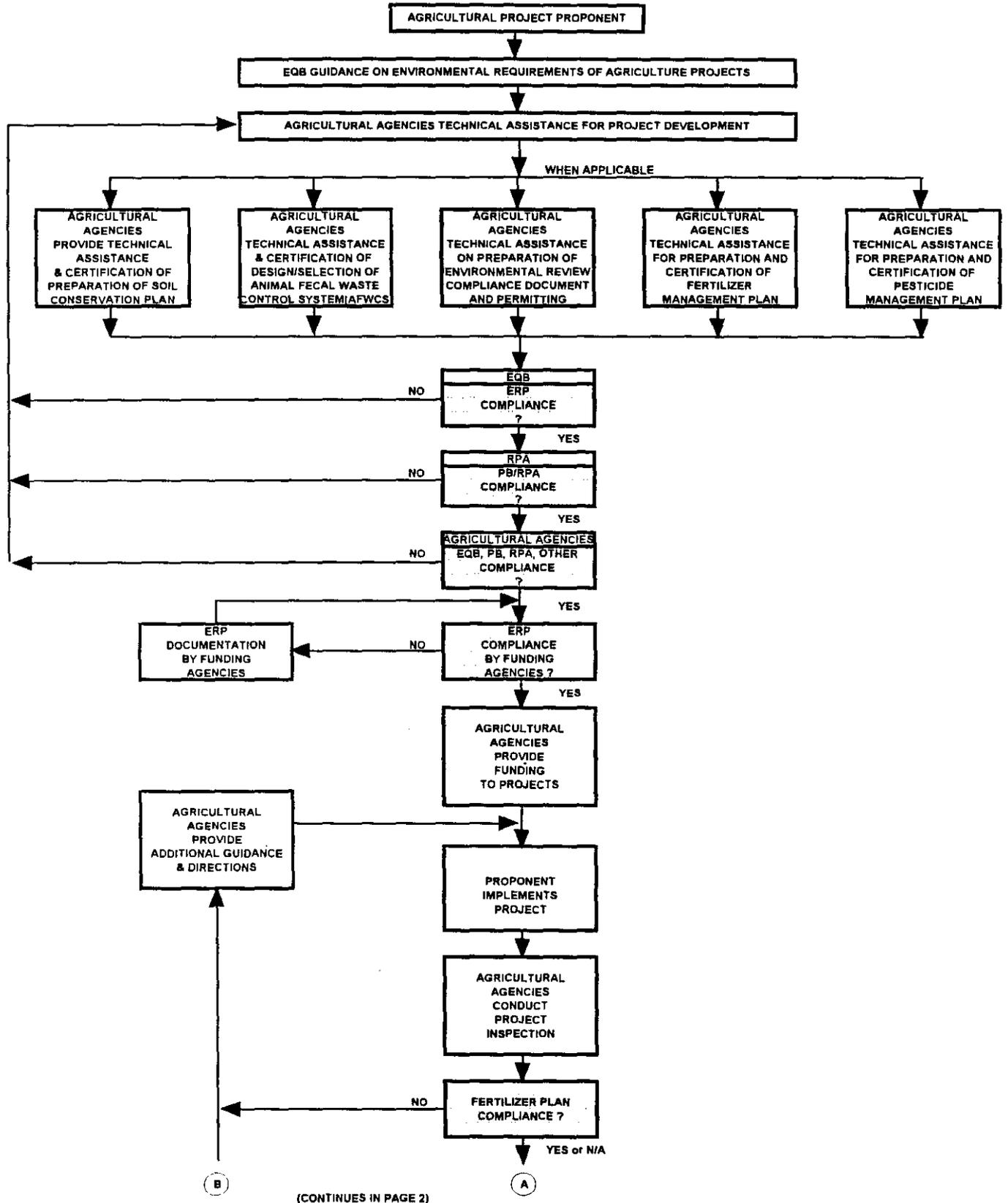


FLOWCHART 8

**CORPS OF ENGINEERS CWA SECTIONS 404 & 103 AND RHA SECTIONS 9 & 10 PERMIT RELATIONSHIPS
(APPLIES TO MARINAS, HYDROMODIFICATIONS, AND DREDGE AND FILL ACTIVITIES IN JURISDICTIONAL WATERS OF USA)**



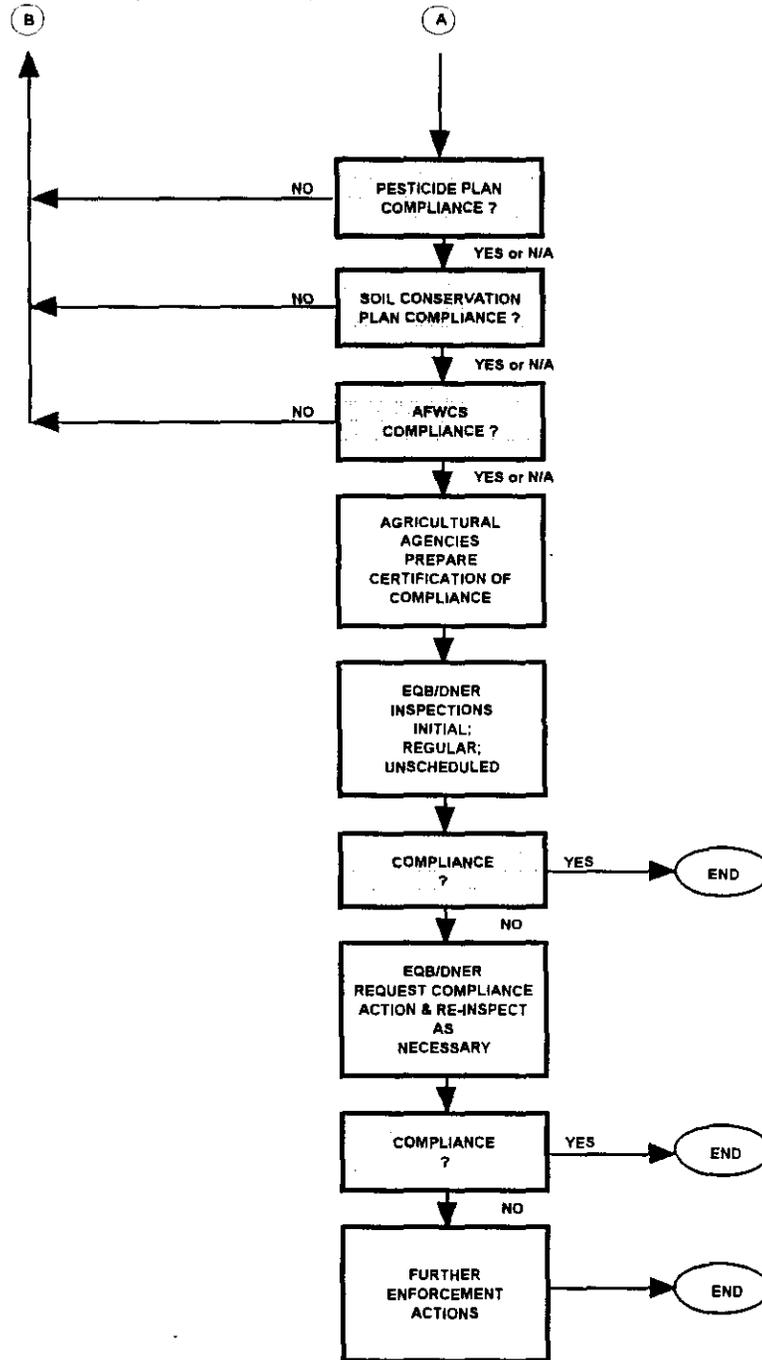
FLOWCHART 9
FLOWCHART OF PROPOSED AGRICULTURAL PROJECT/ACTIVITY EVALUATION (GENERALIZED)



FLOWCHART 9

FLOWCHART OF PROPOSED AGRICULTURAL PROJECT/ACTIVITY EVALUATION (GENERALIZED)

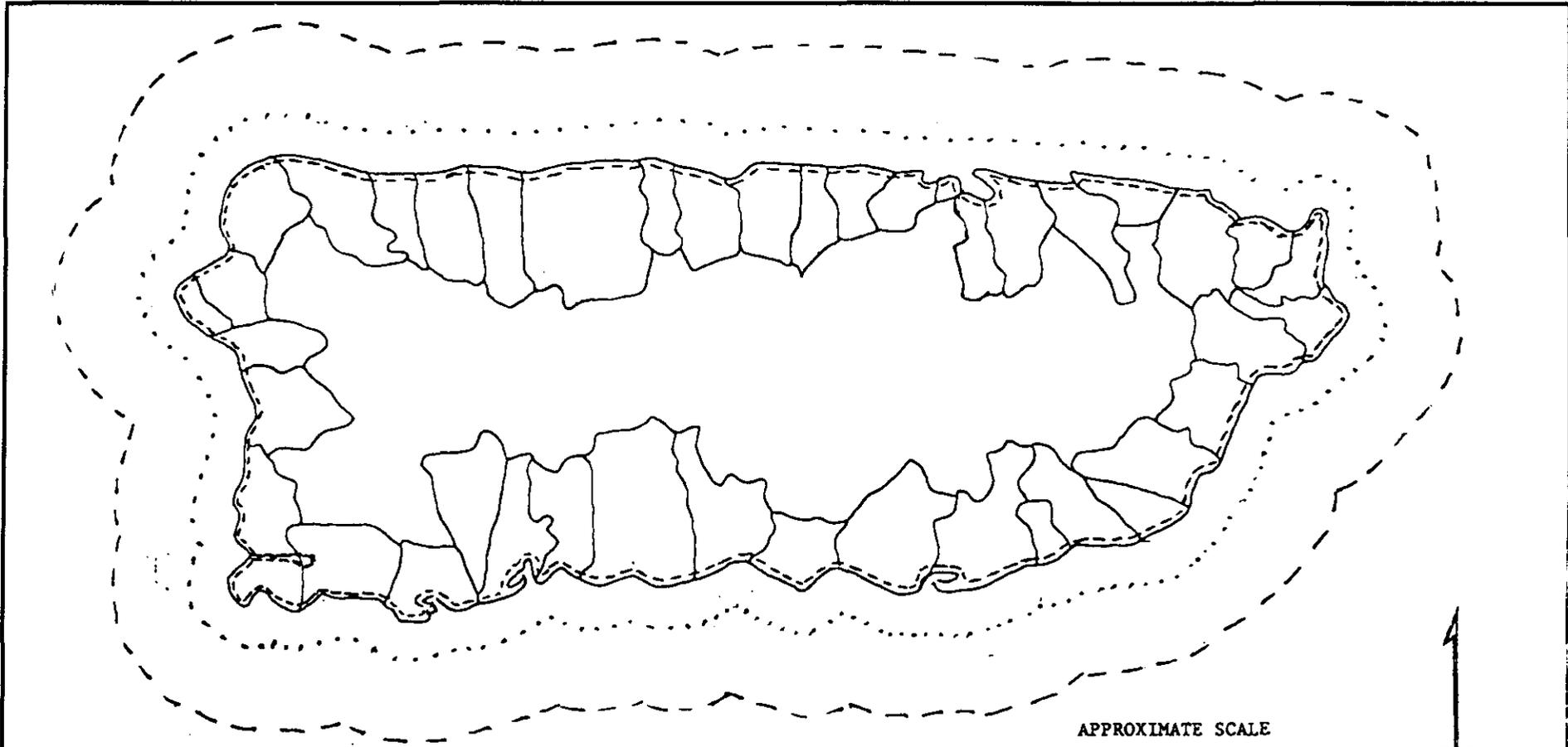
(CONTINUES IN PAGE 1)



