



OFFICE OF THE GOVERNOR
GUAM


AUG 10 2001

The Honorable Joanne M. S. Brown
Legislative Secretary
I Mina'Bente Sais na Liheslaturan Guåhan
Twenty-Sixth Guam Legislature
Suite 200
130 Aspinal Street
Hagåtña, Guam 96910

Dear Legislative Secretary Brown:


Enclosed please find Substitute Bill No. 80 (LS) entitled: "AN ACT TO AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS" which I have **signed** into law as **Public Law No. 26-32**.

Very truly yours,


Madeleine Z. Bordallo
I Maga'Lahen Guåhan, Akto
Acting Governor of Guam

Attachment: copy attached for signed bill or overridden bill
original attached for vetoed bill

cc: The Honorable Antonio R. Unpingco
Speaker


OFFICE OF THE LEGISLATIVE SECRETARY	
ACKNOWLEDGMENT RECEIPT	
Received By	<u></u>
Time	<u>220p</u>
Date	<u>8/10/01</u>

0400

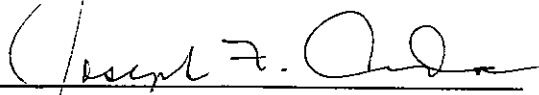
MINA'BENTE SAIS NA LIHESLATURAN GUÅHAN
2001 (FIRST) Regular Session

CERTIFICATION OF PASSAGE OF AN ACT TO I MAGA'LAHEN GUÅHAN

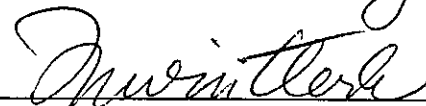
This is to certify that Substitute Bill No. 80 (LS), "AN ACT TO AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS," was on the 5th day of July, 2001, duly and regularly passed.


ANTONIO R. UÑPINGCO
Speaker


Attested:


JOSEPH F. ADA, Acting
Legislative Secretary

This Act was received by I Maga'lahaen Guåhan this 30th day of July, 2001,
at 4:30 o'clock P.M.


Assistant Staff Officer
Maga'lahaen's Office

APPROVED:


MADELEINE Z. BORDALLO
I Maga'lahaen Guåhan, Akto

Date: 8/10/01

Public Law No. 26-32

MINA'BENTE SAIS NA LIHESLATURAN GUÅHAN
2001 (FIRST) Regular Session

Bill No. 80 (LS)

As substituted by the
Committee on Natural
Resources and amended.

Introduced by:

J. M.S. Brown
K. S. Moylan
J. F. Ada
T. C. Ada
F. B. Aguon, Jr.
E. B. Calvo
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Mark Forbes
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L. A. Leon Guerrero
V. C. Pangelinan
A. L.G. Santos
A. R. Unpingco
J. T. Won Pat

**AN ACT TO AMEND THE GUAM
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS.**

1 **BE IT ENACTED BY THE PEOPLE OF GUAM:**

2 **Section 1. Legislative Findings and Intent.** In accordance with the
3 Administrative Adjudication Law, Chapter 9 of Title 5 of the Guam Code
4 Annotated, the Guam Environmental Protection Agency ("GEPA") transmitted
5 to *I Liheslaturan Guåhan*, the "*Guam Environmental Protection Agency Water Quality*
6 *Standards.*" *I Liheslaturan Guåhan* seeks to amend said regulations.

1 **Section 2. Amendment of GEPA Regulations.** *I Liheslaturan Guåhan*
2 hereby amends the GEPA rules and regulations entitled, "*Guam Environmental*
3 *Protection Agency Water Quality Standards*," to read as set forth in **Exhibit A**,
4 and incorporated herein by reference.

5 **Section 3. Effective Date of Water Quality Standards.** These water
6 quality standards shall become applicable for the waters of Guam upon the
7 determination by the U.S. E.P.A. under § 303(c)(3) of the Clean Water Act, also
8 known as the Water Pollution Control Act, that the revised or new standards
9 meet the requirements of the Water Pollution Control Act.

10 **Section 4. Severability.** *If any provision of this Law or its application*
11 *to any person or circumstance is found to be invalid or contrary to law, such*
12 *invalidity shall not affect other provisions or applications of this Law which can*
13 *be given effect without the invalid provisions or application, and to this end the*
14 *provisions of this Law are severable.*

Exhibit A

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GAR GEPA.
Division II - Water Control.
Chapter 5.
Water Quality Standards.

Section 5101. Policies.

A. Statement of Policy. It shall be the public policy of Guam to:

1. conserve, protect, maintain, and improve the quality of Guam's waters for human consumption (drinking, fish and shellfish harvesting and food processing); for the growth and propagation of aquatic life; for marine research; for the preservation of coral reefs and wilderness areas; and for domestic, agricultural, commercial, industrial, recreational and other legitimate uses;
2. provide that no pollutant is discharged into any of Guam's waters, unless: (a) the discharge first receives processing/treatment to remove all harmful or hazardous products, or provides the control technology necessary to protect the designated beneficial uses of waters; (b) the discharge meets the effluent limitations established for that discharge; and (c) best management practices are applied as necessary;
3. provide for the prevention, abatement and control of new and existing water pollution sources;
4. maintain and improve the chemical, physical and biological integrity of the waters of Guam as necessary to meet Clean Water Act Section 101(a);
5. provide protection from point or non-point source discharges to wetlands in the same way as other surface waters;
6. provide protection from point and non-point discharges, including discharges from ponding basins and sinkholes to groundwater in the same way as surface waters; and
7. eliminate all point source discharges to certain near-shore waters.

Further, under the terms of the U.S. Water Pollution Control Act 92-500, as amended by all Public Laws through 1986:

1. it is Guam's goal to eliminate the discharge of pollutants into Guam's waters; and

2. it is Guam's goal that effective water quality guidelines are established and enforced which provide for the protection and propagation of fish, shellfish and other aquatic and marine life, and provide for safe public recreation in and on Guam's waters.

Therefore, pursuant to the authority contained in the Guam Water Pollution Control Act (Sections 47104 and 47108 of Chapter 47, Title 10 of the Guam Code Annotated), which authorized the formulation of standards of water purity and classification of waters according to their most beneficial uses, the Guam Environmental Protection Agency hereby adopts the following standards of water quality for Guam.

B. Anti-Degradation Policy.

1. Existing in-stream water uses, and the level of water quality necessary to protect these uses, shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing designated uses is allowable.

2. Water quality for those waters not attaining their uses due to impacts from pollution shall be improved so uses are attained. Where the natural conditions are of lower quality than criteria assigned, the natural conditions shall constitute the water quality criteria.

3. If a project has been proposed, and its implementation may lower water quality in a water whose quality exceeds levels necessary to support the propagation of fish, shellfish and other commonly harvested organisms, and wildlife and recreation in and on the water, that water quality shall be maintained and protected unless:

a. an interdisciplinary review consistent with the National Environmental Policy Act ("NEPA") has been submitted for the project. This review will insure that the project complies with the applicable local and Federal laws and regulations and procedures relating to the protection and enhancement of the environment. As necessary, the determination will include mitigative provisions as a condition for granting approval of a specific project. The three (3) basic environmental determinations that will apply to a specific project are:

i. a determination to categorically exclude a project from a formal environmental review;

ii. a Finding of No Significant Impact ("FNSI") based upon formal environmental review supported by an Environmental Impact Document ("EID"); and

iii. a determination to prepare an Environmental Impact Statement ("EIS"). The environmental impact determination will consider such technical, economic, social and other criteria as provided by Sections 301 and 302 of the Clean Water Act;

b. the public has been notified of the anticipated action, and has been provided the information necessary for meaningful public involvement and response at least thirty (30) days before the action; a public hearing or meeting has been held (in accordance with the Administrative Adjudication Law, 5 GCA Chapter 9, and with a thirty (30) day notice) if the Agency determines that there is significant public interest or that a hearing or meeting would be useful; and a responsiveness summary has been completed (which shall identify the public participation activity conducted, describe the matter on which the public was consulted, summarize the public's views and significant comments and set forth the Agency's responses); and

c. the Administrator finds that:

i. allowing lower water quality is necessary to accommodate important economic or social development;

ii. existing uses will be protected; and

iii. the project associated with the lowering includes the highest statutory and regulatory requirements for all new and existing point and non-point sources, and all cost-effective and reasonable best management practices for non-point sources.

4. When more than one (1) set of water quality criteria apply, including an overlap of category designations or at a boundary water between two (2) categories, the more stringent standard shall prevail.

5. Water quality shall be maintained and protected in Guam's Outstanding Resource Waters.

6. In those cases where potential water quality impairment associated with a thermal discharge is involved, the anti-degradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act.

C. Groundwater Protection Zone ("GPZ").

A primary means of groundwater pollution prevention is to direct, control and encourage appropriate land uses, land use intensities and land use development patterns to achieve sustainable groundwater quality over the long term. The Groundwater Protection Zone ("GPZ") is an environmental land use management system which designates much of the land surface above Guam's principal source aquifer, the Northern Aquifer, for the protection of Resource Zone (G-1) waters and the Recharge Zone (G-2) waters.

A GPZ map has been developed as a land use management overlay applicable to any and all zoning and subdivision development requirements in Guam, including military land use activities. One (1) primary determinate of land use development potential, use intensity, density and patterns of growth is the availability of public sewer systems. This determinant is especially critical over Guam's Northern Aquifer to ensure that many potentially harmful (wastewater) pollutants generated are transported to acceptable treatment/disposal works.

The GPZ includes most, but not all, of the following: drinking water production wells and their respective well head protection zones, the Northern Guam Watershed, high development-potential, substantial agricultural, government subsidized rural housing, military, and existing industrial and commercial development lands.

1. Land use guidelines and performance standards should be applied in all appropriate circumstances within the GPZ and over the Northern Aquifer, including, but not limited to, the following:

a. industrial development should not occur without adequate public sewer infrastructure;

b. high density residential development (more than one (1) dwelling per one-half (1/2) acre should not occur without adequate public sewer service;

c. individual wastewater disposal systems and ponding basins and similar point source waste or storm water disposal works should not be permitted within a Wellhead Protection Zone; and

d. as practical, storm water disposal systems should be designed and operated to terminate in close proximity to, or within project property boundaries, to facilitate groundwater recharge.

Section 5102. Categories of Waters.

The categories of water established under these standards are Groundwater, Marine waters, and Surface waters. All categories of water are referenced on the Water Classification Map. Scaled down copies of these maps are included in these standards, enabling readers to understand their relative position, application and use.

A. Groundwater.

This category encompasses all subsurface water and includes basal and parabasal water, perched water, all water below the groundwater table, water percolating through the unsaturated zone (vadose water), all saline waters below and along the perimeter of the basal fresh water body (freshwater lens), and water on the surface that has been collected with the specific intent of recharging or disposing of that water to the subsurface by means of injection, infiltration, percolation, etc. The Northern Guam Water lens, which is the Principal Source Aquifer, and any other groundwater resources, as they are identified, shall continue to receive protection under the Guam Wellhead Protection Program and other applicable groundwater regulations.

1. Category G-1 Resource Zone.

The primary use of groundwater within this zone is for drinking (human consumption) and this use must be protected. Virtually all water of the saturated zone of Guam is included. Specifically, it includes all water occurring in the saturated zone below the groundwater table, all vadose water occurring in an unsaturated zone extending one hundred (100) feet (30.5 m) above any water table, or within twenty (20) feet of the ground surface of all fresh groundwater bodies, all water of the basal and parabasal freshwater bodies, and all water of and below the freshwater/salt-water transition zone beneath the basal water body (e.g. Wells A-1, A-2, A-3, MJ-1, & MJ-5). Tables 1 and 2 contain specific numerical standards for inorganic and organic chemicals, radionuclides and microorganisms.

2. Category G-2 Recharge Zone.

Water within this zone is tributary to, replenishes, and recharges the Category G-1 groundwater and must be of drinking water quality before it enters the Resource Zone. Water discharges within the Recharge Zone must receive treatment to the degree necessary to protect the underlying Category G-1 groundwater from any contamination, and must comply with the requirements of the groundwater quality standards, unless it can be shown by an engineering feasibility study that there will be no significant adverse effects on G-1 waters.

B. Marine Waters.

This category includes all coastal waters off-shore from the mean high water mark, including estuarine waters, lagoons and bays, brackish areas, wetlands and other special aquatic sites, and other inland waters that are subject to ebb and flow of the tides.

1. Category M-1 Excellent.

Water in this category must be of high enough quality to protect for whole body contact recreation, and to ensure the preservation and protection of marine life, including corals and reef-dwelling organisms, fish and related fisheries resources, and enable the pursuit of marine scientific research as well as aesthetic enjoyment. This category of water shall remain substantially free from pollution attributed to domestic, commercial and industrial discharges, shipping and boating, or mariculture, construction and other activities which can reduce the waters' quality.

2. Category M-2 Good.

Water in this category must be of sufficient quality to allow for the propagation and survival of marine organisms, particularly shellfish and other similarly harvested aquatic organisms, corals and other reef-related resources, and whole body contact recreation. Other important and intended uses include mariculture activities, aesthetic enjoyment and related activities.

3. Category M-3 Fair.

Water in this category is intended for general, commercial and industrial use, while allowing for protection of aquatic life, aesthetic

enjoyment and compatible recreation with limited body contact. Specific intended uses include the following: shipping, boating and berthing, industrial cooling water, and marinas.

C. Surface Waters.

This category includes all of surface freshwater and includes: (1) waters that flow continuously over land surfaces in a defined channel or bed, such as streams and rivers; (2) standing water in basins, such as lakes, wetlands, marshes, swamps, ponds, sinkholes, ponding basins, impoundments, and reservoirs, either natural or man-made; and (3) all waters flowing over the land as runoff, or as runoff confined to channels with intermittent flow.

1. Category S-1 High.

Surface water in this category is used for drinking water, wilderness areas, propagation and preservation of aquatic life, whole body contact recreation and aesthetic enjoyment. It is the objective of these standards that these waters shall be kept free of substances or pollutants from domestic, commercial and industrial discharges, or agricultural activities, construction or other land-use practices that may impact water quality.

2. Category S-2 Medium.

Surface water in this category is used for recreational purposes, including whole body contact recreation, for use as potable water supply after adequate treatment is provided, and propagation and preservation of aquatic wildlife and aesthetic enjoyment.

3. Category S-3 Low.

Surface water in this category is primarily used for commercial, agricultural and industrial activities. Aesthetic enjoyment and limited body contact recreation are acceptable in this zone, as well as maintenance of aquatic life. Discharges within this zone may be required to have construction and/or discharge permits under existing Guam Sediment and Soil Erosion regulations or under National Pollution Discharge Elimination System ("NPDES").

D. Outstanding Resource Waters.

1. Category Outstanding Resource Waters.

These waters may include surface waters (marine, freshwater, wetlands, etc.) in parks, wildlife refuges, and publicly owned lakes and reservoirs, and waters of exceptional recreational or ecological significance (e.g. waters which provide a habitat for identified threatened or endangered species), as determined by the Administrator.

Section 5103. Water Quality Criteria.

A. General Criteria Applicable to All Waters of Guam.

1. All waters shall meet generally accepted aesthetic qualifications, shall be capable of supporting desirable aquatic life, and shall be free from substances, conditions or combinations thereof attributable to domestic, commercial and industrial discharges or agricultural, construction and land-use practices or other human activities that:

- a. cause visible floating materials, debris, oils, grease, scum, foam, or other floating matter which degrades water quality or use;
- b. produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;
- c. produce objectionable color, odor or taste, directly or by chemical or biological action;
- d. injure or are toxic or harmful to humans, animals, plants or aquatic life; or
- e. induce the growth of undesirable aquatic life.

2. Analytical testing methods for these criteria shall be in accordance with the most recent editions of "Standard Methods for the Examination of Water and Wastewater" prepared and published jointly by American Public Health Association ("APHA"), American Water Works Associations ("AWWA"), and Water Pollution Control Federation ("WPCF") (now Water Environment Federation); "Methods for Chemical Analysis of Water and Wastes" (U.S. Environmental Protection Agency Environmental Monitoring & Support Division, Cincinnati, Ohio 45268, (EPA-600/4-79-020)

March 1983), and other methods acceptable to GEPA and possessing adequate procedural precision and accuracy.

B. Water Quality Criteria For Groundwater G-1 and G-2.

1. The numerical groundwater quality standards limit the physical, chemical, radiological and microbiological characteristics of drinking water in terms of maximum acceptable concentrations. Although the groundwater limits presented herein represent drinking water of acceptable quality, there is no inference that better quality water supplies may be degraded.

2. Table 1 presents groundwater quality standards to protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known to occur in public water systems. The table divides these contaminants into Inorganic Chemicals, Organic Chemicals, Radionuclides and Microorganisms.

TABLE 1.
INORGANIC CHEMICALS.

Pollutants	(mg/l)
Antimony	0.006
Arsenic	0.05
Asbestos (fibers >10µm)	7 MF/L (million fibers/liter > 10 µm)
Barium	2.0
Beryllium	0.004
Cadmium	0.005
Chromium (total)	0.1
Copper	1.3
Cyanide (as free cyanide)	0.2
Fluoride	4.0
Lead	0.015
Inorganic Mercury	0.002
Nickel	0.1
Nitrate (as nitrogen)	10
Nitrite (as nitrogen)	1
Selenium	0.05
Sulfate	500
Thallium	0.0005

ORGANIC CHEMICALS.

Pollutants	(mg/l)
Acrylamide	zero
Alachlor	0.002
Aldicarb	0.001
Aldicarb sulfone	0.001
Aldicarb sulfoxide	0.001
Atrazine	0.003
Benzo(a)anthracene (PAH)	0.0001
Benzene	0.005
Benzo(a)pyrene (PAH)	0.0002
Benzo(k)fluoranthene (PAH)	0.0002
Butyl benzyl phthalate (PAE)	0.1
Carbofuran	0.04
Carbon tetrachloride	0.005
Chlordane	0.002
Chrysene (PAH)	0.00032
2,4-D	0.07
Dalapon	0.2
Di{2-ethylhexyl}adipate	0.4
Dibenzo(a,h)anthracene (PAH)	0.0003

Pollutants	(mg/l)
1,2-Dibromo-3-chloropropane (DBCP)	0.0002
Dichlorobenzene(orth-)	0.6
Dichlorobenzene (dmeta-)	0.6
Dichlorobenzene (para-)	0.075
Dichloroethane (1,2-)	0.005
Dichloroethylene (1,1-)	0.007
Dichloroethylene (cis-1,2-)	0.07
Dichloroethylene (trans-1,2-)	0.1
Dichloromethane (methylene chloride)	0.005
Dichloropropane (1,2-)	0.005
Di(2-ethylhexyl) phthalate (PAE)	0.006
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Epichlorohydrin	zero
Ethylbenzene	0.7
Ethylene dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002

Pollutants	(mg/l)
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Indeno(1,2,3-c,d)pyrene	0.0004
Lindane	0.0002
Methoxychlor	0.04
Monochlorobenzene	0.1
Oxamyl (vydate)	0.2
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls (PCB's)	0.0005
Simazine	0.004
Styrene	0.1
2,3,7,8-TCDD (dioxin)	0.00000003
Tetrachloroethylene	0.005
Toluene	1
Toxaphene	0.003
2,4,5-TP (silvex)	0.05
1,2,4-Trichlorobenzene	0.07
Trichloroethane (1,1,1-)	0.2
Trichloroethane (1,1,2-)	0.003

Pollutants	(mg/l)
Trichloroethylene	0.005
Trihalomethanes * Chloroform * Bromodichloromethane * Dibromochloromethane * Bromoform	0.100
Vinyl chloride	0.002
Xylenes (total)	10

RADIONUCLIDES.

Pollutants	Acceptable levels
Beta particle and photon activity (formerly man-made radionuclides)	4 mrem/year
Gross alpha particle activity	15 pCi/l
Radium 226 & Radium 228	5 pCi/l
Uranium	0.02 pCi/l

MICROORGANISMS.

Pollutants	Acceptable levels
Giardia lamblia	zero
Legionella	zero
Standard Plate Count	n/a
Total Coliform (including fecal coliform and E. Coli ¹)	zero
Turbidity	1.0 NTU
Viruses	zero

3. Table 2 presents groundwater quality standards that are considered advisory (MTBE (methyl-t-butyl ether)), or secondary. Secondary standards are those which may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The Administrator may choose to utilize these as enforceable standards.

TABLE 2.

Pollutants	Numeric Standards (mg/l)
Aluminum	0.05 to 0.2
Chloride	250
Color	15 (color units)
Copper	1.0
Corrosivity	non-corrosive
Fluoride	2.0
Foaming Agents	0.5

Pollutants	Numeric Standards (mg/l)
Iron	0.3
Manganese	0.05
Odor	3 threshold odor number
pH	6.5 - 8.5
Silver	0.10
Sulfate	250
Total Dissolved Solids	500
Zinc	5
Oil and Grease	0
MTBE (methyl-t-butyl ether)	0.02

C. Numeric Water Quality Criteria for Marine and Surface Waters.

1. Microbiological Requirements	Applicable to
<p>a. All marine water bodies require the use of enterococci bacterial indicator.</p> <p>i. Concentrations of enterococci bacteria shall not exceed 35 enterococci/100 ml based upon the geometric mean of five (5) sequential samples taken over a period of thirty (30) days. No instantaneous reading shall exceed 104 enterococci/100 ml.</p> <p>ii. Concentrations of enterococci shall not exceed 35 enterococci/100 ml based upon the geometric mean of five (5) sequential samples taken over a thirty (30) day period. No instantaneous reading shall exceed 276 enterococci/100ml</p>	<p>M-1, M-2</p> <p>M-3</p>

<p>b. For all surface waters, microbiological analysis may include the use of Escherichia coli (E. coli) indicator and/or enterococci indicator.</p>	
<p>i. Concentrations of E. coli shall be no greater than 126 CFU/100 ml based upon the geometric mean of five (5) sequential samples taken over a thirty (30) day period. No instantaneous reading shall exceed 235 CFU/100 ml.</p>	S-1, S-2
<p>ii. Concentrations of enterococci shall be no greater than 33 CFU/100 ml based upon the geometric mean of five (5) sequential samples taken over a thirty (30) day period. No instantaneous reading shall exceed 61 CFU/100 ml.</p>	S-1, S-2
<p>iii. Concentrations of E. Coli shall be no greater than 126 CFU/ml based upon the geometric mean of five (5) sequential samples taken over a thirty (30) day period, nor shall any instantaneous reading exceed 406 CFU/100 ml.</p>	S-3
<p>iv. Concentrations of enterococci shall be no greater than 33 CFU/100 ml based upon the geometric mean of five (5) sequential samples taken over a thirty (30) day period, nor shall any instantaneous reading exceed 108 CFU/100 ml.</p>	S-3

c. Where shellfish are commonly collected for human consumption, the following criteria apply: (1) water samples collected at growing areas will maintain no more than a median of fourteen (14) fecal coliform/100 ml; and (2) ten percent (10%) of water samples taken from a growing area should not exceed forty-three (43) fecal coliform/100 ml.

2. pH	Applicable to
i. pH shall remain within the range of 6.5-8.5	M-1, M-2, M-3
ii. pH shall remain within the range of 6.5-9.0	S-1, S-2, S-3
iii. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation, or in any case outside the range of 6.5-8.5.	M-1, M-2, M-3

3. Nutrients	Applicable to																					
<p>a. Phosphorus:</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.025 mg/l</p> <p>Orthophosphate (PO₄-P) shall exceed 0.05 mg/l</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.10 mg/l</p>	<p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p>																					
<p>b. Nitrogen</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.10 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.20 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.50 mg/l</p>	<p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p>																					
<p>c. Ammonia nitrogen per liter limits vary with pH:</p> <p>i. The one (1) hour average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three (3) years on the average, the Criteria Maximum Concentration ("CMC") (see Section 5105 Definitions) calculated using the following equation:</p>	<p>S-1, S-2, S-3</p>																					
$CMC = \frac{0.411}{1 + 10^{(7.204 - pH)}} + \frac{58.4}{1 + 10^{(pH - 7.204)}}$																						
<p>ii. The thirty-(30) day average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three (3) years on the average, the Criteria Chronic Concentration ("CCC") (see Section 5105 Definitions) calculated using the following equation:</p>																						
$CCC = \frac{0.0858}{1 + 10^{(7.688 - pH)}} + \frac{3.70}{1 + 10^{(pH - 7.688)}}$																						
<p>iii. CMC and CCC (mg N/l) at a few example pH Values.</p>																						
<table border="1"> <thead> <tr> <th>pH</th> <th>CMC</th> <th>CCC</th> </tr> </thead> <tbody> <tr> <td>6.5</td> <td>48.8</td> <td>3.48</td> </tr> <tr> <td>7.0</td> <td>36.1</td> <td>3.08</td> </tr> <tr> <td>7.5</td> <td>19.9</td> <td>2.28</td> </tr> <tr> <td>8.0</td> <td>8.40</td> <td>1.27</td> </tr> <tr> <td>8.5</td> <td>3.20</td> <td>0.57</td> </tr> <tr> <td>9.0</td> <td>1.32</td> <td>0.25</td> </tr> </tbody> </table>	pH	CMC	CCC	6.5	48.8	3.48	7.0	36.1	3.08	7.5	19.9	2.28	8.0	8.40	1.27	8.5	3.20	0.57	9.0	1.32	0.25	
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<p>iv. The ambient concentration, averaged over a period of thirty (30) days, should not exceed the CCC. The ambient concentration, averaged over four (4) days, should not exceed a concentration two (2) times greater than the CCC. The averaging period applicable to the CMC is one (1) hour.</p>																						

4. Dissolved Oxygen	Applicable to
Concentration of dissolved oxygen shall not be decreased to less than seventy-five percent (75%) saturation at any time, as influenced by salinity or naturally occurring temperature variations. Where natural conditions cause lower dissolved oxygen levels, controllable water quality factors shall not cause further reductions.	M-1, M-2, M-3 S-1, S-2, S-3

TABLE I. SATURATION D.O.

Freshwater		Marine Water And Wetlands			
Sat. mg/l	75% mg/l	Temp. C	Salinity ppt	Sat. mg/l	75% mg/l
7.6	5.6	30	32	6.2	4.6
8.2	6.2	26	32	6.7	5.0

5. Salinity	Applicable to
a. No alterations of marine environments shall occur that would alter the salinity of marine or estuarine waters and wetlands of Guam more than +10% of the ambient conditions, except when due to natural conditions.	M-1, M-2, M-3 estuarine waters and wetlands
b. The maximum allowable amount of chlorides and sulfates shall be 250 mg/l, and the total dissolved solids shall not exceed 500 mg/l or one hundred thirty-three percent (133%) of the ambient condition. The salinity of freshwater sources and wetlands shall not be more than twenty percent (20%) above ambient by discharges of saline water.	S-1, S-2, S-3

6. Total Non-Filterable Suspended Solids	Applicable to
a. Concentrations of suspended matter at any point shall not be increased from ambient conditions at any time, and the total concentration should not exceed 5 mg/l, except when due to natural conditions.	M-1 S-1
b. Concentrations of suspended matters at any point shall not be increased more than ten percent (10%) from ambient at any time, and the total concentration should not exceed 20 mg/l, except when due to natural conditions.	M-2 S-2
c. Concentrations of suspended matter at any point shall not be increased more than twenty-five percent (25%) from ambient at any time, and the total concentration should not exceed 40 mg/l, except when due to natural conditions.	M-3 S-3

7. Turbidity	Applicable to
a. Turbidity at any point, as measured by nephelometric turbidity units ("NTU"), shall not exceed 0.5 NTU over ambient conditions, except when due to natural conditions.	M-1 S-1
b. Turbidity values (NTU) at any point shall not exceed 1.0 NTU over ambient conditions, except when due to natural conditions.	M-2, M-3 S-2, S-3
c. When debris, rapidly settling particles and true color give low readings when using nephelometric methods in making turbidity determinations, and one (1) or more of these conditions exist in marine and surface water, secchi-disc determinations will be used. Secchi-disc visibility shall not decrease by more than five (5) meters from ambient conditions, except when due to natural conditions.	

8. Radioactive Materials	Applicable to
Discharges of radioactive materials at any level into any waters of Guam is strictly prohibited.	M-1, M-2, M-3 S-1, S-2, S-3

9. Temperature	Applicable to
Water temperature shall not be changed more than 1.0 degree Centigrade (1.8 of the degree Fahrenheit) from ambient conditions. Effluent (thermal) not meeting this standard shall be considered as having an adverse effect on coral and other aquatic resources.	M-1, M-2, M-3 S-1, S-2, S-3

10. Concentrations of Oil or Petroleum Products	Applicable to
The limits described below are unacceptable: 1) detectable as a visible film, or sheen, or results in visible discoloration of the surface with a corresponding oil or petroleum product odor; 2) causes damage to fish, invertebrates or objectionable degradation of drinking water quality; or 3) forms an oil deposit on the shores or bottom of the receiving body of water.	M-1, M-2, M-3 S-1, S-2, S-3

11. Toxic Substances.

A. General.

- i. All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological, acute or

chronic responses in human, plant, animal or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate, scientifically defensible methods.

ii. All waters shall be maintained free of toxic substances in concentrations that produce contamination in harvestable aquatic life to the extent that it causes detrimental physiological, acute or chronic responses in humans or protected wildlife, when consumed.

iii. The survival of aquatic life in marine and surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge.

iv. Whenever natural concentrations of any toxic substance or element occur and exceed the limits established in these standards, this greater concentration shall constitute the limit; provided, that this natural concentration was not directly affected by human-induced causes.

B. Numeric Criteria.

i. Appendix A contains a matrix of the 126 CWA Section 307(A) Toxic Pollutants, as well as a table of several additional toxic pollutants. Absence from this matrix or table does not mean that a substance is non-toxic, as the results of on-going or future research may result in it being added at a later date.

All Appendix A Toxic Pollutant Criteria are to be Applied to Guam's Categories of Waters, as Follows:

Water Categories	Applicable Criteria
M-1	Columns C1, C2 and D2 all pollutants
M-2	Columns C1, C2 and D2 all pollutants
M-3	Columns C1, C2 and D2 all pollutants

Water Categories	Applicable Criteria
S-1	Columns B1, B2, and D1 all pollutants
S-2	Columns B1, B2 and D2 all pollutants
S-3	Columns B1, B2 and D2 all pollutants

ii. For those priority pollutants in the Appendix A matrix that are metals, the limits are applied as total recoverable; for those that are carcinogens, the 10 to the minus sixth power risk level will be used (10^{-6}).

C. Pesticides.

i. For acceptable concentrations of all pesticides (Organochlorides, Organo-phosphates, Carbamates, Herbicides, Fungicides, Defoliant, and Botanicals) please refer to the U.S. Water Quality Criteria Guidance "Blue Book" (NAS/NAE,1973) (US-GPO#5501-00520), "Red Book" (USEPA, 1976), "Green Book", (FWPCA, 1968) and "Gold Book" (USEPA, 1986a), which is updated periodically.

ii. The setting or publishing of maximum concentration (limits) for specific pesticides and other toxics should in no way be construed as official approval or authorization for their use where such use is contrary to U.S. Environmental Protection Agency, or other Federal or local regulations.

Section 5104. Effluent Limitations.

A. General Requirements.

The Agency reserves the right to amend or extend the following criteria as improved standard methods are developed or revisions consistent with the enhancement of water quality are justified.

1. Dilution of effluent as a sole means of treatment is not acceptable as a method of treatment of wastes in order to meet the standards set forth in this Section. Rather, it shall be the obligation of any person discharging pollutants to the waters of Guam to provide the best pollutant removal or control consistent with technological feasibility, economic reasonableness and sound engineering judgement. In making a determination as to what degree of treatment is the best pollutant removal or control within the meaning of this Paragraph, the following shall be considered:

a. the degree of waste reduction that can be achieved by process change, improved house-keeping and recovery of individual waste components for reuse; and

b. whether individual process wastewater streams should be segregated or combined.

2. All point source discharges to Guam's waters will be controlled (permitted) through the Federal National Pollutant Discharge Elimination System ("NPDES"), or through the Guam Environmental Protection Agency's local permit program, consistent with the requirements of these programs.

3. A new or expanded facility using seawater shall conduct independent baseline studies of the existing ecosystems in the area that could be affected by the facility, before its construction.

4. For each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating or industrial processing, the best available site, design, technology and mitigation measures feasible shall be used to minimize the intake, detrimental impacts to and mortality of all forms of marine life.

5. Where otherwise permitted, new warmed or cooled water discharges into coastal wetlands or into areas of special biological importance, such as marine reserves, shall not impair the designated use or significantly lower the water quality of the receiving area.

6. All sewage shall be treated to the degree required by the Agency to achieve standards of water quality prior to being discharged to the waters of Guam. Industrial waters and other wastes shall also be treated to the degree required by the Agency. All permitted discharges shall comply with all applicable water quality criteria. Highest priority shall be given to improving or eliminating discharges that adversely affect any of the following:

a. wetlands, estuaries, coral and other biologically sensitive sites;

b. areas important for water contact sports;

- c. areas that produce shellfish or other similarly harvested for human consumption; and
- d. ocean areas subject to massive waste discharge.

7. **Secondary Treatment.** The following Paragraphs describe the minimum level of effluent quality to be attained when secondary treatment is required. However, a lower percent removal may be allowed on a case-by-case basis; provided, that the permittee satisfactorily demonstrates that: (1) the treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits, but its percent removal requirements cannot be met due to less concentrated influent wastewater; (2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards; and (3) the less concentrated influent wastewater is not the result of excessive infiltration/inflow.

a. **Biochemical Oxygen Demand (five (5) day).**

i. The arithmetic mean of the values for effluent samples collected over a period of thirty (30) consecutive days shall not exceed 30 mg/l.

ii. The arithmetic mean of the values for effluent samples collected in over a period of seven (7) consecutive days shall not exceed 45 mg/l.

iii. The arithmetic mean of the values for effluent samples collected over a period of thirty (30) consecutive days shall not exceed fifteen percent (15%) of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (eighty-five percent (85%) removal).

b. **Suspended Solids.**

i. The arithmetic mean of the values for effluent samples collected over a period of thirty (30) consecutive days shall not exceed 30 mg/l.

ii. The arithmetic mean of the values for effluent samples collected over a period of seven (7) consecutive days shall not exceed 45 mg/l.

iii. The arithmetic mean of the values for effluent samples collected over a period of thirty (30) consecutive days shall not exceed fifteen percent (15%) of the arithmetic mean of the values for influent samples collected approximately the same times during the same period (eighty-five percent (85%) removal).

c. Microbiology.

i. The appropriate Guam EPA microbiological indicator and standard for receiving waters classification will apply to effluent and/or;

ii. the arithmetic mean of the fecal coliform values for effluent samples collected over a period of thirty (30) consecutive days shall not exceed 200 per 100 ml.

iii. The arithmetic mean of the fecal coliform values for effluent samples collected over a period of seven (7) consecutive days shall not exceed 400 per 100 ml.

d. pH.

i. The effluent values for pH shall remain within the limits of 6.0 to 9.0.

8. Toxic and hard-to-treat substances should be pretreated at the source if such substances result in pass-through or interfere with treatment process of a municipal treatment plant or which may contaminate sludge. In addition, effluent limits based upon acute and/or chronic toxicity tests of effluents may be prescribed by the Administrator.

9. No effluent shall, alone, or in combination with other sources, cause a violation of any applicable water quality standard. If the Agency finds that a discharge which complies with treatment requirements under the Authority of §5103(A) of these standards would cause, or is causing, a violation of water quality standards, the Administrator shall take appropriate action under §47109 of the Water Pollution Control Act to require the discharge to meet whatever effluent limits are necessary to ensure compliance with the water quality standards. When such a violation is caused by the cumulative effect of more than one (1) source, several sources may be joined in a schedule of compliance. Measures necessary for effluent limitations will be determined on the basis of technical feasibility, economic reasonableness and fairness to all dischargers.

10. Measurement of pollutant concentrations to determine compliance with the effluent limitations shall be made by the discharger at the point immediately following the final treatment process and before mixing with other waters. Points of measurement shall be designated by the Agency in an individual permit, after consideration of the elements contained in this Section. If necessary, the concentrations so measured shall be recomputed to exclude the effect of any dilution that is improper under this standard.

11. Compliance with toxicity requirements may be evaluated with a ninety-six (96) hour bioassay, or short-term method for estimating chronic toxicity. Allowable concentration(s) of the toxic pollutant(s) shall not exceed five percent (5%) of the ninety-six (96) hour LC50 at any time or place, one percent (0.01) of the twenty-four (24) hour average ninety-six (96) hour LC50 concentration, or a level calculated by multiplying the appropriate application factor, where available, by the ninety-six (96) hour LC50 value. The tests are to be conducted using the receiving water in question and the most sensitive species of affected aquatic organisms, as is practical.

References for these methods are: EPA 600/4-91/002 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Second Edition, 1994; or EPA 600/4-90/027F Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Cincinnati, Ohio, EMSL, Fourth Edition, 1993; or EPA 600/4-600 R-95/136 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine Estuarine Organisms, Cincinnati, Ohio, EMSL, May, 1995.

12. Every permitted facility discharging effluent to the waters of Guam shall submit operating reports to the Agency at a frequency to be determined by the Agency. Such reports shall contain information the Agency may reasonably require.

13. Schedule of Compliance.

a. It is presumed that new and existing permitted point source dischargers will promptly comply with any new or more restrictive water quality-based effluent limitations ("WQBELs") based upon adopted water quality criteria.

b. Where an existing discharger reasonably believes that it will be infeasible to promptly comply with a new or more restrictive WQBEL, the discharger may request approval from the permit issuing authority for a schedule of compliance.

c. A compliance schedule shall require compliance with WQBEL, as soon as possible, taking into account the discharger's technical ability to achieve compliance with such WQBEL.

d. In no event shall the permit issuing authority approve a schedule of compliance for a point source discharge which exceeds five (5) years from the date of a new permit's issuance, or an existing permit's reissuance or modification.

e. If the schedule of compliance exceeds one (1) year from the date of a new permit's issuance, or an existing permit's reissuance or modification, the schedule shall set forth interim requirements and dates for their achievement. The dates of completion between each requirement may not exceed one (1) year. If the time necessary for completion of any requirement is more than one (1) year and is not readily divisible into stages for completion, the permit shall require, at a minimum, specified dates for annual submission of progress reports on the status of interim requirements.

f. The administrative record for the permit shall reflect final permit limits and final compliance dates.

14. All discharges within Zone S-3 which are not otherwise required to have construction and/or discharge permits under existing Guam Soil Erosion Control Regulations, operating permits and/or NPDES, may be required by this Agency to obtain such permits under these regulations.

15. Any existing permitted point source discharging to near-shore waters classified as M-1 shall submit to the Administrator for approval a plan and schedule for elimination of the discharge to near-shore waters. Any such plan shall consider all alternate disposal options and give preferential consideration to eliminating all point source discharges to the waters of Guam.

B. Effluent Discharge Limitations for Groundwater Category G-2.

1. The Agency may allow discharges to G-2 waters if it can be shown by an engineering feasibility study that there will be no significant adverse effects upon G-1 waters.

2. The Agency reserves the right to set more stringent standards than those provided in Section 5103(B) Tables 1 and 2, if there is reason to believe that significant environmental damage may result from the discharge.

C. **Mixing Zones in Receiving Waters.**

The following requirements apply to all mixing zones:

1. Mixing Zones may be permitted during the NPDES permit process on a case-by-case basis after careful analyses of the nature of the effluent, a thorough study to assess the consequences of the effluent on the environment, and approval of an Environmental Impact Statement. A mixing zone shall be considered designated only when approved by the Guam Environmental Protection Agency and when concurrence of the U.S. E.P.A. has been received.

2. The area or volume of an individual mixing zone shall be limited to an area or volume that will minimize impacts on uses. Whenever a mixing zone is allowed by the Agency, the zone in which mixing occurs will not adversely affect the designated uses of the receiving waters. Water quality standards for a receiving water must be met at every point outside the boundaries of the designated mixing zone.

3. Water quality limits will be established if the limits in Section 5104 are to be revised in the zone of mixing.

4. Mixing Zones will not be allowed within categories M-1 and S-1.

5. Mixing Zones shall be restricted such that they do not encroach upon areas often used for fish harvesting, particularly of stationary species such as shellfish.

6. Whenever mixing zones are allowed, zones of passage shall be provided.

7. Biologically important areas, including spawning and nursery areas, and habitat for threatened and endangered species, shall be protected.

8. Mixing Zones shall not cause conditions to be lethal to those aquatic life and wildlife passing through the zone, or become injurious to human health in the event of a temporary exposure.

9. **Mixing Zones for Aquaculture Projects.** The Federal regulations relating to aquaculture (40 CFR §§ 122.56 and 125.11) provide that the aquaculture project area and project approval must not result in the enlargement of any previously approved mixing zone, or include so large a portion of the body of water that a substantial portion of the indigenous biota will be exposed to conditions within the designated projects area. Areas designated for approved aquaculture

projects should be treated in the same manner as other mixing zones. Special allowances shall not be made for these areas.