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- MAP 9 PRINCIPAL RIVERS IN PUERTO RICO
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SEAWARD BOUNDARY OF PUERTO RICO'S COASTAL ZONE

- Limits set by 1972 CZMA
- - - Limits set by 1990 CZARA

NOTE: This map does not reflect impact of off-shore islands on the boundary of the territorial seas

APPROXIMATE SCALE

0 10 20 30 kilometers

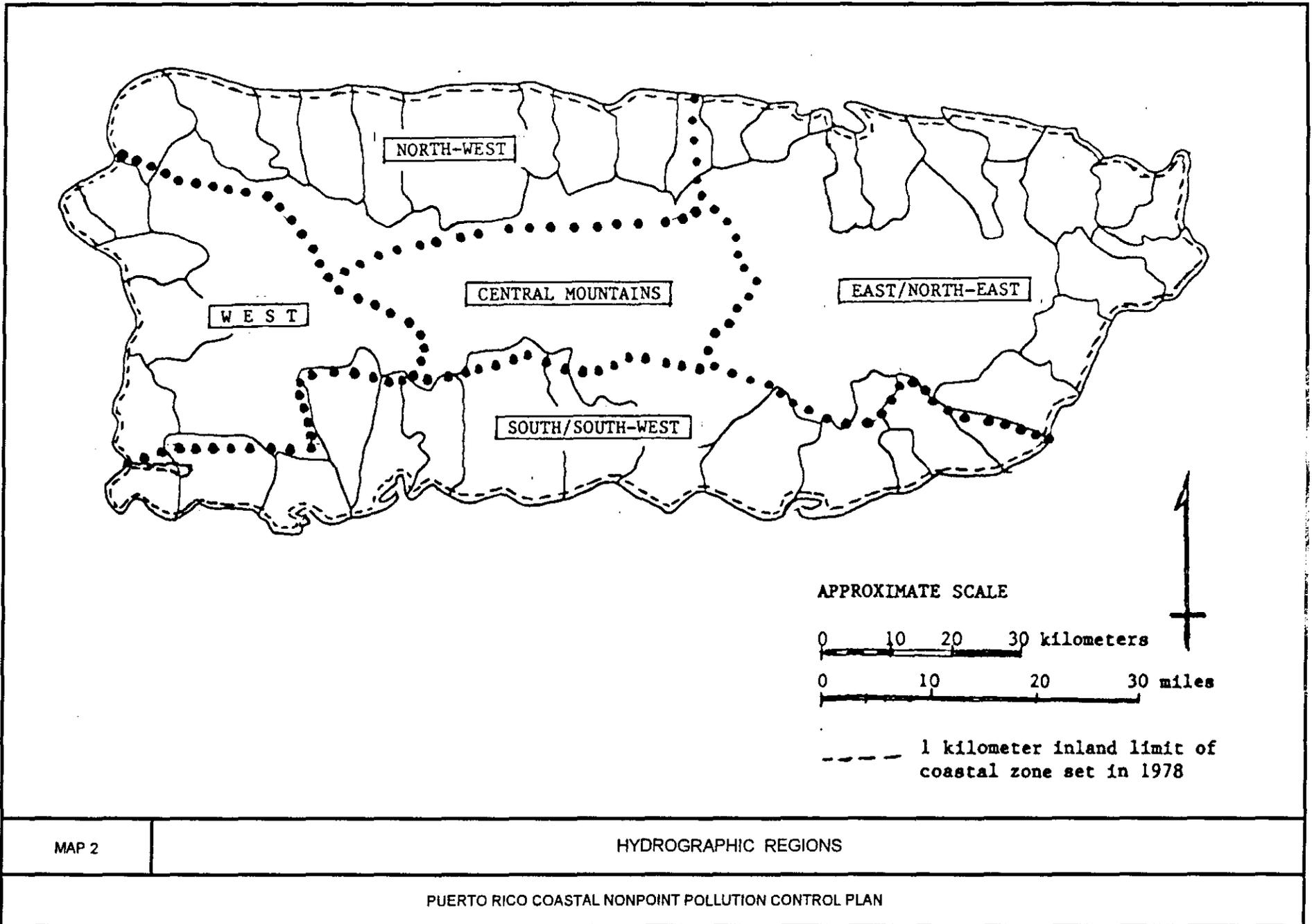
0 10 20 30 miles

- - - 1 kilometer inland limit of coastal zone set in 1978

MAP 1

SEAWARD AND LANDWARD LIMITS OF PUERTO RICO'S COASTAL ZONE

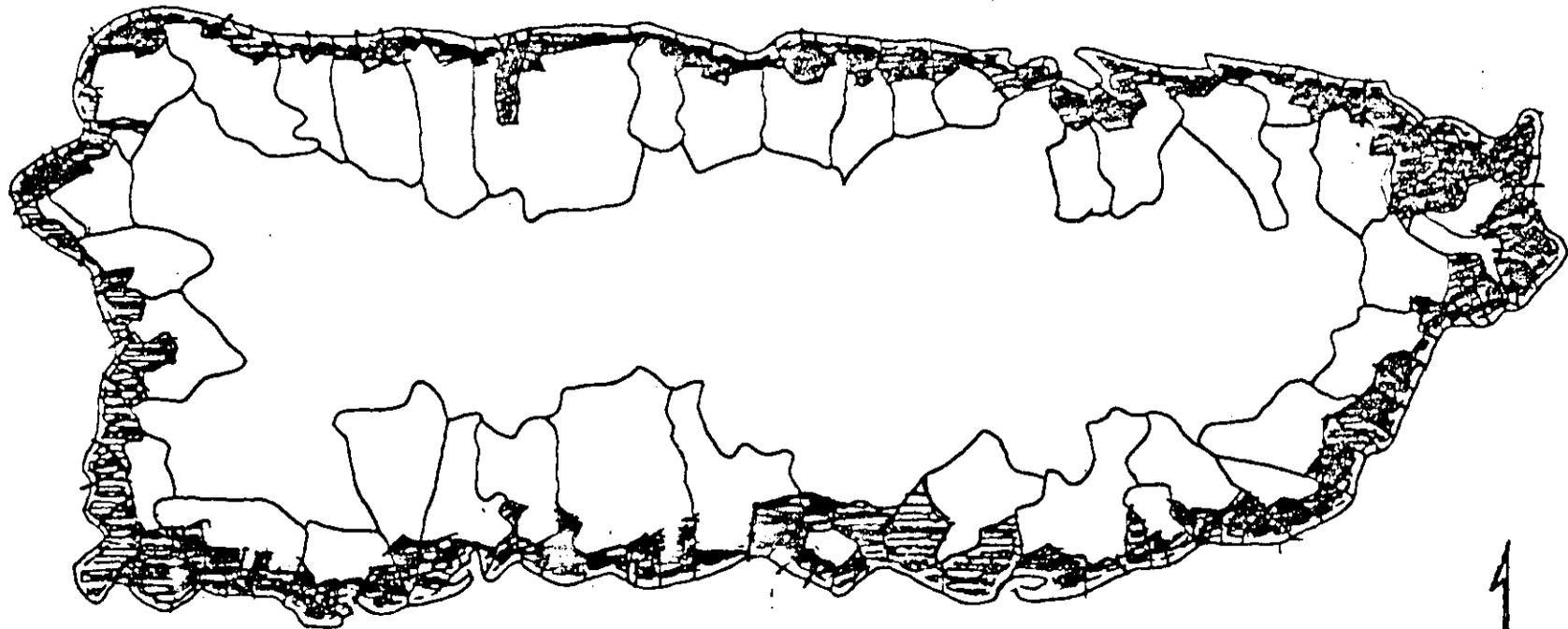
PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



MAP 2

HYDROGRAPHIC REGIONS

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



APPROXIMATE SCALE

0 10 20 30 kilometers

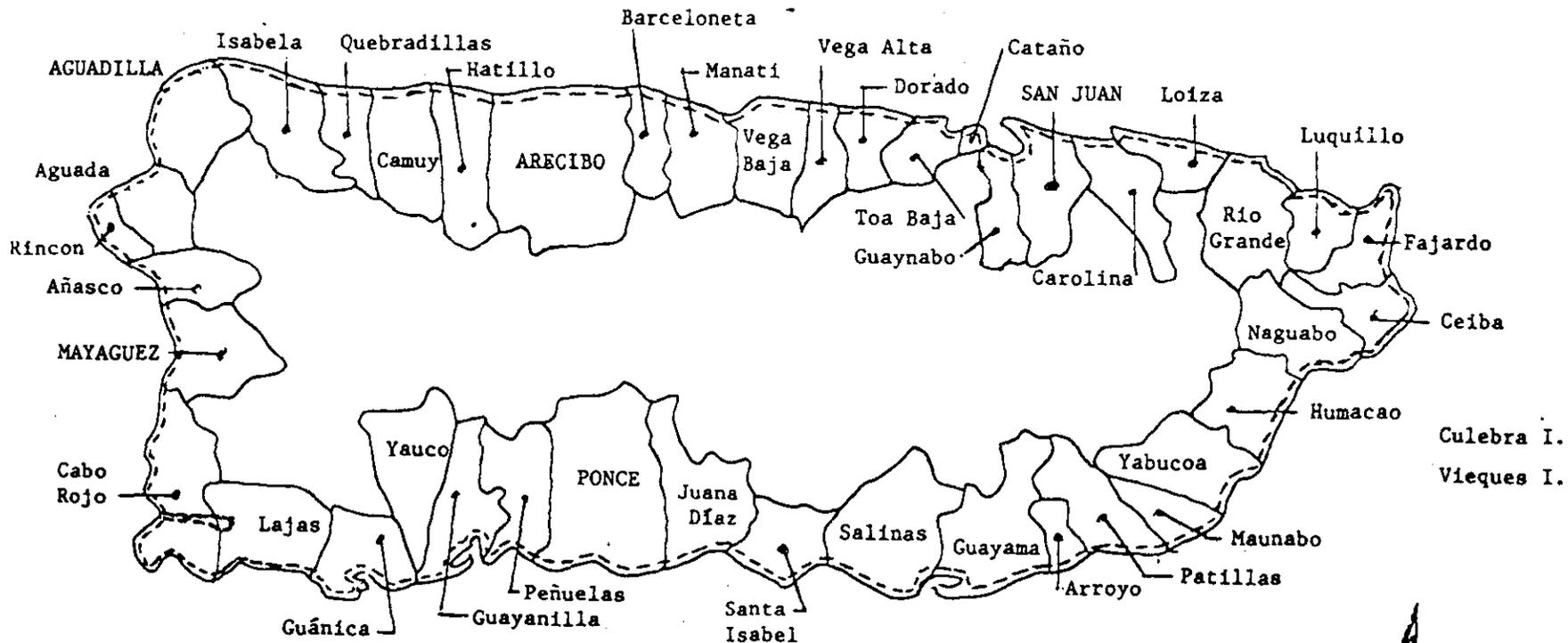
0 10 20 30 miles

----- 1 kilometer inland limit of coastal zone set in 1978

MAP 3

COASTAL BARRIOS (WARDS)

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



APPROXIMATE SCALE

0 10 20 30 kilometers

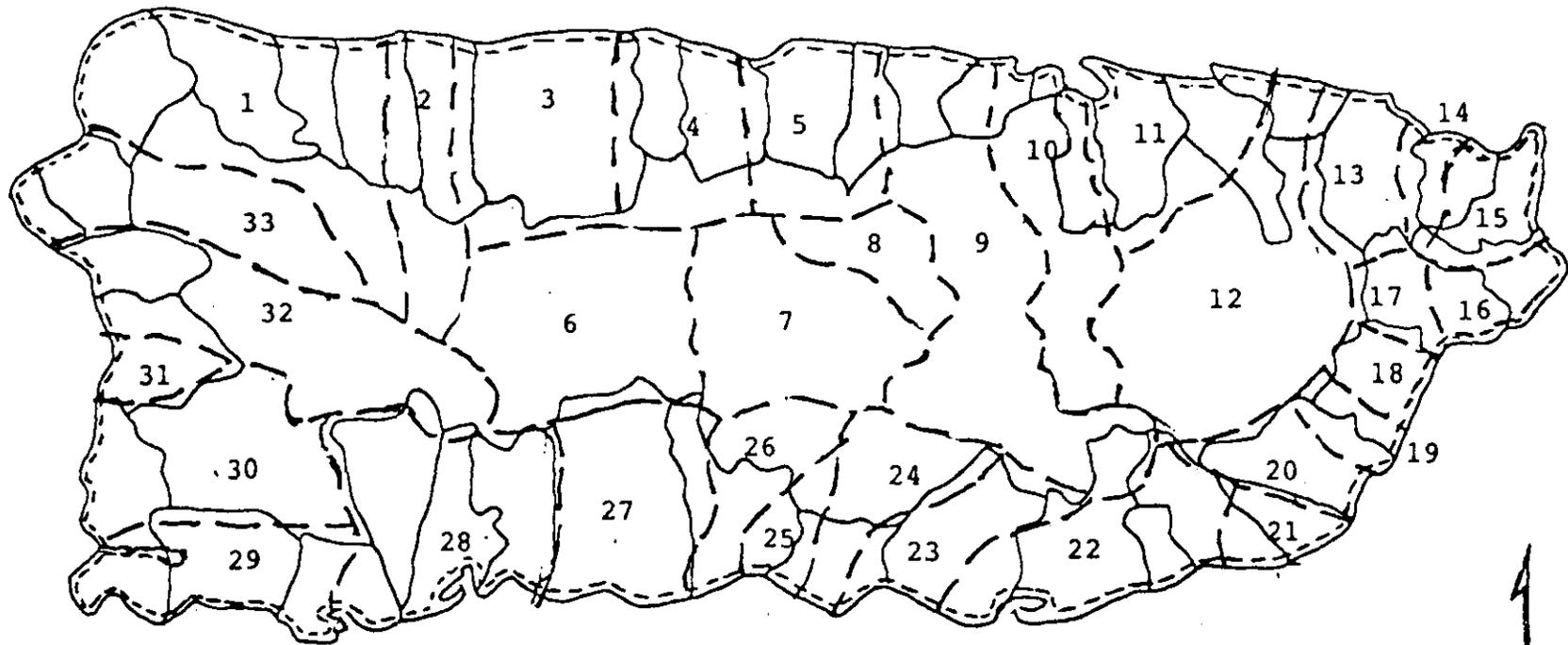
0 10 20 30 miles

--- 1 kilometer inland limit of coastal zone set in 1978

MAP 4

COASTAL MUNICIPALITIES

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



APPROXIMATE SCALE

0 10 20 30 kilometers

0 10 20 30 miles

----- 1 kilometer inland limit of coastal zone set in 1978

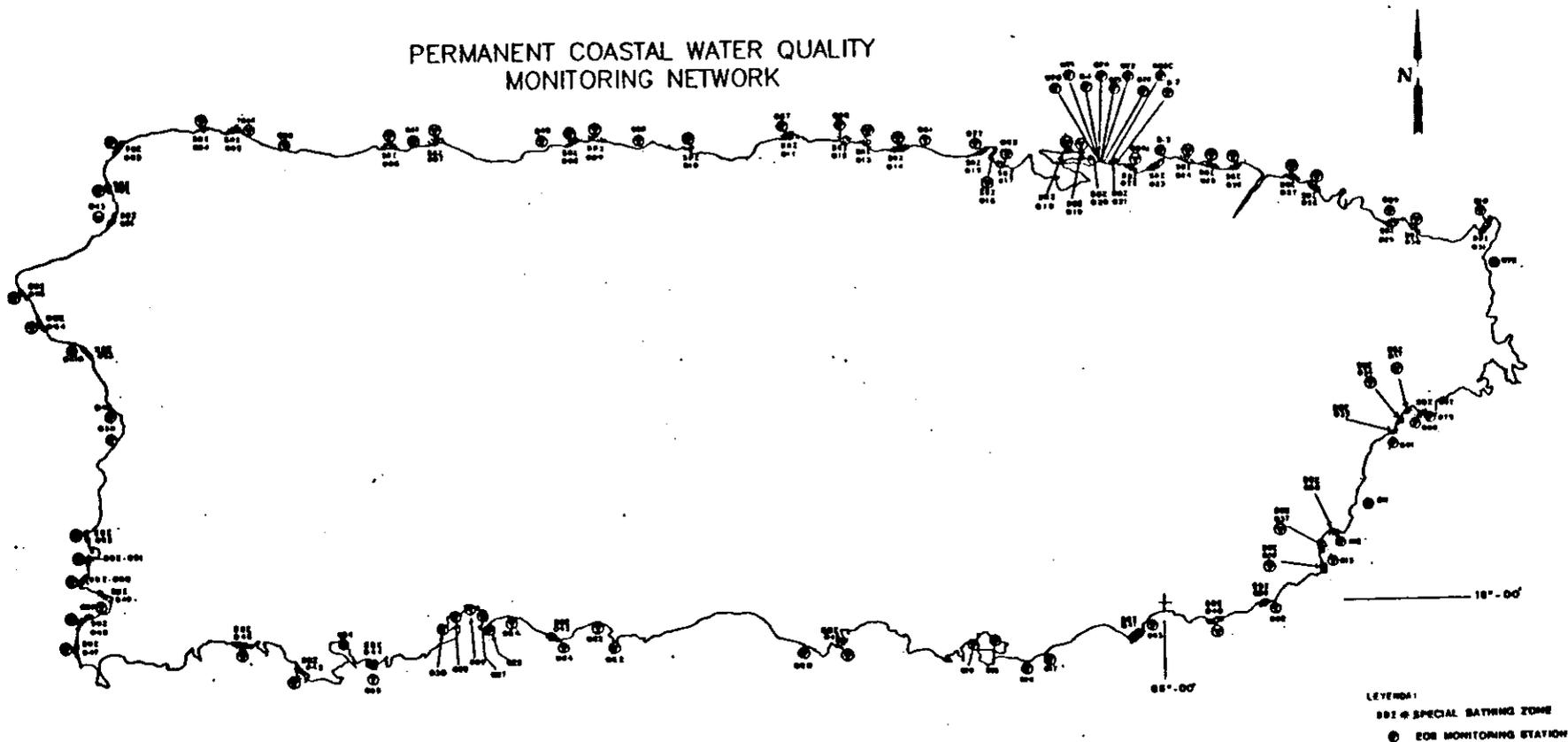


MAP 5

MAJOR DRAINAGE BASINS

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

PERMANENT COASTAL WATER QUALITY MONITORING NETWORK