10. Mixing Zones for the Discharge of Dredged or Fill Material. The Federal regulations (40 CFR § 230.11(f)) provide guidelines for determining the acceptability of mixing discharge zones. The particular pollutant involved should be evaluated carefully in establishing dredging mixing zones. Dredged spoil discharges generally result in temporary short-term disruption and do not represent continuous discharge that will affect designated uses on a long-term. Minimal disruption of uses should be the primary consideration in establishing mixing zones for dredge and fill activities.

11. Critical Low-Flows. During critical low-flow conditions, waters shall be free from substances that settle to form objectionable deposits; float as debris, scum, oil or other matter; produce objectionable color, odor, taste or turbidity; cause acutely toxic conditions; or produce undesirable or nuisance aquatic life.

Specific low-flow requirements for streams and rivers are adopted to protect designated uses against the effects of toxics (refer to Technical Guidance Manual for Water Quality-based Toxics Control (USEPA, 1991a); Technical Guidance Manual for Performing Wasteloads, Book 6, Design Conditions, (USEPA, 1986c)). In the case of aquatic life, more frequent violations than the assumed exceedence of once every three (3) years would result in diminished vitality of stream ecosystems characteristics by the loss of desired species. Numeric water quality criteria should apply at all flows that are equal to or greater than flows specified in Table 3.

TABLE 3.

AQUATIC LIFE	
Acute Criteria (CMC)	1Q10 or 1B3
Chronic Criteria (CCC)	7Q10 or 4B3
HUMAN HEALTH	
Non-carcinogens	30Q5
Carcinogens	Harmonic Mean Flow

Where:

1Q10 - is the lowest one (1) day flow with an average recurrence frequency of once in ten (10) years, determined hydrologically;

1B3 - is biologically based and indicates an allowable exceedence of once every three (3) years. It is determined by EPA's computerized method (DFLOW model);

7Q10 - is the lowest average seven (7) consecutive day low-flow with an average recurrence frequency of once in ten (10) years, determined hydrologically;

4B3 - is biologically based and indicates an allowable exceedence for four (4) consecutive days once every three (3) years. It is determined by EPA's computerized method (DFLOW model);

30Q5 - is the lowest average thirty (30) consecutive day low-flow with an average recurrence frequency of once in five (5) years, determined hydrologically; and

Harmonic Mean Flow - is a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows.

It should be noted that when a criterion specifies a four (4) day average concentration that should not be exceeded more than once every three (3) years, this should not be interpreted as implying that a 4Q3 low-flow is appropriate for use as the design flow.

D. Mixing Zones for Non-Thermal Discharges.

1. Mixing Zones for Non-Thermal Discharges into Streams and Rivers.

a. For non-thermal discharges into streams and rivers, the mixing zone, at the point of discharge, is limited to twenty-five percent (25%) of the cross sectional area of the stream at the minimum flow at which the appropriate water quality standard can be met by thorough mixing of the effluent with the receiving waters.

b. The length of the mixing zone shall extend downstream no more than five (5) times the natural width of the stream at the point of discharge at the minimum flow condition.

c. The applicable water quality standard must be achieved at all points outside the mixing zone.

d. Mixing zones will not be permitted in standing bodies of water.

2. Mixing Zones for Non-Thermal Discharges into Coastal Waters.

a. For non-thermal discharges to coastal waters, the mixing zone shall be equal in depth to the depth of the water over the diffuser, in width to twice the depth of the water plus the width of the diffuser, and in length to twice the depth of the water plus the length of the diffuser, with the diffuser geographically centered within the mixing zone.

b. All discharges to marine waters will comply with the ocean discharge criteria promulgated under Section 403(6)(c) of the Federal Clean Water Act.

c. When practical, discharges and mixing zones should be located within coastal waters entrapped below the thermocline.

E. Mixing Zones for Thermal Discharges.

Thermal discharges pertain to effluent water with a temperature component either above or below ambient conditions of the receiving body of water. All thermal discharges, existing or proposed, into M-2 or M-3 receiving bodies of water shall be subject to provisions established in Section 316(a) of the Federal Water Pollution Control Act ("FWPCA"), Public Law Number 95-217.

1. All Above-Ambient Discharges.

a. Above-Ambient Discharges shall conform to a zone of mixing defined for that particular discharge on a case-by-case basis. This zone of mixing shall be defined by "EPA/505/2-90-001, PB91-127415, March 1991 Technical Support Document For Water Quality-based Toxic Control," or other references depicting appropriate thermal mixing zone models, and take into consideration the following criteria:

- i. time of exposure;
- ii. temperature of effluent;
- iii. depth of discharge;
- iv. type of environment;
- v. volume of discharge;
- vi. mass of pollutant rate of critical materials; and

vii. aesthetics and the assessment of damage to biota on the population basis.

b. Above-Ambient Discharges shall not increase the temperature of the receiving body of water to cause substantial damage or harm to the flora and fauna, or interfere with the beneficial uses assigned therein.

c. Above-Ambient Discharges shall comply with all other water quality criteria as defined in these standards, and specific criteria established in the discharge permit.

d. These zones of mixing shall be monitored by the discharger on a regular schedule established by the NPDES Permit, to ensure compliance with established criteria.

e. If the Agency, pursuant to notice and opportunity for public hearings, finds evidence that a discharge has caused substantial damage, it may require conversion of such discharge to an approved alternative method. In making such a determination, the Agency may consider:

- i. the nature and extent of damage to the environment;
- ii. projected lifetime of discharge;
- iii. adverse economic and environmental impacts, marine and terrestrial, resulting from such conversion;
- iv. all available data, reports, surveys and projects related to the discharge;
- v. such other factors which may prove to be appropriate.

2. Above-Ambient Discharges in Existence Prior to Approval of These Standards.

a. Such discharges shall be given special attention when defining a zone of mixing. All criteria established for part D-1 above, shall apply with special emphasis on specific criteria listed in part D-1a.

b. Tanguisson Power Plant Zone of Mixing: The zone of mixing for the Tanguisson Power Plant is defined as a rectangle of approximately 10,000 sq.m. with the following reference points:

- i. northern boundary - north side of intake channel;
- ii. south boundary - 1969 ft (600 m) south of intake channel;
- iii. eastern boundary – shoreline; and
- iv. western boundary - 591 ft (180 m) off-shore to a depth beyond the reef margin of about one (1) meter which is the top of the zone of passage.

c. **Piti/Cabras Zone of Mixing.** The zone of mixing for the Piti/Cabras Power Plants combined is the Piti Channel, from the power plants to a distance three hundred (300) feet back from where the channel joins the harbor proper, and from there to a depth of about one (1) meter or 3.28 feet to a line from the GORCO Pier and the Navy Fuel Pier on Dry Dock Island.

3. Below-Ambient Discharges.

All below-ambient discharges shall follow the same guidelines set down for thermal discharges and be evaluated on a case-by-case basis.

F. Prohibited Discharges.

1. No Person Shall Cause or Permit:

a. the discharge of any wastes or wastewater without first securing required NPDES permit(s) or securing local permit(s), as may be required by the Administrator under § 47106 of the Water Pollution Control Act;

b. any discharge which would cause organisms in the receiving waters to exhibit deleterious effects or otherwise impair species recruitment, reproduction or survivorship, or which would cause organisms normally harvested for food to become harmful to humans, wildlife or other organisms, if consumed, except in accordance with § 5104. This includes the discharge of any radiological, chemical, biological warfare agents, or radioactive wastes and contaminated radioactive materials;

c. any discharge which would substantially impair anchorage and navigation, including any discharge which the Secretary of the Army, acting through the Corps of Engineers, finds would result in this damage;

d. any discharge which the Administrator of the United States Environmental Protection Agency has objected to in writing pursuant to any right to object provided by the Federal Water Pollution Control Act, as amended;

e. any discharge which is in conflict with an approved Guam plan;

f. the discharge of sewage from vessels while moored, berthed or docked, or underway in waters of Guam, except through a properly functioning Coast Guard approved type II Marine Sanitation Device;

g. any new point source discharge into G-1 waters, because any water discharges within this zone will (by definition) be tributary to groundwater bodies which are actual or potential sources of fresh, potable water supply;

h. any new point source discharge into M-1 or S-1 waters;

i. any discharge of visible floating materials, including scum and foam; and

j. point source discharges to storm water drainage, except for storm water.

2. All vessels exceeding four hundred (400) gross tons which are berthed or docked in the waters of Guam, without fully functional U.S. Coast Guard approved oil pollution prevention devices (for longer than seventy-two (72) hours detention) must be completely encircled with floatation booms to contain any discharged oil. The Administrator may require any vessel, regardless of gross tonnage, operating ability, oil pollution prevention devices, duration of moorage or dockage time, will be completely encircled with floating booms if in the Administrator's opinion such measures are necessary to control potential oil discharges into waters of Guam including, but not limited to, instances where excessive oil is present on the vessel's deck or in the vessel's bilges; when major machinery repairs are undertaken; or when a vessel cannot close its scuppers effectively during bunkering operations.

G. Land Disposal of Treated Wastewaters.

1. Approval of land disposal of treated liquid wastewater requires that:
 - a. wastewaters shall be restricted to the premises of the disposal site;
 - b. provision shall be made by the discharger for monitoring the quality of the effluent with the exception of single-family dwelling units, unless there are more than five (5) units connected to a single system, or the Agency requires it after identifying a potential hazard;
 - c. all monitoring data and reports required under a discharge permit shall be submitted to the Agency;
 - d. land disposal shall not create a public health hazard, a nuisance condition or an air pollution problem;
 - e. these standards do not solely govern water/wastewater to be reused to produce products which may end up in the human food chain, such as crops and animal products. The Agency will consider such reuse on a case-by-case basis using available guidelines on best available technology.
2. The evaluation for a permit for land treatment and/or disposal of wastewater(s) should include, but not necessarily be limited to, consideration of the following items:
 - a. The type of wastewater proposed for disposal. The wastewater should be biologically degradable but other wastewater will be considered; provided, it can be shown that disposal of the wastewater will not adversely affect the designated use of the waters underlying or adjacent to the disposal site.
 - b. The nature of the earth material(s) underlying the disposal site. The applicant must provide positive assurance that the earth material(s) underlying the proposed disposal site will not allow movement of pollutants into underlying ground waters so as to exceed ground water standards.
 - c. The vegetative cover of the disposal site. The selection of a vegetative cover should reflect the disposal season(s), the duration and frequency of disposal and the response of the vegetative cover to the wastewater. If the wastewater proves to be deleterious to vegetative cover, a higher degree of treatment or another means of disposal will be required.

3. Improperly and/or inadequately treated sewage shall not be allowed to accumulate on the ground surface in such a manner that it may create a health hazard and/or a nuisance condition.

4. It shall be a violation of these standards to store, dispose of, or allow to accumulate any solid waste or other deleterious material adjacent to or in the immediate vicinity of any streams, rivers, wetlands or marine waters in a manner that such material, or contaminated runoff, leachate or residual from such materials, will directly or indirectly enter such waters or wetlands. Such material shall include, but not be limited to, sewage sludge, trash, rubbish, garbage, oil, gasoline, chemicals, sawdust, accumulations of manure and stockpiles of soil.

5. In case of accidental spills of deleterious materials, responsible persons in charge shall immediately notify the Administrator of any such spills and make every reasonable effort to contain spilled material in such a manner that it will not pollute waters of Guam.

6. Wastewater discharged to disposal wells for underground disposal shall receive, prior to discharge, treatment necessary to protect potable water resources and any adjacent marine waters or fresh surface waters.

H. Petroleum Storage Facilities.

1. Any facility storing fifty-five (55) gallons or more of petroleum products or hazardous materials in any single above-ground container shall be provided with secondary containment to protect Guam's groundwater resources and navigable waters from potential threat from oil or hazardous materials discharges.

2. Facilities having a capacity of six hundred sixty-six (666) gallons or greater are also required to develop a Storage Facility Spill Prevention ("SFSP") Plan. The Plan shall be based on the storage capacity, type of product/hazardous materials and the potential threat the respective facility may pose to Guam's groundwater resources. Facilities should refer to 40 CFR Part 112 guidelines and/or contact the Agency when developing a SFSP Plan for their respective facility.

3. Pipeline systems that transport petroleum products and hazardous materials should comply with the following requirements with the exception of facilities regulated under the underground storage tank ("UST") regulations, 40 CFR Part 280.

a. No pipeline system component may be buried, unless that component has an external protection coating that is designed to mitigate corrosion of the buried component.

b. A cathodic protection system must be installed for all buried facilities to mitigate corrosion that might result in structural failure. A test procedure must be developed to determine whether adequate cathodic protection has been achieved.

i. Each operator shall, each calendar year (annually) conduct tests on each buried (in contact with the ground) pipeline system to determine whether the entire cathodic protection system is adequate and working properly. If the system is inadequate or not working properly, the operator shall immediately take appropriate action to repair and correct the cathodic protection system to ensure proper corrosion protection. In addition, cathodic protection rectifiers shall be inspected every two (2) months. Records of such inspections, and maintenance should be kept available at the facility for the service life of the cathodic protection system. Cathodic protection system inspections shall be carried out consistent with the API 570 guidelines.

c. No pipeline system shall be put in operation unless it has been pressure tested and found to be without leakage. In addition, no segment of pipeline that has been replaced, relocated or otherwise changed shall be returned to service until it has been pressure tested and found to be without leakage.

i. The operator shall conduct pressure testing of its pipeline systems to ensure that the pipeline system is not leaking. These tests shall be conducted within five (5) years of the initial pressure test, and at succeeding intervals not exceeding five (5) year cycles. Records of such tests shall be kept in the facility files for the service life of the facility.

d. No pipeline system shall be put in operation unless an operator prepares and follows, for each pipeline system, a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. The manual shall be prepared before initial operation of a pipeline system commences, and appropriate parts shall be kept at locations where operations and maintenance are conducted.

i. The manual should contain a preventive maintenance program that ensures the continued operational reliability of any pipeline or pipeline system affecting quality, safety and pollution prevention. The program shall include all applicable guidelines prescribed in the latest edition of the API 570, Piping Inspection Code. The manual should be made available to the regulatory agency for review upon its request.

e. Each operator shall maintain each valve that is necessary for the safe operation of its pipeline systems in good working order at all times to the extent that leaks are prevented. In addition, each operator shall every six (6) months, inspect each valve in the pipeline system to ensure that it is functioning properly and not leaking.

f. Operators shall provide the Guam EPA with a schedule of compliance for existing pipelines installed before the effective date of these standards, which do not have cathodic protection and external protection coating. The schedule shall be subject to review and approval by the Administrator of Guam EPA.

Section 5105. Definitions.

A. Definitions.

The following definitions are used for the purpose of clarification where such terms, phrases and words are used or implied in the text of these water quality standards.

1. **Acute Toxicity.** Any toxic effect that is produced within a short period of time, generally ninety-six (96) hours or less. Although the effect most frequently considered is mortality, the end result could be any harmful biological effect.

2. **Administrator.** Primary responsible person of the Guam Environmental Protection Agency.

3. **Adversely Affect.** Damage to the waters of Guam that results in, but is not limited to, any of the following:

a. substantial increase or decrease in abundance or distribution of any species or representative of the highest community development achievable in receiving waters of comparable quality. A substantial decrease in abundance or diversity of indigenous species. Change(s) in community structure that are not natural for the locality and season in question;

- b. degradation in appearance, odor or taste of the waters;
 - c. elimination of a designated or existing use; or
 - d. reduction of the successful completion of life cycles of indigenous species, including those of migratory species.
4. **Agency.** Guam Environmental Protection Agency ("GEPA").
 5. **Ambient.** Existing environmental conditions in waters.
 6. **Ambient Monitoring.** Monitoring that is carried out to determine ambient conditions. It is typically used for comparison purposes (e.g. changes over time and/or differences between locations.).
 7. **Aquifer.** A water-bearing stratum of permeable rock, sand or gravel.
 8. **Background Conditions.** The biological, chemical and physical conditions of a water body, upstream from the point or non-point source discharge under consideration. Background sampling location in an enforcement action will be upstream from the point of discharge, but not upstream from other inflows. If several discharges to any water body exists, and an enforcement action is being taken for possible violations to the standards, background sampling will be undertaken immediately upstream from each discharge.
 9. **Basal Groundwater.** Fresh groundwater floating directly on sea water.
 10. **Beneficial Uses.** Desirable uses that water quality should support. Examples are drinking water supply, primarily contact recreation (such as swimming), and aquatic life support.
 11. **Best Available Technology ("BAT").** Subject to economic and engineering feasibility limitation, BAT should incorporate the best available current technology with a capacity up to and including no discharge of pollutants. Considerations include the age of the equipment and facilities involved; the process used; the engineering aspects of applying various types of control techniques; process changes; the cost of achieving the effluent reduction resulting from applying the technology; and non-water quality environmental impacts.
 12. **Best Management Practice ("BMP").** Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters. BMPs also include, but are not limited

to, treatment requirements, operating procedures, and practices to decrease or eliminate generation of pollutants and to control plant site runoff, spillage or leaks, sludge or wastewater disposal, aquaculture pollutants, or drainage from raw material storage.

13. **Bioassay.** A test used to evaluate the relative potency of a chemical or a mixture of chemicals by comparing its effect on living organisms with the effect of a standard preparation on the same type of organisms.

14. **Biological Monitoring.** Monitoring which uses aquatic organisms to indicate compliance with water quality standards or effluent limits and to document water quality trends. Methods of biological monitoring may include, but are not limited to, toxicity testing (such as ambient toxicity testing or whole-effluent toxicity testing) and biological surveys. It is also known as biomonitoring.

15. **Biota.** The animal, plant and microbial life of a region.

16. **Board.** Board of Directors of the Guam Environmental Protection Agency.

17. **Boundary.** The physical interface between adjoining discreet areas. A fine line as applied to ground waters, but as applied to surface and marine waters the line may shift due to storm conditions, tides, water current changes and surface winds.

18. **Cathodic Protection System.** An external corrosion control system that is in conformance with standard engineering practice, including the appropriate standards under the National Association of Corrosion Engineers (Standard RPO 169-92).

19. **Chronic.** A stimulus that lingers or continues for a relatively long period of time, often one-tenth (.1) of the life span or more. Chronic should be considered a relative term depending on the life span of an organism. The measurement of a chronic effect can be reduced growth, reduced reproduction, etc., in addition to lethality.

20. **Coastal Waters.** Includes near-shore, off-shore and estuary waters within the jurisdiction of Guam.

21. **Coliform Bacteria.**

a. **Total Coliform Bacteria.** All of the aerobic and facultative anaerobic gram-negative, non spore-forming, rod-shaped bacteria that ferment lactose broth with gas formation within forty-eight (48) hours at thirty-five (35) degrees centigrade +/- 0.5 degrees centigrade.

b. **Fecal Coliform.** That portion of the coliform group which is present in the gut or the feces of warm-blooded animals. It generally includes organisms capable of producing gas from lactose broth in a suitable culture medium within twenty-four (24) hours at forty-four (44) degrees centigrade +/- 0.2 degrees centigrade. This elevated temperature will eliminate non-fecal and non-coliform organisms and selectively culture fecal coliform bacteria.

22. **Community.** An association of living organisms in a given area or region in which the various species are more or less interdependent upon each other.

23. **Created Wetland.** A human-made wetland. Created wetlands are designed to meet a variety of human benefits including, but not limited to, the treatment of water pollution discharges (e.g. municipal wastewater, storm water, etc.) and the mitigation of wetland losses permitted under § 404 of the Clean Water Act. This term encompasses the term "constructed wetland," as used in other EPA guidance and documents. Created wetlands designed and specifically created and used solely for the purpose of wastewater treatment do not qualify as waters of Guam. The discharges from the created wetlands must meet applicable water quality standards for the receiving waters.

24. **Criteria.** Elements of water quality standards, expressed as constituent concentrates, levels or narrative statements representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

25. **Criteria Continuous Concentration ("CCC").** A chronic concentration. It is the four (4) day average concentration of a pollutant in ambient water that should not be exceeded more than once every three (3) years on average.

26. **Criteria Maximum Concentration ("CMC").** An acute concentration. It is the one (1) hour average concentration in ambient waters that should not be exceeded more than once every three (3) years on average.

27. **Designated Uses.** Those uses specified in water quality standards for each water body or segment, whether or not they are being attained.

28. **Discharge.** The direct or indirect outflow of liquid waste or wastewater from any domestic, commercial, industrial, agricultural or any other source onto land or into waters of Guam. The term "discharge" includes either the discharge of a single pollutant or the discharge of multiple pollutants.

29. **Discharger.** Any person or entity that discharges any wastewater, substance or material into the waters of Guam, whether or not such substance causes pollution.

30. **Effluent.** The liquid waste that is discharged directly or indirectly, into a waterbody, storm drain or sewage system.

31. **Effluent Limitation.** Any restriction or prohibition established under Guam or Federal law, including, but not limited to, parameters for toxic and non-toxic discharges, standards of performance for new sources or ocean discharge criteria. The restrictions or prohibitions shall specify quantities, rates and concentrations of chemical, physical, biological and other constituents which are discharged into waters of Guam.

32. **Enterococci.** A subgroup of fecal streptococci and are able to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C. The enterococci portion of the fecal streptococcus group is a valuable bacterial indicator for determining the extent of fecal contamination of recreational surface waters. Studies indicate that swimming-associated gastroenteritis is related directly to the quality of the bathing water and that enterococci are the most efficient bacterial indicator of water quality.

33. **Environmental Impact Statement.** A document analyzing impacts of alternative proposed actions and identifying, in detail, mitigation for significant environmental impacts of a proposed project or activity.

34. **Escherichia Coli (E. Coli).** Members of the fecal coliform bacteria defined as gram-negative nonspore-forming rods that ferment lactose with gas formation within forty-eight (48) hours at 35°C. E. Coli is considered indicator organisms of water quality. E. Coli is one (1) of two (2) efficient bacterial indicators of water quality for freshwater recreational sites.

35. **Estuary.** A region of interaction between near-shore waters and rivers within which tidal action and river flow bring about mixing of fresh and salt water.

36. **Existing Uses.** Those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.

37. **External Protection Coating.** A coating designed to mitigate corrosion of the buried or submerged component; has the sufficient adhesion to the metal surface to prevent under film migration of moisture; is sufficiently ductile to resist cracking; has enough strength to resist damage due to handling and soil stress and supports any supplemental cathodic protection.

38. **Fecal Coliform.** See "Coliform."

39. **Freshwater.** All waters with dissolved inorganic ions less than five hundred (500) parts per million ("ppm").

40. **Geometric Mean.** An estimate of central tendency of log-normal data, and is equal to the antilog of the arithmetic mean of the logarithms of the data points. The geometric mean is derived from data points using the equation:

$$\log \bar{x}_g = \sum(\log x_i)/n$$

where:
 \bar{x}_g = geometric mean
 x_i = original data points
 n = number of samples

To obtain a geometric mean, five (5) samples (taken within thirty (30) days) should be applied to the equation. (From Standard Methods 18th ed. 1992)

41. **Habitat.** The environment occupied by individuals of a particular species, population or community.

42. **Hazardous Materials.** A substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce, and which has been so designated.

43. **Industrial Waste.** Any discharge containing gaseous, solid, dissolved or suspended material resulting from any process of industry, manufacturing, trade or business, or from the processing of any natural resource, together with such sewage as may be present, which may pollute the waters of Guam.

44. **Instantaneous Reading.** A single sample result obtained from the appropriate method analysis during a one-time sampling event.

45. **Land Treatment.** Any treatment of wastewater which involves the use of plants, soil surface and the soil matrix for wastewater treatment, including

irrigation systems, infiltration systems, overland flow systems and other systems of wastewater treatment via land application.

46. Lethal Concentration – Fifty Percent (50%) (LC50). That concentration of a toxic substance in water which for a given time period causes fifty percent (50 %) of the exposed individuals of an aquatic test organism to die.

47. Limited Body Contact. Any recreational or other use in which contact with the water is either incidental or accidental, and in which the probability of ingesting appreciable quantities of water is minimal.

48. Line of Mean High Water. The shoreline as indicated on the 1:24,000 Series (Topographic) Maps of the Island of Guam prepared by the U.S. Geological Survey.

49. Marine Sanitation Device. Equipment or process for installation on vessel or water craft which is designed to receive, retain, treat, or discharge sewage or other pollutants, or any process to treat such sewage, or other pollutants which has received U.S. Coast Guard approval.

50. Marine Waters. Near-shore and estuary waters within the jurisdiction of Guam having dissolved inorganic ions (salinity) greater than five hundred (500) parts per million ("ppm").

51. Mixing Zone. The area or volume of a waterbody within which effluent(s) shall become physically mixed with the receiving waters through initial dilution. Initial dilution is the process through which the wastewater immediately mixes with the receiving water due to the momentum of the waste discharge, and the difference in density between the discharge and the receiving water.

52. Municipal Wastes. Water carrying human and animal wastes from homes, buildings, industrial establishments and other places, either alone or in combination with industrial wastes.

53. National Pollutant Discharge Elimination System ("NPDES") Permit. A Federal program, authorized under the Clean Water Act, for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements.

54. Natural Conditions. The resulting water quality in the absence of any measurable pollution effect due to human activities.

55. **Near-Shore Waters.** All coastal waters lying within a defined reef area; all waters seaward to a depth seventeen (17) fathoms (102 feet, 31.10 m.), or to a distance off-shore of one thousand (1,000) feet (305 m.), whichever is greater.

56. **New Source.** Any wastewater facility, for which construction is commenced on or after the effective date of these standards.

57. **Non-Point Source.** Diffuse pollution sources (i.e. without a single point of origin or not introduced into a receiving water from a specific outlet), that are not regulated as point sources. The pollutants are generally carried off the land by storm water.

58. **Non-Point Source Pollution.** Pollution from non-point sources. In practical terms, non-point source pollution generally results from sources such as on-site sewage disposal, automobiles, storm drain runoff and agricultural runoff.

59. **Off-Shore Waters.** All coastal waters beyond the limits defined for "near-shore waters" of Guam as recognized by International Law.

60. **Other Waste.** Garbage, municipal refuse, sand, offal, oil, tar, chemicals and all other substances which may pollute the waters of Guam.

61. **Outfall.** The conduit from its connection from wastewater treatment facilities/storm water drainage to its outlet through diffusers into off-shore waters.

62. **Parabasal Groundwater.** Fresh groundwater hydraulically connected with basal water, but lying directly on impermeable basement rock.

63. **Passageway.** A continuous stretch where water characteristics are affected only by the environment in such a manner that the free flow or continuous drifting of biota is always possible.

64. **Permit.** A permit issued pursuant to § 47106 of the Guam Water Pollution Control Act.

65. **Person(s).** Means any individual, firm, partnership, association or corporation, both public and private, including the agencies of the government of Guam and of the Federal Government.

66. **Pipe or Line Pipe.** A tube, usually cylindrical, through which oil flows from one (1) point to another.

67. **Pipeline System.** A pipeline through which oil or hydrocarbon fuel moves, including, but not limited to, line pipe, valves, other appurtenances

connected to line pipe, fabricated assemblies associated with pumping units and delivery stations, and fabricated assemblies therein. Systems included terminal and overland (above and below ground) pipeline systems.

68. Point Source. Any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include flows from irrigated agriculture, or agricultural storm water runoff.

69. Pollutant. Means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked, or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

70. Pollution. The alteration of the physical, chemical, biological or radiological integrity of any waters of Guam due to human activities.

71. Potable Water Resources. Waters of Guam actually used or intended to be used for drinking water or general domestic use.

72. Pressure Testing. The application of internal pressure above the normal or maximum operating pressure to a pipeline or a segment of pipeline, under no-flow conditions, for a fixed period of time, utilizing a liquid test medium. Pressure testing will be consistent with the pressure testing requirements to the extent it is appropriate under the Department of Transportation pipeline safety regulations (Subpart E-Pressure Testing).

73. Primary Treatment. A level of sewage treatment that involves settling or screening to separate sewage solids from liquid wastes.

74. Receiving Water(s). Water(s) of Guam into which wastes or wastewater are, or may be, discharged.

75. Restoration. Return of a natural resource to a close approximation of its condition prior to disturbance.

76. Schedule of Compliance. A schedule of corrective measures and times, including an enforceable sequence of actions or operations leading to compliance with any control regulation or effluent limitation in a specified time period.

77. **Secondary Treatment.** A level of sewage treatment that involves the introduction of bacteria which bind to solids and aid in their removal. The liquid wastewater is also partially disinfected.

78. **Sewage.** The water-carried waste products from the residences, public buildings, institutions or other buildings, including the excrement or other discharge from the bodies of human beings or animals, together with such ground water infiltration and surface water as may be present.

79. **Shellfish.** Mollusks, crustaceans and other forms of marine animal and plant life other than finfish, marine mammals and birds.

80. **Special Aquatic Sites.** Sites possessing special ecological characteristics and values, including wetlands, wildlife sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, riffle and pool complexes.

81. **Storm Water Runoff.** Water from rain which travels via flow across surfaces to storm drain systems or receiving waters. As it flows, it often picks up pollutants, such as soil, automobile fluids, animal wastes, pesticides and fertilizers.

82. **Surface Waters.** Any natural or artificial water source, including all streams, sinkholes, lakes, ponds, wetlands, impounding reservoirs, inland watercourses and waterways, springs, irrigation systems and all other inland water bodies or accumulated waters. For the purpose of this regulation, the term does not include coastal waters or those subject to the ebb and flow of tides.

83. **Thermal Discharge.** Discharge of water into the environment which has temperature component either above or below the temperature of the receiving body of water.

84. **Toxic.** Causing death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations in organisms. The quantities and exposures necessary to cause these effects can vary widely.

85. **Toxicity Test.** A procedure to determine the toxicity of a chemical or an effluent using living organisms. A toxicity test measures the degree of effect on exposed test organisms of a specific chemical or effluent.

86. **Transition Zone.** In basal water the interface between the bottom of the freshwater lens and the underlying saltwater. Salinity is low at the top of the transition zone and increases to that of seawater at the bottom of the zone.

87. **Upland.** Any area that does not qualify as wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics associated with wetlands.

88. **Wastewater.** Sewage, industrial waste or other waste, excluding thermal discharge, or any combination of these, whether treated or untreated, plus any admixed land runoff.

89. **Water Quality Standards.** Provisions of law which consist of designated use or uses of a waterbody, or a segment of a waterbody, and the water quality criteria that is necessary to protect the use or uses of that particular waterbody. Water quality standards also include an anti-degradation policy, and may contain various implementation policies.

90. **Waters of Guam.** All waters within three (3) miles from the high waterline surrounding Guam, streams (including intermittent streams), lakes, wells, springs, wetlands, irrigation systems, marshes, watercourses, waterways, sink holes, drainage systems and other bodies of water, surface and underground, publicly or privately owned.

91. **Wetland.** An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs and similar areas.

92. **Wetland Functions.** The beneficial uses of wetlands which are protected by these water quality standards, including, but not limited to, groundwater recharge/discharge, flood water retention/attenuation, sediment stabilization, nutrient removal/transformation, wildlife diversity/abundance, aquatic diversity/abundance, and recreation.

93. **Whole Body Contact Recreation.** Any recreation or other use in which there is whole body contact with the water (e.g. including, but not limited to, activities such as skin diving and swimming).

94. **Zone of Passage.** A continuous water route which joins segments of river, stream, reservoir, estuary, or channel above, below or around a mixing zone without going through the mixing zone.

Section 5106. Section 401 Certifications.

A. Primary Goals of § 401 Water Quality Certification ("WQC").

1. to restore and maintain the biological integrity of Guam's waters;
2. to protect the waters of Guam and special aquatic areas and wetlands from chemical, physical, and biological impacts and other types of alterations; and
3. to eliminate all discharges of pollutants (including dredged and fill materials).

B. Applicability for § 401 WQC.

1. An applicant for a Federal license or permit to conduct any activity, including, but not limited to, the construction or operation of facilities which may result in any discharge into waters of the United States, shall provide the licensing or permitting agency a § 401 WQC from the Agency, certifying that the discharge will comply with Guam Water Quality Standards.

2. The following more common Federal permits require a § 401 WQC prior to issuance: (It is recommended that the applicant check with the issuing Federal agency).

a. **Section 404 Permit of the Clean Water Act of 1977.** This Section of the Act prohibits the discharge of dredged or fill material into waters of the United States without a permit from the U.S. Army Corps of Engineers (ACOE). Discharge refers to the physical placement of materials into waters. Dredge or fill materials in this case are heterogeneous in nature.

b. **Nationwide Permits ("NWP") under § 404 of the Clean Water Act.** The Agency may elect to deny, certify or waive § 401 WQC for all or certain proposed NWPs. The Agency may determine that some NWPs do not warrant an "insignificant" impact determination which may apply to other U.S. jurisdictions or as modified through regional conditioning. Because Guam has a proportionally small wetland resource base, unique landscape, and water quality resource management and biological considerations that differ from the

national perspective, the Agency often requires individual permit reviews of NWP's. The permit reviews may entail the application of a "water dependency test" and/or a practicable alternative analysis as determined to be necessary by the Administrator.

c. **Section 402 of the Clean Water Act of 1977.** This Section prohibits the discharge of dredged or fill material without a permit from the U.S. E P.A.. Dredge or fill materials in this case are homogeneous in nature.

d. **National Pollution Discharge Elimination System ("NPDES")** permits are required under § 402 of the Federal Clean Water Act for a number of effluent, storm and wastewater discharges to Waters of the United States. This permit (system) requirement is typically associated with continuous or periodic point source discharges from treatment plants, and other industrial and commercial facilities, to control surface water pollution and ultimately improve and/or maintain water quality of receiving waters. The assignment of pre-treatment and monitoring performance standards and conditions are generally required for target water quality parameters. Section 401 Water Quality Certification must be issued for all NPDES permits.

C. Section 401 WQC Authority.

The Administrator of the Agency is the designated issuing authority for § 401 WQC.

D. Applicable Laws, Statutes and Regulations.

1. Public Law Number 92-500, Federal Water Pollution Control Act ("FWPCA") of 1972.
2. Public Law Number 95-217, Clean Water Act ("CWA") of 1977.
3. Title 10, Chapter 47, Guam Code Annotated ("GCA"), Water Pollution Control Act, as amended by Public Law Number 17-87.
4. Guam Water Quality Standards.

E. Application Requirements and Contents.

1. A § 401 WQC application should be filed at least sixty (60) days prior to the construction or discharge date.

2. There is no filing fee for the § 401 WQC.
3. An applicant for § 401 WQC shall submit to the Administrator a completed application form (available from the Agency). This form requires information on the proposed project including, but not limited to:
 - a. description of the facility or activity, and associated discharges into Guam's waters.
 - b. A description of the system or methods for treating wastes or other effluents which may be discharged, including specification of the degree of treatment expected to be attained.
 - c. The date or dates on which the proposed activity will begin and end, if known, and the date or dates on which the associated discharge will take place.
 - d. The plan for monitoring the water quality and characteristics of the discharge, and the operation of equipment or facilities employed in the treatment or control of wastes or other effluents.
 - e. A description of, and potential impacts to, applicable water quality standards. (Water bodies which are Guam's resource waters are considered high quality.)

F. Additional Permit Information Requirements.

1. Construction drawings/plans and specifications (operational data such as pump/discharge rates, holding capacity, detention time, turnover rates, etc.).
2. Wetland Delineation Map.
3. A historical overview of the project. This is necessary to properly evaluate a project. This review should address:
 - a. known or suspected pollutant sources;
 - b. types of potential sediment contaminants;
 - c. previous dredging activities;
 - d. previous disposal methods; and

e. pertinent information related to the quantity and quality of dredge materials.

4. An ecological evaluation of the proposed affected site (including biota inventory and existing bioaccumulation studies). This should include a review of existing inventories describing the area's biota to identify local populations and to determine if threatened or endangered species are present. Conditions that support their well-being should be noted. Any concerns associated with the uptake of heavy metals or organics, identified through existing bioaccumulation studies or other sources of information, should be documented.

5. An Environmental Baseline Survey (marine, freshwater aquatic or adjacent upland, as appropriate), an Environmental Protection Plan, and/or an Environmental Impact Assessment/Statement ("EIA"/"EIS").

6. Characterization of the sediment particle size and composition, which is important in assessing potential contaminant levels. Sand and coarse-grained inorganic sediments (greater than 0.24 mm) rarely are contaminated. Conversely, fine organic sediments (less than 0.24 mm) generally retain the highest levels of contaminants. Generally, sediment physical characterization is conducted when in-water disposal is proposed or contamination of sediment is suspected.

7. **Sediment Chemical Analyses.** Chemical characterization of the sediment can be done in two (2) ways: (1) bulk sediment analysis, and (2) elutriate analyses. Suggested parameters include, but are not limited to, those listed below. In both cases, the parameter list should be modified as necessary to address site-specific concerns. A parameter list should be prepared on a site-specific basis, using the Guam Water Quality Standards as guidance.

a. **Suggested Parameters for Bulk Sediment Analysis**

Ammonia (NH ₃ -N)	Nickel (Ni)
Arsenic (As)	Oil & Grease
Cadmium (Cd)	Phosphorus (P, Total)
Chromium (Cr)	Total Kjeldahl Nitrogen
Chemical Oxygen Demand	Polychlorinated Biphenols
Copper (Cu)	Volatile Solids (%)
Iron (Fe)	Total organic carbon
Zinc (Zn)	Cyanide, Total
Phenolics, Total	Mercury (Hg)
Tributlytin	

b. **Suggested Parameters for Elutriate Analyses**

Ammonia (NH ₃ -N)	Nickel (Ni)
Arsenic (As)	Oil and Grease
Cadmium (Cd)	Phosphorus (P, Total)
Chromium (Cr)	Iron (Fe)
Copper (Cu)	Mercury (Hg)
Zinc (Zn)	Phenolics, Total
Cyanide, Total	Polychlorinated
Biphenols	
Tributyltin	

8. **Sediment Bioassay.** An important consideration in evaluating a dredging or disposal activity is the impact upon the aquatic organisms. Bioassays, which can measure acute and chronic effects, are the most appropriate method for assessing impact. Methods and test organisms vary and it is recommended that the bioassays use local (Guam) organisms and be coordinated with the U.S. E.P.A., Region IX, the local Department of Agriculture and the U.S. Fish & Wildlife Service.

G. **Prohibited Discharges.**

The discharge of dredged or fill material is prohibited (i.e. certification not be issued) if:

1. there are less-damaging practical alternatives, regardless of the availability of compensatory mitigation. A discharge that is water dependent, but for which upland alternatives are available, is prohibited. Mitigation cannot be used to justify unnecessary fills;
2. impacts cannot be reasonably mitigated through acceptable certification conditioning (Mitigation as used here are those control measures that would reduce, lessen or minimize impacts in the immediate vicinity of the discharge. "Compensatory" mitigation differs in that it implies that an agreed upon plan to compensate or replace resources lost through or resulting from an authorized permit was developed.);
3. appropriate and practical steps have not been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (i.e. mitigation requirements);
4. it would cause or contribute to violations of any applicable Guam Water Quality Standard, or would cause or contribute to significant degradation of the waters of Guam;

5. it would jeopardize any Federal or Guam-listed threatened or endangered species;
6. it would violate any Federal marine sanctuary requirement; or
7. the project is not water-dependent and the discharge associated with the project is proposed in "special aquatic sites" (e.g. wetlands, mudflats, sanctuaries, refuges and preserves, vegetated shallows, coral reef areas, or riffle and pool complexes), and the project applicant has failed to prove that there is no less-damaging practical alternative available to achieve the overall project purposes, regardless of economic considerations.

The "water dependency test" means: the project's purpose is dependent upon fill in a special aquatic site (i.e. restaurants, by definition, do not require fill in wetlands to be restaurants).

H. Mitigation Policy Statements.

GEPA will actively promote and support mitigation for all projects subject to § 404 of the Clean Water Act in accordance with the 404(b)(1) Guidelines (40 CFR § 230.10).

1. The Agency will actively promote project alternatives which avoid all adverse environmental impacts associated with the proposed action, consistent with 40 CFR § 230.10(a). For proposed discharges of dredged or fill material for non-water dependent activities in special aquatic sites, the burden of proof shall be on the applicant to demonstrate that practical, less environmentally damaging alternatives are not available regardless of economic considerations. For all other proposed discharges, GEPA will require information demonstrating that the proposed action is the only available practical alternative. In the absence of such demonstration, the Agency will deny approval or require modification of the § 401 WQC. In evaluating an analysis of practical alternatives, proposed habitat compensation will not be considered in determining which of the alternatives examined is the least environmentally damaging.

2. The Agency will actively promote alternatives which reduce or minimize adverse environmental impacts. This will include requirements to reduce the amount and extent of fill (or dredging), and to modify the timing of construction.

3. For projects which have been conclusively demonstrated to have no practical alternative, the Agency may consider compensation by in-kind aquatic habitat replacement in close proximity to the project site.

4. The Agency will promote and support pre-application conferences and field inspections to develop acceptable mitigation proposals, including the exploration of reasonable alternatives which avoid or minimize adverse environmental impacts upon the aquatic ecosystem.