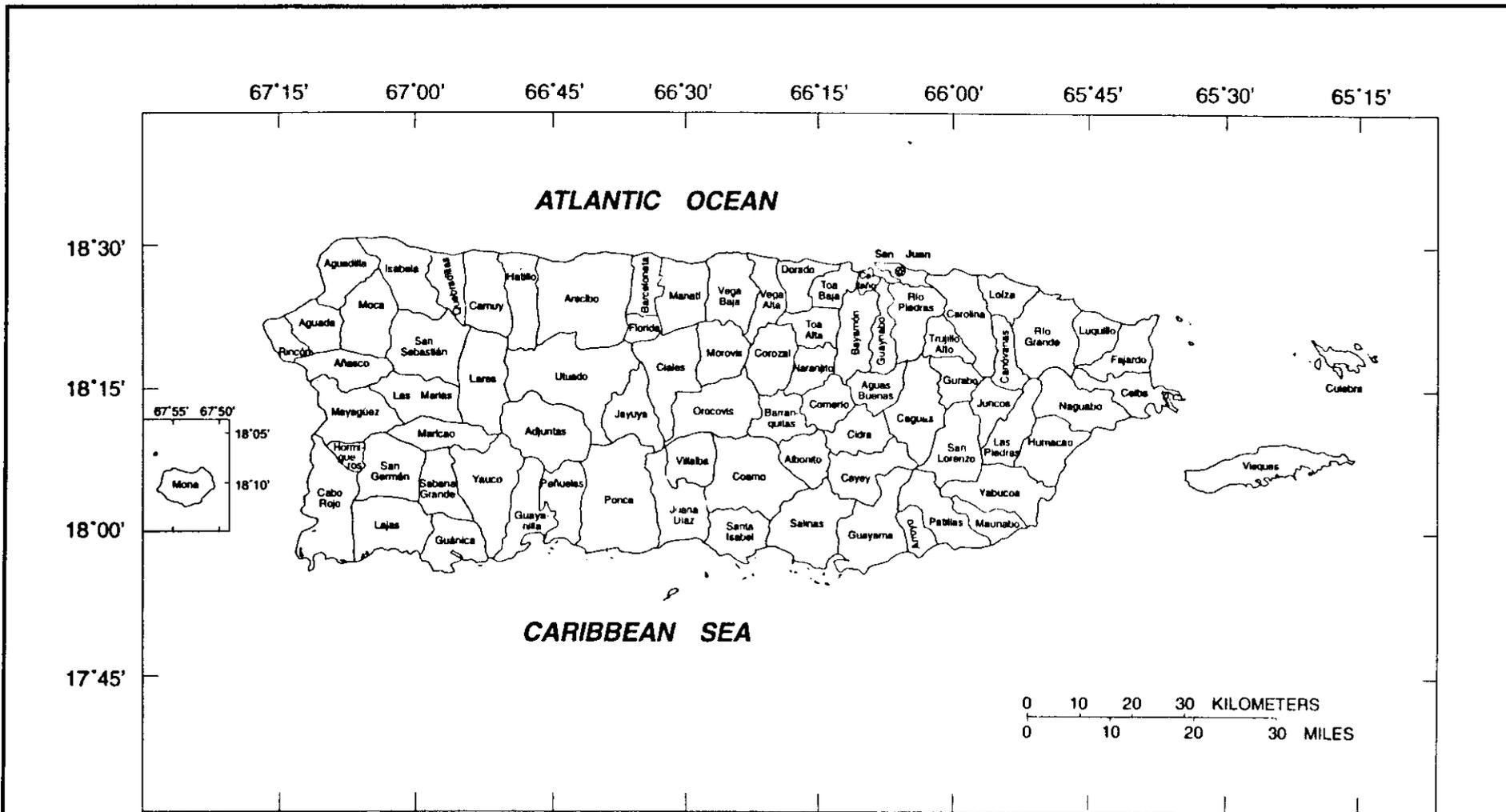


SOURCE: GOAL AND PROGRESS OF STATEWIDE WATERS QUALITY MANAGEMENT PLANNING PUERTO RICO 1992-1993

MAP 7

PERMANENT COASTAL WATER QUALITY MONITORING NETWORK

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

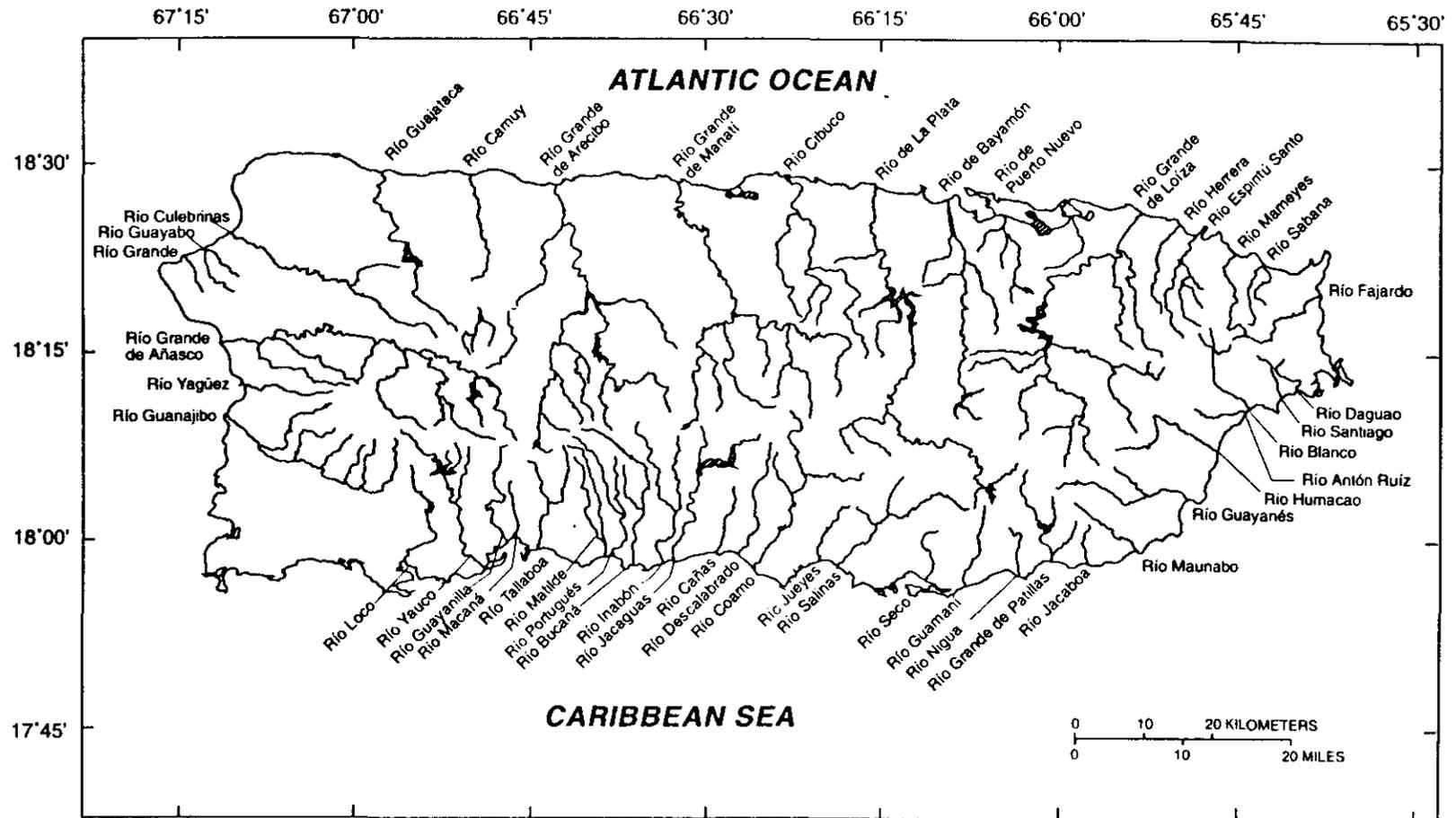


SOURCE: PUBLICATIONS OF THE U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1899-1992

MAP 8

MUNICIPALITIES IN PUERTO RICO

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

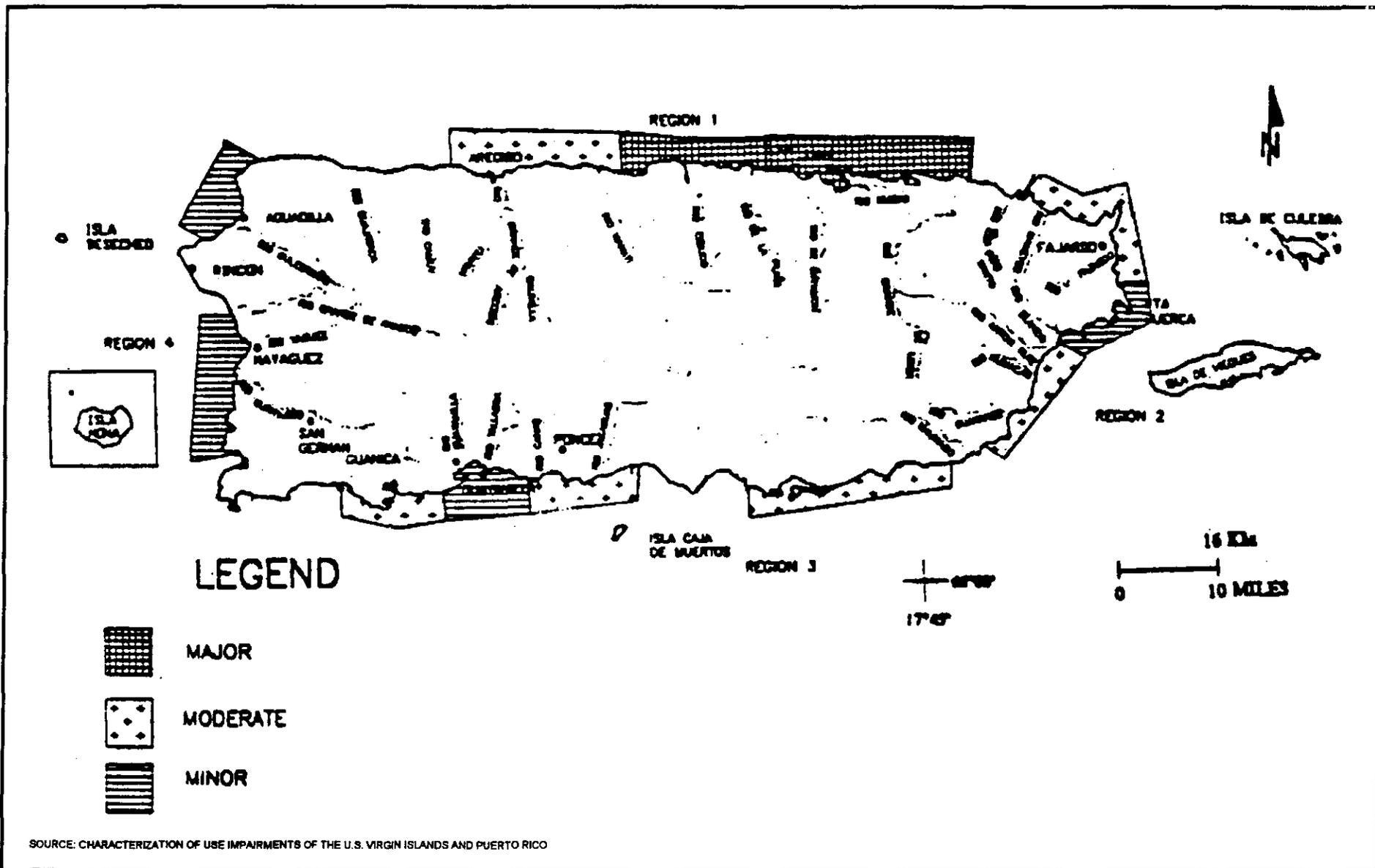


SOURCE: PUBLICATIONS OF THE U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1899-1992

MAP 9

PRINCIPAL RIVERS IN PUERTO RICO

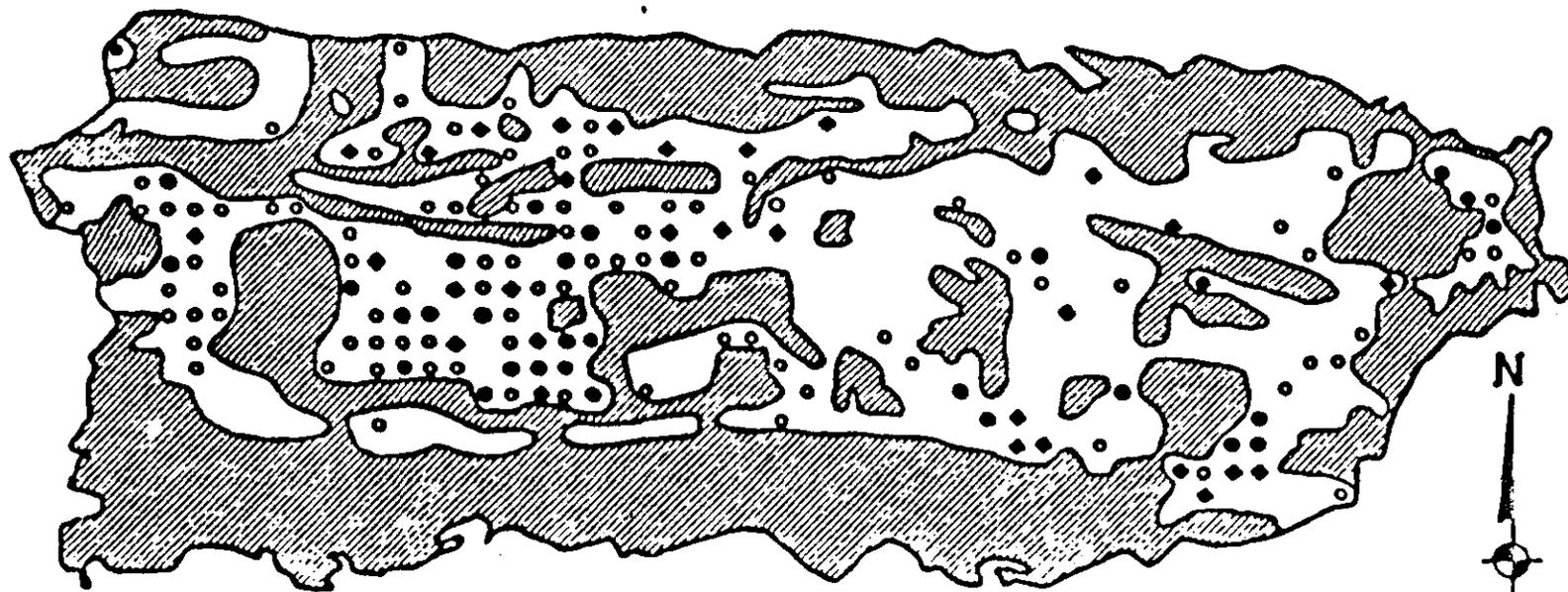
PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



MAP 11

COASTAL AREAS DEGRADED FROM ANTHROPOGENICALLY PRODUCED POLLUTION

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



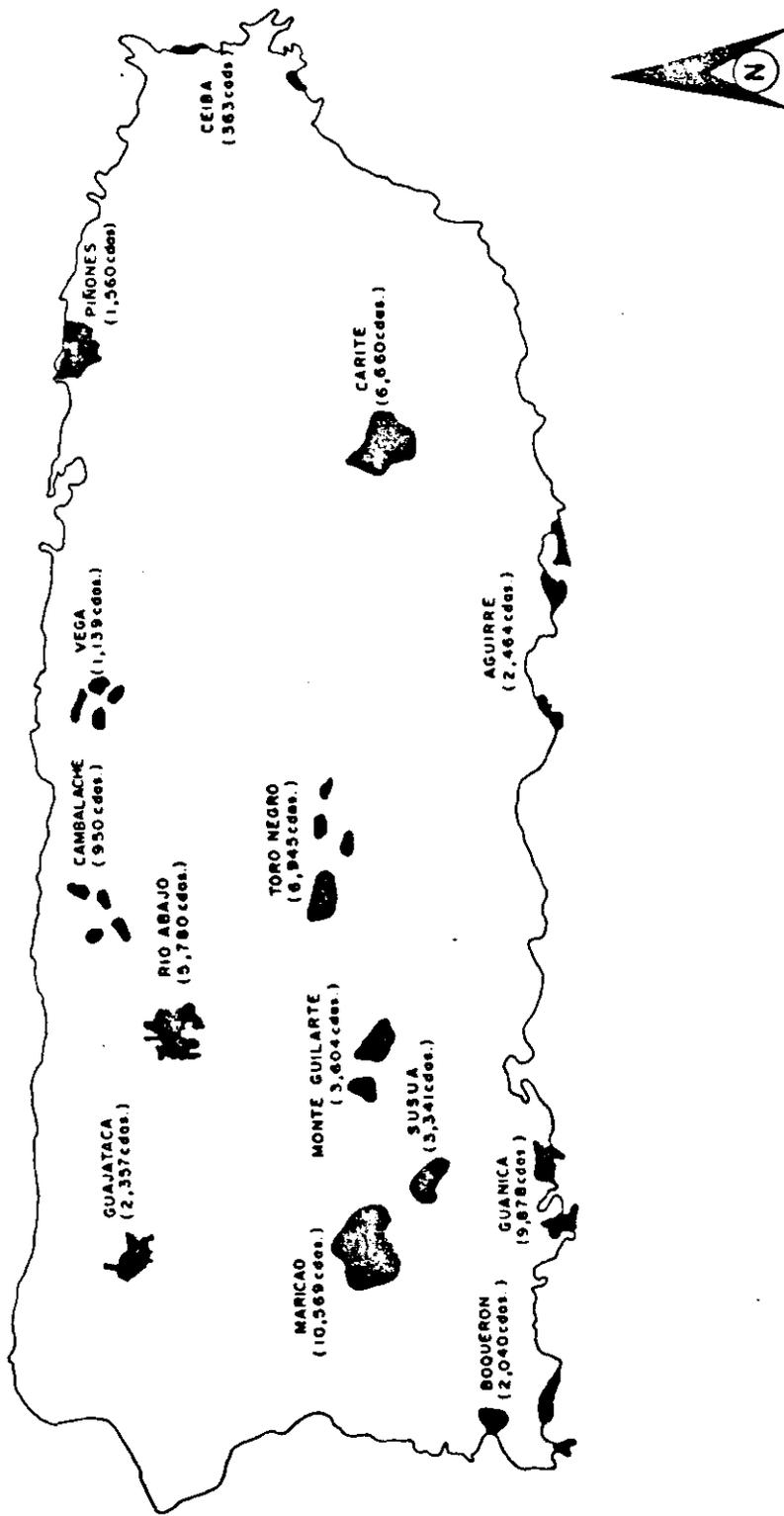
- POBLACION MADERABLE INADECUADA
- POBLACION ADECUADA DE POSTES MADERABLES
- ◆ POBLACION ADECUADA DE BRINZALES MADERABLES
- ▨ AREA EXCLUIDA DEL RECONOCIMIENTO

0 25 50 km

MAP 12

TIMBER FORESTS LOCATION

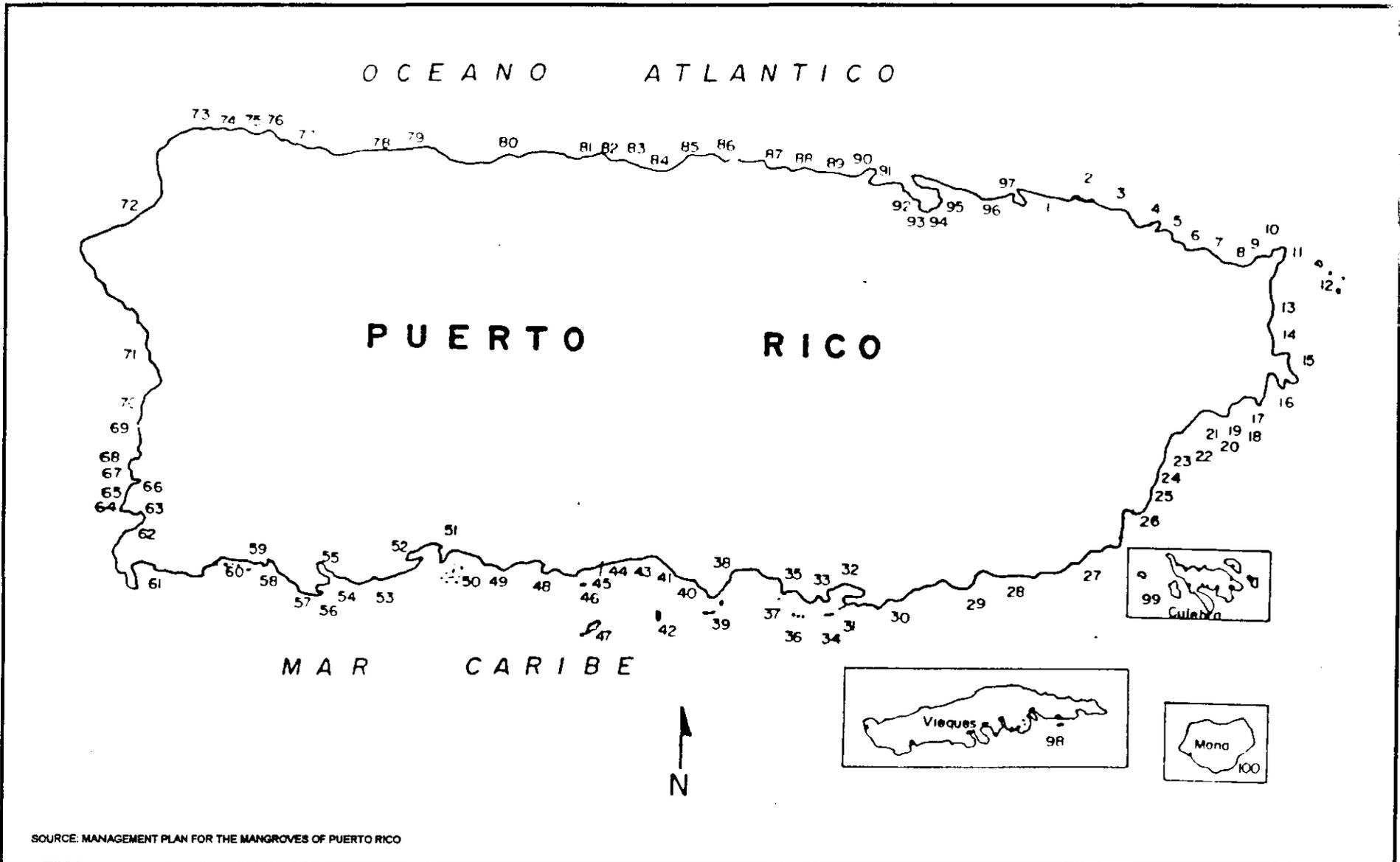
PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