5. The Agency will coordinate mitigation activities with the U.S. Fish & Wildlife Service, the Corps of Engineers, the U.S. E.P.A., and other appropriate Federal and local agencies in order to address all relevant concerns and avoid duplication of effort.

6. The Agency will seek the inclusion of mitigation as an integral part of projects subject to § 404 permit authority, and will deny § 401 WQC approval for any project which does not include an acceptable mitigation plan. The Agency will deny approval of § 401 WQC unless it is clear that the permitting authority can revoke or suspend the permit for failure to implement the approved mitigation, and unless the permit conditions involving mitigation are enforceable.

7. The Agency will require monitoring for all mitigative actions involving habitat creation, enhancement or restoration. The period of monitoring will be determined on a case-by-case basis, in consultation with appropriate local and Federal resource agencies, and will be of sufficient length to adequately assess project success.

8. The Agency may require pilot studies for any mitigative action which has not been scientifically demonstrated to be successful, or about which there is significant resource agency uncertainty. The pilot studies must be completed, before a § 401 WQC is issued.

9. The Agency will consider mitigation banking only in those instances where such an approach will result in resource gains which are demonstrably superior to those expected using case-by-case mitigation.

10. Where feasible, GEPA will promote the fee title transfer of mitigation sites to the local resource agency with management responsibility for the created or preserved aquatic habitat.

11. Preservation of existing aquatic resources, in the absence of any enhancement of those resources, will not be considered mitigation, as such a policy would sanction an irretrievable net loss of aquatic resources.

I. Public Process Procedures.

The procedures for application and issuance of § 401 WQC include the Agency's review, preliminary determination, possible public noticing and public hearing, and a final decision.

1. Projects requiring § 401 WQC which do not require public notices or public hearings include, but are not limited to, the following:

a. In general, all Nationwide Permits ("NWP") may be exempted from public noticing unless the Administrator otherwise determines that significant environmental or water quality issues warrant public involvement. This conditional exemption stems from the Agency's position that some NWPs do not take into consideration small tropical island environmental conditions. The Agency maintains the option of individual certification reviews of any NWP.

b. In general, all National Pollution Discharge Elimination System ("NPDES") Permits may be exempted since all such permits and permit renewals are publicly noticed by U.S. E.P.A. with full opportunity for public hearing and comment on Guam.

2. The applicant shall submit a § 401 WQC application to the Agency. After reviewing the application, the Administrator shall make an initial determination that the proposed activity will or will not meet the applicable Guam WQS. After the Administrator's initial determination, the Agency may prepare the public notice for publication in the newspaper(s) and distribution to interested parties.

a. All costs for public notices of intent to issue, or to modify § 401 WQC, or for public hearings for § 401 WQC, shall be borne by the applicant.

b. Publication shall be two (2) consecutive days in a newspaper of general circulation on dates specified by the Administrator.

c. It is imperative that the public notice is published on the date(s) specified by the Administrator so that delays in the processing of the § 401 WQC request are minimized. In addition, when the public notice proof copy is edited by the applicant, it should be carefully checked for accuracy to avoid republication. An affidavit certifying publication will be required.

d. The Administrator may elect to provide public notice by letter to affected or interested parties.

3. In the event that a reasonable request is made for a public hearing, the Administrator shall provide a public hearing, in accordance with the Guam Administrative Adjudication Law.

a. Publication of public hearing notices shall be as specified in the Guam Administrative Adjudication Law. The public notice will be published in a local newspaper of general circulation as directed by the Administrator.

b. Public hearings will be arranged (date, time, place) by the Agency and will be conducted by the Administrator. Agency staff will be present to serve as a resource. The applicant or the applicant's representative, should attend the scheduled hearing to present testimony supporting the § 401 WQC request.

4. After the public notice and/or public hearing, the Administrator shall consider all evidence and testimonies presented and make a final § 401 WQC determination. This determination will be completed within sixty (60) days of the submittal of the application, or not less than thirty (30) days after any required public notice or hearing, whichever is longer.

5. The Administrator shall issue § 401 WQC for a term equal to, but not exceeding, five (5) years for NPDES and other facility operational permits. Furthermore, the term of any re-certification shall not exceed one (1) extension for construction-related permits. Subsequent requests for certification extensions (second, third, etc.) for construction-related or temporary discharge permits may be granted, and if granted, may not coincide with the associated Federal permit term. The Administrator reserves the right to adjust any and all certification terms.

6. Any order or decision of the Administrator pursuant to these regulations shall become final, unless a hearing before the GEPA Board of Directors is requested within thirty (30) days after the notice of the final decision.

7. If an appeal is filed, the GEPA Board of Directors shall have the power to review and to affirm, modify or reverse any order or decision of the Administrator. Such appeal shall be made pursuant to the provisions of the Administrative Adjudication Law, Title 5, Guam Code Annotated § 9100 et. seq.

8. Any order or decision of the Board pursuant to these regulations shall be subject to an appeal therefrom to the Superior Court of Guam. Such appeal shall be made pursuant to the provisions of the Administrative Adjudication Law, Title 5, Guam Code Annotated § 9100 et. seq.

J. Content of the Agency's § 401 WQC.

1. The name and address of the applicant.
2. A description of the information used by the Administrator to make the Administrator's decision.
3. A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable WQS.
4. Any conditions which the Administrator deems necessary or desirable with respect to the discharge or the activity.
5. Any other conditions as the President's may determine to be appropriate.

K. Signatory Requirement for § 401 WQC.

1. For Guam Environmental Protection Agency - the Administrator, as Chief Executive Officer of the Agency.
2. In the case of Federal agencies, the chief executive officer of the agency, or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

3. For a partnership or sole proprietorship, a general partner (partnership) or a proprietor (sole proprietorship).

4. For a corporation, the President or the President's representative.

L. Modification, Suspension, or Revocation of a § 401 WQC.

1. The Administrator may, on the Administrator's own motion or the application of any person, modify, suspend or revoke the § 401 WQC, if the Administrator determines that:

- a. there is a violation of any condition of the § 401 WQC;
- b. the § 401 WQC was obtained by misrepresentation, or failure to disclose fully all relevant facts; or
- c. there is an unreasonable or significant change in the scope of the project and activity.

M. Dam Construction Review for § 401 WQC.

1. An applicant must complete an Environmental Impact Assessment or Statement ("EIA"/"EIS") for any dam or reservoir project prior to a request for § 401 WQC.

a. The Agency will not act on a § 401 WQC request until the EIA/EIS has been approved and full opportunity for public comment has been provided on the proposed project.

b. As part of an EIA/EIS for a dam, the applicant must conduct investigations of and assess the impact(s) which will occur as a result of the project on all aquatic and terrestrial biological resources, including those associated with wetlands, streams and forested areas which will be lost as a result of the project.

c. Potential for mitigation (restoration, replacement or enhancement) must be thoroughly investigated to determine if there are mitigation locations within the same watershed as the proposed activity at upstream or headwater areas. Only after a thorough investigation reveals that this potential does not exist shall off-site or alternative watershed locations be considered.

d. Compensatory mitigation for the aquatic resource being lost must occur on an acre-for-acre basis.

e. Compensatory mitigation should be designed to match in-kind resource types and/or functions lost.

f. The applicant shall submit a watershed management plan to minimize pollution loadings into the reservoir. This plan must be approved by the Agency prior to operation of the new dam facility. Any pollutant loading identified during field surveys shall be eliminated or minimized to the extent possible given available technology.

2. Section 401 WQC may be denied if:

a. The construction and operation of the project will result in the significant loss of wetlands and related habitat and acreage. More specifically:

i. the destruction of the wetlands will have an adverse impact on the river ecosystem.;

ii. the destruction of the wetlands will cause the loss of beds of emergent aquatic vegetation that serve as habitat for juvenile fish which will adversely affect the relative abundance of juvenile and adult fish;

iii. the resources or wetlands which will be lost are critical habitat in the affected area, including listed species or those which are candidates for listing; or

iv. all affected wetlands areas are important and, to the extent that the loss of these wetlands can be mitigated, the applicant has failed to demonstrate that the mitigation proposed is adequate.

b. The applicant has: (1) failed to demonstrate that there will be no adverse water quality impacts from increased groundwater levels resulting from the project; (2) used a groundwater model that is not acceptable due to erroneous assumptions or the lack of sensitivity analysis; or (3) not provided sufficient information concerning the impact of increased groundwater levels on existing sites of subsurface contamination, adequacy of subsurface sewage replacement

areas or the impact of potential increased surface flooding. Additionally, the certification may be denied if information was not provided to adequately assess the effect of raised groundwater on sewer rehabilitation measures and the potential for increased flows at a specified wastewater treatment plant.

c. The applicant has failed to demonstrate that there will not be an unacceptable water quality impact upstream or downstream of the proposed project.

d. The applicant has failed to demonstrate that the construction and operation of the proposed dam will not have an adverse impact upon the aquatic resources upstream of the proposed impoundment.

e. Dam construction will have an adverse impact on upstream and downstream migration of fish, even with the construction of fish passageways for migration.

APPENDICES.

Appendix A. Priority Toxic Pollutants.

I. List of 126 Priority Toxic Pollutants Designated Under Section 307(a) (1) of the Clean Water Act Which Are Codified at 40 CFR 131.36(b), July 1995.*

Acenaphthene	1,2-dichlorobenzene
Acenaphthylene (PAH)**	1,3-dichlorobenzene
Acrolein	1,4-dichlorobenzene
Acrylonitrile	3,3-dichlorobenzidine
Aldrin	1,1-dichloroethane
Antimony	1,2-dichloroethane
Anthracene	1,1-dichloroethylene
Arsenic	1,2-trans-dichloroethylene
Asbestos	Dichlorobromomethane (Halomethanes)
1,2-benzanthracene (PAH)	Dichloromethane (Halomethanes)

Benzene	2,4-dichlorophenol
Benzidine	1,2-dichloropropane
Benzo(a)pyrene (3,4-benzo-pyrene) (PAH)	1,3-dichloropropane
3,4-benzofluoranthene (PAH)	Dieldrin
Benzo(k)fluoranthene (PAH)	2,4-dimethylphenol
1,12-benzoperylene (PAH)	Diethylphthalate
Beryllium	Dimethylphthalate
Bromoform (Tribromomethane)	2,4-dinitrotoluene
Bromomethane (Methyl Bromide)	2,6-dinitrotoluene
4-bromophenyl phenyl ether	2,4-dinitrophenol
Cadmium	2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD)
Carbon tetrachloride (tetrachloromethane)	1,2-diphenylhydrazine
Chlordane	Alpha endosulfan
Chlorobenzene (monochloro-benzene)	Beta endosulfan
Chlorodibromomethane (halomethane)	Endosulfan sulfate
Chloroethane (monochloroethane)	Endrin
Fluorene (PAH)	Endrin aldehyde
Bis(2-chloroethyl)ether	Ethylbenzene
Bis(2-chloroethoxy)methane	Fluoranthene
2-chloroethyl vinyl ether (mixed)	Heptachlor
4-chloro-3-methylphenol	Heptachlor epoxide
Chloromethane (methyl chloride)	Hexachloroethane
Chloroform (trichloromethane)	Hexachlorobenzene
2-chlorophenol	Hexachlorobutadiene
Bis(2-chloroisopropyl)ether	Hexachlorocyclohexane (lindane)
2-chloronaphthalene	Hexachlorocyclohexane (Alpha)
4-chlorophenyl ether	Hexachlorocyclohexane (Beta)
Chromium (HEX) aivalent	Hexachlorocyclohexane (Delta)
	Hexachlorocyclopentadiene

Chromium (TRI) valent	Indeno (1,2,3-cd) pyrene (PAH)
Chrysene (PAH)	Isophorone
Copper	Lead
4,4-DDT	Mercury
4,4-DDE (p,p-DDX)	Naphthalene
4,4-DDD (p,p-TDE)	Nickel
1,2,5,6-bibenzanthracene	Nitrobenzene
{dibenzo(a,h) anthracene}	Di-N-butyl phthalate
Di-n-octyl phthalate	2-nitrophenol
Pyrene (PAH)	4-nitrophenol
Selenium	4,6-dinitro-2-methylphenol
Silver	N-nitrosodimethylamine
1,1,2,2-tetrachloroethane	N-nitrosodiphenylamine
Tetrachloroethylene	N-nitrosodi-n-propylamine
Thallium	PCB-1242
Toluene	PCB-1254
Toxaphene	PCB-1221
1,2,4-trichlorobenzene	PCB-1232
1,1,1-trichloroethane	PCB-1248
1,1,2-trichloroethane	PCB-1260
Trichloroethylene	PCB-1016
2,4,6-Trichlorophenol	Phenol
Vinyl chloride (chloroethylene)	Pentachlorophenol
Phenanthrene (PAH)	Zinc
Bis(2-ethyl hexyl)phthalate	Butyl benzyl phthalate

Note:

*Three (3) volatile chemicals were removed from the original of one hundred twenty-nine (129) (44 CFR § 44502, July 30,1979, as amended at 46 FR 2266, January 8, 1981, 46 FR 10724, February 4, 1981)

** (PAH) means Polycyclic Aromatic Hydrocarbon

II. AQUATIC LIFE CRITERIA TOXIC POLLUTANTS

<u>1. Arsenic</u>	<u>11. Cyanide</u>	<u>21. Heptachlor</u>
<u>2. Cadmium</u>	<u>12. Pentachlorophenol</u>	<u>22. Heptachlor-epoxide</u>
<u>3. Chromium (III and VI)</u>	<u>13. Aldrin</u>	<u>23. PCB-1242</u>
<u>4. Copper</u>	<u>14. Gamma-BHC</u>	<u>24. PCB-1254</u>
<u>5. Lead</u>	<u>15. Chlordane</u>	<u>25. PCB-1221</u>
<u>6. Mercury</u>	<u>16. 4,4-DDT</u>	<u>26. PCB-1232</u>
<u>7. Nickel</u>	<u>17. Dieldrin</u>	<u>27. PCB-1248</u>
<u>8. Selenium</u>	<u>18. Alpha-endosulfan</u>	<u>28. PCB-1260</u>
<u>9. Silver</u>	<u>19. Beta-endosulfan</u>	<u>29. PCB-1016</u>
<u>10. Zinc</u>	<u>20. Endrin</u>	<u>30. Toxaphene</u>

III. Numerical Criteria for Priority Toxic Pollutants:

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/l) D1 D2
1. Antimony 7440360	340 m 150 m	69 36	14a 4300 a
2. Arsenic 7440382	340 m 150 m	69 36	5
3. Beryllium 7440417	3.9 d, m 1.1 d, m	42 9.3	j j
4. Cadmium 7440439	1700 d 210 d	42 9.3	j j
5a. Chromium (III) 16065831	1700 d 210 d	42 9.3	j j
b. Chromium (VI) 8540299	16 m 11 m	1100 50	j j
6. Copper 7440508	18 d, m 12 d, m	4.8 3.1	1300
7. Lead 7439921	82 d 3.2 d	210 8.1	j j
8. Mercury 7439976	2.4 m 0.012 m	2.1 0.025	0.050 a 0.051 a
9. Nickel 7440020	470 d, m 52 d, m	74 8.2	610 a 4600 a
10. Selenium 7782492	20 5.0	290 71	j j

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/l) D1 D2
11. Silver 7440224	4.1 d	2.3	1.7 a 6.3 a
12. Thallium 7440280	120 d, m 110 d, m	95 86	9,100 69,000
13. Zinc 7440666	22 n 5.2 n	1 1	700 a 200,000 ah
14. Cyanide 57125	1332214		7,000,000 fibers/L i
15. Asbestos			
16. 2,3,7,8-TCDD (Dioxin) 1746016			0.000000013 b 0.000000014 b
17. Acrolein 107028			320 780
18. Acrylonitrile 107131			0.059 a, b 0.66 a, b
19. Benzene 71432			1.2 a, b 71 a, b
20. Bromoform 75252			4.3 a, b 360 a, b
21. Carbon Tetrachloride 56235			0.25 a,b 4.4 a, b

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/l) D1 D2
22. Chlorobenzene 108907			680 a 21,000 a, h
23. Chlorodibromomethane 124481			0.41 a, b 34 a, b
24. Chloroethane 75003			
25. 2-Chloroethylvinyl-Ether 110758			
26. Chloroform 67663			5.7 a, b 470 a, b
27. Dichlorobromomethane 75274			0.56 a, b 46 a, b
28. 1,1-Dichloroethane 75343			
29. 1,2Dichloroethane107062			0.38 a, b 99 a, b

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/) (ug/l) D1 D2
30. 1,1-Dichloroethylene 75354			0.057 a, b 3.2 a, b
31. 1,2-Dichloropropane 78875			0.52 a 39 a
32. 1,3-Dichloropropene 542756			10 a 1700 a
33. Ethylbenzene 100414			3,100 a 29,000 a
34. Methyl Bromide 74839			48 a 4,000 a
35. Methyl Chloride 74873			j j
36. Methylene Chloride 75092			4.7 a, b 1,600 a, b
37. 1,1,2,2-Tetra- 79345 chloroethane			0.17 a, b 11 a, b

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/l) D1 D2
38. Tetrachloroethylene 127184			0.8 b 8.85 b
39. Toluene 108883			6,800 a 200,000 a
40. 1,2-Trans-Dichloro-ethylene 156605			700 a 140,000 a
41. 1,1,1-Trichloroethane 71556			j j
42. 1,1,2-Trichloroethane 79005			0.60 a, b 42 a, b
43. Trichloroethylene 79016			2.7 b 81 b

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms (ug/l) D1 D2 Organism Only (ug/l)
44. Vinyl Chloride 75014			2 b 525 b
45. 2-Chlorophenol 95578			120 a 400 a
46. 2,4-Dichlorophenol 120832			93 a 790 a
47. 2,4-Dimethylphenol 105679			540 a 2300 a
48. 2-Methyl-4,6-Dinitro-phenol 534521			13.4 765
49. 2,4-Dinitrophenol 51285			70 a 14,000 a
50. 2-Nitrophenol 88755			
51. 4-Nitrophenol 100027			

A (#)COMPOUND CAS Number	B FRESHWATER CMC d (ug/l) B1 B2	C SALTWATER CMC d (ug/l) C1 C2	D HUMAN HEALTH For Consumption of: Water & Organisms Organism Only (ug/l) D1 D2
52. 3-Methyl-4-Chloro-phenol 59507			
53. Pentachlorophenol 187865	19 e, m 15 e, m	13 7.9	0.28 a, b 8.2 a, b, h 21,000 a 4,600,000 a, h
54. Phenol 108952			
55. 2,4,6-Trichlorophenol 88062			*2.1 a, b 6.5 a, b 1,200 a 2,700 a
56. Acenaphthene 83329			
57. Acenaphthylene 208968			
58. Anthracene 120127			9,600 a 110,000 a
59. Benzidine 92875			0.00012 a, b 0.00054 a, b
60. Benzo(a)Anthracene 56553			0.0044 a, b 0.049 a, b
61. Benzo(a)Pyrene 50328			0.0044 a, b 0.049 a, b

<p>62. Benzo(b)Fluofranthene 205992</p> <p>63. Benzo(ghi)Perylene 191242</p> <p>64. Benzo(k)Fluoranthene 207089</p> <p>65. Bis(2-Chloroethoxy) - Methane 111911</p> <p>66. Bis(2-Chloroethyl)-Ether 111444</p>			<p>0.0044 a, b 0.049 a, b</p> <p>0.0044 a, b 0.049 a, b</p> <p>0.031 a, b 1.4 a, b</p>
<p>67. Bis(2-Chloroisopropyl)- Ether 108601</p> <p>68. Bis(2-Ethylhexyl)- Phthalate 117817</p>			<p>1,400 a 170,000 a</p> <p>1.8 a, b 5.9 a, b</p>

69. 4-Bromophenyl Phenyl Ether 101553				
70. Butylbenzyl Phthalate 85687			3,000 a	5,200 a
71. 2-Chloronaphthalene 91587			1,700 a	4,300 a
72. 4-Chlorophenyl - Phenyl Ether 7005723				
73. Chrysene 218019			0.0044 a, b	0.049 a, b
74. Dibenzo (a,h) Anthracene 53703			0.0044 a, b	0.049 a, b
75. 1,2-Dichlorobenzene 95501			2,700 a	17,000 a
76. 1,3-Dichlorobenzene 541731			400	2,600

77. 1,4-Dichlorobenzene 106467			400	2,600
78. 3,3-Dichlorobenzidine 91941			0.04 a, b	0.077 a, b
79. Diethyl Phthalate 84662			23,000 a	120,000 a
80. Dimethyl Phthalate 131113			313,000	2,900,000
81. Di-n-Butyl Phthalate 84742			2,700 a	12,000 a
82. 2,4-Dinitrotoluene 121142			0.11 b	9.1 b
83. 2,6-Dinitrotoluene 606202				
84. Di-n-Octyl Phthalate 117840				
85. 1,2-Diphenylhydrazine 122667			0.040 a, b	0.54 a, b
86. Fluoranthene 206440			300 a	370 a

87. Fluorene	86737			1,300 a	14,000 a
88. Hexachlorobenzene	118741			0.00075 a, b	0.00077 a, b
89. Hexachlorobutadiene	87683			0.44 a, b	50 a, b
90. Hexachlorocyclopentadiene	77474			240 a	17,000 a,h
91. Hexachloroethane	67721			1.9 a, b	8.9 a, b
92. Indeno(1,2,3-cd)- Pyrene	193395			0.0044 a, b	0.049 a, b
93. Isophorone	78591			36 b	2,600 b
94. Naphthalene	91203				
95. Nitrobenzene	98953			17a	1,900 a,h

96. N-Nitrosodimethylamine 62759				0.00069 a, b	8.1 a, b
97. N-NitrosodiPropylamine 621647				0.005 a, b	1.4 a, b
98. N-Nitrosodiphenyl-amine 86306				5.0 a, b	16 a, b
99. Phenanthrene 85018				960 a	11,000 a
100. Pyrene 129000					
101. 1,2,4-Trichlorobenzene 120821				260	940
102. Aldrin 309002	3 f		1.3 f	0.00013 a, b	0.00014 a, b
103. alpha-BHC 319846				0.0039 a, b	0.013 a, b
104. beta-BHC 319857				0.014 a, b	0.046 a, b
105. gamma-BHC 58899	0.95 m		0.16 f	0.019 b	0.063 b
106. delta-BHC 319868					
107. Chlordane 57749	2.4 f	0.0043f	0.09 f	0.0021 a, b	0.0022 a, b
108. 4-4-DDT 50293	1.1f	0.001 f	0.13 f	0.00059 a, b	0.00059 a, b

109. 4,4-DDE	72559					0.00059 a, b	0.00059 a, b
110. 4,4-DDD	72548					0.00083 a, b	0.00084 a, b
111. Dieldrin	60571	0.24 m	0.056 m	0.71 f	0.0019 f	0.00014 a, b	0.00014 a, b
112. alpha-Endosulfan	959988	0.22 f	0.056 f	0.034 f	0.0087 f	110 a	240 a
113. beta-Endosulfan	33213659	0.22 f	0.056 f	0.034 f	0.0087 f	110 a	240 a
114. Endosulfan Sulfate	1031078					110 a	240 a
115. Endrin	72208	0.086 m	0.036 m	0.037 f	0.0023 f	0.76 a	0.81 a, h
116. Endrin Aldehyde	7421934					0.76 a	0.81 a, h
117. Heptachlor	76448	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00021 a, b	0.00021 a, b
118. Heptachlor Epoxide	1024573	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00010 a, b	0.00011 a, b
119. PCBs			0.014 f, k		0.03 f, k	0.000171	0.000171
126. Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00073 a, b	0.00075 a, b
Total No. of Criteria (h) =		24	28	23	27	99	97

FOOTNOTES:

- a. These criteria have been revised to reflect the U.S. E.P.A. q1* or RfD, as contained in the Integrated Risk Information System ("IRIS") as of October 1, 1996. The fish tissue bioconcentration factor ("BCF") from the 1980 documents was retained in each case.
- b. These criteria are based upon carcinogenicity of 10 (-6) risk.
- c. The Criteria Maximum Concentration ("CMC") is an acute concentration. It is the one (1) hour average concentration in ambient waters that should not be exceeded more than once every three (3) years on average. Criteria Continuous Concentration ("CCC") is a chronic concentration. It is the four (4) day average concentration of a pollutant in ambient water that should not be exceeded more than once every three (3) years on average. ug/l equals micrograms per liter.
- d. These freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/l) in the water body. Values displayed above in the matrix correspond to a total hardness of 100 mg/l. The equations for calculating metals criteria are provided below:

$$\text{CMC} = \text{WER} \times \text{CMC} \times (\exp\{m_a[\ln(\text{hardness})] + b_a\})$$

$$\text{CCC} = \text{WER} \times \text{CCC} \times (\exp\{m_c[\ln(\text{hardness})] + b_c\})$$

Where WER = Water Effects Ratio

Final CMC and CCC values should be rounded to two (2) significant figures.

Metal	m_a	b_a	m_c	b_c
Cadmium	1.128	-3.6867	0.7852	-2.715
Copper	0.9422	-1.700	0.8545	-1.702
Chromium (III)	0.8190	3.688	0.8190	1.561
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.52	-----	-----
Zinc	0.8473	0.884	0.8473	0.884

NOTE: The term "exp" represents the base exponential function.

For waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations. For waters with a hardness of over 400 mg/l as calcium carbonate, a hardness of 400 mg/l as calcium carbonate shall be used with a default Water-Effect Ratio ("WER") of one (1), or the actual hardness of the ambient surface water shall be used with a WER.

e. These freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed above in the matrix correspond to a pH of 7.8. Values are calculated as follows:

$$CMC = \exp(1.005(\text{pH}) - 4.869)$$

$$CCC = \exp(1.005(\text{pH}) - 5.134)$$

f. These aquatic life criteria for these compounds were issued by the U.S. E.P.A. in 1980 utilizing the 1980 Guidelines for criteria development. The acute values shown are final acute values ("FAV"), which by the 1980 Guidelines are instantaneous values as contrasted with a CMC which is a short-term average.

g. These totals simply sum the criteria in each column. For aquatic life, there are thirty (30) priority toxic pollutants with some type of freshwater or saltwater, acute or chronic criteria. For human health, there are one hundred (100) priority toxic pollutants with either "water + organism" or "organism only" criteria. Note that these totals count chromium as one pollutant even though U.S. E.P.A. has developed criteria based upon two (2) valence states. In the matrix, the Agency has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that this list of one hundred twenty-six (126) priority pollutants includes only a single listing for chromium.

h. No criteria for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document, or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such a calculation were not shown in the document.

i. This criterion for asbestos is the MCL (40 CFR § 141.62).

j. The Agency is not adopting human health criteria for these contaminants. However, permit authorities should address these contaminants in NPDES permit actions using Guam's existing narrative criteria for toxics.

k. PCBs are a class of chemicals which include aroclors 1242, 1254, 1260, 1232, 1248, 1260 and 1016, CAS numbers 53469219, 11097691, 11104282, 11141165, 12672296, 11096825 and 12674112, respectively. The aquatic life criteria apply to this set of PCBs.

l. This criterion applies to total PCBs or congener or isomer analyses.

m. This criterion has been recalculated pursuant to the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA-820-B-96-001, September, 1996. See also Great Lakes Water Quality Initiative Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA-80-B-95-004, March, 1995.

n. This criterion is expressed as μg free cyanide (as CN) /l.

General Notes:

1. This chart lists all of EPA's priority toxic pollutants, whether or not criteria guidance are available. Blank spaces indicate the absence of criteria guidance. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. The Chemical Abstracts Service ("CAS") registry numbers are added to provide a unique identification for each chemical.

2. The following chemicals have organoleptic-based criteria recommendations that are not included on this matrix: zinc, 3-methyl-4-chlorophenol.

TABLE IV.
Additional Toxic Pollutants.

Substance*	Maximum Numerical Limits		Application Factors
	Marine Water	Fresh Water	
Aluminum	0.20 mg/l	1.0 mg/l	0.01
Ammonia	0.02 mg/l		0.05
Barium	0.50 mg/l		0.05
Boron	5.00 mg/l		0.10
Bromine (free as Bromate)	0.10 mg/l 100.0 mg/l		- -
Chlorine ¹ (Total Residual)	0.0075 mg/l	0.011 mg/l	0.1
Fluoride	1.50 mg/l	0.80 mg/l	0.1
Iron	0.05 mg/l	3.00 mg/l	-
Manganese	0.02 mg/l		0.2
Molybdenum	-		0.0
Sulfide	0.005 mg/l		0.1 (Applicable to 20-day LC data)
Tributyltin (TBT)	Marine Water Chronic - 0.010 µg/l Acute - 0.356µg/l	Fresh Water Chronic - 0.64 µg/l Acute - 0.442µg/l	

Uranium ²	0.00 mg/l	0.01
Vanadium	-	0.05

* Total amounts in indicated chemical state of form.

⁽¹⁾ Greater concentrations of Chlorine may be used to treat a source of drinking water in order to meet the requirements of Subsection II.B.1 of these standards.

⁽²⁾ Naturally occurring Uranium has been reported in concentrations of 0.003mg/l, 0.00004 mg/l (river water).

Note: Whenever natural concentrations of any toxic substance or element occur and exceed the limits established in these standards, this greater concentration shall constitute the limit; provided, that this natural concentration was not directly affected by non-induced causes.

APPENDIX B. Wetlands.

1. Official Wetland Map.

The National Wetlands Inventory ("NWI") map published by the United States Fish & Wildlife Service ("FWS"), is the official, interim wetland map adopted for Guam pursuant to Executive Order Number 90-13, entitled, "Protection of Wetlands," dated June 12, 1990. See Appendix "D."

2. Wetland Classification.

The Classification of Wetlands and Deepwater Habitats was developed by Cowardin et. al. in 1979 for the FWS. This system provides the basis for wetland-related activities with the FWS. The Cowardin system is hierarchical and thus can provide several levels of detail in classifying wetlands. The "System" and "Subsystem" levels of detail appear to be the most promising for water quality standards. Guam may choose to evaluate wetland function and values for all the wetlands within the Island of Guam based upon wetland type (using Cowardin (1979); see Figure 1). It may also evaluate wetlands on a case-by-case basis as individual permit decisions arise to ensure that designated uses are being protected and have reflected existing uses. This interim map is used by Guam for classification, inventory and mapping wetlands, until such time as a new system is developed and accepted for use.

3. Criteria for Wetland Identification.

The latest version of the Corps of Engineers Wetlands Delineation Manual, adopted by the United States Army Corps of Engineers is adopted by reference by these standards. This manual describes technical criteria, field indicators and other sources of information, and methods for identification and delineation of jurisdictional wetlands. This manual shall serve as the technical basis for identifying and delineating jurisdictional wetlands in Guam.

4. Wetland Evaluation.

Wetland evaluations should include a plant and wildlife inventory and an evaluation of the wetland functions. High quality wetlands should maintain water quality and protect against erosion, and include, but are not limited to, those which provide habitat for threatened or endangered species and/or wetlands which are locally or regionally scarce or threatened.

5. Mitigation.

All wetlands in Guam are classified as Guam Resource Waters under this regulation and are protected from degradation. However, in certain instances, limited degradation may be permitted; provided, reasonable and/or practical alternatives are not available, and the applicants have implemented best management practices, worked to avoid impacts due to hydromodification (including reducing the scale of a proposed project), minimized the impacts and agreed to mitigate for the destruction of wetland habitat.

Acceptable mitigation includes construction of a wetland designed to replace the wetland functions destroyed, altered or impaired, and restoration or enhancement of an existing degraded wetland. Protection of an existing functional wetland is not acceptable mitigation for destruction of a wetland, however, as part of a mitigation plan, certification conditions may require protection of on-site wetlands through establishment of deed restrictions or easements. Mitigation conditions may also require long term biological monitoring. The feasibility and general acceptability of a given investigation scheme cannot be used to justify permitted alterations.

Figure 1.

Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems and classes. The Palustrine System does not include deepwater habitats (from Cowardin et al., 1979).

APPENDIX C.

Constructed Wetlands for Water Quality Improvement.

This guidance encourages the expansion and use of Guam's Wetland Resources through the creation and restoration and to allow for the use of natural wetlands for wastewater treatment if specific requirements are met.

If the wetland is created as part of the treatment process, the minimum requirements on the degree of pretreatment shall include secondary treatment, and applicable water quality standards must be met for water bodies that receive the effluent from the wetland treatment system. If the wetland currently exists, the following requirements shall be applied:

1. minimum of secondary treatment prior to discharge to the wetland;
2. advanced treatment prior to discharge to the wetland, if necessary to meet Guam Water Quality Standards applicable to the wetland;
3. discharge to the wetland free of toxic contaminants, e.g. chlorine, at levels that would impair beneficial uses;
4. monitoring in the wetland to detect accumulation of toxic contaminants and changes to the plant/animal communities;
5. Section 402 NPDES permit;
6. Section 404 permit, if alterations of the wetland are required as part of construction; and
7. review on a case-by-case basis. The Agency may utilize any scientific and regulatory guidance documents to evaluate wetland treatment system designs, objectives and operational considerations as may be appropriate, on a case-by-case basis.

Appendix D.
Executive Order Number 90-13.



TERRITORY OF GUAM

OFFICE OF THE GOVERNOR

AGANA, GUAM 96910

U.S.T.A.

EXECUTIVE ORDER NO. 90-13

PROTECTION OF WETLANDS

- WHEREAS, Executive Order 78-21 directed the Territorial Land Use Commission to officially designate wetland areas on Guam; and
- WHEREAS, Government agencies have been utilizing three separate maps to identify wetland areas due to the lack of an officially adopted map; and
- WHEREAS, wetlands are areas of particular concern that provide an essential habitat for maintenance of native plant and animal life, prevent soil erosion and stormwave damage, and valuable locations for scientific and educational investigations, and act as floodplains during periods of excessive water flow and a source of fresh water for domestic and agricultural purposes; and
- WHEREAS, the rapid pace of development currently experienced on Guam has placed greater pressure on this valuable resource; and
- WHEREAS, the management of this resource cannot begin until landowners, developers and the Government of Guam utilize a consistent source of wetland information.

NOW, THEREFORE, I, JOSEPH F. ADA, Governor of the Territory of Guam, pursuant to the authority vested in me by the Organic Act of Guam, do hereby declare that:

1. The official, interim wetland map for Guam shall be the National Wetlands Inventory map published by the United States Fish and Wildlife Service.
2. All Government of Guam agencies shall utilize this map in the review of physical development projects.
3. The appropriate land use agencies including the Guam Environmental Protection Agency, the Department of Agriculture, and the Bureau of Planning shall complete a study of wetlands; prepare public information material; and draft all necessary legislation, rules and regulations, and/or executive orders for processing through the appropriate channels.
4. The Executive Order shall remain in effect until the results of such study recommended legal framework are approved as required by applicable law.
5. Executive Order 78-21 is repealed in its entirety.

SIGNED AND PROMULGATED this 12th day of JUNE, 1990.

Joseph F. Ada
JOSEPH F. ADA
Governor of Guam

COUNTERSIGNED:

Frank F. Blas
FRANK F. BLAS
Lieutenant Governor of Guam

Appendix E.

Executive Order Number 96-26.

Executive Order No. 96-26.

Relative to creating the Application Review Committee to replace the Development Review Committee, and to streamline the review process for the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board.



TERRITORY OF GUAM
OFFICE OF THE GOVERNOR
AGANA, GUAM 96910
U.S.A.

EXECUTIVE ORDER NO. 96-26

RELATIVE TO CREATING THE APPLICATION REVIEW COMMITTEE TO REPLACE THE DEVELOPMENT REVIEW COMMITTEE, AND TO STREAMLINE THE REVIEW PROCESS FOR THE TERRITORIAL LAND USE COMMISSION/TERRITORIAL SEASHORE PROTECTION COMMISSION/GUAM NATURAL RESOURCES BOARD.

WHEREAS, Title 21, Guam Code Annotated created the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter collectively and individually referred to as the "Commission") and invested in the Commission the authority to review all matters pertaining to the zoning, subdivision, granting of conditional uses and variances, and other land and water related uses of public and private land and development within the Territory of Guam; and

WHEREAS, in general, matters coming before the Commission represent exceptions or departures from the Master Plan or existing land use laws of Guam and thus comprise requests for the Commission, acting on behalf of the people of Guam, to grant such exceptions; and

WHEREAS, Executive Orders Nos. 90-09 and 92-06 established and revised the Development Review Committee (DRC) in order to review the impact of proposed developments in the Territory of Guam, Executive Order No. 90-15 established interim guidelines for the DRC, and Executive Order No. 90-10 established requirements for Environmental Impact Assessments for all Commission actions; and

WHEREAS, there is a need for a more efficient and streamlined review process, which entails replacing the existing Development Review Committee (DRC) with a new Application Review Committee ("Committee" or "ARC"), and charging the ARC with the responsibility of evaluating applications for land use matters, and reporting its findings and recommendations to the Commission; and

WHEREAS, the ARC is formulated for the purpose of providing the Commission with technical and professional review, analysis, and advice through individual agency positions concerning various development activities on Guam, so that the Commission can ensure that proposed developments achieve both maximum utility and livability, through provisions for adequate utilities and facilities such as power, water, drainage, schools, parks, traffic circulation, and open spaces for light and air; and

WHEREAS, commercial and residential development in Guam continues at an accelerated rate, and many aspects of these developmental activities create a significant impact upon the environment of Guam; and

WHEREAS, the Guam Environmental Protection Agency (GEPA), pursuant to Chapters 45 through 52, Title 10, Guam Code Annotated, is responsible for providing a



unified, integrated, and comprehensive territory-wide program of environmental protection and procedures to fulfill that responsibility; and

WHEREAS, conducting environmental review and impact assessments is a vital and integral part of the development planning process and is therefore of substantial value and utility to developers and landowners, as well as being in the public interest.

NOW, THEREFORE, I, CARL T. C. GUTIERREZ, Governor of Guam, by virtue of the authority vested in me by the Organic Act of Guam, as amended, and the laws of Guam, do hereby order that, notwithstanding any other executive order:

- (1) For the purposes of implementing this Executive Order and supplementing definitions not contained in Chapters 61 through 63 of Title 21, Guam Code Annotated, the following definitions shall apply:
 - (a) "Accessory use" means a use of land or a building or a portion thereof, when such use is customary and incidental to the actual principal use of the land or building, and such accessory use is located on the same parcel of property as the principal use.
 - (b) "Applicant" means the person, government, or other entity which submits any application for consideration before the Commission.
 - (c) "Application" means the complete application form and all supporting documentation required for a project.
 - (d) "Barracks" means a building containing One (1) or more rooms intended or designed to be used or rented for living and sleeping purposes, typically but not exclusively housing provided by an employer for employees. A barracks shall not be construed to mean a hotel.
 - (e) "Bed and Breakfast Inn" means a house, or portion thereof, where short-term lodging rooms and meals are provided. The operator of the inn shall live on the premises or in adjacent premises.
 - (f) "Club" means an organization which operates an establishment for objectives of an athletic, patriotic, political or social nature and not for pecuniary gain, having a bona fide membership list, the majority of members of which pay dues at least once in every year.
 - (g) "Clubhouse" means a building used to house a club or social organization, not conducted for private profit and not an adjunct to, operated by, or in connection with a public tavern, bar, cafe, or other public place.
 - (h) "Day" means a calendar day unless otherwise specified.
 - (i) "Lodging House" or "Rooming House" means any building, or portion thereof, containing not more than five guest rooms which are used by not more than five guests where rent is paid in money, goods, labor or otherwise. A lodging house shall



comply with all of the requirements of the Building Code for dwellings.

- (j) "Planned Unit Development" means land under unified control to be planned and developed as a whole in a single development operation or a programmed series of development operations or phases. A planned unit development generally as a range of uses including residential, commercial, office, and recreational that are designed to be in a harmonious relationship with each other. Such a development is built according to specific plans that include not only streets, utilities, lots, and building locations, but also site plans for all buildings that are intended to be located, constructed, used and related to each other and plans for other uses and improvements on the land as related to the buildings.
 - (k) "Project" means any type of proposal that comes before the Commission for approval.
- (2) There is created an Application Review Committee ("Committee" or "ARC") which is comprised of the following permanent voting members:
- (a) Department of Land Management, Planning Division (DLM);
 - (b) Guam Environmental Protection Agency (GEPA);
 - (c) Department of Agriculture (DAGR);
 - (d) Guam Waterworks Authority (GWA);
 - (e) Guam Power Authority (GPA);
 - (f) Department of Parks and Recreation (DPR);
 - (g) Department of Public Works (DPW); and
 - (h) Bureau of Planning (BOP).

The heads of such agencies shall assign senior members of their respective departments to attend the ARC meetings.

- (3) Interim ARC Guidelines are hereby established, pending promulgation as rules through the Administrative Adjudication Law. The Interim Guidelines are attached as Appendix A.
- (4) This Executive Order shall govern all land and water uses that come before the ARC and the Commission. All applications and other matters that come before the ARC or Commission shall be in compliance with this Executive Order and the attached and incorporated Interim Application Review Committee (ARC) Guidelines. The requirement to conform to the Interim Guidelines shall cease upon the promulgation of rules pursuant to the Administrative Adjudication Law.