MAP 13

COMMONWEALTH FORESTS

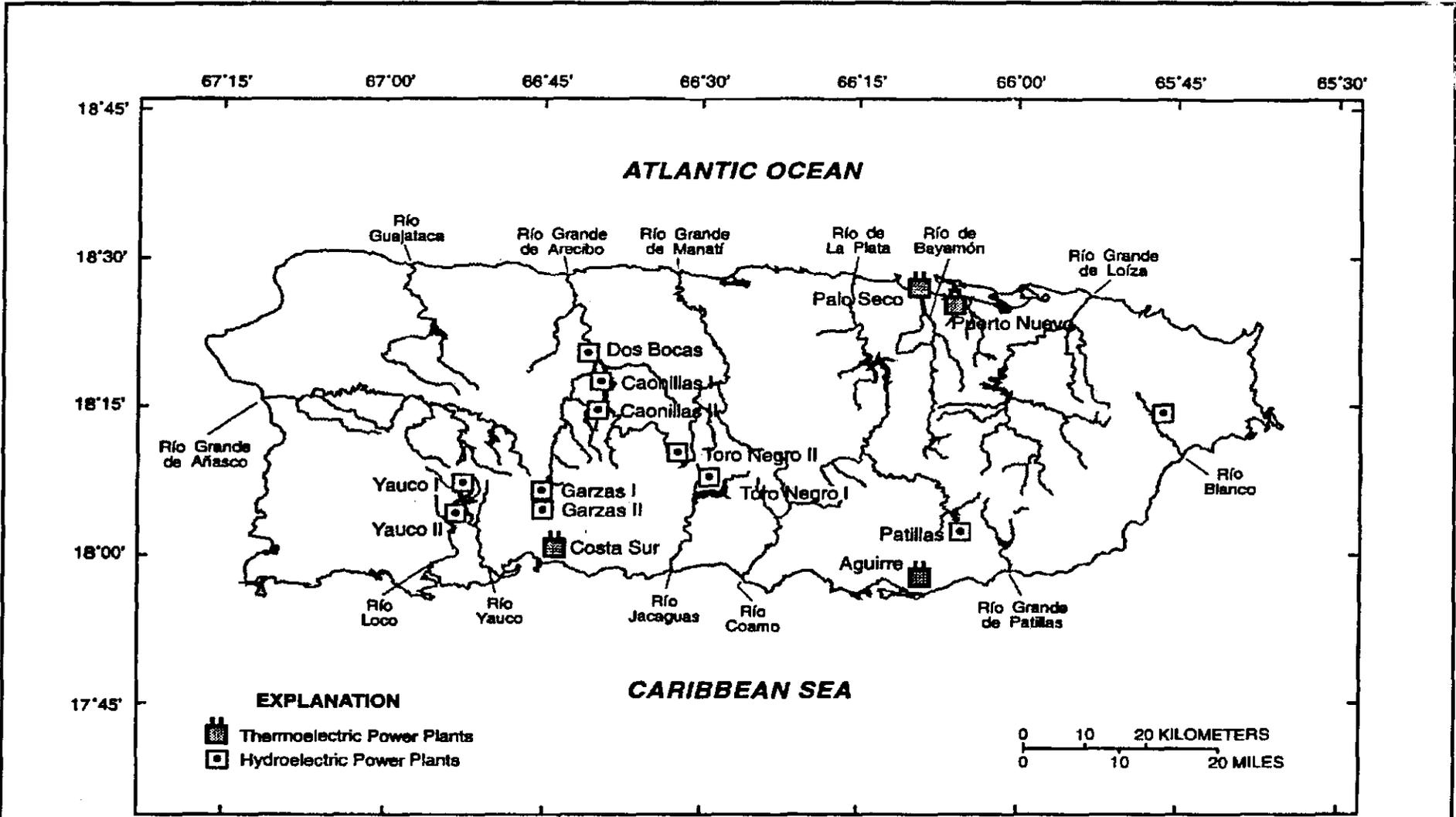
PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN



MAP 14

MANGROVES DISTRIBUTION IN PUERTO RICO

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

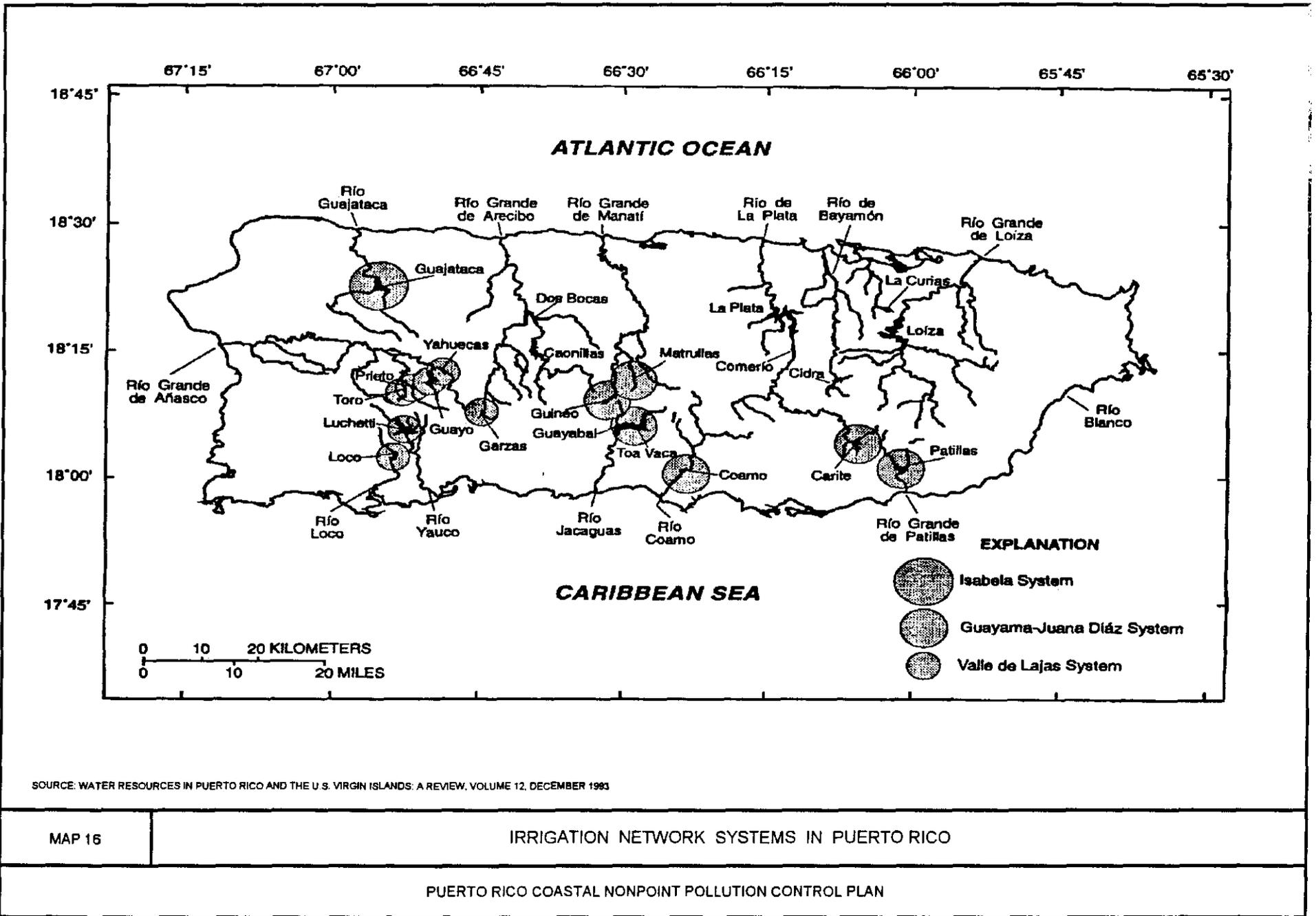


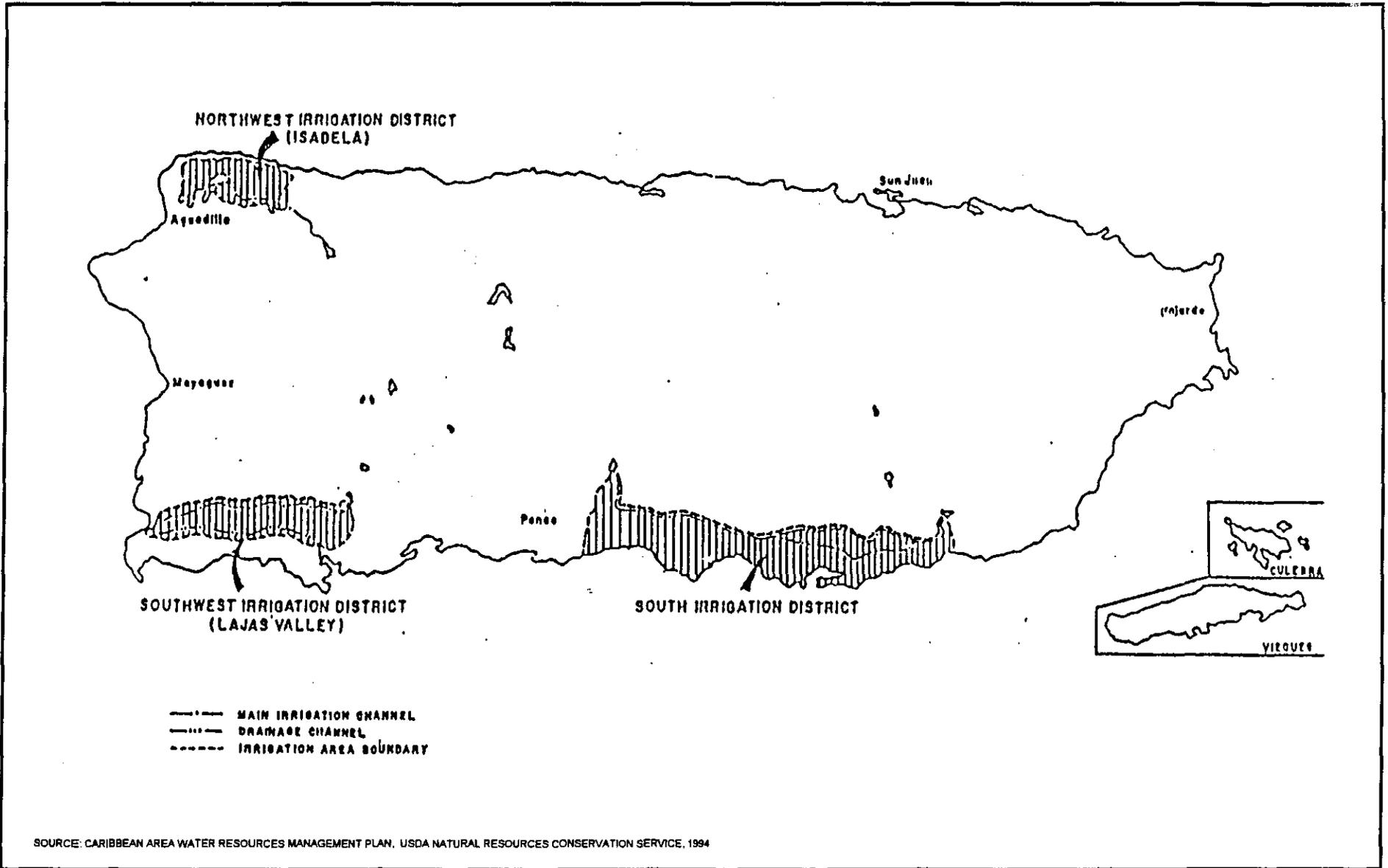
SOURCE: WATER RESOURCES IN PUERTO RICO AND THE U.S. VIRGIN ISLANDS: A REVIEW, VOLUME 12, DECEMBER 1993

MAP 15

ACTIVE THERMOELECTRIC AND HYDROELECTRIC POWER PLANTS IN PUERTO RICO DURING 1990

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN





SOURCE: CARIBBEAN AREA WATER RESOURCES MANAGEMENT PLAN, USDA NATURAL RESOURCES CONSERVATION SERVICE, 1994

MAP 17

IRRIGATION DISTRICTS AREAS

PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PLAN

**PUERTO RICO COASTAL NONPOINT POLLUTION
CONTROL PLAN (PRCNPCP)**

DRAFT DOCUMENT FOR AGENCIES REVIEW

**VOLUME 1-A
APPENDICES TO VOLUME 1**

SUBMITTED TO

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

AND

ENVIRONMENTAL PROTECTION AGENCY (EPA)

BY

**DEPARTMENT OF NATURAL AND
ENVIRONMENTAL RESOURCES (DNER)**

AND

ENVIRONMENTAL QUALITY BOARD (EQB)

OF THE

COMMONWEALTH OF PUERTO RICO

(In partial fulfillment of the requirements of Section 6217 of CZARA of 1990)

OCTOBER 31, 1995

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- APPENDIX N** COPIES OF LETTERS TO AND FROM LEAD AND COOPERATING AGENCIES REGARDING THE PROPOSED EXECUTIVE ORDER AND OTHER ASPECTS OF THE PRCNPCP AND THE RESPONSES THAT WERE PROVIDED BY THE DESIGNATED AGENCIES
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- APPENDIX S** COMPENDIUM OF LEAD AND COOPERATING AGENCIES RESPONSIBILITIES CONTAINED IN INTERAGENCY AGREEMENTS AND MANAGEMENT PLANS
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**PUERTO RICO COASTAL NONPOINT POLLUTION
CONTROL PLAN (PRCNPCP)**

DRAFT DOCUMENT FOR AGENCIES REVIEW

**VOLUME 2
APPLICABLE LAWS, REGULATIONS
AND PROGRAMS,
AND OTHER PERTINENT DOCUMENTS**

SUBMITTED TO

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

AND

ENVIRONMENTAL PROTECTION AGENCY (EPA)

BY

**DEPARTMENT OF NATURAL AND
ENVIRONMENTAL RESOURCES (DNER)**

AND

ENVIRONMENTAL QUALITY BOARD (EQB)

OF THE

COMMONWEALTH OF PUERTO RICO

(In partial fulfillment of the requirements of Section 6217 of CZARA of 1990)

OCTOBER 31, 1995

VOLUME 2 - LAWS AND REGULATIONS APPLICABLE TO THE PUERTO RICO COASTAL NONPOINT POLLUTION CONTROL PROGRAM

VOLUME 2.A - LAWS AND REGULATIONS AND PUBLIC POLICY DOCUMENTS OF THE DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES (DNER)

(A copy of the cover page is included when only the SPANISH VERSION is available.)

DNER-A4	FISHERIES ACT
DNER-A5	WATERSHED PROTECTION ACT
DNER-A6	WATERSHED PROTECTION AND FLOOD PREVENTION ACT
DNER-A8	FLOOD CONTROL AND CONSERVATION AREA OF BEACHES AND RIVERS ACT
DNER-A9	SAND, GRAVEL AND STONE ACT
DNER-A9-R1	REGULATION FOR THE EXTRACTION OF MATERIALS FROM THE EARTH'S CRUST
DNER-A9-R1/AO1	DIRECTIVE ABOUT INCIDENTAL PERMITS WITH AGRICULTURAL PRACTICES PURPOSES (Spanish Version)
DNER-A9-R1/AO2	DIRECTIVE ABOUT INCIDENTAL PERMITS WITH AGRICULTURAL PRACTICES PURPOSES (Spanish Version)
DNER-A10	ACT TO PROHIBIT WASTE DISPOSAL IN PRIVATE AND PUBLIC PLACES
DNER-A11	ORGANIC ACT OF THE DEPARTMENT OF NATURAL RESOURCES
DNER-A11-PP1	PUERTO RICO COASTAL ZONE MANAGEMENT PLAN
DNER-A11-PP2	MANAGEMENT PLAN FOR THE MANGROVES OF PUERTO RICO (Spanish Version)
DNER-A11-R1	REGULATION FOR THE USE, SURVEILLANCE, CONSERVATION AND MANAGEMENT OF THE TERRITORIAL WATERS, SUBMERGED LANDS THEREUNDER AND THE MARITIME ZONE
DNER-A11-AO1	ADMINISTRATIVE ORDER No. 2-93 - ADMINISTRATIVE ORDER TO ESTABLISH PUBLIC POLICY ON THE CONSERVATION OF SAND RESOURCES IN PUERTO RICO (Spanish Version)
DNER-A11-IA2	INTERAGENCY AGREEMENT WITH RPA FOR INTERVENTION PROCESS - MARITIME TERRESTRIAL ZONE AND COASTAL ZONE (same as RPA-A1-IA1)
DNER-A11-IA3	INTERAGENCY AGREEMENT FOR THE IMPLEMENTATION OF THE SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM (WITH EQB, PB, RPA, DA, SCDs, UPR's AExtS, NRCS and EPA)
DNER-A11-G1	GUIDELINES FOR THE SITING OF MARINAS IN PUERTO RICO

DNER-A11-G2	GUIDELINES FOR THE SITING OF MARINAS IN PUERTO RICO (EASTERN COAST)
DNER-A11-IA4	MEMORANDUM OF AGREEMENT BETWEEN THE DNER, THE EQB, THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AND ITS HIGHWAY AND TRANSPORTATION AUTHORITY (same as EQB-A1-IA10 and HTA-A1-IA1)
DNER-A12	CULEBRA CONSERVATION AND DEVELOPMENT ACT
DNER-A13	FOREST ACT OF PUERTO RICO
DNER-A16	ACT FOR THE CONSERVATION, DEVELOPMENT, AND USE OF THE WATER RESOURCES OF PUERTO RICO
DNER-A16-R1	REGULATION FOR THE APPROPRIATION, USE CONSERVATION AND ADMINISTRATION OF THE WATERS OF PUERTO RICO
DNER-A16-AO1	ADMINISTRATIVE ORDER TO DESIGNATE A WATER RESOURCES COMMITTEE (Spanish Version)
DNER-A17	NATURAL RESOURCES RANGERS OF THE DEPARTMENT OF NATURAL RESOURCES ACT
DNER-A17-R1	REGULATION FOR THE RANGER CORPS OF THE DEPARTMENT OF NATURAL RESOURCES
DNER-A19	ACT TO DESIGNATE THE DATE FROM MAY 1 TO JUNE 5 OF EACH YEAR AS THE NATURAL RESOURCES AND ENVIRONMENTAL QUALITY AND HEALTH EDUCATIONAL TERM
DNER-A20	ACT FOR THE PROTECTION AND PRESERVATION OF THE CAVES, CAVERNS OR SINKHOLES OF PUERTO RICO
DNER-A21	PUBLIC BEACHES, TRAFFIC AND SAFETY ACT
DNER-A21-R1	REGULATION REGARDING THE REGISTRATION OF MOTORBOATS AND GENERAL SAFETY RULES
DNER-A24	PUERTO RICO NATURAL PATRIMONY ACT
DNER-A25-R1	REGULATION GOVERNING ADJUDICATIVE PROCEDURES AND ADMINISTRATIVE FINES OF THE DEPARTMENT OF NATURAL RESOURCES (Spanish Version)
DNER-A25-R2	REGULATION OF TERMS FOR THE PERMITS, FRANCHISES, ENDORSEMENTS, AND SIMILAR AUTHORIZATION PROCEDURES (Spanish Version)
DNER-A27	REORGANIZATION PLAN No. 4 OF THE DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES (Spanish Version)
DNER-A28	INSPECTION AND REGULATION ACT FOR DAMS AND RESERVOIRS (SECRETARY OF DNER IS MEMBER OF COMMITTEE) (same as PREPA-A4)