- (5) All applications for Commission action shall first be submitted to the voting member agencies of the ARC for their technical review and analysis. The period of this review and analysis shall not exceed Sixty (60) days from the first ARC meeting at which the application appears on the ARC's agenda; provided, however, that this period may be reasonably extended by the Commission upon written request of an ARC member or the applicant. No items shall be placed on the Commission agenda unless the items are first approved by the ARC. All Commission agenda items must be approved by the ARC not less than Two (2) weeks prior to the scheduled Commission meeting. Except for applications for zone changes, the applicant shall apply for and receive a building or grading permit for the approved project within One (1) year of the date of recordation of the Notice of Action; otherwise, the approval of the project as granted by the Commission shall expire; provided, however, that the Commission may grant Two (2) one-year extensions of the above approval period.
- (6) All applications for conditional use, zone change, variance, subdivision approval, golf courses, any proposed developmental action in wetlands, or for development of aquaculture facilities shall be required to submit an Environmental Impact Assessment (EIA) in the format required by the Guam Environmental Protection Agency (GEPA) Administrator; provided, however, that the proposed action may be determined by the GEPA Administrator to be exempt from the EIA requirement as set forth below:
- (a) One (1) or Two (2) single family dwelling units on a single lot;
 - (b) a single duplex;
 - (c) sign or setback variances;
 - (d) reduction, relocation or deletion of easements; and
 - (e) horizontal property regimes.

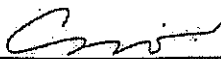
The above listed projects shall not be exempt from the EIA requirement if the project involves construction and is located within an environmentally sensitive area, which includes, but is not limited to, areas that affect seashore, rivers and streams, wetlands, critical fauna and flora habitats, and aquifer recharge areas.

- (7) When there is a change in ownership, management, or directorship of any development project before, during, or after construction on the project, and the project requires an EIA under provisions of this Executive Order, each subsequent owner, manager, or director of the development project shall be subject to all provisions of the EIA in the same manner as the original owner, manager, or director of the development. The owner of the development project shall give written notice to the GEPA and the Territorial Planner of a change in ownership, project manager, or directorship, within Thirty (30) days of the change.

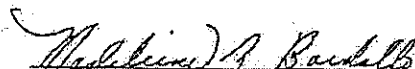


- (8) The Planning Division of the Department of Land Management shall provide administrative support staff and services for the ARC.
- (9) No act prohibited or restricted by any statute, rule, law, or executive order shall be permitted by reason of compliance with this Executive Order No. 96-26.
- (10) No permit, license, or requirement under any statute, rule, or law, federal or territorial, shall be waived by reason of compliance with this Executive Order No. 96-26.
- (11) This Executive Order No. 96-26 shall operate prospectively only, and applies to all applications submitted to the Department of Land Management after the effective date of this Executive Order No. 96-26. All previously submitted applications shall continue under the procedures in force when the applications were accepted by the Department of Land Management.
- (12) The provisions of this Executive Order No. 96-26 are severable and if any provision or part is held invalid, unconstitutional, or inapplicable to any person or circumstances, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of this Executive Order. If the use of the Interim Application Review Committee (ARC) Guidelines are invalid or unlawful, the existing Development Review Committee (DRC) Rules and Regulations, promulgated January 1995, as far as practicable, shall govern all matters before the ARC and Commission until the ARC Rules can be promulgated pursuant to the Administrative Adjudication Law.
- (13) Executive Orders Nos. 90-09, 90-10, 90-15, and 92-06 are rescinded.

SIGNED AND PROMULGATED at Agaña, Guam this 28th day of October, 1996.


CARL T. C. GUTIERREZ
Governor of Guam

COUNTERSIGNED:


MADELEINE Z. BORDALLO
Lieutenant Governor of Guam

APPENDIX A
of Executive Order No. 96-26

INTERIM
APPLICATION REVIEW COMMITTEE (ARC)
GUIDELINES

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§100.	Authority.
§200.	Official Name.
§300.	Purpose.
§400.	Organization.
§500.	Support Staff.
§600.	Meetings.
§700.	Application Procedure.
§800.	Approval of Agendas.
§900.	Voting.
§1000.	Order of Business.
§1100.	Severability.

§100. Authority. These Interim Guidelines are established under the authority of Executive Order 96-26 pending promulgation through the Administrative Adjudication Law, Chapter 9 of Title 5, Guam Code Annotated.

§200. Official Name. The official name of the Committee is the "Application Review Committee", referred to as "ARC" or "Committee".

§300. Purpose. The Committee is formulated for the purpose of providing the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter referred to as the "Commission") with technical and professional review, analysis, and advice through individual agency positions concerning various development activities in Guam. Within its mandated area of authority, each ARC agency shall:

- (a) Ensure compliance with applicable law, regulatory standards, procedures, policies, and rules within its mandated area of concern;
- (b) Evaluate alternative development strategies with the applicant to provide the best development plan for the developer and the community; and
- (c) Develop and provide official position statements on applications submitted to the Commission.

§400. Organization. (a) Permanent Voting Members. The permanent voting members of the ARC as defined in this Executive Order are:

- (1) Department of Land Management, Planning Division (DLM); (the Territorial Planner shall be the Chairperson)
- (2) Guam Environmental Protection Agency (GEPA);
- (3) Department of Agriculture (DAGR);
- (4) Guam Waterworks Authority (GWA);
- (5) Guam Power Authority (GPA);
- (6) Department of Parks and Recreation (DPR);
- (7) Department of Public Works (DPW); and
- (8) Bureau of Planning (BOP).

(b) **Ex-Officio Members.** Ex-officio members shall be informed of meeting locations, times, and agendas. They shall have no vote on matters before the ARC and shall not be required to submit position statements and Infrastructure Certification Forms. The ex-officio members are:

- (1) Chamorro Language Commission;
- (2) Department of Commerce;
- (3) Department of Education;
- (4) Guam Fire Department; and
- (5) Department of Public Health and Social Services.

Upon approval of the ARC, other agencies may become ex-officio members.

(c) The Chairperson shall call all meetings to order, oversee the application procedure and transmit all comments, recommendations, position statements, and Infrastructure Certification Forms to the Commission. Any Acting Territorial Planner shall automatically become Acting Chairperson of ARC.

(d) The Attorney General's office shall provide legal assistance as necessary.

s500. **Support Staff.** The Planning Division of the Department of Land Management shall provide support staff and services to implement Executive Order No. 96-26 and these Interim Rules. Such support shall include, but not be limited to:

- (a) Retaining complete project files by municipal district, tract, block, lot number, petitioner, and type of application, and developing a means of cross-referencing project files;
- (b) Developing an application package and revising it as needed;
- (c) Providing application package to applicant and receiving the completed application package from applicant;
- (d) Providing ARC minutes to Committee members;

- (e) Receiving the ARC position statements and providing them to the Commission and applicant;
- (f) Providing a summary of Commission actions to the ARC by the next ARC meeting; and
- (g) Providing, upon request, to ARC members at no cost, and to the public at cost, copies of the approved Commission minutes.

§600. Meetings. (a) There shall be at least Two (2) regular ARC meeting per month. The meetings shall be held on alternate Thursdays from the Commission meetings, unless the ARC meeting falls on a legal holiday. If a regular ARC meeting is not held on the aforementioned Thursday, the ARC meeting shall be on the subsequent Tuesday.

(b) Special meetings for administrative matters only may be called by the Territorial Planner. Special meetings shall require at least Four (4) days notice to all permanent voting members.

(c) Majority (50% + 1) of the permanent voting members shall constitute a quorum for the purpose of conducting its business and for all other purposes. A quorum is required for all business conducted.

(d) The Committee shall hold its meetings at a location to be determined by a majority vote of the permanent voting members at any meeting.

§700. Application Procedure. (a) Applications for:

- (1) Conditional Uses;
- (2) Zone Changes;
- (3) Zone Variances;
- (4) Subdivision Variances;
- (5) Tentative and Final Subdivisions;
- (6) Wetland Permits;
- (7) Seashore Clearances;
- (8) Tentative Development Plan;
- (9) Agricultural Subdivisions and Lot Parceling; and
- (10) Other land use permit applications

shall meet the requirements of all relevant laws, executive orders, rules, and the requirements of the Commission and ARC. The applications for the above are available from the Territorial Planner. Completed applications shall be submitted to the Territorial Planner. Applications should be accompanied by an executive summary.

(b) Applications shall be received and initialed by the Territorial Planner or his or her authorized representative, who shall stamp the date and time the application was received.

(c) Upon receipt of the application, the Territorial Planner shall review the application to ensure that all required materials are included, prior to acceptance. The application shall include an affidavit of ownership or authorization signed by the owner, authorizing the application before the Commission. Incomplete applications shall not be accepted by the Territorial Planner who shall notify the applicant thereof. The Territorial Planner may conduct preliminary interviews with the applicant where needed.

(d) After acceptance by the Territorial Planner, applications shall be transmitted to ARC members at least Two (2) weeks prior to the ARC meeting at which the application is scheduled.

(e) The Territorial Planner shall provide a tentative ARC agenda to be approved by the ARC not less than Two (2) weeks prior to its next regularly scheduled meeting. Only agenda items approved by the ARC at its previous meeting shall be considered and heard by the Committee. In no event shall the agenda exceed Ten (10) applications for review at each meeting.

(f) The Committee shall hold a regularly scheduled meeting with the applicant to discuss the application, thus commencing the Sixty (60) day assessment period, which shall not be extended without Commission approval.

(1) At the time of its initial meeting with the applicant, the ARC shall tentatively set the project application for the first regularly scheduled Commission meeting falling after the Sixty (60) day assessment period and the Two (2) week period required under Subsections (a) and (b) of §800 of these Interim Rules, below, has elapsed, provided, however, that the ARC may reschedule the matter to an earlier Commission meeting if all permanent voting members of the ARC have submitted their required positions and Infrastructure Certification Forms and there is no objection from the applicant.

(2) If any permanent voting Committee member finds an application to be incomplete or lacking pertinent information which may reasonably be deemed necessary to formulate comments or recommendations at any time within the first Forty-five (45) days of the assessment period, the ARC member shall notify the applicant in writing (with a copy of the letter or notice to the Territorial Planner) as to precisely what additional information is required from the applicant to adequately review the application.

(3) If at any time within the Sixty (60) day assessment period a permanent voting member of the ARC or the applicant requires additional time for adequate review and determination of a position on the project application,

the member or applicant may, in writing, notify the Territorial Planner, and the applicant, if necessary, that additional time is required and the precise reasons therefor. The Commission shall hear the request for additional time at the earliest opportunity, consistent with law, executive orders, and these Guidelines, but not later than the Commission meeting wherein the matter itself is scheduled to be heard.

(4) Permanent voting members of the ARC shall submit written comments in individual position statements and Infrastructure Certification Form, if required, to the Territorial Planner not later than Sixty (60) days from the initial ARC meeting on the project application.

(g) The position statements shall contain a clear and unambiguous statement indicating whether the agency APPROVES, DISAPPROVES, or APPROVES WITH CONDITIONS the project application. If an Approval with Conditions is given, specific conditions for the approval must be clearly stated. The position statement from GPA, DPW, GWA and GEPA shall include a completed Infrastructure Certification Form, a sample copy of which is attached hereto.

§800. Approval of Commission Agendas. (a) The Territorial Planner shall compile all position statements and Infrastructure Certification Forms and prepare the tentative Commission agenda. No item shall be placed on the Commission agenda unless the item is approved by the ARC. All tentative Commission agenda items must be approved by the ARC not less than Two (2) weeks in advance of the scheduled Commission meeting.

(b) The Territorial Planner shall transmit the approved agenda, applications packages, Infrastructure Certification Forms and position statements to the Commission not later than One (1) week before the Commission meeting.

§900. Voting. (a) Subject to the ARC quorum requirements, motions on all matters before the ARC shall be passed by majority vote of the permanent voting members present, provided, however, that at least Four (4) affirmative votes shall be required for any action to be approved by the Committee.

(b) The Chairperson of the Committee shall vote on all matters before the Committee.

(c) Except as otherwise provided, the parliamentary procedures set forth in Robert's Rules of Order shall govern the conduct of all Committee meetings.

§1000. Order of Business. At the regular meetings of the Committee, the following shall be the order of business:

- (a) Attendance;
- (b) Approval of Minutes;

- (c) Old or Unfinished Business;
- (d) New Business;
- (e) Approval of ARC Agenda;
- (f) Approval of Commission Agenda;
- (g) Administrative and Miscellaneous Matters; and
- (h) Adjournment.

§1100. Severability. The provisions of these Interim Guidelines are severable and if any provision or part is invalid, unconstitutional, or inapplicable to any person or circumstance, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of these Interim Guidelines.

SIGNED and ESTABLISHED at Agaña, Guam, on this 28th day of October, 1996.


CARL T. C. GUTIERREZ
Governor of Guam

ATTACHMENT TO APPENDIX A OF EXECUTIVE ORDER NO. 96-26

Use a separate form for each activity, service or facility certified.

Infrastructure Certification Form

Agency Certifying: _____
 Applicant: _____
 Location: Tract _____ Block _____ Lot No. _____ Village _____
 Type of Application: _____
 TLUC/TSPC Application No.: _____
 Brief Project Description: _____

For the purposes of this Certification, GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE include, but are not limited to: power lines, poles and facilities; water lines, pumps and facilities; sewer and liquid waste disposal; storm water disposal; solid waste disposal; telephone lines and facilities; schools; health facilities; police and fire fighting service and facilities; roads; traffic and street lights; parks and recreational facilities.

1. I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently AVAILABLE AND IN PLACE to support this project: Yes _____/ No _____/

2. If the answer to #1 above is YES, then:
 I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently ADEQUATE to support this project:
 Yes _____/ No _____/

3. If the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE currently in place are NOT AVAILABLE or they are AVAILABLE, BUT NOT ADEQUATE, itemize the services, facilities and infrastructure that are needed, the estimated cost thereof and whether funds are currently available and identified to develop such services, facilities and infrastructure:

Services, Facilities and Infrastructure Needed	Cost of Upgrades	Funds Available Yes/No	Date Available	Funds Identified Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No

I hereby certify that the foregoing is true and correct to the best of my knowledge.

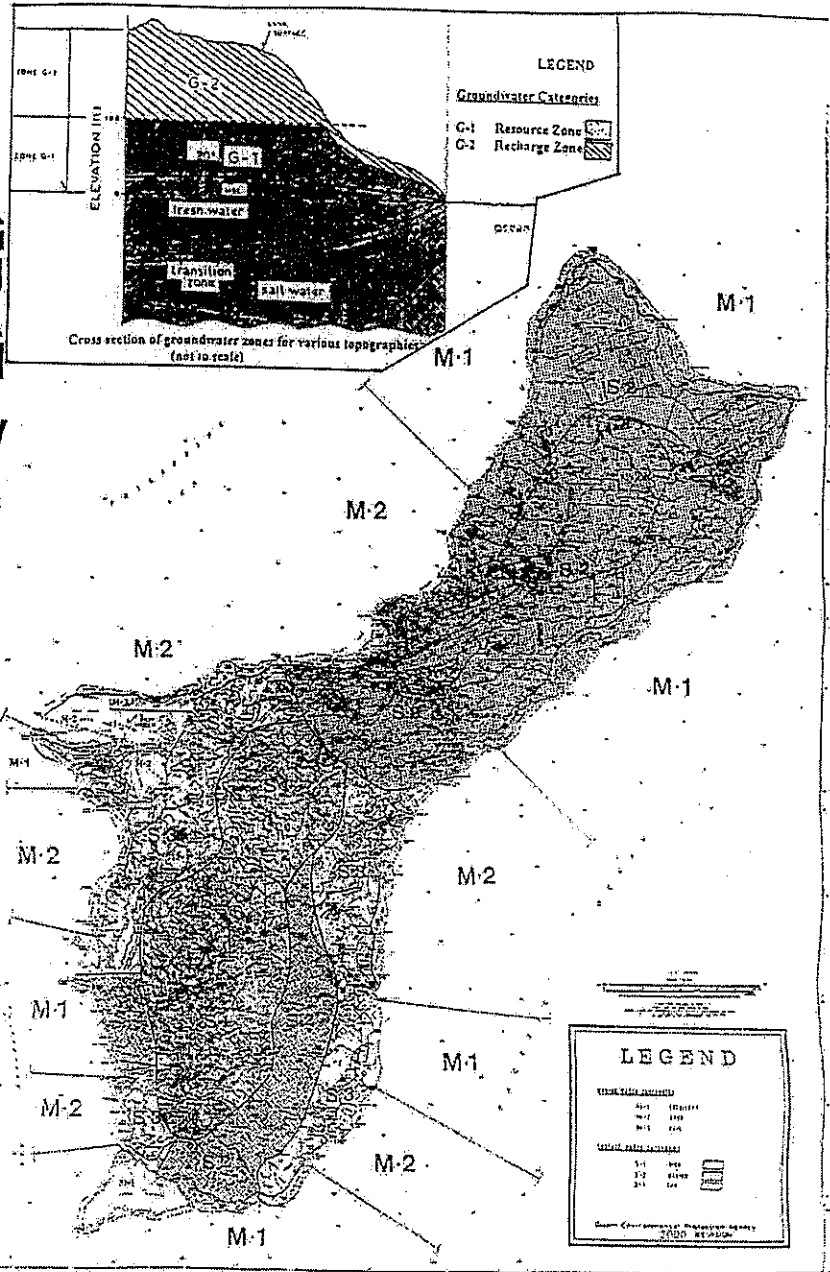
Agency/Department Head

Date

Comments:

Appendix F.
Guam Water Classification Map.

SUN VALLEY COUNCIL



MASTER MAP

Appendix G.

Recommended Potential Treatment Efficiencies.

RECOMMENDED POTENTIAL TREATMENT EFFICIENCIES. *

CONVENTIONAL PROCESS										SPECIAL PROCESS				
Parameter	Aeration	Chemical oxidation (chlorination, etc)	Coagulation Flocculation	Lime Softening	Filtration	Activated carbon PAC	Activated carbon GAC	Air stripping	Demineralizing (reverse osmosis, etc.)	Ion exchange	Ozone	Comments		
Aldrin	P		P			G	VG				VG			
Antimony			X		A		X							
Arsenic		A	L-G	G-VG	A	P			G-VG	VG		Valence important		
Asbestos			G-VG		G									
Barium			P	G-VG	A	P	P		VG	VG				

Boron											X			G- VG		
Cadmium											L-G	VG	A	P-L		pH Important
Chlordane			P								L	L		VG	VG	
Chloride															VG	
Chromium											G	G	A	P	X	Valencies important
Color											VG		A			VG
Copper											F-G		A			
Cyanide																VG
2,4-D											P		A	X		
DDT			P								L-VG	F		X		P
Diazinon														X(L)		
Dieldrin											P-L			G-VG	L	
Endrin											L			G-VG	X-VG	

Fluoride									G	G-		
Heptachlor								V-VG	X(VG)			
Heptachlor Epoxide								VG	X			
Iron	A	A								VG		
Lead			G-VG	VG	A				X	G-VG	X	
Lindane		P	P		P			G	G-VG			
Manganese		A	LG	G	A					VG		
Mercury			G	F-G	A			VG	VG			Form important
Methoxy-chlor			G	G-	A			VG	VG			
Methyl Parathion								X	X		X	
Nitrate										F	F-VG	

NTA			P										G- VG	
Odor	A		VG						VG	VG			VG	
Parathion			P-VG		P	A			VG	L-VG			G- VG	
pH	A				A									
Phenol			G		P				G-VG	X			G- VG	
Radionu- clide														
226Ra					P	G-VG	A						G-VG	
90Sr					P	G-VG							G-VG	
137Cs						P	AQ						VG	
131I					P		P-f							
Selenium					P-G	P-F	A						F-G	X
														Valencies important

Silver				F-G	G- VG	A	P		X	X	
Sulphate									G-VG	G- VG	
Sulphide		F-VG	F-VG							F- VG	pH important
2,4,5-TP		P	X(F)	X(G)	X(G-VG)						
T.Dissolved Solids]									G-VG	G- VG	
Toxaphene		P	P	VG	X(VG)	X					
Trihalo- methane					F-G	F-G					Process generated
Turbidity			G-VG	A							
Uranium			L-G	F-G	A	P				VG	
Zinc			P	P-G	A						

VG = 90 - 100% removal

X = possible candidate process (data lacking)

G = 70 - 90% removal

F = 50 - 70% removal

L = 25 - 50% removal

P = 0 - 25% removal

A = auxilliary process

PAC = Powdered Activated Carbon

GAC = Granular Activated Carbon

* = Treatment based on available full-scale, pilot or bench studies and should only be as potential indicators.

Treatability studies and/or site experience should be assessed for specific applications.

Source: McDonald 1986.

Appendix H.

Water Quality Criteria Documents.

The U.S. Environmental Protection Agency has published water quality criteria for toxic pollutant(s). Copies of water quality criteria documents are available from the National Technical Information Service ("NTIS"), 5285 Front Royal Road, Springfield, VA 22161, (703) 487-4650. Prices of individual documents may be obtained by contacting NTIS. Order numbers are listed below. Where indicated, documents may be obtained from the Water Resource Center, 401 M St., S.W. RC-4100, Washington, DC 20460, (202) 260-7786.

Chemical	NTIS Order No.	EPA Document No.
Acenaphthene	PB81-117269	EPA 440/5-80-015
Acrolein	PB81-117277	EPA440/5-80-016
Acrylonitrile	PB81-117285	EPA440/5-80-017
Aesthetics	PB263943	EPA440/9-76-023
Aldrin/Dieldrin	PB81-117301	EPA440/5-80-019
Alkalinity	PB263943	EPA440/9-76-023

Aluminum	PB88-24598	EPA440/5-86-008
Ammonia	PB-85-227114	EPA440/5-85-001
Ammonia (saltwater)	PB-89-195242	EPA440/5-88-004
Antimony	PB81-117319	EPA440/5-80-020
Antimony(III)-aquatic (draft)	resource center	
Arsenic -1980	PB81-117327	EPA440/5-80-021
-1984	PB86-227445	EPA440/5-84-033
Asbestos	PB81-117335	EPA440/5-80-022
Bacteria-1976	PB263943	EPA440/9-76-023
-1984	PB86-158045	EPA440/5-84-002
Barium	PB163943	EPA440/9-76-023
Benzene	PB81-117293	EPA440/5-80-018
Benzidine	PB81-117343	EPA440/5-80-023
Beryllium	PB81-117350	EPA440/5-80-024

Boron	PB263943	EPA440/9-76-023
Chemical	NTIS Order No.	EPA Document No.
Cadmium -1980 -1984	PB81-117368 PB85-224031	EPA440/5-80-025 EPA440/5-84-032
Carbon Tetrachloride	PB81-117376	EPA440/5-80-026
Chlordane	PB81-117384	EPA440/5-88-027
Chloride	PB81-115047	EPA440/5-88-001
Chlorinated Benzenes	PB81-117392	EPA440/5-80-028
Chlorinated Ethanes	PB81-117400	EPA440/5-80-029
Chlorinated Naphthalene	PB81-117426	EPA440/5-80-031
Chlorinated Phenols	PB81-117434	EPA440/5-80-032
Chlorine	PB85-227429	EPA440/5-84-030
Chloroalkyl Ethers	PB81-117418	EPA440/5-80-030

Chloroform	PB81-117442	EPA440/5-80-033
2-Chlorophenol	PB81-117459	EPA440/5-80-034
Cholophenoxy Herbicides	PB263943	EPA440/9-76-023
Chlorpyrifos	PB87-105359	EPA440/5-86-005
Chromium-1980	PB81-117467	EPA440/5-80-035
-1984	PB85-227478	EPA440/5-84-031
Color	PB263943	EPA440/9-76-023
Copper-1980	PB81-117475	EPA440/5-80-036
-1984	PB85-227023	EPA440/5-84-031
Cyanide	PB85-227460	EPA440/5-84-028
Cyanides	PB81-117483	EPA440/5-80-037
DDT and Metabolites	PB81-117491	EPA440/5-80-038
Demeton	PB263943	EPA440/9-76-023
Dichlorobenzenes	PB81-117509	EPA440/5-80-039

Dichlorobenzidine	PB81-117517	EPA440/4-80-040
Dichloroethylenes	PB81-117525	EPA440-5-80-041
2,4-Dimethylphenol	PB81-117558	EPA440/5-80-044
Dinitrotoluene	PB81-117566	EPA440/5-80-045
Chemical	NTIS Order No.	EPA Document No.
Diphenylhydrazine	PB81-117731	EPA440/5-80-062
D-2-Ethylhexyl Phthalate-aquatic (draft)	resource center	
Dissolved Oxygen	PB86-208253	EPA440/5-86-003
Endosulfan	PB81-117574	EPA440/5-80-046
Endrin	PB81-117582	EPA440/5-80-047
Ethylbenzene	PB81-117590	EPA440/5-80-048
Fluoranthene	PB81-117608	EPA440/5-80-049
Gasses, Total Dissolved	PB263943	EPA440/9-76-023

Guidelines for Deriving National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses	PB85-227049	
Guthion	PB263943	EPA440/9-76-023
Haloethers	PB81-117616	EPA440/5-80-050
Halomethanes	PB81-117624	EPA440/5-80-051
Hardness	PB263943	EPA440/9-76-023
Heptachlor	PB81-117632	EPA440/5-80-052
Hexachlorobenzene-aquatic (draft)	resource center	
Hexachlorobutadiene	PB81-117640	EPA/5-80-053
Hexachlorocyclohexane	PB81-117657	EPA440/5-80-054
Hexachlorocyclopentadiene	PB81-117665	EPA440/5-80-055
Iron	PB263943	EPA440/9-76-023

Isophorone	PB81-117673	EPA440/5-80-056
Lead -1980	PB81-117681	EPA440/5-80-057
-1984	PB85-227437	EPA440/5-84-027
Malathion	PB263943	EPA440/9-76-023
Manganese	PB263943	EPA440/9-76-023
Mercury-1980	PB81-117699	EPA440/5-80-058
-1984	PB85-227452	EPA440/5-84-026
Methoxychlor	PB263943	EPA440/9-76-023
Chemical	NTIS Order No.	EPA Document No.
Mirex	PB263943	EPA440/9-76-023
Naphthalene	PB81-117707	EPA440/5-80-059
Nickel-1980	PB81-117715	EPA440/5-80-060
--1986	PB870105359	EPA440/5-86-004
Nitrates/Nitrites	PB263943	EPA440/9-76-023

Nitrobenzene	PB81-117723	EPA440/5-80-061
Nitrophenols	PB81-117749	EPA440/5-80-063
Nitrosamines	PB81-117756	EPA440/5-80-064
Oil & Grease	PB263943	EPA440/9-76-023
Parathion	PB87-105383	EPA440/5-86-007
Pentachlorophenol-1980 -1986	PB81-117764 PB87-105391	EPA440/5-80-065 EPA440/5-85-009
pH	PB263943	EPA440/9-76-023
Phenanthrene-aquatic (draft)	resource center	
Phenol	PB81-117772	EPA440/5-80-066
Phosphorus	PB263943	EPA440/9-76-023
Phthalate Esters	PB81-117780	EPA440/5-80-067
Polychlorinated Biphenyls	PB81-117798	EPA440/5-80-068

Polynuclear Aromatic Hydrocarbons	PB81-117806	EPA440/5-80-069
Selenium-1980	PB81-117814	EPA440/5-80-070
-1987	PB88-142239	EPA440/5-87-008
Silver	PB81-117822	EPA440/5-80-071
Silver-aquatic (draft)	resource center	
Solids (dissolved) and Salinity	PB263943	EPA440/9-76-023
Solids (suspended) and Turbidity	PB263943	EPA440/9-76-023
Sulfides/Hydrogen Sulfide	PB263943	EPA440/9-76-023
Tainting Substances	PB263943	EPA440/9-76-023
Temperature	PB263943	EPA440/9-76-023
2,3,7,8 -Tetrachlorodibenzo-P-Dioxin	PB89-169825	EPA440/5-84-007
Chemical	NTIS Order No.	EPA Document No.
Tetrachloroethylene	PB81-117830	EPA440/5-80-074

Thallium	PB81-117848	EPA440/5-80-074
Toluene	PB81-117863	EPA440/5-80/075
Toxaphene-1980 -1986	PB81-117863 PB87-105375	EPA440/5-80-076 EPA440/5-86-006
Tributyltin-aquatic (draft)	resource center	
Trichloroethylene	PB87-117871	EPA440/5-80-077
2,4,5-Trichlorophenol-aquatic (draft)	resource center	
Vinyl Chloride	PB81-117897	EPA440/5-80-078
Zinc-1980 -1987	PB81-117897 PB87-143581	EPA440/5-80-079 EPA440/5-87-003

I MINA' BENTE SAIS NA LIHESLATURAN GUAHAN

2001 (FIRST) Regular Session

Date: 7/5/01

VOTING SHEET

S Bill No. 80

Resolution No. _____

Question: _____

<u>NAME</u>	<u>YEAS</u>	<u>NAYS</u>	<u>NOT VOTING/ ABSTAINED</u>	<u>OUT DURING ROLL CALL</u>	<u>ABSENT</u>
ADA, Joseph F.	✓				
ADA, Thomas C.	✓				
AGUON, Frank B., Jr.	✓				
BROWN, Joanne M. S.	✓				
CALVO, Eddie B.					✓
CAMACHO, Felix P.	✓				
CHARFAUROS, Mark C.	✓				
FORBES, Mark	✓				
KASPERBAUER, Lawrence F.	✓				
LEON GUERRERO, Lourdes A.					✓
MOYLAN, Kaleo S.	✓				
PANGELINAN, Vicente C.	✓				
SANTOS, Angel L.G.	✓				
UNPINGCO, Antonio R.	✓				
WON PAT, Judith T.					✓

TOTAL

12 0 0 0 3

CERTIFIED TRUE AND CORRECT:

Clerk of the Legislature

* 3 Passes = No vote
EA = Excused Absence

Judy
7/5/01

3e
7/5/01

6
7/5/01

**MINA 'BENTE SAIS NA LIHESLATURAN GUAHAN
2001 (FIRST) REGULAR SESSION**

Bill No. 80 (LS)

**As substituted by the Committee on Natural
Resources**

Introduced by:

**J.M.S. Brown
K.S. Moylan**

**AN ACT TO APPROVE AND AMEND THE GUAM
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS**

1 **BE IT ENACTED BY THE PEOPLE OF GUAM:**

2 **Section 1. Legislative Findings and Intent.** In accordance with the
3 Administrative Adjudication Law, §9303 of Title 5 of the Guam Code Annotated, as
4 amended by Public Law Number 24-27 (1997), the Guam Environmental Protection
5 Agency transmitted to *I Liheslaturan Guahan*, the "***Guam Environmental Protection***
6 ***Agency Water Quality Standards.***" *I Liheslaturan Guahan* agrees with the
7 standards as presented and seeks to approve said regulations.

8 **Section 2. Approval of GEPA Regulations.** *I Liheslaturan Guahan* hereby
9 approves the GEPA rules and regulations entitled, "Guam Environmental Protection
10 Agency Water Quality Standards," attached as Exhibit A which were transmitted to *I*
11 *Liheslaturan Guahan* on April 12, 2001.

12 **Section 3. Effective Date of Water Quality Standards.** These water quality
13 standards shall become applicable for the waters of Guam upon the determination by
14 U.S.E.P.A. under Section 303(c)(3) of the Clean Water Act also known as the Water

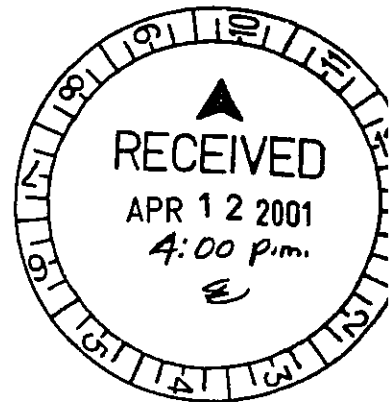
1 Pollution Control Act that the revised or new standards, meet the requirements of the
2 Water Pollution Control Act.

3 **Section 4. Severability.** If any provision of this Law or its application to any
4 person or circumstance is found to be invalid or contrary to law, such invalidity shall
5 not affect other provisions or applications of this Law which can be given effect
6 without the invalid provisions or application, and to this end the provisions of this
7 Law are severable.

GUAM ENVIRONMENTAL PROTECTION AGENCY

EXHIBIT A

GUAM WATER QUALITY STANDARDS
(FINAL REVISION)



"ALL LIVING THINGS OF THE EARTH ARE ONE "

HARMON PLAZA COMPLEX UNIT D-107
130 ROJAS ST.
HARMON, GUAM 96911



GUAM ENVIRONMENTAL PROTECTION AGENCY



AHENSIAN PRUTEKSION LINA'LA GUAHAN

P.O. BOX 22439 GMF • BARRIGADA, GUAM 96921 • TEL: 475-1658/9 • FAX: 477-9402

GUAM WATER QUALITY STANDARDS (Final Draft Revision)

ADOPTED:	July 18, 1987
1 ST REVISION ADOPTED:	January 2, 1992
2 ND REVISION ADOPTED:	


Board Chairman

Date: 1/31/01

ATTESTED BY:


Board Secretary

Date: 1/31/01

OFFICE OF THE LEGISLATIVE SECRETARY

ACKNOWLEDGMENT RECEIPT

Received By Carol Q

Time 2:46 pm

Date 09/12/01

"ALL LIVING THINGS OF THE EARTH ARE ONE"



Office of Senator
Joanne M. Salas Brown
MINA' BENTE SAIS NA LIHESLATURAN GUAHAN

July 3, 2001

Speaker Antonio R. Unpingco
Mina' Bente Sais Na Liheslaturan Guahan
155 Hesler Street
Hagatna, Guam 96910

Dear Speaker Unpingco:

The Committee on Natural Resources, to which was referred BILL 80(LS): AN ACT TO APPROVE AND AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS. (As substituted by the Committee on Natural Resources), wishes to report back to the Legislature its recommendation TO PASS.

The voting sheet is as follows:

TO PASS	<u>8</u>
NOT TO PASS	<u>0</u>
TO REPORT OUT ONLY	<u>0</u>
ABSTAIN	<u>0</u>
TO PLACE IN INACTIVE FILE	<u>0</u>

Copies of the Committee Report and other pertinent documents are enclosed.

Thank you for your attention to this matter.

Sincerely,

JOANNE M.S. BROWN
Senator and Chairperson
Committee on Natural Resources

Attachments



Office of Senator
Joanne M. Salas Brown
MINA' BENTE SAIS NA LIHESLATURAN GUÅHAN

July 3, 2001

MEMORANDUM

To: Committee Members

From: Chairperson, Committee on Natural Resources

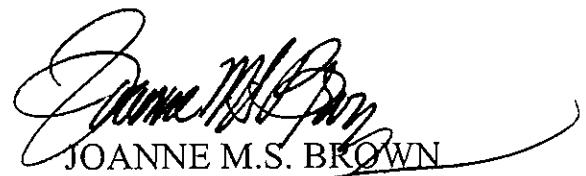
Re: **BILL 80(LS): AN ACT TO APPROVE AND AMEND THE
GUAM ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS. (As substituted by the
Committee on Natural Resources)**

Transmitted herewith for your consideration and action is our committee report on the above subject matter.

Please indicate your choice on the attached voting sheet and return the documents to my office for transmittal to the other members.

Should you have any questions on the narrative report and the accompanying documents, please do not hesitate to call my office at 472-3450.

Your attention and cooperation on this matter is greatly appreciated.


JOANNE M.S. BROWN

Attachments

MINA' BENTE SAIS NA LIHESLATURAN GUAHAN

Committee on Natural Resources

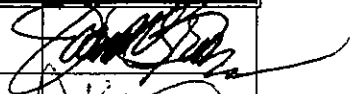
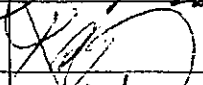
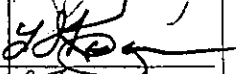

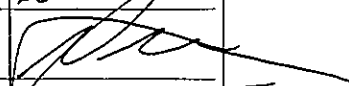
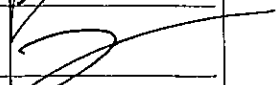
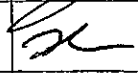

Joanne M.S. Brown

Chairperson

VOTING SHEET

COMMITTEE REPORT

BILL 80(LS): AN ACT TO APPROVE AND AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS. (As substituted by the Committee on Natural Resources)

COMMITTEE MEMBERS	TO PASS	NOT TO PASS	TO REPORT OUT ONLY	ABSTAIN	INACTIVE FILE	SIGNATURE
Joanne M.S. Brown Chairperson	✓					
Kaleo S. Moylan Vice Chairman	✓					
L. Kasperbauer Member	X					
Felix P. Camacho Member	✓					
M. Forbes Member	✓					
V. Pangelinan Member	✓					
Thomas C. Ada Member	✓					
M.C. Charfauros Member						
Angel L.G. Santos Member						
Judith T. Won Pat Member						
Lou Leon Guerrero Member						
A.R. Unpingco Ex-Officio Member	✓					

**COMMITTEE ON NATURAL RESOURCES
SENATOR JOANNE M.S. BROWN
CHAIRPERSON**

**Tuesday, May 22, 2001
9:30 a.m.
Public Hearing Room**

COMMITTEE REPORT

I. Call to Order:

The Committee on Natural Resources was called to order at 9:30 a.m.

II. Bill No. 80 (LS):

**AN ACT TO APPROVE AND AMEND THE GUAM
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS**

III. Members present:

Chairperson Joanne M.S. Brown, Chairperson
Senator Kaleo Moylan
Senator Lou Leon Guerrero

IV. Written Testimonies (see attachment)

Mr. Jesus Salas, Administrator, Guam Environmental Protection Agency in support of Bill 80 (LS).

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Bill No. 80 (LS)

V. Discussion:

Mr. David Longa, Deputy Administrator, Guam Environmental Protection Agency:

Mr. Longa introduced the staff of GEPA present to discuss Bill 80 (LS): Randy Sablan, Chief Planner; Elisabeth Cruz, Legal Counsel; Domingo Cabusao, Acting Chief Engineer and Alex Soto, EMS Administrator.

Mr. Domingo Cabusao noted that major changes in the revised standards were centered on the underground piping. He further added that the guidelines stated strengthened the enforcement for federal permits issued for discharge into Guam waters. The standards would also provide for regulatory measures in the water pollution program.

The Chairperson questioned whether the guidelines would provide contingency measures for the regulation of fuel usage and storage.

Mr. Cabusao reported that the guidelines would affect those pipelines that are being constructed underground and does not address fuel storage or connectors. He replied that these pipelines should have external protection systems which would include leakage and pressure testing. The procedure for the testing should be documented and approved by GEPA.

The Chairperson questioned the affect of the guidelines on existing fuel lines that do not have protective measures and whether a timeframe would be imposed for these lines to meet current standards.

Mr. Cabusao replied that a compliance schedule must be submitted to have the existing fuel lines meet with the current standards. He reported that the new fuel lines place by Andersen Air Force Base already meets the criterion of protective measures.

Committee Summary Report

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The Chairperson asked if other companies had similar projects which should also adhere to the current guidelines.

Mr. Cabusao replied that Guam Power Authority has piping projects that are being buried underground and would also need to meet the same standards. He further commented that all these companies must meet the standards, but have not set definite time periods for compliance.

Senator Leon Guerrero commented that the standards are adequate but questioned what enforcement measures would be taken if someone was not in compliance.

Mr. Cabasao stated that a Notice of Violation would be issued, but asserted that GEPA would still need the assistance of the Legislature to revise the enforcement procedures.

The Chairperson questioned when the enforcement regulations could be transmitted to the Legislature for approval.

Ms. Elisabeth Cruz stated that GEPA was contemplating on submitting the enforcement regulations later as a possible rider to the bill.

Senator Leon Guerrero reiterated her concern that without enforcement the guidelines would not be realized.

Mr. Cabusao reported that existing enforcement is mandated under federal regulations as provided in the Clean Water Act. He noted that there are local regulations; however, not as stringent as federal guidelines.

Senator Leon Guerrero questioned whether any of the violations were subject to criminal charges.

Mr. Cabusao confirmed that some violations are of a criminal nature.

Committee Summary Report

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Mr. Randall Sablan reported that the Planning Program incorporate the Wetlands Protection Program and processes the Section 401 Water Quality Permits and certifications for all federal permits. Other permits include the NPDS Permits for waste treatment plants and certification for permits issued by the Army Corps Engineers for construction over water areas. The new standards would enhance the processing of the 401 permits.

He further reported that a new revision to the standards is a proposal to add a modest 401 Water Quality Certification fee. The yearly projection of collected fees would be approximately \$20,000 that would be used to support the compliance monitoring.

He also reported that another revision of the 401 section is that timelines are specifically set for construction projects. He noted that an extension could be reissued for a minimal time.

Senator Leon Guerrero suggested that GEPA be proactive in the accounting and collection of the fees as opposed to relying on the Department of Administration.

Mr. Sablan concurred that GEPA could collect the fees, but the safekeeping of the funds are mandated to Department of Administration.

The Chairperson stated that the fees collected should be strictly disbursed for enforcement and monitoring.

Mr. Brad Hokanson, Chairperson, GEPA, reaffirmed that the Department of Administration can be directed to establish an exclusive interest-bearing account for this project. He suggested that legislation be included to secure the transaction of the collection of fees.

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Bill No. 80 (LS)

The Chairperson recommended that her staff and GEPA legal counsel will coordinate a meeting to draft the proposed language.

Mr. Herbert Johnston, Jr., General Manager, Guam Waterworks Authority provided oral testimony in support of Bill 80. He noted that the proposed standards, which meet with, the standards of USEPA are important for the entire community.

VI. Adjournment:

The Committee on Natural Resources adjourned at 9:52 a.m.

Due to Public Law 24-222, original fees requested by Guam EPA in their submittal would require public voter approval. As a result, the language regarding new fees has been deleted in Bill No. 80. Thus, the following changes have been made in the substitute version:

On Bill No. 80, Section 3- Fees is deleted. Section 3 should read: Effective Date of Water Quality Standards. These water quality Standards....

Section 4 is changed from Effective Date of Water Quality Standards to Severability.

Section 5 is deleted in its entirety.

On page 73, letter E, number 2- Before issuing a 401 WQC, the Agency will collect a certification fee to be assessed in accordance with a fee schedule as established by the Agency is deleted. The following is added: There is no filing fee for the 401 WQC.

On page 87, number 7- If an appeal is filed is added.

Prepared by: Susan L. Corbin
Legislative Assistant
Office of Senator Joanne M.S. Brown

**As submitted to the Committee on Natural Resources by
Guam Environmental Protection Agency**

**SUMMARY OF BILL NO. 80 (LS)
GUAM ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS REVISIONS**

Water Quality Standards requirements are established under the federal Clean Water Act (Section 303), and its regulations (40 CFR Part 131). The Act requires the States and Territories water pollution control agency to, from time to time, hold public hearing for the purpose of reviewing and, as appropriate, revises its water quality standards. Guam's Water Quality Standards latest revisions were completed in 1992.

The major revisions to Guam Water Quality Standards were to the following:

1. **Wetland and Water Quality Certifications** - requirements related to these section were clarified. Unnecessary or redundant language was removed. Application forms were eliminated from the body of these standards so that revisions to the forms can be made by Agency Staff, without going through a regulatory revision process.
2. **Petroleum Storage Facilities Section of the Water Quality Standards** - stringent requirements especially on pipelines that are being installed underground were included in the revision to ensure protection of our groundwater from oil spill and/or accidental contamination. (Requirements includes external protection coating, cathodic protection, annual testing on each buried pipelines to determine cathodic protection system is adequate or working properly, pressure testing and manual of written procedures for conducting manual operations and maintenance activities).
3. Other revisions made to the Water Quality Standards:
 - A. **Antidegradation (Section 5101.B)** - the existing policy, to ensure that water quality is maintained and protected, was revised to meet federal requirements.
 1. **Groundwater (Section 5103.B)** - Numeric water quality criteria for groundwater were included. The criteria help clarify what water quality levels are necessary to retain our sole source aquifer as an acceptable drinking water source.

2. **Surface water (Section 5103.C)**- Numeric criteria (e.g., microbiology, pH, nutrients and toxic substances) were updated to reflect updated federal requirements.
3. **Effluent limitations (Section 5104)** - Protections were included for threatened and endangered species and for those organisms harvested for food. Sections were added which allow schedules of compliance for point source discharges that need time to comply with the new requirements.

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MINA 'BENTE SINGKO NA LIHESLATURAN GUAHAN
2001 (FIRST) REGULAR SESSION

2001

Bill No. 70 (LS)

Introduced by:

J.M.S. Brown
K.S. Moyland



**AN ACT TO APPROVE AND AMEND THE GUAM
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS**

BE IT ENACTED BY THE PEOPLE OF GUAM:

Section 1. Legislative Findings and Intent. In accordance with the Administrative Adjudication Law, §9303 of Title 5 of the Guam Code Annotated, as amended by Public Law Number 24-27 (1997), the Guam Environmental Protection Agency transmitted to I Liheslaturan Guahan, the "*Guam Environmental Protection Agency Water Quality Standards.*" I Liheslaturan Guahan agrees with the standards as presented and seeks to approve said regulations.

Section 2. Approval of GEPA Regulations. I Liheslaturan Guahan hereby approves the GEPA rules and regulations entitled, "Guam Environmental Protection Agency Water Quality Standards," attached as Exhibit A which were transmitted to I Liheslaturan Guahan on April 12, 2001.

Section 3. Fees. Guam Environmental Protection Agency is authorized to establish fees for §401 certification reviews and other fees for services provided under the Water Quality Standards. Guam Environmental Protection Agency will provide for a 30 day public comment period and a public hearing. The fees will be effective upon approval and adoption by the Guam Environmental Protection Agency

1 Board of Directors.

2

3 **Section 4. Effective Date of Water Quality Standards.** These water quality
4 standards shall become applicable for the waters of Guam upon the determination by
5 U.S.E.P.A. under Section 303(c)(3) of the Clean Water Act also known as the Water
6 Pollution Control Act that the revised or new standards, meet the requirements of the
7 Water Pollution Control Act.

8 **Section 5. Severability.** If any provision of this Law or its application to any
9 person or circumstance is found to be invalid or contrary to law, such invalidity shall
10 not affect other provisions or applications of this Law which can be given effect
11 without the invalid provisions or application, and to this end the provisions of this
12 Law are severable.

GUAM ENVIRONMENTAL PROTECTION AGENCY

EXHIBIT A

GUAM WATER QUALITY STANDARDS
(FINAL REVISION)



"ALL LIVING THINGS OF THE EARTH ARE ONE "

HARMON PLAZA COMPLEX UNIT D-107
130 ROJAS ST.
HARMON, GUAM 96911



GUAM ENVIRONMENTAL PROTECTION AGENCY



AHENSIAŃ PRUTEKSION LINA'LA GUAHAN

P.O. BOX 22439 GMF • BARRIGADA, GUAM 96921 • TEL: 475-1658/9 • FAX: 477-9402


GUAM WATER QUALITY STANDARDS (Final Draft Revision)

ADOPTED:	July 18, 1987
1 ST REVISION ADOPTED:	January 2, 1992
2 ND REVISION ADOPTED:	


Board Chairman

Date: 1/31/01

ATTESTED BY:


Board Secretary

Date: 1/31/01

OFFICE OF THE LEGISLATIVE SECRETARY
ACKNOWLEDGMENT RECEIPT

Received By: Carol Q

Time: 2:46 pm

Date: 09/12/01

"ALL LIVING THINGS OF THE EARTH ARE ONE"

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22 GAR GEPA
Division II - Water Control
Chapter 5
Water Quality Standards

Section 5101 Policies Statement of Policy.

A. **Statement of Policy.** It shall be the public policy of Guam to:

1. conserve, protect, maintain, and improve the quality of Guam's waters for human consumption (drinking, **fish and shellfish harvesting** and food processing), for the growth and propagation of aquatic life, for marine research, and for the preservation of coral reefs and wilderness areas, and for domestic, agricultural, commercial, industrial, recreational and other legitimate uses;
2. provide that no pollutant is discharged into any of **Guam's** waters, unless (a) the discharge first receives processing/**treatment** which will **to** remove all harmful **or hazardous** products, or provides the control technology necessary to protect the designated beneficial uses of waters; (b) the discharge meets the effluent limitations established for that discharge; and (c) best management practices are applied **as necessary**; ~~to all non-point sources;~~
3. provide for the prevention, abatement and control of new and existing water pollution sources;
4. maintain and improve the chemical, physical, and biological integrity of ~~wetlands water quality~~ **the waters of Guam** as necessary to meet the Clean Water Act Section 101 (a); ~~and to protect wetlands.~~
5. provide protection from point or non-point source discharges to wetlands in the same way as other surface waters.
6. provide protection from point and non-points **nonpoint** discharges, including discharges from ponding basins and ~~via~~ to sinkholes to groundwater **in the same way as surface waters; and**

1 7. eliminate all point source discharges to certain near-shore waters.

2
3 Further, under the terms of the U.S. Water Pollution Control Act 92-500 as amended by all Public
4 Law through 1986:

5
6 1. it is the territorial Guam's goal that to eliminate the discharge of pollutants into Guam's
7 territorial waters; ~~be eliminated;~~ and

8
9 2. it is the territorial Guam's goal that effective water quality guidelines be are established and
10 enforced which provide for the protection and propagation of fish, shellfish and other aquatic and
11 marine life, and provide for safe public recreation in and on Guam's waters.

12
13 ~~3. it is the territorial policy that the discharge of pollutants in harmful or hazardous amounts be~~
14 ~~prohibited; and~~

15
16 ~~4. it is the territorial goal to eliminate all point source discharges to certain near-shore waters.~~

17
18 Therefore, pursuant to the authority contained in the Guam Water Pollution Control Act (Section
19 47104 and 47108 of Chapter 47, Title 10 of the Guam Code Annotated), which authorized the
20 formulation of standards of water purity and classification of waters according to their most beneficial
21 uses, the Guam Environmental Protection Agency hereby adopts the following standards of water
22 quality for Guam.

23
24 ~~To assist in obtaining these goals, discharges including nonpoint sources to Guam's waters will be~~
25 ~~controlled (permitted) through the Federal National Pollutant Discharge Elimination System~~
26 ~~(NPDES), or through the Guam Environmental Protection Agency's local permit program.~~

27
28 ~~All industrial, public or private projects or development are required, as part of the initial project~~
29 ~~design, to make provisions for the pollutant removal or control technology necessary to protect the~~
30 ~~designated use of receiving waters or maintain the existing high quality of receiving waters.~~

31
32 ~~Point source discharges through storm drainage except for storm water is prohibited by these~~

standards.

Waters whose existing quality is better than the established standards will be maintained at the same high quality.

B. Antidegradation Policy:

1. Existing in-stream water uses, and the level of water quality necessary to protect these uses, shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing designated uses is allowable.

2. Waters whose existing quality is less than the established standards for their uses, due to the presence of substances, conditions, or combinations thereof attributable to domestic, commercial and industrial discharges or agricultural, construction and other land-use practices, shall be improved to comply with the established standards. Water quality for those waters not attaining their uses due to impacts from pollution shall be improved so uses are attained. However, in such cases where **Where** the natural conditions are of lower quality than criteria assigned, the natural conditions shall constitute the water quality criteria.

Waters whose existing quality is better than the established standards will be maintained at the same high quality.

The Administrator of the Guam Environmental Protection Agency, may allow a lowering of water quality, only if it has been demonstrated to the Administrator with An Environmental Impact Statement (EIS) pursuant to the requirement of Executive Order 90-10 (Appendix H) that a lowering of the water quality is the only alternative and is necessary as a result of essential social needs. It must also be demonstrated with the EIS that the lowered water quality will not interfere with or become injurious to any aquatic life or uses made of or potentially possible in the affected waters. A public hearing shall be conducted to give residents of the territory, primarily those residing in the affected area, opportunity to review and comment on the EIS.

1 3. If a project has been proposed, and its implementation may lower water quality in a water
2 whose quality exceeds levels necessary to support the propagation of fish, shellfish and other
3 commonly harvested organisms, and wildlife and recreation in and on the water, that water
4 quality shall be maintained and protected unless:

5
6 a. an interdisciplinary review consistent with the National Environmental Policy Act
7 (NEPA) has been submitted for the project. This review will insure that the project
8 complies with the applicable local and federal laws and regulations and procedures
9 relating to the protection and enhancement of the environment. As necessary, the
10 determination will include mitigative provisions as a condition for granting approval
11 of a specific project. The three basic environmental determinations that will apply to
12 a specific project are: (1) a determination to categorically exclude a project from a
13 formal environmental review; (2) a Finding of No Significant Impact (FNSI) based
14 upon formal environmental review supported by an Environmental Impact Document
15 (EID); and (3) a determination to prepare an Environmental Impact Statement (EIS).
16 The environmental impact determination will consider such technical, economic, social
17 and other criteria as provided by Section 301, and 302 of the Clean Water Act; and

18
19 b. the public has been notified of the anticipated action, and has been provided the
20 information necessary for meaningful public involvement and response, at least 30 days
21 before the action; a public hearing or meeting has been held (in accordance with the
22 Administrative Adjudication Law, 5 GCA Section 9100, and with a 30 day notice) if
23 the Agency determines that there is significant public interest or that a hearing or
24 meeting would be useful; and a responsiveness summary has been completed (which
25 shall identify the public participation activity conducted, describe the matter on which
26 the public was consulted, summarize the public's views and significant comments and
27 set forth the Agency's responses); and

28
29 c. the Administrator finds that:

30
31 i. allowing lower water quality is necessary to accommodate important
32 economic or social development; and

1 ii. existing uses will be protected; and

2
3 iii. the project associated with the lowering includes the highest statutory and
4 regulatory requirements for all new and existing point and non point sources,
5 and all cost-effective and reasonable best management practices for nonpoint
6 sources.

7
8 4. Water quality criteria in boundary areas shall be established so that the most stringent standard
9 applies. When more than one set of water quality criteria apply, including an overlap of
10 category designations or at a boundary water between two categories, the more stringent
11 standard shall prevail.

12
13 5. Water quality shall be maintained and protected in Guam's Outstanding Resource Waters.

14
15 6. In those cases where potential water quality impairment associated with a thermal
16 discharge is involved, the antidegradation policy and implementing method shall be consistent
17 with Section 316 of the Clean Water Act.

18
19 ~~The purpose of these Water Quality Standards is to prevent degradation of water resources resulting~~
20 ~~from pollution sources. An Environmental Protection Plan (EPP) will be prepared by all developers,~~
21 ~~contractors, and others and approved by GEPA prior to the initiation of large construction project~~
22 ~~to ensure that water resources will not be degraded. This EPP will be submitted to the Guam~~
23 ~~Environmental Protection Agency for approval. Failure to comply with the will result in a Stop Work~~
24 ~~Order and other actions, as deemed necessary, until compliance is achieved.~~

25
26 **C. Groundwater Protection Zone (GPZ)**

27 A primary means of groundwater pollution prevention is to direct, control and encourage
28 appropriate land uses, land use intensities and land use development patterns to achieve
29 sustainable groundwater quality over the long term. The GPZ is an environmental land use
30 management system which designates much of the land surface above Guam's principal source
31 aquifer, the Northern Aquifer, for the protection of Resource Zone (G-1) waters and the
32 Recharge Zone (G-2) waters.

1 A GPZ map has been developed as a land use management overlay applicable to any and all
2 zoning and subdivision development requirements in Guam, including military land use
3 activities. One primary determinate of land use development potential, use intensity, density
4 and patterns of growth is the availability of public sewer systems. This determinant is
5 especially critical over Guam's Northern Aquifer to ensure that many potentially harmful
6 (wastewater) pollutants generated are transported to acceptable treatment/disposal works.

7
8 The GPZ includes most but not all of the following: drinking water production wells and their
9 respective well head protection zones, the Northern Guam Watershed, high development-
10 potential, substantial agricultural, government subsidized rural housing, military, and existing
11 industrial and commercial development lands.

12
13 1. Land use guidelines and performance standards should be applied in all appropriate
14 circumstances within the GPZ and over the Northern Aquifer, including, but not limited the
15 following:

16
17 a. industrial development should not occur without adequate public sewer
18 infrastructure;

19
20 b. high density residential development (more than one dwelling per half acre) should
21 not occur without adequate public sewer service;

22
23 c. individual wastewater disposal systems and ponding basins and similar point source
24 waste or storm water disposal works should not be permitted within a Wellhead
25 Protection Zone; and

26
27 d. as practical, storm water disposal systems should be designed and operated to
28 terminate in close proximity to or within project property boundaries to facilitate
29 groundwater recharge.

Section 5102 Categories of Waters.

The following categories of water established under these standards are Groundwater, Marine waters, and Surface waters. ~~relate to the different liquid components of the hydrologic cycle.~~ All categories of water are referenced on the Water Classification Map. Scaled down copies of these maps are included in these standards, enabling readers to understand their relative position, application and use.

A. Groundwater

This major type of water category encompasses all subsurface water and includes basal and parabasal water, perched water, all water below the groundwater table, water percolating through the unsaturated zone (vadose water), all saline waters below and along the perimeter of the basal fresh water body (freshwater lens), and water on the surface that has been collected with the specific intent of recharging or disposing of that water to the subsurface by means of injection, infiltration, percolation, ~~etc. or other means.~~ The Northern Guam Water lens, which is the Principal Source Aquifer, and any other groundwater resources as they are identified shall continue to receive protection under the Guam Wellhead Protection Program and other applicable Guam's groundwater regulations.

1. Category G-1 Resource Zone.

The primary use of groundwater within this zone is for drinking (human consumption) and this use must be protected. Virtually all water of the saturated zone of Guam is included. Specifically, it includes all water occurring in the saturated zone below the groundwater table, all vadose water occurring in an unsaturated zone extending 100 feet (30.5 m) above any water table, or within 20 feet of the ground surface of all fresh groundwater bodies, all water of the basal and parabasal freshwater bodies, and all water of and below the freshwater/salt-water transition zone beneath the basal water body (Examples, e.g.: Wells A-1, A-2, A-3, MJ-1. & MJ-5). Table 1 and 2 contain specific numerical standards for inorganic and organic chemicals, radionuclides and microorganisms.

2. Category G-2 Recharge Zone

Water within this zone is tributary to, replenishes, and recharges the Category G-1 groundwater and must be of drinking water quality before it enters the Resource Zone. ~~All~~ Water water discharges within the Recharge Zone must receive treatment to the degree necessary to protect the underlying Category G-1 groundwater from any contamination. and must comply with the requirements of

1 the groundwater quality standards, unless it can be shown by an engineering feasibility study
2 that there will be no significant adverse effects on G-1 waters.

3
4 Category G-2 is divided into two distinct sub-categories based upon the boundaries of the
5 Groundwater Management Protection Zone (GWMPZ):

6
7 ~~Category G-2a exists within the GWMPZ and extends from the land surface to the top~~
8 ~~of the G-1 zone.~~

9
10 ~~Category G-2b exists only outside the GWMPZ and includes all waters~~
11 ~~which are collected and recharged or disposed of within a zone which is bounded above by G-3 and~~
12 ~~below by G-1. Vertically, this Category G-2b Zone begins 20 feet below the ground surface and~~
13 ~~extends to the upper surface of the Category G-1 waters. Inputs to ground water within this zone~~
14 ~~occurs primarily through storm water injection wells.~~

15
16 ~~It is recognized that water within this zone will percolate through soil/rock media~~
17 ~~before reaching the Resource Zone. In this way it may undergo some degree of natural treatment~~
18 ~~consisting of filtration and subsequent purification. However, the degree of treatment is not easily~~
19 ~~demonstrated. Thus, due to the need to protect G-1 waters and considering the difficulty in tracing~~
20 ~~pollutants reaching the G-1 zone to a particular source, discharge limitations have been established~~
21 ~~to regulate discharges to the G-2 a and G-2b zone. All discharges must meet the discharge limitations~~
22 ~~established in Table III below. All discharges within this zone may be required by the Agency to~~
23 ~~obtain discharge permits under these standards.~~

24 **TABLE III**

25 **Limitations for Discharges to Categories G-2**

26
27
28
29

Ground water Category	E- Coli	COB (mg/l)	pH	Chlorides (mg/l)	Orthophosph ate (PO ₄ -P) (mg/l)	Nitrate-Nitrogen (mg/l)	Oil and Grease (mg/l)
G-2	0	0	6-10	250	10	5	0

30
31
32
33

(3) ~~Category G-3~~ ~~Category G-3 exists only outside the GWMPZ and Buffer Zone~~

1 includes all waters which are collected and disposed of or recharged at or near the existing ground
2 water supply. Vertically, the zone for this category extends from the ground surface to 20 ft (6.0 m)
3 below the surface. Disposal methods which may result in discharges to groundwater within this zone
4 include, but are not limited to, ponding basins, rapid infiltration, slow rate land treatment, surface or
5 spray irrigation and all subsurface discharges (seepage, leaching).

6
7 For reasons similar to those discussed for Category G-2a and G-2b discharge limitations
8 for G-3 are also established in Table III (Appendix J). Discharges equal to or less than 3,000 gallons
9 per day (gpd) within the G-3 zone are designated by G-3a. Water quality criteria for all discharges
10 within zone G-3 which are greater than 3,000 gpd are designated G-3b. This differentiation in criteria
11 addresses the fact that minor discharges typified by small scattered individual dwelling units probably
12 have less adverse impact on underlying groundwater than major point source discharges and thus are
13 allowed less restrictive water quality limits (i.e. equivalent to primary treatment).

14
15 ~~All discharges within this zone may be required by the Agency to obtain discharge~~
16 ~~permits under these regulations.~~

17 18 B. Marine Waters.

19 This category includes all coastal waters off-shore from the mean high water mark, including
20 estuarine waters, lagoons and bays, brackish areas, wetlands and other special aquatic sites, and other
21 inland waters that are subject to ebb and flow of the tides. Refer to Water Classification Map.

22 23 1. Category M-1 EXCELLENT.

24 Waters in this category must be of high enough quality to protect for whole body contact
25 recreation and to ensure the preservation and protection of marine life, including corals and reef
26 dwelling organisms, fish and related fisheries resources, and enable the pursuit of marine scientific
27 research as well as aesthetic enjoyment. This category of water shall remain substantially free from
28 pollution attributed to domestic, commercial and industrial discharges, shipping and boating, or
29 mariculture, construction and other activities which can reduce the waters' quality. Furthermore,
30 there shall be no zones of mixing within this category water.

31 32 2. Category M-2 GOOD.

1 Water in this category must be of sufficient quality to allow for the propagation and survival of
2 marine organisms, particularly shellfish and other similarly harvested aquatic organisms, corals
3 and other reef related resources, and whole body contact recreation. Other important and intended
4 uses include mariculture activities, aesthetic enjoyment and ~~compatible recreation inclusive of related~~
5 activities.

6
7 3. Category M-3 FAIR.

8 Water in this category is intended for general, commercial and industrial use, while allowing for
9 protection of aquatic life, aesthetic enjoyment and compatible recreation with limited body contact.
10 Specific intended uses include the following: shipping, boating and berthing, industrial cooling water,
11 and marinas.

12
13 C. Surface Waters

14 This Category includes all of surface fresh-water and includes: (1) waters that flow continuously over
15 land surfaces in a defined channel or bed, such as streams and rivers; (2) standing water in basins such
16 lakes, wetlands, marshes, swamps, ponds, sinkholes, ponding basins, impoundments, and reservoirs
17 either natural or man-made; and (3) all waters flowing over the land as runoff, or as runoff confined
18 to channels with intermittent flow. ~~(Refer to Water Classification Map); and (4) waters under these~~
19 ~~categories are those waters which are collected with specific intent of disposal by recharging them~~
20 ~~into the ground (i.e., ponding basin):~~

21
22 1. Category S-1 HIGH.

23 Surface waters in this category are used for drinking water resources, ~~conservation of wilderness~~
24 areas, and propagation and preservation of aquatic life, whole body contact recreation and aesthetic
25 enjoyment. It is the objective of these standards that these waters shall be kept free of substances or
26 pollutants from domestic, commercial and industrial discharges, or agricultural activities,
27 construction or other land-use practices that may impact water quality. ~~No pollutant discharges will~~
28 ~~be permitted into S-1 waters via discharge or as a result of land uses adjacent to S-1 waters.~~

29
30 2. Category S-2 MEDIUM.

31 Surface water in this category is used for recreational purposes including water whole body contact
32 recreation, for use as potable water supply after adequate treatment is provided, and propagation and

1 preservation of aquatic wildlife and aesthetic enjoyment. All discharges under this category shall meet
2 the established safe drinking water supply standards.

3
4 3. Category S-3 LOW.

5 Surface water in this category is primarily used for commercial, agricultural and industrial activities.
6 Aesthetic enjoyment and limited body contact compatible recreation are acceptable in this zone, as
7 well as maintenance of aquatic life. ~~Compatible recreation may include limited body contact~~
8 ~~activities. All discharges~~ Discharges within this zone which are not may be required to have
9 construction and/or discharge permits under existing Guam Sediment and Soil Erosion regulations
10 ~~may be required by this Agency to obtain such permits under these regulations. or under NPDES.~~

11
12 D. Outstanding Resource Waters.

13
14 1. Category Outstanding Resource Waters.

15 These waters may include surface waters (marine, freshwater, wetlands, etc.) in parks, wildlife
16 refuges, and publicly owned lakes and reservoirs, and waters of exceptional recreational or
17 ecological significance (e.g., waters which provide a habitat for identified threatened or
18 endangered species), as determined by the Administrator.

19
20 Section 5103 Water Quality Criteria.

21
22 A. General Criteria Applicable To All Territorial Waters of Guam

23
24 1. All waters shall meet generally accepted aesthetic qualifications, shall be capable of supporting
25 desirable aquatic life, and shall be free from substances, conditions or combinations thereof
26 attributable to domestic, commercial and industrial discharges or agricultural, construction and
27 land-use practices or other human activities that:

- 28
29 a. cause visible floating materials, debris, oils, grease, scum, foam, or other floating matter
30 which degrades water quality or use;
31 b. produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;
32 c. produce objectionable color, odor, or taste, directly or by chemical or biological action;

- 1 d. injure or are toxic or harmful to humans, animals, plants or aquatic life; and or
2 e. induce the growth of undesirable aquatic life.

3
4 2. Analytical testing methods for these criteria shall be in accordance with the most recent editions
5 of "Standard Methods for the Examination of Water and Wastewater" prepared and published
6 jointly by American Public Health Association (APHA), American Water Works Associations
7 (AWWA), and Water Pollution Control Federation (WPCF) (now Water Environment
8 Federation); "Methods for Chemical Analysis of Water and Wastes" (U.S. Environmental Protection
9 Agency Environmental Monitoring & Support Division, Cincinnati, Ohio 45268, (EPA-600/4-
10 79-020) March 1983), and other methods acceptable to GEPA and possessing adequate procedural
11 precision and accuracy.

12
13 ~~Effects of high temperature, biocide, pathogenic organisms, toxic, corrosive, or other deleterious~~
14 ~~substances at levels or combinations sufficient to be toxic or harmful to human, animal, plant or~~
15 ~~aquatic life or in amounts sufficient to interfere with any beneficial use of the water, shall be evaluated~~
16 ~~as a minimum, by use of a 96-hour bioassay as described in the most recent edition of EPA Manual~~
17 ~~or ASTM. Survival of test organisms shall not be less than that of controls which utilize appropriate~~
18 ~~water. Failure to determine presence of toxic substances by this method shall not preclude~~
19 ~~determination of excessive levels of toxic substances on the basis of other criteria or methods.~~

20
21 **B. Water Quality Criteria for Groundwater G-1 and G-2.**

22
23 **1. The numerical groundwater quality standards limit the physical, chemical, radiological and**
24 **microbiological characteristics of drinking water in terms of maximum acceptable**
25 **concentrations. Although the groundwater limits presented herein represent drinking water**
26 **of acceptable quality, there is no inference that better quality water supplies may be degraded.**

27 **2. Table 1 presents groundwater quality standards to protect drinking water quality by**
28 **limiting the levels of specific contaminants that can adversely affect public health and are**
29 **known to occur in public water systems. The table divides these contaminants into Inorganic**
30 **Chemicals, Organic Chemicals, Radionuclides, and Microorganisms.**

TABLE 1
Inorganic Chemicals

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Antimony</u>	<u>0.006</u>
<u>Arsenic</u>	<u>0.05</u>
<u>Asbestos (fibers >10µm)</u>	<u>7 MF/L (million fibers/liter > 10 µm)</u>
<u>Barium</u>	<u>2.0</u>
<u>Beryllium</u>	<u>0.004</u>
<u>Cadmium</u>	<u>0.005</u>
<u>Chromium (total)</u>	<u>0.1</u>
<u>Copper</u>	<u>1.3</u>
<u>Cyanide (as free cyanide)</u>	<u>0.2</u>
<u>Fluoride</u>	<u>4.0</u>
<u>Lead</u>	<u>0.015</u>
<u>Inorganic Mercury</u>	<u>0.002</u>
<u>Nickel</u>	<u>0.1</u>
<u>Nitrate (as nitrogen)</u>	<u>10</u>
<u>Nitrite (as nitrogen)</u>	<u>1</u>
<u>Selenium</u>	<u>0.05</u>
<u>Sulfate</u>	<u>500</u>
<u>Thallium</u>	<u>0.0005</u>

Organic Chemicals

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Acrylamide</u>	<u>zero</u>
<u>Alachlor</u>	<u>0.002</u>
<u>Aldicarb</u>	<u>0.001</u>
<u>Aldicarb sulfone</u>	<u>0.001</u>
<u>Aldicarb sulfoxide</u>	<u>0.001</u>
<u>Atrazine</u>	<u>0.003</u>
<u>Benzo(a)anthracine (PAH)</u>	<u>0.0001</u>

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Benzene</u>	<u>0.005</u>
<u>Benzo(a)pyrene (PAH)</u>	<u>0.0002</u>
<u>Benzo(k)fluoranthene (PAH)</u>	<u>0.0002</u>
<u>Butyl benzyl phthalate (PAE)</u>	<u>0.1</u>
<u>Carbofuran</u>	<u>0.04</u>
<u>Carbon tetrachloride</u>	<u>0.005</u>
<u>Chlordane</u>	<u>0.002</u>
<u>Chrysene (PAH)</u>	<u>0.00032</u>
<u>2,4-D</u>	<u>0.07</u>
<u>Dalapon</u>	<u>0.2</u>
<u>Di{2-ethylhexyl}adipate</u>	<u>0.4</u>
<u>Dibenzo(a,h)anthracene (PAH)</u>	<u>0.0003</u>
<u>1,2-Dibromo-3-chloropropane (DBCP)</u>	<u>0.0002</u>
<u>Dichlorobenzene(orth-)</u>	<u>0.6</u>
<u>Dichlorobenzene (dmeta-)</u>	<u>0.6</u>
<u>Dichlorobenzene (para-)</u>	<u>0.075</u>
<u>Dichloroethane (1,2-)</u>	<u>0.005</u>
<u>Dichloroethylene (1,1-)</u>	<u>0.007</u>
<u>Dichloroethylene (cis-1,2-)</u>	<u>0.07</u>
<u>Dichloroethylene (trans-1,2-)</u>	<u>0.1</u>
<u>Dichloromethane (methylene chloride)</u>	<u>0.005</u>
<u>Dichloropropane (1,2-)</u>	<u>0.005</u>
<u>Di(2-ethylhexyl) phthalate (PAE)</u>	<u>0.006</u>
<u>Dinoseb</u>	<u>0.007</u>
<u>Diquat</u>	<u>0.02</u>
<u>Endothall</u>	<u>0.1</u>
<u>Endrin</u>	<u>0.002</u>
<u>Epichlorohydrin</u>	<u>zero</u>
<u>Ethylbenzene</u>	<u>0.7</u>
<u>Ethylene dibromide</u>	<u>0.00005</u>
<u>Gylphosate</u>	<u>0.7</u>

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Heptachlor</u>	<u>0.0004</u>
<u>Heptachlor epoxide</u>	<u>0.0002</u>
<u>Hexachlorobenzene</u>	<u>0.001</u>
<u>Hexachlorocyclopentadiene</u>	<u>0.05</u>
<u>Indeno(1,2,3-c,d)pyrene</u>	<u>0.0004</u>
<u>Lindane</u>	<u>0.0002</u>
<u>Methoxychlor</u>	<u>0.04</u>
<u>Monochlorobenzene</u>	<u>0.1</u>
<u>Oxamyl (vvdate)</u>	<u>0.2</u>
<u>Pentachlorophenol</u>	<u>0.001</u>
<u>Picloram</u>	<u>0.5</u>
<u>Polychlorinated Biphenyls (PCB's)</u>	<u>0.0005</u>
<u>Simazine</u>	<u>0.004</u>
<u>Styrene</u>	<u>0.1</u>
<u>2,3,7,8-TCDD (dioxin)</u>	<u>0.00000003</u>
<u>Tetrachloroethylene</u>	<u>0.005</u>
<u>Toluene</u>	<u>1</u>
<u>Toxaphene</u>	<u>0.003</u>
<u>2,4,5-TP (silvex)</u>	<u>0.05</u>
<u>1,2,4-Trichlorobenzene</u>	<u>0.07</u>
<u>Trichloroethane (1,1,1-)</u>	<u>0.2</u>
<u>Trichloroethane (1,1,2-)</u>	<u>0.003</u>
<u>Trichloroethylene</u>	<u>0.005</u>
<u>Tribalomethanes</u>	<u>0.100</u>
* <u>Chloroform</u>	
* <u>Bromodichloromethane</u>	
* <u>Dibromochloromethane</u>	
* <u>Bromoform</u>	
<u>Vinyl chloride</u>	<u>0.002</u>
<u>Xylenes (total)</u>	<u>10</u>

Radionuclides

<u>Pollutants</u>	<u>Acceptable levels</u>
<u>Beta particle and photon activity (formerly man-made radionuclides)</u>	<u>4 mrem/year</u>
<u>Gross alpha particle activity</u>	<u>15 pCi/l</u>
<u>Radium 226 & Radium 228</u>	<u>5 pCi/l</u>
<u>Uranium</u>	<u>0.02 pCi/l</u>

Microorganisms

<u>Pollutants</u>	<u>Acceptable levels</u>
<u>Giardia lamblia</u>	<u>zero</u>
<u>Legionella</u>	<u>zero</u>
<u>Standard Plate Count</u>	<u>n/a</u>
<u>Total Coliform (including fecal coliform and E. Coli)</u>	<u>zero</u>
<u>Turbidity</u>	<u>1.0 NTU</u>
<u>Viruses</u>	<u>zero</u>

3. Table 2 presents groundwater quality standards that are considered advisory (MTBE (methyl-t-butyl ether)), or secondary. Secondary standards are those which may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The Administrator may choose to utilize these as enforceable standards.

TABLE 2

Pollutants	Numeric Standards (mg/l)
Aluminum	0.05 to 0.2
Chloride	250
Color	<u>15 (color units)</u>
Copper	<u>1.0</u>
Corrosivity	<u>non-corrosive</u>
Fluoride	<u>2.0</u>
Foaming Agents	<u>0.5</u>
Iron	<u>0.3</u>
Manganese	<u>0.05</u>
Odor	<u>3 threshold odor number</u>
pH	<u>6.5 - 8.5</u>
Silver	<u>0.10</u>
Sulfate	<u>250</u>
Total Dissolved Solids	<u>500</u>
Zinc	<u>5</u>
Oil and Grease	<u>0</u>
MTBE (methyl-t-butyl ether)	<u>0.02</u>

C. Specific Numeric Water Quality Criteria for Marine and Surface Waters.

1. Microbiological Requirements	Applicable to
<p>a. <u>All marine water bodies require the use of enterococci bacterial indicator. Microbiological Requirements</u></p> <p>i. Concentrations of total coliform <u>enterococci</u> bacteria at any point shall not be increased from natural conditions than 10% of the <u>exceed 35 enterococci/100 ml based on the geometric mean of five sequential samples taken over a period of 30 days. No instantaneous reading shall exceed 104 enterococci/100 ml.</u></p>	<p>M-1, <u>M-2</u> S-1</p>
<p>The fecal coliform bacteria shall not in the range exceed an arithmetic mean 70 per 100 ml during 30-day period (per month):</p>	<p>M-2 S-2</p>
<p>ii. <u>Concentrations of The enterococci fecal coliform bacteria count concentrations bacteria count shall not exceed an be in the range arithmetic 35 enterococci/100 ml based on geometric mean of five sequential samples taken over a thirty day period. No instantaneous reading shall exceed mean of 200 per 100 ml during 276 enterococci/100 ml. 30-day period 400 per 100 ml.</u></p> <p>To determine compliance with the above microbiological requirements where a "30-day period" is specified, a minimum of four samples shall be collected at approximately equal intervals.</p>	<p>M-3 S-3</p>

1 b. For all surface waters, microbiological analysis may
2 include the use of Escherichia coli (*E. coli*) indicator and/or
3 enterococci indicator.

4
5 i. Concentrations of *E. coli* shall be no greater than 126
6 CFU/100 ml based on the geometric mean of five sequential
7 samples taken over a thirty day period. No instantaneous
8 reading shall exceed 235 CFU/100 ml.

S-1, S-2

9
10 ii. Concentrations of enterococci shall be no greater than 33
11 CFU/100 ml based on the geometric mean of five sequential
12 samples taken over a thirty day period. No instantaneous
13 reading shall exceed 61 CFU/100 ml.

S-1, S-2

14
15 iii. Concentrations of *E. Coli* shall be no greater than 126
16 CFU/ml based on the geometric mean of five sequential
17 samples taken over a thirty day period nor shall any
18 instantaneous reading exceed 406 CFU/100 ml.

S-3

19
20 iv. Concentrations of enterococci shall be no greater than 33
21 CFU/100 ml based on the geometric mean of five sequential
22 samples taken over a thirty day period nor shall any
23 instantaneous reading exceed 108 CFU/100 ml.

S-3

24
25 c. Where shellfish are commonly collected for human consumption, the following criteria
26 apply: EPA's official criteria for shellfish growing areas are: (1) water samples collected at
27 growing areas will maintain no more than a median of 14 fecal coliform/100 ml; and (2) ten
28 percent (10%) of water samples taken from a growing area should not exceed 43 fecal
29 coliform/100 ml. For recreational use (swimming/wading only) at growing sites, the assigned
30 Marine Water Category shall be in effect (see Guam Water Classification Map); the
31 microbiological standard for M-1 waters shall apply.
32

	Applicable to
<p>2. pH</p> <p>The ambient pH of fresh and estuarine waters and wetlands ranges from 6.5-8.5 and 7.0-9.0 for marine waters. Variations of more than 0.5 pH units from ambient shall not be allowed.</p>	<p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p>
<p><u>i. pH shall remain within the range of 6.5-8.5</u></p>	<p><u>M-1, M-2, M-3</u></p>
<p><u>ii. pH shall remain within the range of 6.5-9.0</u></p>	<p><u>S-1, S-2, S-3</u></p>
<p><u>iii. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation or in any case outside the range of 6.5-8.5.</u></p>	<p><u>M-1, M-2, M-3</u></p>

3. Nutrients	Applicable to
<p>a. Phosphorus:</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.025 mg/l</p> <p>Orthophosphate (PO₄-P) shall exceed 0.05 mg/l</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.10 mg/l</p> <p>b. Nitrogen</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.10 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.20 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.50 mg/l</p>	<p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p> <p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p>
<p><u>c. Ammonia nitrogen per liter limits vary with pH:</u></p> <p><u>i. The one-hour average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three years on the average, the Criteria Maximum Concentration (CMC - see Section 5105 Definitions) calculated using the following equation:</u></p> $CMC = \frac{0.411}{1 + 10^{(7.204 - pH)}} + \frac{58.4}{1 + 10^{(pH - 7.204)}}$ <p><u>ii. The thirty-day average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three years on the average, the Criteria Chronic Concentration (CCC - see Section 5105 Definitions) calculated using the following equation:</u></p>	<p><u>S-1, S-2, S-3</u></p>

$$CCC = \frac{0.0858}{1 + 10^{(7.688 - pH)}} + \frac{3.70}{1 + 10^{(pH - 7.688)}}$$

iii. CMC and CCC (mg N/l) at a few example pH Values.

<u>pH</u>	<u>CMC</u>	<u>CCC</u>
<u>6.5</u>	<u>48.8</u>	<u>3.48</u>
<u>7.0</u>	<u>36.1</u>	<u>3.08</u>
<u>7.5</u>	<u>19.9</u>	<u>2.28</u>
<u>8.0</u>	<u>8.40</u>	<u>1.27</u>
<u>8.5</u>	<u>3.20</u>	<u>0.57</u>
<u>9.0</u>	<u>1.32</u>	<u>0.25</u>

iv. The ambient concentration, averaged over a period of 30 days, should not exceed the CCC. The ambient concentration, averaged over four days, should not exceed a concentration two times greater than the CCC. The averaging period applicable to the CMC is one hour.

~~Guam's groundwater has nitrate-nitrogen concentrations up to 5 mg/l. It is the intent of these standards to control nitrate-nitrogen concentrations, by requiring secondary wastewater treatment, or when determined by the Administrator, limit the number or decrease the facilities discharging treated wastewater to a particular body of water. Treatment in excess of advance secondary treatment may be required and will be reviewed on a case by case basis. Levels of nutrients in receiving waters will be used as a guide in determining if treatment is required. Point source discharges will be regulated in accordance with the Federal NPDES permitting process, specifying effluent standards and operational requirements.~~

~~Activities which may result in non-point discharges of nutrients shall be conducted in accordance with the best management practices reasonably determined by the agency to be necessary to preclude or minimize such discharges of nutrients not to allow levels beyond those explicitly stated above.~~

1 In all cases, discharges containing nutrients, primarily total-nitrogen, ammonia, and/
 2 or phosphorous shall be treated to the extent necessary to prevent damage to coral reefs or
 3 growth of aquatic species which create a public nuisance or interfere with beneficial uses as
 4 defined in §5101.