SWMA-A1	PUERTO RICO SOLID WASTE MANAGEMENT AUTHORITY ACT
SWMA-A2	RECYCLING ACT (Spanish Version)
SWMA-EO1	TO DECLARE PUBLIC POLICY TO GUIDE THE MANAGEMENT AND FINAL DISPOSAL OF SOLID WASTES IN PUERTO RICO AND TO STIMULATE THEIR REUSE, REDUCTION AND ENERGY RECOVERY (Spanish Version)
VOLUME 2.B -	LAWS AND REGULATIONS AND PUBLIC POLICY DOCUMENTS OF THE ENVIRONMENTAL QUALITY BOARD (EQB)
EQB-A1	PUERTO RICO ENVIRONMENTAL PUBLIC POLICY ACT
EQB-A1-R1	PUERTO RICO WATER QUALITY STANDARDS REGULATION
EQB-A1-AO1	PUBLIC POLICY ABOUT THE MANGROVES OF PUERTO RICO
EQB-A1-R3	UNDERGROUND INJECTION CONTROL REGULATION
EQB-A1-R4	REGULATION ON PUERTO RICO ENVIRONMENTAL IMPACT STATEMENTS
EQB-A1-R4/G1	GUIDELINES FOR ENVIRONMENTAL IMPACT STATEMENTS
EQB-A1-R5	REGULATION TO CONTROL HAZARDOUS AND NON-HAZARDOUS SOLID WASTE
EQB-A1-R5A	NON-HAZARDOUS SOLID WASTE MANAGEMENT REGULATION
EQB-A1-R7	RULES OF ADMINISTRATIVE PROCEDURES FOR HEARINGS AT THE ENVIRONMENTAL QUALITY BOARD (Spanish Version)
EQB-A1-R8	REGULATION FOR PLANS AND DOCUMENTS CERTIFICATION BEFORE THE ENVIRONMENTAL QUALITY BOARD (Spanish Version) (same as EQB-A3-R1)
EQB-A1-R8A	STANDARDS OF DESIGN FOR WASTEWATER TREATMENT SYSTEMS (Spanish Version)
EQB-A1-R8B	CONSTRUCTION REQUIREMENTS FOR GROUNDWATER POLLUTION CONTROL SYSTEMS (Spanish Version)
EQB-A1-R10 EQB-A1-R10A	REGULATION FOR THE CONTROL OF EROSION AND SEDIMENTATION (Spanish Version)
EQB-A1-R10/IA0	INTERAGENCY AGREEMENT FOR THE IMPLEMENTATION OF THE SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM (WITH DNER, PB, RPA, DA, SCDs, UPR's AExtS, NRCS and EPA) (same as DNER-A11-IA3)
EQB-A1-R11	REGULATION FOR THE CONTROL OF ANIMAL FECAL WASTE FROM LIVESTOCK ENTERPRISES [ANIMAL FECAL WASTE CONTROL REGULATION (AFWCR)] (Spanish Version)

EQB-A1-R11/G GUIDELINES FOR THE CONSTRUCTION, OPERATION, MAINTENANCE AND EMERGENCY MEASURES FOR ANIMAL FECAL WASTE MANAGEMENT SYSTEMS IN LIVESTOCK ENTERPRISES (Spanish Version)

EQB-A1-PP1 NONPOINT SOURCE MANAGEMENT PROGRAM FOR PUERTO RICO

EQB-A1-PP2 WELLHEAD PROTECTION PROGRAM

EQB-A1-PP3 STATE MANAGEMENT PLAN FOR THE CONTROL OF PESTICIDES IN GROUND WATER (EQB and DA with UPR's AExtS, DH, DNER,, USGS, and NRCS) (same as DA-A6-PP1)

EQB-A1-IA1 COOPERATIVE AGREEMENT WITH REGULATIONS AND PERMITS ADMINISTRATION TO IMPLEMENT THE CONTROL STRATEGIES AND CONTINUE THE PLANNING, AS PRESENTED IN THE SECTION OF NONPOINT SOURCES POLLUTION CAUSED BY AGRICULTURAL ACTIVITIES (same as RPA-A1-IA2)

EQB-A1-IA2 COOPERATIVE AGREEMENT WITH THE AGRICULTURAL DEVELOPMENT ADMINISTRATION TO IMPLEMENT AND TO CONTINUE THE DEVELOPMENT OF THE NONPOINT SOURCES OF CONTAMINATION SECTION, CAUSED BY AGRICULTURAL ACTIVITIES (same as DA-AFA-A16-IA1)

EQB-A1-IA3 COOPERATIVE AGREEMENT WITH THE SOIL CONSERVATION DISTRICT (ATLANTIC), TO IMPLEMENT AND TO CONTINUE THE DEVELOPMENT OF THE NONPOINT SOURCES CONTROL SECTION CAUSED BY AGRICULTURAL ACTIVITIES (same as DA-A3-IA1)

EQB-A1-IA4 COOPERATIVE AGREEMENT WITH THE SOIL CONSERVATION DISTRICT (CAONILLA), TO IMPLEMENT AND TO CONTINUE THE DEVELOPMENT OF THE NONPOINT SOURCES CONTROL SECTION CAUSED BY AGRICULTURAL ACTIVITIES (same as DA-A3-IA2)

EQB-A1-IA5 MEMORANDUM OF AGREEMENT WITH UPR's AGRICULTURE EXTENSION SERVICE, TO IMPLEMENT AND CONTINUE THE PLANNING, AS PRESENTED IN THE SECTION OF NONPOINT SOURCES POLLUTION CAUSED BY AGRICULTURAL ACTIVITIES (same as UPR-A1-IA1)

EQB-A1-IA6 COOPERATIVE AGREEMENT WITH THE DEPARTMENT OF HEALTH , TO COORDINATE THE IMPLEMENTATION AND DEVELOPMENT OF THE SECTION THAT DEALS WITH NONPOINT SOURCES OF POLLUTION CAUSED BY AGRICULTURE CONTAINED IN THE WATER QUALITY PLAN FOR PUERTO RICO (same as DH-IA1)

EQB-A1-IA7 COOPERATIVE AGREEMENT WITH THE REGULATIONS AND PERMITS ADMINISTRATION , TO COORDINATE EFFORTS IN THE IMPLEMENTATION OF THE NONPOINT SOURCE CONTROL PROGRAM FOR LAGO LOIZA AND RIO LA PLATA BASINS (same as RPA-A1-IA3)

EQB-A1-IA10 MEMORANDUM OF AGREEMENT BETWEEN THE DNER, THE EQB, THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AND ITS HIGHWAY AND TRANSPORTATION AUTHORITY (same as DNER-A11-IA4 and HTA-A1-IA1)

EQB-A1-AO2	ISSUANCE OF PERMITS BY THE ENVIRONMENTAL QUALITY BOARD(Spanish Version)
EQB-A1-AO3	REGULATION FOR THE CERTIFICATION OF PLANS AND DOCUMENTS AT THE ENVIRONMENTAL QUALITY BOARD (Spanish Version)
EQB-A1-AO4	PROCEDURE FOR THE CERTIFICATION OF DISCHARGES INTO BODIES OF WATER [WATER QUALITY CERTIFICATION (WQC) PROCEDURE] (Spanish Version)
EQB-A1-AO5	APPLICABILITY OF LAW No. 9, ARTICLE 4(c) TO FACILITIES EXISTING PRIOR TO THE ENACTMENT OF THE ACT – PROCEDURE OF THE WATER QUALITY AREA (Spanish Version)
EQB-A1-OA6	COMPLIANCE OF THE ENVIRONMENTAL QUALITY BOARD WITH ARTICLE 4(c) OF THE ENVIRONMENTAL PUBLIC POLICY ACT, LAW No. 9 OF JUNE 18, 1970.(Spanish Version)
EQB-A1-AO7	COMPLIANCE OF LIVESTOCK ENTERPRISES WITH ARTICLE 4(c) OF LAW No. 9 ON THE ENVIRONMENTAL PUBLIC POLICY ACT (Spanish Version)
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EQB-A3	CERTIFICATION OF PLANS ACTS (same as RPA-A2)
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DA-A6	PESTICIDES ACT OF PUERTO RICO
DA-A6-R1	REGULATION TO GOVERN THE SALE, DISTRIBUTION AND APPLICATION OF PESTICIDES AND DEVICES; THE CERTIFICATION OF APPLICATORS OF RESTRICTED USE PESTICIDES; THE ISSUANCE OF PERMITS FOR THE EXPERIMENTAL USE OF PESTICIDES IN THE COMMONWEALTH OF PR AND TO DEROGATE THAT APPROVED ON THE SAME MATTER ON AUGUST 30, 1971
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- PRPA-A1 DOCK AND HARBOR ACT OF PUERTO RICO OF 1968 (ORGANIC ACT OF PIERS AND HARBORS)
- DH-A1 ACT TO PROTECT THE PURITY OF DRINKING WATER OF PUERTO RICO
- DH-IA1 COOPERATIVE AGREEMENT WITH THE ENVIRONMENTAL QUALITY BOARD, TO COORDINATE THE IMPLEMENTATION AND DEVELOPMENT OF THE SECTION THAT DEALS WITH NONPOINT SOURCES OF POLLUTION CAUSED BY AGRICULTURE CONTAINED IN THE WATER QUALITY PLAN FOR PUERTO RICO (same as EQB-A1-IA6)
- PRASA-A1-R1 REGULATION FOR THE SUPPLY AND USE OF WATER AND SEWER SERVICES - FACILITIES FOR THE USE OF RESERVOIRS FOR RECREATIONAL PURPOSES
- PREPA-A4 INSPECTION AND REGULATION ACT FOR DAMS AND RESERVOIRS (same as DNER-A28)
- UPR-A1-IA1 MEMORANDUM OF AGREEMENT WITH EQB, TO IMPLEMENT AND CONTINUE THE PLANNING, AS PRESENTED IN THE SECTION OF NONPOINT SOURCES POLLUTION CAUSED BY AGRICULTURAL ACTIVITIES (same as EQB-A1-IA5)
- UPR-A1-IA2 INTERAGENCY AGREEMENT FOR THE IMPLEMENTATION OF THE SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM (WITH EQB, DNER, RPA, DA, SCDs, UPR's AExtS, NRCS and EPA) (same as DNER-A11-IA3)
- NRCS-A1-IA1 INTERAGENCY AGREEMENT FOR THE IMPLEMENTATION OF THE SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM (WITH EQB, DNER, RPA, DA, SCDs, UPR's AExtS, NRCS and EPA) (same as DNER-A11-IA3)
- HTA-A1-IA1 MEMORANDUM OF AGREEMENT BETWEEN THE DNER, THE EQB, THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AND ITS HIGHWAY AND TRANSPORTATION AUTHORITY (same as DNER-A1-IA4 and EQB-A1-IA10)

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- EPA-OTHER-1 CHARACTERIZATION OF USE IMPAIRMENTS OF THE U.S. VIRGIN ISLANDS AND PUERTO RICO - FINAL REPORT, DECEMBER 1992
- EQB-OTHER-1 NONPOINT SOURCE ASSESSMENT REPORT FOR PUERTO RICO; ENVIRONMENTAL QUALITY BOARD, MARCH 1989
- EQB-OTHER-2 GOALS AND PROGRESS OF STATEWIDE WATER QUALITY MANAGEMENT PLANNING, PUERTO RICO, 1990-91; ENVIRONMENTAL QUALITY BOARD WATER QUALITY PROGRAM, REVISED EDITION, JULY 1992
- EQB-OTHER-3 GOALS AND PROGRESS OF STATEWIDE WATER QUALITY MANAGEMENT PLANNING, PUERTO RICO, 1992-93; ENVIRONMENTAL QUALITY BOARD WATER QUALITY PROGRAM, FINAL REVISED EDITION, MAY 1994

A = ACT; AO = ADMINISTRATIVE ORDER; EO = EXECUTIVE ORDER; G = GUIDELINES;
HB = HANDBOOK; IA = INTERAGENCY AGREEMENT; PP = PUBLIC POLICY; R = REGULATION