4. Dissolved Oxygen	Applicable to
Concentration of dissolved oxygen shall not be decreased <u>to less than</u> 75% (percent) saturation at any time, as influenced by salinity or naturally occurring temperature variations. Where natural conditions cause lower dissolved oxygen levels, controllable water quality factors shall not cause further reductions.	<u>M-1, M-2, M-3</u> <u>S-1, S-2, S-3</u> All waters of the Territory

13 Table 1. Saturation D.O.

Freshwater		Marine Water And Wetlands			
Sat.	75%	Temp.	Salinity	Sat.	75%
mg/l	mg/l	C	ppt	mg/l	mg/l
7.6	5.6	30	32	6.2	4.6
8.2	6.2	26	32	6.7	5.0

5. Salinity	Applicable to
a. Marine Waters: No alterations of marine environments shall occur that would alter the salinity of marine or estuarine waters and wetlands of Guam more than +10% of the ambient conditions, except when due to natural conditions.	M-1, M-2, M-3 estuarine waters and wetlands of the territory
b. Fresh-water: The maximum allowable amount of chlorides and sulfates shall be 250 mg/l, and the total dissolved solids shall not exceed 500 mg/l or 133% of the ambient condition. The salinity of freshwater sources and wetlands shall not be more than 20% above ambient by discharges of saline water.	S-1, S-2, S-3

6. Total Non-Filterable Suspended Solids	Applicable to
<p>1 a. Concentrations of suspended matter at any point</p> <p>2 shall not be increased from ambient conditions at</p> <p>3 any time, and the total concentration should not</p> <p>4 exceed 5 mg/l except when due to natural</p> <p>5 conditions.</p>	<p>M-1 S-1</p>
<p>6 b. Concentrations of suspended matters at any point</p> <p>7 shall not be increased more than 10% from</p> <p>8 ambient at any time, and the total concentration</p> <p>9 should not exceed 20 mg/l except when due to</p> <p>10 natural conditions.</p>	<p>M-2 S-2</p>
<p>11 c. Concentrations of suspended matter at any point</p> <p>12 shall not be increased more than 25% from ambient at any time,</p> <p>13 and the total concentration should not exceed 40 mg/l except</p> <p>14 when due to natural conditions.</p> <p>15</p>	<p>M-3 S-3</p>

7. Turbidity	Applicable to
1 a. Turbidity at any point, as measured by nephelometric turbidity 2 units (NTU), shall not exceed 0.5 NTU over ambient conditions 3 except when due to natural conditions. 4	M-1 S-1
5 6 b. Turbidity values (NTU) at any point shall not exceed 1.0 7 NTU over ambient conditions except when due to natural 8 conditions. 9	M-2, M-3 S-2, S-3
10 c. Since <u>When</u> debris, rapidly settling particles and true color give 11 low readings when using nephelometric methods in making 12 turbidity determinations, and one or more of these 13 conditions may exist in marine and surface water, secchi- 14 disc determinations will be used. when these conditions 15 exist. Secchi-disc visibility shall not decrease by more than 16 5 meters from ambient conditions except when due to 17 natural conditions. 18 19	

8. Radioactive Materials	Applicable to
20 Discharges of radioactive materials at any level into any waters 21 territory of Guam is strictly prohibited. 22 23	All waters of the Territory <u>M-1, M-2, M-3</u> <u>S-1, S-2, S-3</u>

<p>1 9. Temperature</p> <p>2 Water temperature shall not be changed more than 1.0 degree</p> <p>3 Centigrade (1.8 of the degree Fahrenheit) from ambient</p> <p>4 conditions. <u>outside an established mixing zone Effluent</u></p> <p>5 <u>(thermal) not meeting this standard shall be considered as</u></p> <p>6 <u>having an adverse effect on coral and other aquatic resources</u></p>	<p>Applicable to</p> <p>All surface waters</p> <p>of the Territory</p> <p>M-1, M-2, M-3</p> <p>S-1, S-2, S-3</p>
<p>7</p> <p>8 10. Concentrations of Oil or Petroleum Products</p> <p>9 The limits described below are unacceptable: 1) detectable as a</p> <p>10 visible film, or sheen, or results in visible discoloration of the</p> <p>11 surface with a corresponding oil or petroleum product odor; 2)</p> <p>12 causes damage to fish, invertebrates or objectionable degradation</p> <p>13 of drinking water quality; or 3) forms an oil deposit on the shores</p> <p>14 or bottom of the receiving body of water.</p>	<p>Applicable to</p> <p>M-1, M-2, M-3</p> <p>S-1, S-2, S-3</p>

15

16 **11. Toxic Substances**

17

18 **a. General**

19

20 **i. All waters shall be maintained free of toxic substances in concentrations**

21 **that produce detrimental physiological, acute or chronic responses in**

22 **human, plant, animal or aquatic life. Compliance with this objective will be**

23 **determined by use of indicator organisms, analyses of species diversity,**

24 **population density, growth anomalies, bioassays of appropriate duration, or**

25 **other appropriate, scientifically defensible methods.**

26

27 **ii. All waters shall be maintained free of toxic substances in concentrations**

28 **that produce contamination in harvestable aquatic life to the extent that it**

29 **causes detrimental physiological, acute or chronic responses in humans or**

30 **protected wildlife, when consumed.**

31

1 iii. The survival of aquatic life in marine and surface waters subjected to a
2 waste discharge, or other controllable water quality factors, shall not be less
3 than that for the same water body in areas unaffected by the waste
4 discharge.

5
6 iv. Note Whenever natural concentrations of any toxic substance or element
7 occur and exceed the limits established in these standards, this greater
8 concentration shall constitute the limit, provided that this natural concentration
9 was not directly affected by man human- induced causes.

10
11 **b. Numeric Criteria**

12
13 **i. Appendix A contains a matrix of Criteria for the 126 CWA Section 307 (A)**
14 **Toxic Pollutants as well as a table of several additional toxic pollutants, listed**
15 **by the US Environmental Protection Agency, to which this standard applies, are**
16 **incorporated by reference into the Guam WQS. A list of the Toxic Pollutants is**
17 **Given in Appendix A. ~~Absence from this matrix or table~~ list does not mean**
18 **that a substance is non-toxic, as the results of on-going or future research may**
19 **result in it being added at a later date. ~~it may be added later.~~**

20
21 **All Appendix A toxic pollutant criteria are to be applied to Guam's categories of**
22 **waters, as follows:**

<u>Water Categories</u>	<u>Applicable Criteria</u>
M-1	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
M-2	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
M-3	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
S-1	<u>Columns B1, B2, and D1</u> <u>all pollutants</u>
S-2	<u>Columns B1, B2 and D2</u> <u>all pollutants</u>
S-3	<u>Columns B1, B2 and D2</u> <u>all pollutants</u>

ii. For those priority pollutants in the Appendix A matrix that are metals, the limits are applied as total recoverable; for those that are carcinogens, the 10 to the minus sixth power risk level will be used (10^{-6}).

Numerical receiving water limits including EPA's Section 304(a) criteria for Section 307(a) toxic pollutants (Appendix A) as cited at 53 FR 177 60848 and summarized in EPA 440/5-86-001 Quality Criteria for Water 1986, Washington D.C., OWRS, May 1, 1986, as amended by Update #1, September 16, 1986, and Update #2, May 1, 1987 ("Quality Criteria for water") will apply. The numeric water quality standards from included in this reference are those for the parameters that are the Section 307 (a) priority pollutants (Appendix A). These standards are intended to protect both aquatic life and human health. For protection of aquatic life, they are maximum levels not to be exceeded, and GEPA will utilize the national criteria guidance four-day average concentration limits or 24-hour average limits, whichever is most current, as standards. For protection of human health in fresh surface waters, the GEPA will apply the national criteria guidance for ingestion through water and contaminated aquatic organisms as 30-day average limits. For other territorial waters the GEPA will apply the national criteria guidance for ingestion through contaminated aquatic organisms alone as 30-day average limits. For those priority

1 pollutants that are carcinogens, the 10 to the minus sixth power risk level will be used (10^{-6}).

2
3 In addition to the 126 listed toxics, Table II shows the maximum allowable concentrations
4 and application factors for additional toxic substances.

5
6 **c. Pesticides**

7
8 Concentrations of pesticides shall not exceed one percent of the 24-hour LC50 value determined
9 using the receiving water in question and the most sensitive species of aquatic organisms affected.

10
11 Where the concentration based on the LC50 data exceeds the recommended maximum
12 concentrations, the maximum concentrations shall constitute the criteria.

13
14 i. For acceptable concentrations the listing of all pesticides (Organochlorides,
15 Organo-phosphates, Carbamates, Herbicides, Fungicides, Defoliant, and
16 Botanicals) please refer to the U.S. Water Quality Criteria Guidance "Blue Book"
17 (NAS/NAE, 1973) (US-GPO#5501-00520), "Red Book" (USEPA, 1976),
18 "Green Book", (FWPCA, 1968) and "Gold Book" (USEPA, 1986a) which
19 is updated periodically.

20
21 ii. Note: The setting or publishing of maximum concentration (limits) for specific
22 pesticides and other toxics should in no way be construed as official approval or
23 authorization for their use where such use is contrary to U.S. Environmental
24 Protection Agency or other Federal or local regulations.

25
26 **Section 5104 Effluent Limitations.**

27
28 **A. General Requirements Criteria.**

29 The Agency reserves the right to amend or extend the following criteria as improved standard
30 methods are developed or revisions consistent with the enhancement of water quality are justified.

1. Dilution of the effluent from any source as a sole means of treatment is not acceptable as a method of treatment of wastes in order to meet the standards set forth in this Section. Rather, it shall be the obligation of any person discharging pollutants of any kind to the waters of the Territory **Guam** to provide the best pollutant removal or control consistent with technological feasibility, economic reasonableness, and sound engineering judgement. In making a determination as to what degree of treatment is the best pollutant removal or control within the meaning of this paragraph, any person shall consider the following **shall be considered**:

a. the degree of waste reduction that can be achieved by process change, improved house-keeping and recovery of individual waste components for reuse; and

b. whether individual process wastewater streams should be segregated or combined.

2. To assist in obtaining these goals, **All point source** discharges including nonpoint sources to Guam's waters will be controlled (permitted) through the Federal National Pollutant Discharge Elimination System (NPDES), or through the Guam Environmental Protection Agency's local permit program, **consistent with the requirements of these programs**.

3. **A new or expanded facility using seawater shall conduct independent baseline studies of the existing ecosystems in the area that could be affected by the facility, before its construction.**

4. **For each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake, detrimental impacts to, and mortality of all forms of marine life.**

5. **Where otherwise permitted, new warmed or cooled water discharges into coastal wetlands or into areas of special biological importance, such as marine reserves, shall not impair the designated use or significantly lower the water quality of the receiving area.**

1 6. All sewage shall be treated to the degree required by the Agency to achieve standards of water
2 quality prior to being discharged to the waters of the Territory Guam. Industrial waters and
3 other wastes shall also be treated to the degree required by the Agency. All permitted
4 discharges shall comply with all applicable water quality criteria. Highest priority shall be
5 given to improving or eliminating discharges that adversely affect any of the following:

6
7 a. wetlands, estuaries, coral and other biologically sensitive sites;

8
9 b. areas important for water contact sports;

10
11 c. areas that produce shellfish or other similarly harvested for human
12 consumption;

13
14 d. ocean areas subject to massive waste discharge.

15
16 7. Secondary Treatment. The following paragraphs describe the minimum level of
17 effluent quality to be attained when secondary treatment is required. However, a lower
18 percent removal may be allowed on a case by case basis provided that the permittee
19 satisfactorily demonstrates that: (1) the treatment works is consistently meeting, or will
20 consistently meet, its permit effluent concentration limits but its percent removal
21 requirements cannot be met due to less concentrated influent wastewater, (2) to meet the
22 percent removal requirements, the treatment works would have to achieve significantly
23 more stringent limitations than would otherwise be required by the concentration-based
24 standards, and (3) the less concentrated influent wastewater is not the result of excessive
25 infiltration/inflow.

26
27 a. Biochemical Oxygen Demand (five-day).

28
29 i. The arithmetical mean of the values for effluent samples collected over
30 a period 30 consecutive days shall not exceed 30 mg/l.

1 ii. The arithmetic mean of the values for effluent samples collected in over
2 a period of seven consecutive days shall not exceed 45 mg/l.

3
4 iii. The arithmetic mean of the values for effluent samples collected over
5 a period of 30 consecutive days shall not exceed 15 percent of the
6 arithmetic mean of the values for influent samples collected at
7 approximately the same times during the same period (85 percent
8 removal).

9
10 b. Suspended solids

11
12 i. The arithmetic mean of the values for effluent samples collected over a
13 period of 30 consecutive days shall not exceed 30 mg/l.

14
15 ii. The arithmetic mean of the values for effluent samples collected over a
16 period of seven consecutive days shall not exceed 45 mg/l.

17
18 iii. The arithmetic mean of the values for effluent samples collected over
19 a period of 30 consecutive days shall not exceed 15 percent of the arithmetic
20 mean of the values for influent samples collected approximately the same
21 times during the same period (85 percent removal).

22
23 c. Fecal coliform bacteria Microbiology

24
25 i. The appropriate Guam EPA microbiological indicator and standard for
26 receiving waters classification will apply to effluent and/or:

27
28 ii. The arithmetic mean of the fecal coliform values for effluent samples
29 collected over a period of 30 consecutive days shall not exceed 200 per 100
30 ml.

1 iii. The arithmetic mean of the fecal coliform values for effluent samples
2 collected over a period of seven consecutive days shall not exceed 400 per 100
3 ml.

4
5 d. pH

6
7 i. The effluent values for pH shall remain within the limits of 6.0 to 9.0.

8
9 8. Toxic and hard-to-treat substances should be pretreated at the source if such substances
10 result in pass-through or interfere with treatment process of a municipal treatment plant
11 or which may contaminate sludge. In addition, effluent limits based upon acute and/or
12 chronic toxicity tests of effluents may be prescribed by the Administrator.

13
14 9. ~~In addition to other requirements no~~ No effluent shall, alone, or in combination with other
15 sources, cause a violation of any applicable water quality standard. If the Agency finds that a
16 discharge which complies with treatment requirements under the Authority of §5103(A) of these
17 standards would cause or is causing a violation of water quality standards, the Administrator shall
18 take appropriate action under §47109 of the Water Pollution Control Act to require the discharge
19 to meet whatever effluent limits are necessary to ensure compliance with the water quality
20 standards. When such a violation is caused by the cumulative effect of more than one source,
21 several sources may be joined in a schedule of compliance. Measures necessary for effluent
22 limitations will be determined on the basis of technical feasibility, economic reasonableness, and
23 fairness to all dischargers.

24
25 10. Measurement of pollutant concentrations to determine compliance with the effluent
26 limitations shall be made by the discharger at the point immediately following the final treatment
27 process and before mixing with other waters. Points of measurement shall be designated by the
28 Agency in an individual permit, after consideration of the elements contained in this section. If
29 necessary, the concentrations so measured shall be recomputed to exclude the effect of any
30 dilution that is improper under this standard.

11. ~~In order to provide maximum protection of the propagation of fish and wildlife, concentrations of toxic substances (persistent or non-persistent, cumulative or non-cumulative);~~
(a) Compliance with toxicity requirements may be evaluated with a 96-hour bioassay or short-term method for estimating chronic toxicity. Allowable concentration(s) of the toxic pollutant(s) shall not exceed five percent (0.05) of the 96-hour LC50 at any time or place, one percent (0.01) of the 24 hour average 96-hour LC50 concentration, or a level calculated by multiplying the appropriate application factor, where available, by the 96-hour LC50 value determined by using the most sensitive species of aquatic organism affected. The tests are to be conducted using the receiving water in question and the most sensitive species of affected aquatic organisms, as is practical. Whichever value (a or b) is less shall be the maximum allowable concentration, unless this value exceeds that Maximum Numerical Limit, then the numerical limit shall constitute the maximum allowable concentration.

References for these methods are: EPA 600/4-91/002 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving waters to Freshwater Organisms, ~~March, 1989~~ Second Edition, 1994; or EPA 600/4-85/013 90/027F Methods for Measuring the Acute Toxicity of Effluents and receiving waters to Freshwater and Marine Organisms, Cincinnati, Ohio, EMSL, ~~March, 1985~~ Fourth Edition, 1993; or EPA 600/4-87/028 600 R-95/136 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine Estuarine Organisms, Cincinnati, Ohio, EMSL, May, ~~1988~~ 1995.

12. Every person permitted facility discharging effluent to the waters of the Territory Guam shall submit operating reports to the Agency at a frequency to be determined by the Agency. Such reports shall contain information of those physical, chemical and bacteriological parameters which shall be specified by the Agency, and any additional information the Agency may reasonably require.

13. Schedule of Compliance:

a. It is presumed that new and existing permitted point source dischargers will promptly comply with any new or more restrictive water quality-based effluent limitations ("WOBELs") based on adopted water quality criteria.

1 b. Where an existing discharger reasonably believes that it will be infeasible to
2 promptly comply with a new or more restrictive WOBEL, the discharger may
3 request approval from the permit issuing authority for a schedule of compliance.

4
5 c. A compliance schedule shall require compliance with WOBEL, as soon as
6 possible, taking into account the discharger's technical ability to achieve
7 compliance with such WOBEL.

8
9 d. In no event shall the permit issuing authority approve a schedule of
10 compliance for a point source discharge which exceeds five years from the date
11 of a new permit's issuance, or an existing permit's reissuance, or modification.

12
13 e. If the schedule of compliance exceeds one year from the date of a new
14 permit's issuance, or an existing permit's reissuance or modification, the
15 schedule shall set forth interim requirements and dates for their achievement.
16 The dates of completion between each requirement may not exceed one year.
17 If the time necessary for completion of any requirement is more than one year
18 and is not readily divisible into stages for completion, the permit shall require,
19 at a minimum, specified dates for annual submission of progress reports on the
20 status of interim requirements.

21
22 f. The administrative record for the permit shall reflect final permit limits and
23 final compliance dates.

24
25 14. All discharges within this zone S-3 which are not otherwise required to have construction
26 and/or discharge permits under existing Guam Soil Erosion Control Regulations, operating
27 permits and or NPDES, may be required by this Agency to obtain such permits under these
28 regulations.

1 15. Any existing permitted point source discharging to near shore waters of classified as M-1
2 or M-2 classifications as of the effective date of these standards shall submit to the Administrator
3 for approval a plan and schedule for elimination of the discharge to near shore waters . by
4 December 31, 1999. Any such plan shall consider all alternate disposal options and give
5 preferential consideration to eliminating all point source discharges to the waters of the Territory
6 Guam. After approval of the plan by the Administrator, the Administrator shall not certify
7 compliance with these standards to the USEPA in connection with issuance or reissuance of
8 a NPDES permit for the discharge unless the permit includes the aforementioned plan and
9 schedule.

10
11 ~~G) The Administrator shall not certify compliance with these standards to the USEPA in~~
12 ~~connection with issuance of a NPDES permit for a new discharge to near shore waters:~~

13
14 B. Effluent Discharge Limitations For Groundwater Category G-2 Categories G2a, G-2b,
15 And G-3.

16 Any water percolating to the groundwater table is in the state of transition from being a discharge
17 to becoming part of a useable body of water. Because of the difficulty involved in tracing the
18 source and eliminating pollutants after they have reached the ground water table, limitations for
19 discharges to G-2 a, G-2b, and G-3 waters are established in Table III (Appendix). This Table
20 provides criteria for some common water quality parameters. The Agency will set limits for other
21 parameters as necessary on a case-by-case basis.

22
23 The Agency will allow the application of G-3a discharge limitations flows
24 greater than 10,000 gallons per day if it can be shown by an engineering feasibility
25 study that there will be no significant adverse effect on the waters of the Territory.

26
27 The Agency also reserves the right to set more stringent standards than those
28 shown in Table III (Appendix J) if there is reason to believe that significant environmental
29 damage will result from any discharge. Effluent limitations have not been set for G-1 waters
30 because the Agency prohibit such discharges.

1 1. The Agency may allow discharges to G-2 waters if it can be shown by an engineering
2 feasibility study that there will be no significant adverse effects on G-1 waters.

3
4 2. The Agency reserves the right to set more stringent standards than those provided in
5 Section 1503(B) Tables 1 and 2, if there is reason to believe that significant environmental
6 damage may result from the discharge.

7
8 C. Mixing Zones In Receiving Waters.

9 The following criteria requirements apply to all mixing zones:

10
11 1. Mixing zones may be allowed permitted during the NPDES permit process on a case by
12 case basis upon after careful analyses of the nature of the effluent, a thorough study to assess
13 the consequences of the effluent on the environment, and approval of an Environmental Impact
14 Statement. A mixing zone shall be considered designated only when approved by the Guam
15 Environmental Protection Agency and when concurrence of the US EPA has been received.

16
17 2. The area or volume of an individual mixing zone shall be limited to an area or volume that will
18 minimize impacts on uses. Whenever a mixing zone is allowed by the Agency ~~for the mixture of~~
19 ~~an effluent with its receiving waters,~~ the zone in which mixing occurs will not adversely affect the
20 designated uses of the receiving waters. ~~If mixing zones are used, water~~ Water quality standards
21 for a receiving water must be met at every point outside the boundaries of the designated mixing
22 zone.

23
24 3. ~~For those water quality criteria eligible for a mixing zone, alternate~~ Water quality limits will
25 be established if the limits in Section 5104 (2)(b) are to be revised in the zone of mixing.

26
27 4. Mixing zones will not be allowed within the boundaries of Category categories M-1 and S-1.

28
29 5. Mixing Zones shall be restricted such that they do not encroach on areas often used for
30 fish harvesting, particularly of stationary species such as shellfish.

1 6. Whenever mixing zones are allowed, zones of passage, i.e., continuous water routes of the
2 volume, area, and quality necessary to allow passage of free-swimming and drifting organisms with
3 no significant effects produced on their populations, shall be provided.

4
5 ~~B. Where two or more mixing zones are in close proximity, they shall be so defined that a~~
6 ~~continuous zone of passage for aquatic life is available.~~

7
8 7. Biologically important areas, including spawning and nursery areas, and habitat for
9 threatened and endangered species, shall be protected.

10
11 8. ~~No criteria shall be set aside in the mixing zone which shall cause conditions in the mixing zone~~
12 ~~to become lethal to aquatic life and wildlife which may enter the zone or~~ Mixing zones shall not
13 cause conditions to be lethal to those aquatic life and wildlife passing through the zone, or
14 become injurious to human health in the event of a temporary exposure.

15
16 ~~F. The Discharges shall not violate the basic standards applicable to all waters [§5102(A) and~~
17 ~~§5103(E)] nor shall they unreasonably interfere with any actual or probable use of the water within~~
18 ~~the mixing zones.~~

19
20 9. Mixing Zones for Aquaculture Projects : The federal regulations relating to aquaculture
21 (40 CFR 122.56 and 125.11) provide that the aquaculture project area and project approval
22 must not result in the enlargement of any previously approved mixing zone, or include so
23 large a portion of the body of water that a substantial portion of the indigenous biota will
24 be exposed to conditions within the designated projects area. Areas designated for
25 approved aquaculture projects should be treated in the same manner as other mixing zones.
26 Special allowances shall not be made for these areas.

27
28 10. Mixing Zones for the Discharge of Dredged or Fill Material: federal regulations (40
29 CFR 230.11(f) provide guidelines for determining the acceptability of mixing discharge
30 zones. The particular pollutant involved should be evaluated carefully in establishing
31 dredging mixing zones. Dredged spoil discharges generally result in temporary short-term
32 disruption and do not represent continuous discharge that will affect designated uses on a

1 long term. Minimal disruption of uses should be the primary consideration in establishing
2 mixing zones for dredge and fill activities.

3
4
5 11. Critical Low-Flows: During critical low-flow conditions, waters shall be free from
6 substances that settle to form objectionable deposits; float as debris, scum, oil, or other
7 matter; produce objectionable color, odor, taste, or turbidity; cause acutely toxic
8 conditions; or produce undesirable or nuisance aquatic life.

9 Specific low-flow requirements for streams and rivers are adopted to protect designated
10 uses against the effects of toxics (refer to Technical Guidance Manual for Water Quality-
11 based Toxics Control (USEPA, 1991a); Technical Guidance Manual for Performing
12 Wasteloads, Book 6, Design Conditions, (USEPA, 1986c)). In the case of aquatic life, more
13 frequent violations than the assumed exceedence of once every 3 years would result in
14 diminished vitality of stream ecosystems characteristics by the loss of desired species.
15 Numeric water quality criteria should apply at all flows that are equal to or greater than
16 flows specified in Table 3.

17
18 **Table 3**

<u>AQUATIC LIFE</u>	
<u>Acute Criteria (CMC)</u>	<u>1Q10 or 1B3</u>
<u>Chronic criteria (CCC)</u>	<u>7Q10 or 4B3</u>
<u>HUMAN HEALTH</u>	
<u>Non-carcinogens</u>	<u>30Q5</u>
<u>Carcinogens</u>	<u>Harmonic Mean Flow</u>

1
2 **Where:**

3 1Q10 - is the lowest one day flow with an average recurrence frequency of once in 10 years,

4 determined hydrologically;

5 1B3 - is biologically based and indicates an allowable exceedence of once every 3 years. It is

6 determined by EPA's computerized method (DFLOW model);

7 7Q10 - is the lowest average 7 consecutive day low flow with an average recurrence frequency of once
8 in 10 years, determined hydrologically;

9 4B3 - is biologically based and indicates an allowable exceedence for 4 consecutive days once every 3

10 years. It is determined by EPA's computerized method (DFLOW model);

11 30Q5 - is the lowest average 30 consecutive day low flow with an average recurrence frequency of
12 once in 5 years, determined hydrologically; and

13 Harmonic mean flow - is a long term mean flow value calculated by dividing the number of daily flows
14 analyzed by the sum of the reciprocals of those daily flows.

15
16 It should be noted that when a criterion specifies a 4-day average concentration that
17 should not be exceeded more than once every 3 years, this should not be interpreted as
18 implying that a 4Q3 low-flow is appropriate for use as the design flow.

19
20 D. Mixing Zones for Non-Thermal Discharges

21 Non-thermal discharges shall be permitted by the National Pollutant Discharge Elimination System
22 (NPDES) permit process or through the Agency's local permit program, until January 1, 1998 only
23 after careful analysis of the nature of the effluent, and a thorough study to assess the consequences
24 of the effluent upon the environment. Mixing zones for non-thermal discharges may be granted
25 only after careful analysis of the nature of the effluent and a thorough study to assess the
26 consequences of the effluent upon the environment. Mixing zones for non-thermal discharges shall
27 be based on the following models, taking into consideration the criteria in III(B) above.

28
29 1. Mixing Zones for Non-thermal Discharges into Streams and Rivers.

30
31 a. For non-thermal discharges into streams and rivers, the mixing zone, at the point of
32 discharge, is limited to 25% of the cross sectional area of the stream at the minimum flow
33 at which the appropriate water quality standard can be met by thorough mixing of the
34 effluent with the receiving waters.
35

1 b. The length of the mixing zone shall extend downstream no more than 5 times the
2 natural width of the stream at the point of discharge at the minimum flow condition.

3
4 c. The applicable water quality standard must be achieved at all points outside the mixing
5 zone.

6
7 d. Mixing zones will not be permitted in standing bodies of water.

8
9 2. Mixing Zones for Non-Thermal Discharges into Coastal Waters.

10
11 a. For non-thermal discharges to coastal waters, the mixing zone shall be equal in depth
12 to the depth of the water over the diffuser, in width to twice the depth of the water plus
13 the width of the diffuser, and in length to twice the depth of the water plus the length of
14 the diffuser, with the diffuser geographically centered within the mixing zone.

15
16 b. All discharges to marine waters will comply with the ocean discharge criteria
17 promulgated under Section 403(6)(c) of the Federal Clean Water Act.

18
19 **c. When practical, discharges and mixing zones should be located within coastal**
20 **waters entrapped below the thermocline.**

21
22 E. Mixing Zones For Thermal Discharges.

23 Thermal discharges pertain to effluent water with a temperature component either above or below
24 ambient conditions of the receiving body of water. All thermal discharges, existing or proposed,
25 into M-2 or M-3 receiving bodies of water ~~located on M-2 and M-3~~ shall be subject to criteria
26 provisions established in Section 316 (a) of the Federal Water Pollution Control Act (FWPCA),
27 Public Law 95-217. ~~Thermal discharges shall be permitted by the National Pollutant Discharge~~
28 ~~Elimination System (NPDES) permit process. Mixing zone for thermal discharge may be granted~~
29 ~~after careful analysis of the nature of the effluent and a thorough study to assess the~~
30 ~~consequences of the effluent upon the environment.~~

31
32 1. All above-Ambient Discharges:

1 a. Above-Ambient Discharges shall conform to a zone of mixing defined for that
2 particular discharge on a case-by-case basis. This zone of mixing shall be defined by
3 "EPA/505/2-90-001, PB91-127415, March 1991 Technical Support Document For
4 Water Quality- based Toxic Control", ~~the following references~~ or other references
5 depicting appropriate thermal mixing zone models, and take into consideration the
6 following criteria:

7
8 ~~-EPA/505/2-90-001, PB91-127415, March 1991 Technical Support Document~~
9 ~~For Water Quality- based Toxic Control, and take into consideration the following criteria:~~

- 10
11 i. time of exposure;
- 12
13 ii. temperature of effluent;
- 14
15 iii. depth of discharge;
- 16
17 iv. type of environment;
- 18
19 v. volume of discharge;
- 20
21 vi. mass of pollutant rate of critical materials;
- 22
23 vii. aesthetics and the assessment of damage to biota on the population basis.

24
25 ~~Final authority in defining a zone of mixing rests with the Agency.~~

26
27 b. Above-Ambient Discharges shall not increase the temperature of the receiving body
28 of water to cause substantial damage or harm to the flora and fauna or interfere with the
29 beneficial uses assigned therein.

30
31 c. Above-Ambient Discharges shall comply with all other water quality criteria as
32 defined in these standards, and specific criteria established in the discharge permit.

1 d. These zones of mixing shall be monitored by the discharger on a regular schedule
2 established by the NPDES Permit, to ensure compliance with established criteria.

3
4 e. If the Agency, pursuant to notice and opportunity for public hearings, finds evidence
5 that a discharge has caused substantial damage, it may require conversion of such
6 discharge to an approved alternative method. In making such a determination, the Agency
7 may consider:

8 i. the nature and extent of damage to the environment;

9
10 ii. projected lifetime of discharge;

11
12 iii. adverse economic and environmental impacts, marine and terrestrial, resulting
13 from such conversion;

14
15 iv. all available data, reports, surveys and projects related to the discharge;

16
17 v. such other factors which may prove to be appropriate.

18
19
20 2. Above-Ambient Discharges in Existence Prior to Approval of These Standards.

21
22 a. Such discharges shall be given special attention when defining a zone of mixing.
23 All criteria established for part D-1 above, shall apply with special emphasis on
24 specific criteria listed in part D-1a.

25
26 ~~b. Description of mixing zones for Tanguisson and Piti/Cabras Power Plants.~~

27
28 b. Tanguisson Power Plant Zone of Mixing: The zone of mixing for the
29 Tanguisson Power Plant is defined as a rectangle of approximately 10,000 sq.m.
30 with the following reference points.

31
32 i. northern boundary - North side of intake channel

1 ii. south boundary - 1969 ft (600 m) south of intake channel

2
3 iii. eastern boundary - Shoreline at mean high tide

4
5 iv. western boundary - 591 ft (180 m) off-shore to a depth beyond the reef
6 margin of about one meter which is the top of the zone of passage.

7
8 c. Piti/Cabras Zone of Mixing. The zone of mixing for the Piti/Cabras Power Plants
9 combined is the Piti Channel, from the power plants to a distance 300 feet back from
10 where the channel joins the harbor proper and from there to a depth of about one
11 meter or 3.28 feet to a line from the GORCO Pier and the Navy Fuel Pier on Dry
12 Dock Island.

13
14 3. Below-Ambient Discharges.

15 All below-ambient discharges shall follow the same guidelines set down for thermal discharges and
16 be evaluated on a case-by-case basis.

17
18 F. Prohibited Discharges

19 1. No person shall cause or permit:

20
21 a. the discharge of any wastes or wastewater without first securing required
22 NPDES permit(s) or securing local permit(s), as may be required regardless of
23 volume, ~~unless authorized by the Administrator under Section 47106 of the Water~~
24 ~~Pollution Control Act. or unless subject to control or modification required by a~~
25 ~~schedule of compliance established by the GEPA Board of Directors;~~

26
27 b. ~~the discharge of any pollutant in toxic amounts, including the substances which~~
28 ~~may accumulate to toxic amounts, during the expected life of organisms in the~~
29 ~~receiving water, which are lethal to, or which produce deleterious genetic,~~
30 ~~physiological, or behavioral effects in the organisms; any discharge which would~~
31 cause organisms in the receiving waters to exhibit deleterious effects or
32 otherwise impair species recruitment, reproduction or survivorship, or which

1 would cause organisms normally harvested for food to become harmful to
2 humans, wildlife or other organisms, if consumed, except in accordance with
3 Section 5104. This includes the discharge of any radiological, chemical,
4 biological warfare agents, or radioactive wastes and contaminated radioactive
5 materials;

6 ~~c. the discharge of any radiological, chemical, biological warfare agents, or radio-~~
7 ~~active wastes and contaminated radioactive materials from research and medical~~
8 ~~facilities;~~
9

10
11 c. any discharge which would substantially impair anchorage and navigation,
12 including any discharge which the Secretary of the Army, acting through the Corps
13 of Engineers, finds would result in this damage;

14
15 d. any discharge which the Administrator of the United States Environmental
16 Protection Agency has objected to in writing pursuant to any right to object provided
17 by the Federal Water Pollution Control Act, as amended;

18
19 e. any discharge which is in conflict with an approved Territorial Guam plan;

20
21 f. the discharge of sewage from vessels while moored, berthed or docked, or
22 underway in waters of the Territory Guam except through a properly functioning
23 Coast Guard approved type II Marine Sanitation Device; and

24
25 g. any new point source discharge into G-1 waters, because any water
26 discharges within this zone will (by definition) be tributary to groundwater
27 bodies which are actual or potential sources of fresh, potable water supply;

28
29 h. any new point source pollutant discharge into M-1 or S-1, or G-1 waters as
30 defined in §5101 of these Standards;

1 i. any discharge of visible floating materials including scum and foam; and

2
3 **j. point source discharges to storm water drainage, except for storm water.**

4
5 2. All vessels exceeding 400 gross tons which are berthed or docked in the waters of the Territory
6 Guam, without fully functional U.S. Coast Guard approved oil pollution prevention devices (for
7 longer than 72 hours detention) must be completely encircled with flotation booms to contain any
8 discharged oil. The Administrator may require any vessel, regardless of gross tonnage, operating
9 ability, oil pollution prevention devices, duration of moorage or dockage time, will be completely
10 encircled with floating booms if in this opinion such measures are necessary to control potential
11 oil discharges into Territorial waters of Guam including, but not limited to, instances where
12 excessive oil is present on the vessel's deck or in the vessel's bilges; when major machinery repairs
13 are undertaken; or when a vessel cannot close its scuppers effectively during bunkering
14 operations.

15
16 G. Land Disposal Of Treated Waste Waters.

17
18 1. Approval of land disposal of treated liquid wastewater requires that:

19
20 a. waste waters shall be restricted to the premises of the disposal site;

21
22 b. provision shall be made by the discharger for monitoring the quality of the effluent with
23 the exception of single family dwelling units unless there are more than five (5) units
24 connected to a single system, or the Agency requires it after identifying a potential hazard;

25
26 c. all monitoring data and reports required under a discharge permit shall be submitted
27 to the Agency;

28
29 d. land disposal shall not create a public health hazard, a nuisance condition or an air
30 pollution problem;

1 e. these standards do not solely govern water/wastewater to be reused to produce
2 products which may end up in the human food chain, such as crops, animal products. The
3 Agency will consider such reuse on a case-by-case basis using available guidelines on best
4 available technology.

5
6 2. The evaluation for a permit for land treatment and/or disposal of waste-water(s) should include,
7 but not necessarily be limited to consideration of the following items: . .

8
9 a. The type of wastewater(s) proposed for disposal. (The wastewater(s) should be
10 biologically degradable but other wastewater(s) will be considered provided it can be
11 shown that disposal of the wastewater(s) will not adversely affect the designated use of the
12 waters underlying or adjacent to the disposal site.)

13
14 b. The nature of the earth material(s) underlying the disposal site. (The applicant must
15 provide positive assurance that the earth material(s) underlying the proposed disposal site
16 will not allow movement of pollutants into underlying ground waters so as to exceed
17 ground water standards).

18
19 c. The vegetative cover of the disposal site. The selection of a vegetative cover should
20 reflect the disposal season(s), the duration and frequency of disposal and the response of
21 the vegetative cover to the wastewater. If the wastewater proves to be deleterious to
22 vegetative cover, a higher degree to of treatment or another means of disposal will be
23 required.

24
25 3. Improperly and/or inadequately treated sewage shall not be allowed to accumulate on the
26 ground surface in such a manner that it may create a health hazard and/or a nuisance condition.

27
28 4. It shall be a violation of these standards to store, dispose of, or allow to accumulate any solid
29 waste or other deleterious material adjacent to or in the immediate vicinity of any streams, rivers,
30 wetlands, or marine waters in a manner that such material, or contaminated runoff, leachate or
31 residual from such materials, will directly or indirectly enter such waters or wetlands. Such
32 material shall include, but not be limited to sewage sludge, trash, rubbish, garbage, oil, gasoline,

1 chemicals, sawdust, accumulations of manure, and stockpiles of soil.

2
3 5. In case of accidental spills of deleterious materials, responsible persons in charge shall
4 immediately notify the Administrator of any such spills and make every reasonable effort to contain
5 spilled material in such a manner that it will not pollute waters of the Territory Guam.

6
7 6. Wastewater discharged to disposal wells for underground disposal shall receive, prior to
8 discharge, treatment necessary to protect potable water resources and any adjacent marine waters
9 or fresh surface waters. See Table III (Appendix J).

10
11 H. Petroleum Storage Facilities.

12
13 1. Any storage facility storing 55 gallons or more of containing petroleum products or
14 hazardous materials in any single above-ground container shall be substances not directly
15 adjacent to navigable waters and below the SPCC capacity requirements of 600 gallons
16 provided with secondary containment to protect Guam's groundwater resources and navigable
17 waters from potential threat to from oil or hazardous substances materials discharges.

18
19 2. Facilities having a capacity of 660 gallons or greater are also required to develop a
20 Storage Facility Spill Prevention (SFSP) Plan. The Plan shall be based on the storage
21 capacity, type of product/hazardous materials and the potential threat the respective facility
22 may pose to Guam's groundwater resources. In case of spills the requirements shall be adhered
23 to: Facilities should refer to 40 CFR Part 112 guidelines and/or contact the Agency when
24 developing a SFSP Plan for their respective facility.

25
26 3. Pipeline systems that transport petroleum products and hazardous materials should
27 comply with the following requirements with the exception of facilities regulated under the
28 underground storage tank (UST) regulations, 40 CFR Part 280.

29
30 a. No pipeline system component may be buried unless that component has
31 an external protection coating that is designed to mitigate corrosion of the buried
32 component.

1 b. A cathodic protection system must be installed for all buried facilities to
2 mitigate corrosion that might result in structural failure. A test procedure must
3 be developed to determine whether adequate cathodic protection has been
4 achieved.

5
6 1. Each operator shall, each calendar year (annually) conduct tests on each
7 buried (in contact with the ground) pipeline system to determine whether
8 the entire cathodic protection system is adequate and working
9 properly. If the system is inadequate or not working properly the
10 operator shall immediately take appropriate action to repair and correct
11 the cathodic protection system to ensure proper corrosion protection. In
12 addition, cathodic protection rectifiers shall be inspected every 2 months.
13 Records of such inspections, and maintenance should be kept available
14 at the facility for the service life of the cathodic protection system.
15 Cathodic protection system inspections shall be carried out consistent
16 with the API 570 guidelines.

17
18 c. No pipeline system shall be put in operation unless it has been pressure
19 tested and found to be without leakage. In addition, no segment of pipeline that
20 has been replaced, relocated, or otherwise changed shall be returned to service
21 until it has been pressure tested and found to be without leakage.

22
23 1. The operator shall conduct pressure testing of its pipeline systems
24 to ensure that the pipeline system is not leaking. These tests shall
25 be conducted within 5 years of the initial pressure test and at
26 succeeding intervals not exceeding 5 years cycles. Records of such
27 tests shall be kept in the facility files for the service life of the
28 facility.

29
30 d. No pipeline system shall be put in operation unless a operator prepares and
31 follows, for each pipeline system, a manual of written procedures for conducting
32 normal operations and maintenance activities and handling abnormal operations

1 and emergencies. The manual shall be prepared before initial operation of a
2 pipeline system commences, and appropriate parts shall be kept at locations
3 where operations and maintenance are conducted.

4
5 1. The manual should contain a preventive maintenance program that
6 ensures the continued operational reliability of any pipeline or
7 pipeline system affecting quality, safety, and pollution prevention.
8 The program shall include all applicable guideline prescribed in the
9 latest edition of the API 570, Piping Inspection Code. The manual
10 should be made available to the regulatory agency for review upon
11 its request.

12
13 e. Each operator shall maintain each valve that is necessary for the safe
14 operation of its pipeline systems in good working order at all times to the extent
15 that leaks are prevented. In addition, each operator shall every six months,
16 inspect each valve in the pipeline system to ensure that it is functioning properly
17 and not leaking.

18
19 f. Operators shall provide the Guam EPA with a schedule of compliance for
20 existing pipelines installed before the effective date of these standards, which do
21 not have cathodic protection and external protection coating. The schedule shall
22 be subject to review and approval by the Administrator of Guam EPA.

23
24 Section 5105 Definitions:

25
26 A. Definitions.

27 The following definitions are used for the purpose of clarification where such terms, phrases and
28 words are used or implied in the text of these water quality standards.

29
30 ACUTE TOXICITY: Any toxic effect that is produced within a short period of time,
31 generally 96 hours or less. Although the effect most frequently considered is mortality, the
32 end result could be any harmful biological effect.

1 ADMINISTRATOR: Primary responsible person of the Guam Environmental Protection Agency.

2
3
4 ADVERSELY AFFECT: Damage to the waters of the Territory of Guam that result results in,
5 but is not limited to any of the following:

6
7 a. substantial increase or decrease in abundance or distribution of any species or
8 representative of the highest community development achievable in receiving waters
9 of comparable quality. A substantial decrease in abundance or diversity of indigenous
10 species. Change(s) in community structure to resemble a simpler successional stage
11 than is that are not natural for the locality and season in question;

12
13 b. degradation in appearance, odor or taste of the waters;

14
15 c. elimination of an ~~established or potential economic or recreational~~ a designated
16 or existing use of the waters; or

17
18 d. reduction of the successful completion of life cycles of indigenous species,
19 including those of migratory species.

20 7) ~~Substantial reduction of community heterogeneity or tropic structure.~~

21
22 AGENCY: Guam Environmental Protection Agency (GEPA).

23
24 AMBIENT: ~~Existing conditions in surrounding waters taking into account~~
25 ~~established human activity at that time and place (should approach natural conditions~~
26 ~~that would be present without the presence of human activities):~~ Existing environmental
27 conditions in waters.

28
29 AMBIENT MONITORING: Monitoring that is carried out to determine ambient conditions.
30 It is typically used for comparison purposes (e.g. changes over time and/or differences
31 between locations.) ~~within lakes, rivers, estuaries, wetlands, springs, swamps, mangroves, etc.,~~

1 to determine the existing natural system.

2
3 AQUIFER: A water-bearing stratum of permeable rock, sand or gravel.

4
5 **BACKGROUND CONDITIONS: The biological, chemical, and physical conditions of**
6 **a water body, upstream from the point or nonpoint source discharge under consideration.**
7 **Background sampling location in an enforcement action will be upstream from the point of**
8 **discharge, but not upstream from other inflows. If several discharges to any water body**
9 **exist, and an enforcement action is being taken for possible violations to the standards,**
10 **background sampling will be undertaken immediately upstream from each discharge.**

11
12 BASAL GROUNDWATER: Fresh groundwater floating directly on sea water.

13
14 **BENEFICIAL USES: Desirable uses that water quality should support.**
15 **Examples are drinking water supply, primarily contact recreation (such as swimming), and**
16 **aquatic life support.**

17
18 BEST AVAILABLE TECHNOLOGY: Subject to economic and engineering feasibility limitation,
19 BAT should incorporate the best available current technology with a capacity up to and including
20 no discharge of pollutants. Considerations include the age of the equipment and facilities involved;
21 the process used; the engineering aspects of applying various types of control techniques; process
22 changes; the cost of achieving the effluent reduction resulting from applying the technology; and
23 non-water quality environmental impacts.

24
25 **BEST MANAGEMENT PRACTICE (BMP): Schedules of activities, prohibitions of**
26 **practices, maintenance procedures, and other management practices to prevent or reduce**
27 **the pollution of waters. BMPs also include but are not limited to treatment requirements,**
28 **operating procedures, and practices to decrease or eliminate generation of pollutants and**
29 **to control plant site runoff, spillage or leaks, sludge or wastewater disposal, aquaculture**
30 **pollutants, or drainage from raw material storage.** Application of the most current and
31 effective techniques, methods and procedures, practices or design and performance standards for
32 a specific purpose.

1 ~~BEST POLLUTANT REMOVAL OR CONTROL: A feasible process which, as demonstrated~~
2 ~~by general use, demonstration process or pilot plants represents good engineering practice at a~~
3 ~~reasonable cost at the time a discharge permit is issued by the Agency.~~

4
5 **BIOASSAY: A test used to evaluate the relative potency of a chemical or a mixture of**
6 **chemicals by comparing its effect on living organisms with the effect of a standard**
7 **preparation on the same type of organisms.**

8
9 **BIOLOGICAL MONITORING: Monitoring which uses aquatic organisms to indicate**
10 **compliance with water quality standards or effluent limits and to document water quality**
11 **trends. Methods of biological monitoring may include, but are not limited to, toxicity**
12 **testing (such as ambient toxicity testing or whole-effluent toxicity testing) and biological**
13 **surveys. It is also known as biomonitoring.**

14
15 BIOTA: The animal, plant and microbial life of a region.

16
17 **BOARD: Board of Directors of Guam Environmental Protection Agency.**

18
19 BOUNDARY: The physical interface between adjoining discreet areas. A fine line as applied to
20 ground waters, but as applied to surface and marine waters the line may shift due to storm
21 conditions, tides, water current changes and surface winds.

22 **CATHODIC PROTECTION SYSTEM: An external corrosion control system that is in**
23 **conformance with standard engineering practice including the appropriate standards under**
24 **the National Association of Corrosion Engineers (Standard RPO 169-92).**

25
26 **CHRONIC: A stimulus that lingers or continues for a relatively long**
27 **period of time, often one-tenth of the life span or more. Chronic should be considered a**
28 **relative term depending on the life span of an organism. The measurement of a chronic**
29 **effect can be reduced growth, reduced reproduction, etc., in addition to lethality.**

30
31 COASTAL WATERS: Includes near-shore, off-shore and estuary waters within the jurisdiction
32 of the Territory Guam.

1 COLIFORM BACTERIA:

2
3 a. TOTAL COLIFORM BACTERIA: All of the aerobic and facultative anaerobic
4 gram-negative, non spore-forming, rod-shaped bacteria that ferment lactose broth
5 with gas formation within 48 hours at 35 degrees centigrade +/- 0.5 degrees
6 centigrade.

7
8 b. FECAL COLIFORM: That portion of the coliform group which is present in the
9 gut or the feces of warm-blooded animals. It generally includes organisms capable
10 of producing gas from lactose broth in a suitable culture medium within 24 hours at
11 44 degrees centigrade +/-0.2 degrees centigrade. This elevated temperature will
12 eliminate non-fecal and non-coliform organisms and selectively culture fecal coliform
13 bacteria.

14
15 COMMUNITY: An association of living organisms in a given area or region in which the various
16 species are more or less interdependent upon each other.

17
18 ~~CONTROLLABLE WATER QUALITY: The aspects of water quality that can be protected or~~
19 ~~modified by human activity.~~

20
21 ~~CONSERVATION: Planned management of a natural resource to prevent exploration, destruction~~
22 ~~or neglect.~~

23
24 CREATED WETLAND: A human-made wetland. Created wetlands are designed to meet a
25 variety of human benefits including, but not limited to, the treatment of water pollution discharges
26 (e.g., municipal waste-water, storm water, etc.) and the mitigation of wetland losses permitted
27 under Section 404 of the Clean Water Act. This term encompasses the term "constructed
28 wetland" as used in other EPA guidance and documents. Created wetlands designed and
29 specifically created and used solely for the purpose of wastewater treatment do not qualify as
30 waters of Guam. The discharges from the created wetlands must meet applicable water quality
31 standards for the receiving waters.

1 CRITERIA: Elements of water quality standards, expressed as constituent concentrates,
2 levels or narrative statements representing a quality of water that supports a particular use.
3 When criteria are met, water quality will generally protect the designated use.

4
5 CRITERIA CONTINUOUS CONCENTRATION (CCC): A chronic concentration. It is
6 the 4-day average concentration of a pollutant in ambient water that should not be exceeded
7 more than once every 3 years on average.

8
9 CRITERIA MAXIMUM CONCENTRATION: An acute concentration. It is the 1-hour
10 average concentration in ambient waters that should not be exceeded more than once every
11 3 years on average.

12
13 DESIGNATED USES: Those uses specified in water quality standards for each water body
14 or segment whether or not they are being attained.

15
16 ~~DEVELOPMENT: Means the placement or erection of any solid material or structure, including~~
17 ~~structures on pilings, discharge or disposal of any dredged material or of any gaseous, liquid, solid~~
18 ~~or thermal waste, grading, removing, dredging, mining or extraction of any materials, change in~~
19 ~~the density or intensity of use of land, including, but not limited to, subdivision of land and any~~
20 ~~other division of land including, lot parceling, change in the intensity of use of water, ecology~~
21 ~~related thereto or of access thereto, construction or reconstruction, demolition or alteration of the~~
22 ~~size of any structure, including any facility of any private, public or municipal utility, and the~~
23 ~~removal of significant vegetation.~~

24
25 ~~DIRECT MOVEMENT: The movement of effluent through the soil and underlying rock strata~~
26 ~~in such a manner that pollutants which would adversely impact on the designated uses of the~~
27 ~~receiving water are not removed.~~

28
29 ~~DISCHARGE: The direct or indirect outflow of liquid waste or wastewater ~~substance or~~~~
30 ~~material from any domestic, commercial, industrial, agricultural or any other source onto land or~~
31 ~~into air, land and waters of the Territory of Guam. The term "discharge" includes either the~~
32 ~~discharge of a single pollutant or the discharge of multiple pollutants.~~

1 DISCHARGER: Any person or entity that discharges any wastewater, substance or material into
2 the waters of the Territory of Guam whether or not such substance causes pollution.

3
4 EFFLUENT: The liquid waste that is discharged directly or indirectly, into a waterbody,
5 storm drain, or sewage system. ~~Solid, liquid or gaseous material discharged into the~~
6 ~~environment.~~

7
8 EFFLUENT LIMITATION: Any restriction or prohibition established under territorial Guam
9 or Federal Law including, but not limited to parameters for toxic and non-toxic discharges,
10 standards of performance for new sources, or ocean discharge criteria. The restrictions or
11 prohibitions shall specify quantities, rates, and concentrations of chemical, physical, biological and
12 other constituents which are discharged to waters of the Territory Guam.

13
14 ENTEROCOCCI: are a subgroup of fecal streptococci and are able to grow in 6.5% sodium
15 chloride, at pH 9.6, and at 10°C and 45°C. The enterococci portion of the fecal
16 streptococcus group is a valuable bacterial indicator for determining the extent of fecal
17 contamination of recreational surface waters. Studies indicate that swimming-associated
18 gastroenteritis is related directly to the quality of the bathing water and that enterococci are
19 the most efficient bacterial indicator of water quality.

20
21 ENVIRONMENTAL IMPACT ASSESSMENT: ~~A documentary evaluation of the impact upon~~
22 ~~the environment of any human activity.~~

23
24 ENVIRONMENTAL IMPACT STATEMENT: ~~A documentary presentation justifying an~~
25 ~~adverse environmental impact.~~ A document analyzing impacts of alternative proposed actions
26 and identifying, in detail, mitigation for significant environmental impacts of a proposed
27 project or activity.

28
29 ENVIRONMENTAL PROTECTION PLAN: ~~A written document required by the Agency~~
30 ~~prior to the start of construction in which the developer/contractor describes the~~
31 ~~methods/equipment selected for use in the development, the environmental problems expected~~
32 ~~during and after development and the methods or equipment chosen to avoid, mitigate or control~~

adverse effect on the environment.

ESCHERICHIA COLI (*E. coli*): Members of the fecal coliform bacteria defined as gram-negative nonspore-forming rods that ferment lactose with gas formation within 48 hours at 35°C. *E. coli* is considered indicator organisms of water quality. *E. coli* is one of two efficient bacterial indicators of water quality for freshwater recreational sites.

ESTUARY: A region of interaction between near-shore waters and rivers within which tidal action and river flow bring about mixing of fresh and salt water.

EXISTING USES: Those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.

EXTERNAL PROTECTION COATING: A coating designed to mitigate corrosion of the buried or submerged component; has the sufficient adhesion to the metal surface to prevent under film migration of moisture; is sufficiently ductile to resist cracking; has enough strength to resist damage due to handling and soil stress; and supports any supplemental cathodic protection.

FECAL COLIFORM: See "Coliform".

FRESHWATER : All waters with dissolved inorganic ions less than 500 parts per million (ppm).

~~FWPCAA: Federal Water Pollution Control Act Amendments of 1972, as amended by the 1987 Clean Water Act.~~

GEOMETRIC MEAN: An estimate of central tendency of log-normal data and is equal to the antilog of the arithmetic mean of the logarithms of the data points. The geometric mean is derived from data points using the equation:

$$\log \bar{x}_g = \sum (\log x_i) / n$$

where:

\bar{x}_g = geometric mean
 x_i = original data points
 n = number of samples

To obtain a geometric mean, five samples (taken within 30 days) should be applied to the equation. (From Standard Methods 18th ed. 1992)

HABITAT: The environment occupied by individuals of a particular species, population or community.

HAZARDOUS MATERIALS: A substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

~~HIGHER DEGREE OF TREATMENT: Any physical, biological and/or chemical method directed at removing a specified portion of the remaining pollutants after secondary treatment.~~

~~HYDROLOGIC CYCLE: That natural system dealing with the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.~~

INDUSTRIAL WASTE: Any discharge containing gaseous, solid, dissolved or suspended material resulting from any process of industry, manufacturing, trade or business or from the processing of any natural resource, together with such sewage as may be present, which may pollute the waters of the territory Guam.

INSTANTANEOUS READING: a single sample result obtained from the appropriate method analysis during a one-time sampling event.

LAND TREATMENT: Any treatment of wastewater which involves the use of plants, soil surface and the soil matrix for wastewater treatment, including irrigation systems, infiltration systems,

1 overland flow systems and other systems of wastewater treatment via land application.

2
3 **LETHAL CONCENTRATION - 50 PERCENT (LC₅₀):** That concentration of a toxic substance
4 in water which for a given time period causes 50 percent of the exposed individuals of an aquatic
5 test organism to die.

6
7 **LIMITED BODY CONTACT:** Any recreational or other use in which contact with the water is
8 either incidental or accidental and in which the probability of ingesting appreciable quantities of
9 water is minimal.

10
11 **LINE OF MEAN HIGH WATER:** The shoreline as indicated on the 1:24,000 Series
12 (Topographic) Maps of the Island of Guam prepared by the U.S. Geological Survey.

13
14 **MARINE SANITATION DEVICE:** Equipment or process for installation on vessel or water craft
15 which is designed to receive, retain, treat, or discharge sewage or other pollutants or any process
16 to treat such sewage, or other pollutants which has received U.S. Coast Guard approval.

17
18 **MARINE WATERS: Near-shore and estuary waters within the jurisdiction of Guam**
19 **having dissolved inorganic ions (salinity) greater than 500 parts per million (ppm).**

20
21 **MIXING ZONE:** The area or volume of a waterbody within which effluent(s) shall become
22 physically mixed with the receiving waters through initial dilution. Initial dilution is the process
23 through which the wastewater immediately mixes with the receiving water due to the momentum
24 of the waste discharge and the difference in density between the discharge and the receiving water.
25 ~~The total area or volume of water designated as a mixing zone shall be limited to that area or~~
26 ~~volume which will not interfere with biological communities or populations of important species~~
27 ~~to a degree which is damaging to the ecosystem and which will not cause substantial damage to~~
28 ~~or impairment of designated water uses within the mixing zone or in surrounding waters. A mixing~~
29 ~~zone shall be considered designated only when approved by the Guam Environmental Protection~~
30 ~~Agency and when concurrence of the U.S. EPA has been received.~~

31
32 **MUNICIPAL WASTES:** Water carrying human and animal wastes from homes, buildings,

1 industrial establishments and other places either alone or in combination with industrial wastes.

2
3 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT: A
4 federal program, authorized under the Clean Water Act, for issuing, modifying, revoking
5 and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing
6 pretreatment requirements. permit used as the principal regulatory tool for reducing the quantity
7 permit used as the principal regulatory tool reducing the quantity of pollutant discharges to the
8 waters of the territory and for obtaining data on point source discharges.

9
10 NATURAL CONDITIONS: The resulting water quality in the absence of any measurable
11 pollution effect due to human activities.

12
13 NEAR-SHORE WATERS: All coastal waters lying within a defined reef area; all coastal waters
14 of a depth of less than ten seaward to a depth seventeen fathoms (60 102 feet, 18.3 31.10 m.),
15 and all coastal waters greater than 10 fathoms up to or to a distance off-shore of 1,000 feet (305
16 m.), whichever is greater. off-shore where there is no defined reef area.

17
18 NEW SOURCE: Any wastewater facility sources, the for which construction of which is
19 commenced on or after the 1968 effective date of these standards.

20
21 NONPOINT SOURCE: Diffuse pollution sources (i.e. without a single point of origin or not
22 introduced into a receiving water from a specific outlet), that are not regulated as point
23 sources. The pollutants are generally carried off the land by storm water.

24
25 NONPOINT SOURCE POLLUTION: Pollution from nonpoint sources. In practical terms,
26 nonpoint source pollution generally results from sources such as on-site sewage disposal,
27 automobiles, storm drain runoff and agricultural runoff.

28
29 OFF-SHORE WATERS: All coastal waters beyond the limits defined for "near-shore waters" to
30 the Territorial of Guam Limit as recognized by International
31 Law.

1 ~~OIL SPILL PREVENTION DEVICES: Shall mean any U.S. Coast Guard approved device, such~~
2 ~~as an oil/water separator, a sludge tank (for oily deposits), a standard discharge connection or~~
3 ~~other equipment or apparatus required by the MARPOL Convention of 1973/1978 for the~~
4 ~~prevention of oil pollution of vessels.~~

5
6 OTHER WASTE: Garbage, municipal refuse, sand, offal, oil, tar, chemicals and all other
7 substances which may pollute the waters of the territory Guam.

8
9 OUTFALL: The conduit from its connection to a from wastewater treatment facilities/storm
10 water drainage to its outlet through diffusers into off-shore waters.

11
12 PARABASAL GROUNDWATER: Fresh groundwater hydraulically connected with basal water
13 but lying directly on impermeable basement rock.

14
15 PASSAGEWAY: A continuous stretch where water characteristics are affected only by the
16 environment in such a manner that the free flow or continuous drifting of biota is always possible.

17
18 PERMIT: A permit issued pursuant to Section 47106 of the Guam Water Pollution Control Act.

19
20 PERSON(S): Means any individual, firm, partnership, association or corporation, both public and
21 private, including the agencies of the Government of Guam and of the United States of America.

22
23 PIPE or LINE PIPE: A tube, usually cylindrical, through which oil flows from one point to
24 another.

25
26 PIPELINE SYSTEM: A pipeline through which oil or hydrocarbon fuel moves including,
27 but not limited to line pipe, valves, other appurtenances connected to line pipe, fabricated
28 assemblies associated with pumping units, and delivery stations, and fabricated assemblies
29 therein. Systems included terminal and overland (above and below ground) pipeline
30 systems.

31
32 POINT SOURCE: Any discernible, confined and discrete conveyance including, but not limited

1 to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock,
2 concentrated animal feeding operation, or vessel or other floating craft from which pollutants are
3 or may be discharged. This term does not include flows from irrigated agriculture, or agricultural
4 storm water runoff.

5
6 **POLLUTANT: Means dredged spoil, solid waste, incinerator residue, sewage, garbage,**
7 **sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat,**
8 **wrecked, or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and**
9 **agricultural waste discharged into water.**

10
11 POLLUTION: The alteration of the physical, chemical, or biological integrity and or radiological
12 integrity properties of any waters of the Territory Guam due to human activities which
13 adversely and unreasonably impairs the water quality of the territory or which renders said waters
14 hazardous to human health or harmful or detrimental to the aquatic and wildlife in or about the
15 waters or to the most beneficial uses of the waters.

16
17 POTABLE WATER RESOURCES: Waters of the Territory Guam actually used or intended to
18 be used for drinking water or general domestic use.

19
20 **PRESSURE TESTING: The application of internal pressure above the normal or maximum**
21 **operating pressure to a pipeline or a segment of pipeline, under no-flow conditions, for a**
22 **fixed period of time, utilizing a liquid test medium. Pressure testing will be consistent with**
23 **the pressure testing requirements to the extent it is appropriate under the Department of**
24 **Transportation pipeline safety regulations (Subpart E-Pressure Testing).**

25
26 **PRIMARY TREATMENT: A level of sewage treatment that involves settling or screening to**
27 **separate sewage solids from liquid wastes.**

28
29 RECEIVING WATER(S): Water(s) of the Territory Guam into which wastes or wastewater are,
30 or may be discharged.

31
32 RESTORATION: Return of a natural resource to a close approximation of its condition

1 prior to disturbance. ~~An activity returning a wetland from a disturbed or altered condition with~~
2 ~~lesser acreage or functions to a previous condition with greater wetland acreage or functions. For~~
3 ~~example, restoration might involve the plugging of a~~
4 ~~drainage ditch to restore the hydrology to an area that was a wetland before the~~
5 ~~installation of the drainage ditch.~~

6
7 SCHEDULE OF COMPLIANCE: A schedule of corrective measures and times including an
8 enforceable sequence of actions or operations leading to compliance with any control regulation
9 or effluent limitation in a specified time period.

10
11 SECONDARY TREATMENT: A level of sewage treatment that involves the introduction of
12 bacteria which bind to solids and aid in their removal. The liquid wastewater is also
13 partially disinfected.

14
15 SEWAGE: The water-carried waste products from the residences, public buildings, institutions
16 or other buildings, including the excrement or other discharge from the bodies of human beings
17 or animals, together with such ground water infiltration and surface water as may be present.

18
19 SHELLFISH: Mollusks, crustaceans and other forms of marine animal and plant life other
20 than finfish, marine mammals and birds.

21
22 SPECIAL AQUATIC SITES: Sites possessing special ecological characteristics and values
23 including wetlands, wildlife sanctuaries and refuges, mud flats, vegetated shallows, coral reefs,
24 riffle and pool complexes.

25
26 STORM WATER RUNOFF: Water from rain which travels via flow across surfaces to
27 storm drain systems or receiving waters. As it flows, it often picks up pollutants such as soil,
28 automobile fluids, animal wastes, pesticides and fertilizers.

29
30 SURFACE WATERS: Any natural or artificial water source including all streams, sinkholes,
31 lakes, ponds, wetlands, impounding reservoirs, inland watercourses and waterways, springs,
32 irrigation systems and all other inland water bodies or accumulated waters. For the purpose of this

1 regulation, the term does not include coastal waters or those subject to the ebb and flow of tides.

2
3 THERMAL DISCHARGE: Discharge of water into the environment which has temperature
4 component either above or below the temperature of the receiving body of water.

5
6 TOXIC: ~~Lethal, teratogenic or mutagenic, or otherwise damaging to man or other living~~
7 ~~organisms.~~ Causing death, disease, behavioral abnormalities, cancer, genetic mutations,
8 physiological malfunctions (including malfunctions in reproduction) or physical
9 deformations in organisms. The quantities and exposures necessary to cause these effects
10 can vary widely.

11
12 TOXICITY TEST: A procedure to determine the toxicity of a chemical or an effluent using
13 living organisms. A toxicity test measures the degree of effect on exposed test organisms of
14 a specific chemical or effluent.

15
16 TRANSITION ZONE: In basal water the interface between the bottom of the freshwater lens and
17 the underlying saltwater. Salinity is low at the top of the transition zone and increases to that of
18 seawater at the bottom of the zone.

19
20 UPLAND: Any area that does not qualify as wetland because the associated hydrologic regime
21 is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics
22 associated with wetlands, ~~or is defined as open waters.~~

23
24 WASTEWATER: Sewage, industrial waste, or other waste, excluding thermal discharge, or any
25 combination of these, whether treated or untreated, plus any admixed land runoff.

26
27 WATER QUALITY STANDARDS: ~~The designated water body uses or classifications and the~~
28 ~~criteria including anti-degradation provisions and provisions for implementation to protect those~~
29 ~~uses and classifications.~~ Provisions of law which consist of designated use or uses of a
30 waterbody or a segment of a waterbody and the water quality criteria that is necessary to
31 protect the use or uses of that particular waterbody. Water quality standards also include
32 an anti-degradation policy, and may contain various implementation policies.

1 WATERS OF THE TERRITORY GUAM: All waters within three miles from the high waterline
2 surrounding Guam, streams (including intermittent streams), lakes, wells, springs, wetlands,
3 irrigation systems, marshes, watercourses, waterways, sink holes, drainage systems and other
4 bodies of water, surface and underground, natural or artificial, publicly or privately owned.

5
6 WETLAND: An area that is inundated or saturated by surface water or groundwater at a
7 frequency and duration sufficient to support, and that under normal circumstances does
8 support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

9 Wetlands typically include swamps, marshes, bogs and similar areas. Means areas of land
10 where the water table is at, near or above the land surface long enough each year to result in the
11 formation of characteristically wet (hydric) soil types, and support the growth of water
12 dependent (hydrophytic) vegetation. Wetlands include, but are not limited to, marshes, swamps,
13 mangroves, natural ponds, surface springs, estuaries, bogs, and other such low-lying or similar
14 areas. Inland wetlands will include all wetlands meeting the following conditions:

15 1) Wetlands greater than one hectare in size with less than 0.5% (ocean derived) salinity, and 2)
16 Palustrine, Riverine and Lacustrine wetlands with greater than 30% wetland vegetation cover.
17 Wetlands must meet applicable water quality standard requirements. based on where it is situated
18 in accordance with Category Classification of the Water Quality Standards.

19
20 WETLAND FUNCTIONS: The beneficial uses of wetlands which are protected by these water
21 quality standards including but not limited to groundwater recharge/discharge, flood water
22 retention/attenuation, sediment stabilization, nutrient removal/transformation, wildlife
23 diversity/abundance, aquatic diversity/abundance, and recreation.

24
25 WHOLE BODY CONTACT RECREATION: Any recreation or other use in which there is
26 whole body contact with the water (e.g., including but not limited to activities such as skin
27 diving and swimming), involving a risk sufficient to pose a significant health hazard either by
28 contact with or ingestion of the water.

29
30 ZONE OF PASSAGE: Shall mean a A continuous water route which joins segments of river,
31 stream, reservoir, estuary, or channel above, below, or around a mixing zone without going
32

1 through the mixing zone. As a minimum, no less than one-third of the cross-section of the water
2 body shall be retained in compliance with the water quality criteria in Section H.

3
4 Appendix F

5
6 Section 5106 § 401 Certifications

7
8 ~~Guidelines for the Review and Issuance of 401 Water Quality Certification Pursuant to Section~~
9 ~~401 of the Federal Clean Water Act Applicable to All Waters of the Territory Guam Including~~
10 ~~Wetlands and Special Aquatic Sites.~~

11
12 A.I. Primary Goal goals of the § 401 Water Quality Certification (WQC)

13
14 1. To restore and maintain the biological integrity of Guam's waters;

15
16 2. To protect the Territory's waters of Guam and special aquatic areas and wetlands
17 from chemical, physical, and biological impacts and other types of alterations, and

18
19 3. To eliminate all discharges of pollutants (including dredged and fill
20 materials).

21 ~~b) Guam 401 Certification covers any activity including, but not limited to the~~
22 ~~construction or operation of facilities which may result in any discharges.~~

23
24 B. H. Applicability for § 401 Water Quality Certification WQC

25
26 As a requirement of Section 401, Water Quality Certification (WQC) the Clean
27 Water Act of 1977 (Public Law 95-217), "Any applicant for a Federal license or permit to
28 conduct any activity including, but not limited to, the construction or operation of facilities, which
29 may result in any discharge into the navigable water, shall provide the licensing or permitting
30 agency a certification from the State or Territory, in which the discharge originates or will
31 originate, or if appropriate, that any such discharge will comply with the applicable provisions of
32 sections 301, 302, 303, 304, 306, 307, 318 and 405, of this Act". Of concern here are the

1 ~~construction activities and as one of statements required in the certification is a statement that~~
2 ~~there is reasonable assurance that the activity will be conducted in a manner which will not violate~~
3 ~~applicable water quality standards (WQS).~~

4
5 **1. An applicant for a federal license or permit to conduct any activity including, but not**
6 **limited to, the construction or operation of facilities which may result in any discharge into**
7 **waters of the United States, shall provide the licensing or permitting agency a 401 WQC**
8 **from the Agency, certifying that the discharge will comply with Guam Water Quality**
9 **Standards.**

10
11 **2. The following more common federal permits require a 401 WQC prior to issuance: (it**
12 **is recommended that the applicant check with the issuing Federal agency).**

13
14 **a. Section 404 Permit of the Clean Water Act of 1977. This section of the Act**
15 **prohibits the discharge of dredged or fill material into waters of the United**
16 **States without a permit from the U.S. Army Corps of Engineers (ACOE).**
17 **Discharge refers to the physical placement of materials into waters. Dredge or**
18 **fill materials in this case are heterogeneous in nature.**

19
20 **b. Nationwide Permits (NWP) under Section 404 of the Clean Water Act.**
21 **The Agency may elect to deny, certify or waive 401 WQC for all or certain**
22 **proposed NWPs. The Agency may determine that some NWPs do not warrant**
23 **an "insignificant" impact determination which may apply to other U.S.**
24 **jurisdictions or as modified through regional conditioning. Because Guam has**
25 **a proportionally small wetland resource base, unique landscape, and water**
26 **quality resource management and biological considerations that differ from the**
27 **national perspective, the Agency often requires individual permit reviews of**
28 **NWPs. The permit reviews may entail the application of a "water dependency**
29 **test" and/or a practicable alternative analysis as determined to be necessary by**
30 **the Administrator.**

31
32 **c. Section 402 of the Clean Water Act of 1977. This section prohibits the**

1 discharge of dredged or fill material without a permit from the USEPA.
2 Dredge or fill materials in this case are homogeneous in nature.

3 d. National Pollution Discharge Elimination System (NPDES) permits are
4 required under Section 402 of the Federal Clean Water Act for a number of
5 effluent, storm and waste water discharges to Waters of the Unites States.
6 This permit (system) requirement is typically associated with continuous or
7 periodic point source discharges from treatment plants and other industrial
8 and commercial facilities to control surface water pollution and ultimately
9 improve and/or maintain water quality of receiving waters. The assignment
10 of pre-treatment and monitoring performance standards and conditions are
11 generally required for target water quality parameters . Section 401 Water
12 Quality Certification must be issued for all NPDES permits.
13

14
15 A. ~~The goals are to restore and maintain a biological integrity of the territory's waters and to~~
16 ~~eliminate all discharges of pollutants (including dredged and fill materials.)~~

17
18 C. § 401 WOC Authority.

19 The Administrator of the Agency is the designated issuing authority for § 401 WOC.

20
21 D. IV. Applicable Laws, Statues and Regulations

22
23 1. Public Law 92-500, Federal Water Pollution Control Act (FWPCA) of 1972.

24
25 2. Public Law 95-217, Clean Water Act (CWA) of 1977 (Note: Some changes are
26 amendments to the FWPCA and some are independent provisions.)

27
28 3. Title 10, Chapter 47, Guam Code annotated (GCA), Water Pollution Control Act, as
29 amended by Public Law 17-87.

30
31 4. Guam Water Quality Standards.
32

1 ~~5. Note: The Federal Nationwide 401 Permits are inapplicable in Guam.~~

2
3 E. V. Application Requirements and Contents

4
5 1. A § 401 WQC application Application should be filed at least 60 days prior to the needed
6 ~~date of the 401 WQC.~~ construction or discharge date.

7
8 2. Before issuing a § 401 WQC, the Agency will collect a certification fee to be assessed
9 in accordance with a fee schedule as established by the Agency. ~~There is no filing fee for~~
10 ~~the 401 WQC.~~

11
12 2. 3. An applicant for 401 WQC shall submit to the Administrator a complete completed
13 application form (available from the Agency). This form requires information on the
14 proposed project including, but not limited to: description of the discharge involved in the
15 ~~activity for which certification is sought, with a request for certification signed by the applicant.~~
16 ~~Each application shall include the following:~~

17
18 a. A description of the facility or activity activity, and associated discharges of
19 any discharge into territory's Guam's waters which may result from the conduct of
20 any activity including, but not limited to, the construction or operation of the facility,
21 including the biological, chemical, thermal, and other characteristics of the discharge,
22 and the location or locations at which such discharge may enter territory's waters.

23
24 b. A description of the system or methods for treating function and operation of
25 equipment or facilities to treat wastes or other effluents which may be discharged,
26 including specification of the degree of treatment expected to be attained.

27
28 c. The date or dates on which the proposed activity will begin and end, if known,
29 and the date or dates on which the associated discharge will take place.

30
31 d. The plan for monitoring ~~A description of the methods and means being used or~~
32 ~~proposed to monitor the water quality and characteristics of the discharge, and the~~

1 operation of equipment or facilities employed in the treatment or control of wastes
2 or other effluents.

3
4 e. A description of, and potential impacts to, applicable water quality
5 standards. (Water bodies which are territorial Guam's resource waters are
6 considered high quality.) Describe the recreational uses of the territory water at the
7 discharge and state whether the basic water quality criteria and the applicable Guam
8 water quality standards will be met.

9
10 6. ~~Submit plans, specifications and copies or citation of an Environmental Impact Assessment or~~
11 ~~Environmental Impact Statements it may apply.~~

12
13 7. ~~Submit historical overview and ecological evaluation of the site (including biota inventory and~~
14 ~~existing bioaccumulation studies).~~

15
16 8. ~~Submit a sediment physical characterization (to predict contaminant levels), and~~

17
18 9. ~~Submit sediment analysis.~~

19
20 ~~F. 401 Water Quality Certification Requirements~~ Additional Permit Information
21 Requirements:

22
23 1. The following is required to accompany an application for 401 Water Quality Certification for
24 the Agency to start the review process.

25
26 1. Construction drawings/plans and specifications (operational data such as
27 pump/discharge rates, holding capacity, detention time, turnover rates, etc.).

28
29 2. Wetland Delineation Map

30
31 3. A historical overview and ecological evaluation of the project site (including biota inventory
32 and existing bioaccumulation studies). This A brief review of historical data from the area is

1 necessary to properly evaluate a project. This review should address: the following (1) known or
2 suspected pollutant sources, (2) and types of potential sediment contaminants, (3) previous
3 dredging activities, (4) previous disposal methods and locations, and (5) pertinent information
4 related to the quantity and quality of these dredge materials and any benefits or problems
5 associated with these activities.

6
7 4. ~~A historical overview and~~ An ecological evaluation of the proposed affected site (including
8 biota inventory and existing bioaccumulation studies). ~~An ecological evaluation~~ This should
9 include a review of existing inventories describing the area area's biota to determine identify local
10 populations and to determine if threatened or endangered species are present. Conditions that
11 support their well-being should be noted. ~~The applicable beneficial use designation should be~~
12 ~~determined. (Water bodies which are territorial resource waters are considered high quality.)~~
13 ~~Review existing bioaccumulation studies to determine if any~~ Any concerns associated with the
14 uptake of heavy metals or organics, identified through existing bioaccumulation studies or
15 other sources of information, should be documented. ~~problems exist with the uptake of heavy~~
16 ~~metals or organics.~~

17
18 5. An Environmental Baseline Survey (marine, freshwater aquatic, or adjacent upland, as
19 appropriate), an Environmental Protection Plan, and/or an Environmental Impact
20 Assessment/Statement (EIA/EIS).

21
22 6. ~~A sediment physical characterization (to predict contaminant levels) and~~
23 Characterization of the sediment particle size and composition, which is important in assessing
24 potential contaminant levels. Sand and coarse-grained inorganic sediments (greater than 0.24 mm)
25 rarely are contaminated. Conversely, fine organic sediments (less than 0.24 mm) generally retain
26 the highest levels of contaminants. This information is helpful in determining the need for chemical
27 analyses of the sediment. ~~Generally, sediment physical characterization is conducted when in-~~
28 ~~water disposal is proposed or contamination of sediment is suspected. based on the results of the~~
29 ~~Historical and Ecological Evaluation~~

30
31 7. Sediment Chemical Analyses.
32 Chemical characterization of the sediment can be done in two ways: (1) bulk sediment analysis,

1 and (2) elutriate analyses. ~~The bulk analyses determines the total levels of sediment parameters~~
 2 ~~on a dry-weight basis. Suggested parameters include, but are not limited to, those and are listed~~
 3 ~~below. In both cases, the parameter list should be modified as necessary to address site-specific~~
 4 ~~concerns. If the historic overview indicates the potential presence of organics, then sediment~~
 5 ~~samples must be analyzed for these compounds. A parameter list should be prepared on a site-~~
 6 ~~specific basis, using the Guam EPA Priority Pollutants list and the Guam Water Quality Standards~~
 7 ~~as guidance.~~

8
 9 a. Suggested parameters for bulk sediment analysis

10
 11 Parameters (dry weight)

12 Ammonia (NH ₃ -N)	Nickel (N ₁)
13 Arsenic (As)	Oil & Grease
14 Cadmium (Cd)	Phosphorus (P, Total)
15 Chromium (Cr)	Total Kjeldahl Nitrogen
16 Chemical Oxygen Demand	Polychlorinated Biphenols
17 Copper (Cu)	Volatile Solids (%)
18 Iron (Fe)	Total organic carbon
19 Zinc (Zn)	Cyanide, Total
20 Phenolics, Total	Mercury (Hg)
21 Tributyltin	

22
 23 b. Suggested parameters for elutriate analyses

24 Parameters

25 Ammonia (NH ₃ -N)	Nickel (N ₁)
26 Arsenic (As)	Oil and Grease
27 Cadmium (Cd)	Phosphorus (P, Total)
28 Chromium (Cr)	Iron (Fe)
29 Copper (Cu)	Mercury (Hg)
30 Zinc (Zn)	Phenolics, Total
31 Cyanide, Total	Polychlorinated Biphenols
32 Tributyltin	

1 8. Sediment Bioassay

2 An important consideration in evaluating a dredging or disposal activity is the impact on the
3 aquatic organisms. ~~Two basic types of tests can be used to evaluate this impact. Algal~~
4 Bioassays, which can measure acute or and chronic effects, are the most appropriate method
5 for assessing impact. Methods and test organisms vary and it is recommended that the bioassays
6 use local (Guam) organisms and be coordinated with the U.S.EPA, Region IX, the local
7 Department of Agriculture and the U.S. Fish & Wildlife Service.

8
9 ~~6. If sediment contamination levels warrant, upland disposal projects, specify conditions to~~
10 ~~minimize the adverse impacts from upland site run-off and discharge of decant water.~~

11
12 ~~2. No certification may be issued by the Agency unless the applicant has demonstration of that~~
13 ~~activities permitted by Section 404 of the Federal Clean Water Act of 1987 will not:~~

14
15 a. ~~prevent or interfere with the attainment or maintenance of applicable water quality~~
16 ~~standards;~~

17
18 b. ~~result in a violation of any applicable Guam Water Quality Standard. additionally, the~~
19 ~~Agency may deny a request notwithstanding the applicant's demonstration of the above if~~
20 ~~it concludes that the activity "will result in adverse long or short term impacts on water~~
21 ~~quality."~~

22
23 G. VIII. Restrictions on Discharges to Territory's Waters. Prohibited discharges

24 The discharge of dredged or fill material is prohibited (i.e. no permit certification will not
25 issued) if:

26
27 a) ~~if there is a less-damaging practical alternative. This restriction is interpreted as:~~
28 ~~"avoiding fill in waters of the territory will be avoided whenever possible, regardless of~~
29 ~~the availability of mitigation". Mitigation should not be used to justify unnecessary fills.~~

30
31 1. there are less-damaging practical alternatives, regardless of the availability of
32 compensatory mitigation. A discharge that is water dependent, but for which upland

1 alternatives are available, is prohibited. Mitigation cannot be used to justify unnecessary
2 fills;

3
4 2. impacts cannot be reasonably mitigated through acceptable certification conditioning.
5 Mitigation as used here are those control measures that would reduce, lessen or minimize
6 impacts in the immediate vicinity of the discharge. "Compensatory" mitigation differs in
7 that it implies that an agreed upon plan to compensate or replace resources lost through or
8 resulting from an authorized permit was developed;

9
10 3. appropriate and practical steps have not been taken to minimize potential adverse
11 impacts of the discharge on the aquatic ecosystem (i.e. mitigation requirements);

12
13 4. it would cause or contribute to violations of any applicable Guam Water Quality
14 Standard, or would cause or contribute to significant degradation of the waters of Guam;

15
16 5. it would jeopardize any federal or Guam-listed threatened or endangered species;

17
18 6. it would violate any federal marine sanctuary requirement; or

19
20 7. the project is not water-dependent and the discharge associated with the project is
21 proposed in "special aquatic sites" (e.g.; wetlands, mudflats, sanctuaries, refuges and
22 preserves, vegetated shallows, coral reef areas, or riffle and pool complexes), and the project
23 applicant has failed to prove that there is no less-damaging practical alternative available
24 to achieve the overall project purposes, regardless of economic considerations.

25
26 The "water dependency test" means: the project's purpose is dependent upon fill in a
27 special aquatic site (i.e. restaurants, by definition, do not require fill in wetlands to be
28 restaurants).

29
30 ~~b) Furthermore, if a project is not water-dependent and the discharge associated with the~~
31 ~~project is proposed in "special aquatic site" (specifically: wetlands, mudflats, sanctuaries,~~
32 ~~and refuges and; vegetated shallows, coral reefs, or riffle and pool complexes), the project~~

1 applicant must prove that there is no less-damaging practicable alternative available to
2 achieve the overall project purposes irregardless of economic considerations.

3
4 The "water dependency test" should be interpreted as follows: the project's purpose is
5 dependent upon fill in a special aquatic site (i.e. do restaurants, by definition, require fill
6 in wetlands to be restaurants?)

7
8 c) Prohibit the discharge of dredged or fill material into waters of the Territory if it:

9
10 i) Causes or contributes to violations of any applicable Guam Water Quality
11 Standard;

12
13 ii) Violates any applicable toxic effluent standard;

14
15 iii) Jeopardizes the continued existence of any federally-listed threatened or
16 endangered species;

17
18 iv) Violates any federal marine sanctuary requirement.

19
20 d) Prohibit the discharge of dredged or fill material into waters of the Territory if it:

21
22 i) Causes or contributes to significant degradation of the waters of the Territory
23 including but not limited to:

24
25 (a) Municipal water supplies,

26 (b) plankton,

27 (c) fish,

28 (d) shellfish, wildlife,

29 (e) special aquatic sites,

30 (f) or recreation.

31
32 e) Prohibit the discharge of dredged or fill material into waters of the Territory unless

1 appropriate and practicable steps have been taken which will minimize potential adverse
2 impacts of the discharge on the aquatic ecosystem (i.e. mitigation requirements);

3
4 ~~f) Require a finding of non-compliance for (and therefore prohibit) the discharge of~~
5 ~~dredged or fill material if there is insufficient information upon which to base a~~
6 ~~determination that the discharge will comply with the Guidelines.~~

7
8 ~~g) If the project is not water dependent, the certification will be denied.~~

9
10 ~~h) If the project is water dependent, the certification will be denied if there is a viable~~
11 ~~alternative (e.g., available upland is viable alternative).~~

12
13 ~~i) If no viable alternatives exist and impacts to wetland cannot be made acceptable~~
14 ~~through conditions on certification (e.g., fish movement criteria, creation of floodways~~
15 ~~to bypass oxbows, flow through criteria), the certification will be denied.~~

16
17 ~~j) If the project would interfere with existing uses and the project is not water dependent~~
18 ~~the certification will be denied.~~

19
20 ~~C. 401 Water Quality Certification (WQC) Authority.~~

21 ~~The Administrator of the Guam Environmental Protection Agency as is the designated- issuing~~
22 ~~authority for 401 WQC.~~

23
24 ~~10. Applicability~~

25
26 ~~A Territorial Guam's Water Quality Certification pursuant to Section 401 of the~~
27 ~~Clean Water Act is required by any applicant for a Federal license or permit to conduct an activity~~
28 ~~in the territorial Guam's waters that would include, but not limited to, the construction and~~
29 ~~operation of facilities that may result in any discharge, as defined in Sections 502(6), 502(12);~~
30 ~~502(16) of the Clean Water Act.~~

31
32 ~~The following more common Federal permits require a 401 WQC prior to issuance:~~

1 (it is recommended that the applicant check with the issuing and permit Federal agency):
2

3 1. ~~Section 404 Permit of the Clean Water Act of 1977. Section 301 of this Act prohibits~~
4 ~~the discharge of dredged or fill material into waters of the United States without a permit from the~~
5 ~~U.S. Army Corps of Engineers (ACOE). Discharge refers to the fill (placement) construction~~
6 ~~activities. Dredging or fill material in this case are heterogeneous in nature. Issuing authority is~~
7 ~~the ACOE.~~

8
9 2. ~~Section 402 Permit of the Clean Water Act of 1977. Also, prohibits the discharge of~~
10 ~~dredged or fill material without a permit from the U.S. Environmental Protection Agency (EPA).~~
11 ~~Dredge or fill material in this case are homogeneous in nature. Issuing authority in the authority~~
12 ~~is the U.S. EPA.~~

13
14 3. ~~Section 9 Permit of the Rivers and Harbors Act of 1989. Section 9 prohibits the~~
15 ~~construction of bridges or dams across navigable waters of the United States without~~
16 ~~congressional consent and U.S. ACOE permit approval.~~

17
18 4. ~~Section 102 Permit of the Marine Protection, Research and Sanctuaries Act (MPRSA)~~
19 ~~of 1972, as amended. MPRSA controls the ocean dumping of material. Section 102 permits apply~~
20 ~~to the transport and disposal of non-dredged material. Issuing authority is the U.S. EPA.~~

21
22 5. ~~Section 103 Permit of the MPRSA of 1972, as amended. Section 103 permits apply~~
23 ~~to the transport and disposal of dredged material. Issuing authority is the U.S. ACOE.~~

24
25 6. ~~Discretionary authority of the Administrator as to applicability to any Federal activity~~
26 ~~not conforming to Section 404(r) of the Clean Water Act of 1977, which applies to Federal~~
27 ~~exemption (e.g., Civil Works Project). Issuing authority none because Congress authorizes the~~
28 ~~Federal project and the responsible Federal agency would not issue a permit to itself.~~

29
30 H. EX. Mitigation Policy Statements

31 GEPA will actively promote and support mitigation for all projects subject to Section 404 of the
32 Clean Water Act in accordance with the 404(b)(1) Guidelines (40 CFR 230.10).

1. ~~GEPA will consider mitigation in the following sequence:~~

1
2
3 1. ~~GEPA~~ The Agency will actively promote project alternatives which avoid all adverse
4 environmental impacts associated with the proposed action, consistent with 40 CFR 230.10(a).
5 For proposed discharges of dredged or fill material for non-water dependent activities in special
6 aquatic sites, the burden of proof shall be on the applicant to demonstrate that practical,
7 practicable, less environmentally damaging alternatives are not available ~~irregardless~~ regardless
8 of economic considerations. For all other proposed discharges, GEPA will require information
9 demonstrating that the proposed action is the only available practicable practical alternative. In
10 the absence of such demonstration, The Agency will deny approval or require modification of the
11 ~~404 permit~~ § 401 WOC. In evaluating an analysis of practicable practical alternatives, proposed
12 habitat compensation will not be considered in determining which of the alternatives examined is
13 the least environmentally damaging.

14
15 2. The Agency will actively promote alternatives which reduce or minimize adverse environmental
16 impacts. This will include requirements to reduce the amount and extent of fill (or dredging), and
17 to modify the timing of construction.

18
19 3. For projects which have been conclusively demonstrated to have no practicable practical
20 alternative, The Agency will may consider compensation by in-kind aquatic habitat replacement
21 in close proximity to the project site.

22
23 4. The Agency will promote and support pre-application conferences and field inspections to
24 develop acceptable mitigation proposals, including the exploration of reasonable alternatives which
25 avoid or minimize adverse environmental impacts on the aquatic ecosystem.

26
27 5. The Agency will coordinate mitigation activities with the U.S. Fish & Wildlife Service, the
28 Corps of Engineers, the ~~United States Environmental Protection Agency~~ USEPA, and other
29 appropriate federal and territorial local agencies in order to address all relevant concerns and
30 avoid duplication of effort.

31
32 6. The Agency will seek the inclusion of mitigation as an integral part of projects subject to

1 Section 404 permit authority, and will deny § 401 WOC approval for any project which does not
2 include an acceptable mitigation plan. The Agency will deny approval of ~~404 permits~~ § 401 WOC
3 unless it is clear that the permitting authority can revoke or suspend the permit for failure to
4 implement the approved mitigation, and unless the permit conditions involving mitigation are
5 enforceable. ~~by the Agency.~~

6
7 7. The Agency will require monitoring for all mitigative actions involving habitat creation,
8 enhancement or restoration. The period of monitoring will be determined on a case-by-case basis,
9 in consultation with appropriate state and federal resource agencies, and will be of sufficient length
10 to adequately assess project success.

11
12 8. The Agency will may require pilot studies for any mitigative action which has not been
13 scientifically demonstrated to be successful, or about which there is significant resource agency
14 uncertainty. The pilot studies must be completed, before ~~USEPA, Region IX will agree to the~~
15 proposed discharge a § 401 WOC is issued.

16
17 9. The Agency will consider mitigation banking only in those instances where such an approach
18 will result in resource gains which are demonstrably superior to those expected using case-by-case
19 mitigation.

20
21 10. Where feasible, GEPA will promote the fee title transfer of mitigation sites to the local
22 resource agency with management responsibility for the created or preserved aquatic habitat.

23
24 11. Preservation of existing aquatic resources, in the absence of any enhancement of those
25 resources, will not be considered mitigation, as such a policy would sanction an irretrievable net
26 loss of aquatic resources.

27 I. X. Public process procedures

28 The procedures shall be similar to rule making procedure, except that the Applicant shall determine
29 whether to go or not to go directly to public hearing as provided in these guidelines for
30 application and issuance of § 401 WOC include the Agency's review, preliminary
31 determination, possible public noticing and public hearing, and a final decision.

1 **1. Projects requiring § 401 WQC which do not require public notices or public hearings**
2 **include, but are not limited to, the following:**

3
4 a) **In general, all Nationwide Permits (NWP) may be exempted from public**
5 **noticing unless the Administrator otherwise determines that significant**
6 **environmental or water quality issues warrant public involvement. This**
7 **conditional exemption stems from the Agency's position that some NWP do**
8 **not take into consideration small tropical island environmental conditions. The**
9 **Agency maintains the option of individual certification reviews of any NWP.**

10
11 b. **In general, all National Pollution Discharge Elimination System (NPDES)**
12 **Permits may be exempted since all such permits and permit renewals are**
13 **publicly noticed by USEPA with full opportunity for public hearing and**
14 **comment in Guam.**

15
16 2. The applicant shall submit a § 401 WQC application to the Agency. ~~data based on the~~
17 ~~requirements contained in this interim guideline section according to the provided, "Application~~
18 ~~Format" guidelines together with a request (refer to Section K of Regulations for the signatory~~
19 ~~requirements) for a 401 WQC.)~~ After reviewing the application for completeness, the
20 Administrator shall review and assess the application and make an initial determination that the
21 construction or **proposed** activity will **or will** not meet the applicable Guam WQS. After the
22 **Administrator's** initial determination, the Administrator ~~Agency~~ will **may** prepare the public
23 notice for publication in the newspaper(s) of general circulation the application for 401 WQS. In
24 addition, the public notice shall be mailed **and distribution** to interested parties listed on the
25 notification mailing list established by the Guam Environmental Protection Agency.

26
27 c) ~~The Application Format (Appendix L) made part of these Water Quality Standards~~
28 ~~is subject to a periodic revision by the Administrator and it shall the responsibility of the applicant~~
29 ~~to have the latest copy of the application format.~~

30
31 a. All costs for public notices of intent to issue; **or** to modify § 401 WQC or for
32 public hearings for § 401 WQC shall be borne by the applicant.

1 b. For public notices of intent to issue or modify 401 WQC, publication **Publication**
2 shall be two consecutive days in a newspaper of general circulation on the dates
3 specified by the Administrator.

4
5 c. It is imperative that the public notice by is published on the date(s) specified by
6 the Administrator so that ~~there are no~~ delays in the processing of the 401 WQC
7 request are minimized. In addition, when the public notice proof copy is edited by
8 the applicant, it should be carefully checked for accuracy to avoid republication. An
9 affidavit certifying publication will be required.

10
11 d. The Administrator may elect to provide public notice by letter to affected
12 or interested parties.

13
14 3. In the event that a reasonable request is made for a public hearing that is supported by
15 justifiable evidence, the Administrator shall provide a public hearing, in accordance with the Guam
16 Administrative Adjudication Act. ~~Public hearings will be held on the villagers located in the~~
17 ~~vicinity of the project.~~

18
19 a. For public notices of public hearing, publication Publication of public hearing
20 notices shall be as specified in the Guam Administrative Adjudication Act. The
21 public notice will be published in a local newspaper of general circulation as directed
22 by the Administrator.

23
24 b. Public hearings will be arranged (date, time, place) by the Agency Environmental
25 Review Section staff and the hearing will be conducted by the Administrator.
26 ~~Guam EPA Board of Directors.~~ In addition to the Guam EPA Board of Directors,
27 ~~as ERS staff member~~ Agency staff will be present to serve as a resource. The and
28 the applicant will be or his/her representative, should requested to send a
29 representative to attend the scheduled hearing to present testimony supporting the
30 § 401 WQC request.

31
32 4. After the public notice and/or public hearing as the case maybe, the Administrator shall consider

1 all evidence and testimonies presented and make a final § 401 WQC determination. for the 401
2 WQC This determination will be completed within 60 days of the submittal of the
3 application or not less than 30 days after any required public notice or hearing, whichever
4 is longer.

5
6 5. The Administrator shall issue § 401 WQC for a term equal to but not exceeding five years
7 for NPDES and other facility operational permits. Furthermore, the term of any re-
8 certification shall not exceed one extension for construction related permits. Subsequent
9 requests for certification extensions (second, third, etc.) for construction related or
10 temporary discharge permits may be granted, and if granted, may not coincide with the
11 associated federal permit term. The Administrator reserves the right to adjust any and all
12 certification terms. The Administrator shall issue a 401 WQC for a term not to exceed five years.

13
14 6. Any order or decision of the Administrator pursuant to these regulations shall become final,
15 unless a hearing before the GEPA Board of Directors is requested within 30 days after the notice
16 of the final decision.

17
18 7. The GEPA Board of Directors shall have the power to review and to affirm, modify or reverse
19 any order or decision of the Administrator. Such appeal shall be made pursuant to the provisions
20 of the Administrative Adjudication Law, Title 5 Guam Code Annotated § 9100 et. seq.

21
22 8. Any order or decision of the Board pursuant to these regulations shall be subject to an appeal
23 therefrom to the Superior Court of Guam. Such appeal shall be made pursuant to the provision
24 of the Administrative Adjudication Law, Title 5 Guam Code Annotated § 9100 et. seq.

25
26 ~~H. PUBLIC NOTICES~~

27
28 ~~I. PUBLIC HEARINGS~~

29
30 ~~J. XI. Content of the Agency's § 401 WQC certification~~

31 ~~As a matter of information, the following shall be contained in the 401 WQC statement:~~

1. The name and address of the applicant.
2. A statement description of the information used by the Administrator to make his/her decision. that the Administrator has either (i) examined the application made by the applicant to the Administrator and based its certification upon an evaluation of the information contained in such application which is relevant to water quality considerations, or (ii) examined other information furnished by the applicant sufficient to permit the Administrator to make the statement described in paragraph (3,) of this section.
3. A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable WQS.
4. A statement of any Any conditions which the Administrator deems necessary or desirable with respect to the discharge or the activity.
5. Any other conditions as the Administrator may determine to be appropriate.
6. ~~Any conditions specified in the 401 WQC shall be requested to be included as part of the issued Federal license or permit conditions.~~

K. XII. Signatory requirement for § 401 Water Quality Certification WQC

1. For municipal, state, federal, or other public agency. For Guam Environmental Protection Agency - The Administrator, as chief executive officer of the agency.
2. In the case of Federal agencies, the chief executive officer of the agency, or the senior executive officer have having responsibility for the overall operations of a principal geographic unit of the agency.
3. For a partnership or sole proprietorship, a general partner (partnership) or a proprietor (sole proprietorship).

1 4. For a corporation, the president or his/her representative. ; Vice President, Secretary or
2 Treasurer of the corporation and in charge of a principal business function, or one that performs
3 similar policy or decision making functions for the corporation.

4
5 ~~Contested case and Adjudicatory Hearings~~

6
7 a) ~~Contested case and adjudicatory hearings may be held as pointed in the "Procedure"~~
8 ~~portion of these guidelines:~~

9
10 L. XIII. Modification, suspension, or revocation of a § 401 WQC

11
12 1. The Administrator may, on his own motion or the application of any person, modify, suspend
13 or revoke the § 401 WQC if, after a hearing the Administrator determines that:

14
15 a. there is a violation of any condition of the § 401 WQC;

16
17 b. the § 401 WQC was obtained by misrepresentation, or failure to disclose fully all
18 relevant facts; or

19
20 c. there is an unreasonable or significant change in the scope of the project and
21 activity. ;or

22
23 ~~4. Such is in the public interest.~~

24
25 M. XIV. Dam construction review for § 401 Water Quality Certification. WQC.

26
27 1. An applicant must complete an Environmental Impact Assessment or Statement
28 (EIA/EIS) for any dam or reservoir project prior to a request for § 401 WQC.

29
30 a. The Agency will not act on a § 401 WQC request until the EIA/EIS has been
31 approved and full opportunity for public comment has been provided on the
32 proposed project.

1 b. As part of an EIA/EIS for a dam, the Applicant applicant must provide
2 conduct investigations of and assess performed for the impact(s) which will occur
3 as a result of the project on all aquatic and terrestrial biological resources
4 including those associated with wetlands, streams, and forested areas which
5 will be lost as a result of the project. of the construction of the project. Mitigative
6 creation of new wetlands should be located on newly created headwater areas.

7
8 c. Potential for mitigation (restoration, replacement or enhancement) must be
9 thoroughly investigated to determine if there are mitigation locations within
10 the same watershed as the proposed activity at up stream or headwater areas.
11 Only after a thorough investigation reveals that this potential does not exist
12 shall off-site or alternative watershed locations be considered.

13
14 b) ~~Assure adequate filtration of run-off prior to its entry into the reservoir.~~

15
16 d. Compensatory (Replacement) mitigation for Replace the aquatic resource being
17 lost must occur on an acre for acre basis.

18
19 e. Compensatory mitigation should be designed to match in-kind resource
20 types and/or functions lost.

21
22 f. The applicant Applicant shall submit to provide a watershed management plan
23 to minimize pollution loadings into the reservoir. This plan must be approved by the
24 Agency prior to operation of the new dam facility. Any pollutant loading certified
25 identified during field surveys shall be eliminated or minimized to the extent possible
26 given available technology.

27
28 2. § 401 WOC may be denied if:

29
30 a. The construction and operation of the project will result in the significant
31 loss of wetlands and related habitat and acreage. More specifically:
32

1 i. The destruction of the wetlands will have an adverse impact on the river
2 ecosystem.

3 ii. The destruction of the wetlands will cause the loss of beds of emergent
4 aquatic vegetation that serve as habitat for juvenile fish which will
5 adversely affect the relative abundance of juvenile and adult fish.
6

7 iii. The resources or wetlands which will be lost are critical habitat in the
8 affected area, including listed species or those which are candidates for
9 listing.
10

11 iv. All affected wetlands areas are important and, to the extent that the loss
12 of these wetlands can be mitigated, the applicant has failed to demonstrate
13 that the mitigation proposed is adequate.
14

15 b. The applicant has (1) failed to demonstrate that there will be no adverse
16 water quality impacts from increased groundwater levels resulting from the
17 project, (2) used a groundwater model that is not acceptable due to erroneous
18 assumptions or the lack of sensitivity analysis, or (3) not provided sufficient
19 information concerning the impact of increased groundwater levels on existing
20 sites of subsurface contamination, adequacy of subsurface sewage replacement
21 areas or the impact of potential increased surface flooding. Additionally, the
22 certification may be denied if information was not provided to adequately
23 assess the effect of raised groundwater on sewer rehabilitation measures and
24 the potential for increased flows at a specified wastewater treatment plant.
25

26 c. The applicant has failed to demonstrate that there will not be an
27 unacceptable water quality impact upstream or downstream of the proposed
28 project.
29

30 d. The applicant has failed to demonstrate that the construction and operation
31 of the proposed dam will not have an adverse impact on the aquatic resources
32

upstream of the proposed impoundment.

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e. Dam construction will have an adverse impact on upstream and downstream migration of fish, even with the construction of fish passageways for migration.

Appendices

1

Appendix A - Priority Toxic Pollutants

I. List of 126 Priority Toxic Pollutants Designated under Section 307(a) (1) of the Clean Water Act Which Are Codified at 40 CFR 131.36(b), July 1995.*

Acenaphthene	1,2-dichlorobenzene
Acenaphthylene (PAH)**	1,3-dichlorobenzene
Acrolein	1,4-dichlorobenzene
Acrylonitrile	3,3-dichlorobenzidine
Aldrin	1,1-dichloroethane
Antimony	1,2-dichloroethane
Anthracene	1,1-dichloroethylene
Arsenic	1,2-trans-dichloroethylene
Asbestos	Dichlorobromomethane (Halomethanes)
1,2-benzanthracene (PAH)	Dichloromethane (Halomethanes)
Benzene	2,4-dichlorophenol
Benzidine	1,2-dichloropropane
Benzo(a)pyrene (3,4-benzo-pyrene) (PAH)	1,3-dichloropropene
3,4-benzofluoranthene (PAH)	Dieldrin
Benzo(k)fluoranthene (PAH)	2,4-dimethylphenol
1,12-benzoperylene (PAH)	Diethylphthalate
Beryllium	Dimethylphthalate
Bromoform (Tribromomethane)	2,4-dinitrotoluene
Bromomethane (Methyl Bromide)	2,6-dinitrotoluene
4-bromophenyl phenyl ether	2,4-dinitrophenol
Cadmium	2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD)
Carbon tetrachloride	1,2-diphenylhydrazine
(tetrachloromethane)	Alpha endosulfan
Chlordane	Beta endosulfan
Chlorobenzene (monochloro-benzene)	Endosulfan sulfate
Chlorodibromomethane (halomethane)	Endrin
Chlorethane (monochloroethane)	Endrin aldehyde
Fluorene (PAH)	Ethylbenzene
Bis(2-chloroethyl)ether	Fluoranthene
Bis(2-chloroethoxy)methane	Heptachlor
2-chloroethyl vinyl ether (mixed)	Heptachlor epoxide
4-chloro-3-methylphenol	Hexachloroethane

1	Chloromethane (methyl chloride)	Hexachlorobenzene
2	Chloroform (trichloromethane)	Hexachlorobutadiene
3	2-chlorophenol	Hexachlorocyclohexane (lindane)
4	Bis(2-chloroisopropyl)ether	Hexachlorocyclohexane (Alpha)
5	2-chloronaphthalene	Hexachlorocyclohexane (Beta)
6	4-chlorophenyl ether	Hexachlorocyclohexane (Delta)
7	Chromium (HEX) aivalent	Hexachlorocyclopentadiene
8	Chromium (TRI) valent	Indeno (1,2,3-cd) pyrene (PAH)
9	Chrysene (PAH)	Isophorone
10	Copper	Lead
11	4,4-DDT	Mercury
12	4,4-DDE (p,p-DDX)	Naphthalene
13	4,4-DDD (p,p-TDE)	Nickel
14	1,2,5,6-bibenzanthracene	Nitrobenzene
15	{dibenzo(a,h) anthracene}	Di-N-butyl phthalate
16	Di-n-octyl phthalate	2-nitrophenol
17	Pyrene (PAH)	4-nitrophenol
18	Selenium	4,6-dinitro-2-methylphenol
19	Silver	N-nitrosodimethylamine
20	1,1,2,2-tetrachloroethane	N-nitrosodiphenylamine
21	Tetrachloroethylene	N-nitrosodi-n-propylamine
22	Thallium	PCB-1242
23	Toluene	PCB-1254
24	Toxaphene	PCB-1221
25	1,2,4-trichlorobenzene	PCB-1232
26	1,1,1-trichloroethane	PCB-1248
27	1,1,2-trichloroethane	PCB-1260
28	Trichloroethylene	PCB-1016
29	2,4,6-Trichlorophenol	Phenol
30	Vinyl chloride (chloroethylene)	Pentachlorophenol
31	Phenanthrene (PAH)	Zinc
32	Bis(2-ethyl hexyl)phthalate	Butyl benzyl phthalate

Note: * Three volatile chemicals were removed from the original of 129 (44 CFR 44502, July 30, 1979, as amended at 46 FR 2266, January 8, 1981, 46 FR 10724, February 4, 1981)

** (PAH) means Polycyclic Aromatic Hydrocarbon

II. AQUATIC LIFE CRITERIA TOXIC POLLUTANTS

<u>1. Arsenic</u>	<u>11. Cyanide</u>	<u>21. Heptachlor</u>
<u>2. Cadmium</u>	<u>12. Pentachlorophenol</u>	<u>22. Heptachlor-epoxide</u>
<u>3. Chromium (III and VI)</u>	<u>13. Aldrin</u>	<u>23. PCB-1242</u>
<u>4. Copper</u>	<u>14. Gamma-BHC</u>	<u>24. PCB-1254</u>
<u>5. Lead</u>	<u>15. Chlordane</u>	<u>25. PCB-1221</u>
<u>6. Mercury</u>	<u>16. 4,4-DDT</u>	<u>26. PCB-1232</u>
<u>7. Nickel</u>	<u>17. Dieldrin</u>	<u>27. PCB-1248</u>
<u>8. Selenium</u>	<u>18. Alpha-endosulfan</u>	<u>28. PCB-1260</u>
<u>9. Silver</u>	<u>19. Beta-endosulfan</u>	<u>29. PCB-1016</u>
<u>10. Zinc</u>	<u>20. Endrin</u>	<u>30. Toxaphene</u>

III. Numerical Criteria for Priority Toxic Pollutants:

	A		B		C		D	
	(#) COMPOUND	CAS Number	FRESHWATER CMC d (ug/l) B1	CCC d (ug/l) B2	SALTWATER CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	HUMAN HEALTH For Consumption of Organism Only (ug/l) D2
6	1. Antimony	7440360	340 m	150 m	69	36	14a	4300 a
7	2. Arsenic	7440382					5	
8	3. Beryllium	7440417					j	j
9	4. Cadmium	7440439	3.9 d, m	1.1 d, m	42	9.3	j	j
10	5a. Chromium (III)	16065831	1700 d	210 d			j	j
11	b. Chromium (VI)	8540299	16 m	11 m	1100	50	j	j
12	6. Copper	7440508	18 d, m	12 d, m	4.8	3.1	1300	
13	7. Lead	7439921	82 d	3.2 d	210	8.1	j	j
14	8. Mercury	7439976	2.4 m	0.012 m	2.1	0.025	0.050 a	0.051 a
15	9. Nickel	7440020	470 d, m	52 d, m	74	8.2	610 a	4600 a
16	0. Selenium	7782492	20	5.0	290	71	j	j
17	11. Silver	7440224	4.1 d		2..3		1.7 a	6.3a
18	12. Thallium	7440280					9,100	69,000
19	13. Zinc	7440666	120 d, m	110 d, m	95	86	700a	200,000 a, h
20	14. Cyanide	57125	22 n	5.2 n	1	1	7,000,000 fibers/L	i
21	15. Asbestos	1332214						

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
16. 2,3,7,8-TCDD (Dioxin)	1746016					0.000000013 b	0.000000014 b
17. Acrolein	107028					320	780
18. Acrylonitrile	107131					0.059 a, b	0.66 a, b
19. Benzene	71432					1.2 a, b	71 a, b
20. Bromoform	75252					4.3 a, b	360 a, b
21. Carbon Tetrachloride	56235					0.25 a, b	4.4 a, b
22. Chlorobenzene	108907					680 a	21,000 a, h
23. Chlorodibromomethane	124481					0.41 a, b	34 a, b
24. Chloroethane	75003						
25. 2-Chloroethylvinyl - Ether	110758						
26. Chloroform	67663					5.7 a, b	470 a, b
27. Dichlorobromomethane	75274					0.56 a, b	46 a, b
28. 1,1-Dichloroethane	75343					0.38 a, b	99 a, b
29. 1,2-Dichloroethane	107062					0.057 a, b	3.2 a, b
30. 1,1-Dichloroethylene	75354					0.52 a	39 a
31. 1,2-Dichloropropane	78875					10 a	1700 a
32. 1,3-Dichloropropene	542756						

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	A		B		C		D	
	(#) COMPOUND	CAS Number	FRESHWATER CMC d (ug/l) B1	CCC d (ug/l) B2	SALTWATER CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	HUMAN HEALTH For Consumption of: Organism Only (ug/l) D2
1	33. Ethylbenzene	100414					3,100 a	29,000 a
2	34. Methyl Bromide	74839					48 a	4,000 a
3	35. Methyl Chloride	74873					j	j
4	36. Methylene Chloride	75092					4.7 a, b	1,600 a, b
5	37. 1,1,2,2-Tetra- chloroethane	79345					0.17 a, b	11 a, b
6								
7	38. Tetrachloroethylene	127184					0.8 b	8.85 b
8	39. Toluene	108883					6,800 a	200,000 a
9	40. 1,2-Trans-Dichloro- ethylene	156605					700 a	140,000 a
10								
11	41. 1,1,1-Trichloroethane	71556					j	j
12	42. 1,1,2-Trichloroethane	79005					0.60 a, b	42 a, b
13	43. Trichloroethylene	79016					2.7 b	81 b
14	44. Vinyl Chloride	75014					2 b	525 b
15	45. 2-Chlorophenol	95578					120 a	400 a
16	46. 2,4-Dichlorophenol	120832					93 a	790 a
17	47. 2,4-Dimethylphenol	105679					540 a	2300 a

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/) D1	For Consumption of: Organism Only (ug/l) D2
1	48. 2-Methyl-4,6-Dinitro-phenol	534521				13.4	765
2	49. 2,4-Dinitrophenol	51285				70 a	14,000 a
3	50. 2-Nitrophenol	88755					
4	51. 4-Nitrophenol	100027					
5	52. 3-Methyl-4-Chloro-phenol	59507					
6	53. Pentachlorophenol	87865	19 e, m	15 e, m	13	0.28 a, b	8.2 a, b, h
7	54. Phenol	108952				21,000 a	4,600,000 a,h
8	55. 2,4,6-Trichlorophenol	88062				2.1 a, b	6.5 a, b
9	56. Acenaphthene	83329				1,200 a	2,700 a
10	57. Acenaphthylene	208968				9,600 a	110,000 a
11	58. Anthracene	120127				0.00012 a, b	0.00054 a, b
12	59. Benzidine	92875				0.0044 a, b	0.049 a, b
13	60. Benzo(a)Anthracene	56553				0.0044 a, b	0.049 a, b
14	61. Benzo(a)Pyrene	50328				0.0044 a, b	0.049 a, b

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A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER	FRESHWATER	SALTWATER	SALTWATER	HUMAN HEALTH	HUMAN HEALTH
		CMC d (ug/l) B1	CMC d (ug/l) B2	CMC d (ug/l) C1	CMC d (ug/l) C2	For Consumption of: Water & Organisms	For Consumption of: Organism Only
						(ug/l) D1	(ug/l) D2
1	62. Benzo(b)Fluoranthene	205992				0.0044 a, b	0.049 a, b
2	63. Benzo(ghi)Perylene	191242				0.0044 a, b	0.049 a, b
3	64. Benzo(k)Fluoranthene	207089					
4	65. Bis(2-Chloroethoxy) - Methane	111911				0.031 a, b	1.4 a, b
5	66. Bis(2-Chloroethyl)- Ether	111444					
6	67. Bis(2-Chloroisopropyl)- Ether	108601				1,400 a	170,000 a
7	68. Bis(2-Ethylhexyl)- Phthalate	117817				1.8 a, b	5.9 a, b
8	69. 4-Bromophenyl Phenyl Ether	101553				3,000 a	5,200 a
9	70. Butylbenzyl Phthalate	85687				1,700 a	4,300 a
10	71. 2-Chloronaphthalene	91587					
11	72. 4-Chlorophenyl - Phenyl Ether	7005723				0.0044 a, b	0.049 a, b
12	73. Chrysene	218019				0.0044 a, b	0.049 a, b
13	74. Dibenzo (a,h) - Anthracene	53703				2,700 a	17,000 a
14	75. 1,2-Dichlorobenzene	95501				400	2,600
15	76. 1,3-Dichlorobenzene	541731					

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	Organism Only (ug/l) D2
1	77. 1,4-Dichlorobenzene	106467				400	2,600
2	78. 3,3-Dichlorobenzidine	91941				0.04 a, b	0.077 a, b
3	79. Diethyl Phthalate	84662				23,000 a	120,000 a
4	80. Dimethyl Phthalate	131113				313,000	2,900,000
5	81. Di-n-Butyl Phthalate	84742				2,700 a	12,000 a
6	82. 2,4-Dinitrotoluene	121142				0.11 b	9.1 b
7	83. 2,6-Dinitrotoluene	606202					
8	84. Di-n-Octyl Phthalate	117840				0.040 a, b	0.54 a, b
9	85. 1,2-Diphenylhydrazine	122667				300 a	370 a
10	86. Fluoranthene	206440				1,300 a	14,000 a
11	87. Fluorene	86737				0.00075 a, b	0.00077 a, b
12	88. Hexachlorobenzene	118741				0.44 a, b	50 a, b
13	89. Hexachlorobutadiene	87683					
14	90. Hexachlorocyclopentadiene	77474				240 a	17,000 a,h
15	91. Hexachloroethane	67721				1.9 a, b	8.9 a, b
16	92. Indeno(1,2,3-cd)-						
17	Pyrene	193395				0.0044 a, b	0.049 a, b
18	93. Isophorone	78591				36 b	2,600 b
19	94. Naphthalene	91203					
20	95. Nitrobenzene	98953				17a	1,900 a,h

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug) D1	For Consumption of Organism Only (ug/l) D2
96	N-Nitrosodimethyl- amine 62759					0.00069 a, b	8.1 a, b
97	N-Nitrosodi-n-Propylamine 621647					0.005 a, b	1.4 a, b
98	N-Nitrosodiphenyl-amine 86306					5.0 a, b	16 a, b
99	Phenanthrene 85018					960 a	11,000 a
100	Pyrene 129000					260	940
101	1,2,4-Trichlorobenzene 120821	3 f		1.3 f		0.00013 a, b	0.00014 a, b
102	Aldrin 309002					0.0039 a, b	0.013 a, b
103	alpha-BHC 319846					0.014 a, b	0.046 a, b
104	beta-BHC 319857					0.019b	0.063 b
105	gamma-BHC 58899	0.95 m		0.16 f			
106	delta-BHC 319868					0.0021 a, b	0.0022 a, b
107	Chlordane 57749	2.4 f	0.0043 f	0.09 f	0.004 f	0.00059 a, b	0.00059 a, b
108	4,4-DDT 50293	1.1 f	0.001 f	0.13 f	0.001 f	0.00059 a, b	0.00059 a, b
109	4,4-DDE 72559					0.00083 a, b	0.00084 a, b
110	4,4-DDD 72548						

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A (#) COMPOUND	CAS Number	B FRESHWATER		C SALTWATER		D HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
111. Dieldrin	60571	0.24 m	0.056 m	0.71 f	0.0019 f	0.00014 a, b	0.00014 a, b
112. alpha-Endosulfan	959988	0.22 f	0.056 f	0.034 f	0.0087 f	110 a	240 a
113. beta-Endpsulfan	33213659	0.22 f	0.056 f	0.034 f	0.0087 f	110 a	240 a
114. Endosulfan Sulfate	1031078					110 a	240 a
115. Endrin	72208	0.086 m	0.036 m	0.037 f	0.0023 f	0.76 a	0.81 a, h
116. Endrin Aldehyde	7421934					0.76 a	0.81 a, h
117. Heptachlor	76448	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00021 a, b	0.00021 a, b
118. Heptachlor Epoxide	1024573	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00010 a, b	0.00011 a, b
119. PCBs			0.014 f, k		0.03 f, k	0.000171	0.000171
126. Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00073 a, b	0.00075 a, b
Total No. of Criteria (h) =		24	28	23	27	99	97

FOOTNOTES:

- a. These criteria have been revised to reflect the US EPA q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of October 1, 1996. The fish tissue bioconcentration factor (BCF) from the 1980 documents was retained in each case.
- b. These criteria are based on carcinogenicity of 10 (-6) risk.
- c. The Criteria Maximum Concentration (CMC) is an acute concentration. It is the 1-hour average concentration in ambient waters that should not be exceeded more than once every 3 years on average. Criteria Continuous Concentration (CCC) is a chronic concentration. It is the 4-day average concentration of a pollutant in ambient water that should not be exceeded more than once every 3 years on average. ug/l equals micrograms per liter.
- d. These freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/l) in the water body. Values displayed above in the matrix correspond to a total hardness of 100 mg/l. The equations for calculating metals criteria are provided below:

1 $CMC = WER \times CMC \times (\exp(m_A \ln(\text{hardness})) + b_A)$

2 $CCC = WER \times CCC \times (\exp(m_C \ln(\text{hardness})) + b_C)$

3 Where $WER = \text{Water Effects Ratio}$

4 Final CMC and CCC values should be rounded to two significant figures.

5

Metal	m_A	b_A	m_C	b_C
Cadmium	1.128	-3.6867	0.7852	-2.715
Copper	0.9422	-1.700	0.8545	-1.702
Chromium (III)	0.8190	3.688	0.8190	1.561
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.52	---	---
Zinc	0.8473	0.884	0.8473	0.884

6 NOTE: The term "exp" represents the base exponential function.

7 For waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations. For
 8 waters with a hardness of over 400 mg/l as calcium carbonate, a hardness of 400 mg/l as calcium carbonate shall be used with a default Water-Effect Ratio
 9 (WER) of 1, or the actual hardness of the ambient surface water shall be used with a WER.

10 e. These freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed above in the matrix correspond to a
 11 pH of 7.8. Values are calculated as follows:

12 $CMC = \exp(1.005(\text{pH} - 4.869))$

13 $CCC = \exp(1.005(\text{pH} - 5.134))$

14 f. These aquatic life criteria for these compounds were issued by US EPA in 1980 utilizing the 1980 Guidelines for criteria development. The acute values
 15 shown are final acute values (FAV) which by the 1980 Guidelines are instantaneous values as contrasted with a CMC which is a short-term average.

- 1 g. These totals simply sum the criteria in each column. For aquatic life, there are 30 priority toxic pollutants with some type of freshwater or saltwater,
2 acute or chronic criteria. For human health, there are 100 priority toxic pollutants with either "water + organism" or "organism only" criteria. Note that
3 these totals count chromium as one pollutant even though US EPA has developed criteria based on two
4 valence states. In the matrix, the Agency has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that this list of 126 priority
5 pollutants includes only a single listing for chromium.
6
7 h. No criteria for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in
8 the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even
9 though the results of such a calculation were not shown in the document.
10
11 i. This criterion for asbestos is the MCL (40 CFR 141.62).
12
13 j. The Agency is not adopting human health criteria for these contaminants. However, permit authorities should address these contaminants in NPDES
14 permit actions using Guam's existing narrative criteria for toxics.
15
16 k. PCBs are a class of chemicals which include aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219, 11097691, 11104282,
17 11141165, 12672296, 11096825, and 12674112, respectively. The aquatic life criteria apply to this set of PCBs.
18
19 l. This criterion applies to total PCBs or congener or isomer analyses.
20
21 m. This criterion has been recalculated pursuant to the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient
22 Water, Office of Water, EPA-820-B-96-001, September 1996. See also Great Lakes Water Quality Initiative Criteria Documents for the Protection of
23 Aquatic Life in Ambient Water, Office of Water, EPA-80-B-95-004, March 1995.
24
25 n. This criterion is expressed as μg free cyanide (as CN) / L.
26

1 General Notes:

2
3 1. This chart lists all of EPA's priority toxic pollutants whether or not criteria guidance are available. Blank
4 spaces indicate the absence of criteria guidance. Because of variations in chemical nomenclature systems, this
5 listing of toxic pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. The Chemical Abstracts
6 Service (CAS) registry numbers are added to provide a unique identification for each chemical.

7
8 2. The following chemicals have organoleptic-based criteria recommendations that are not included on this
9 matrix: zinc, 3-methyl-4-chlorophenol.

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TABLE IV
ADDITIONAL TOXIC POLLUTANTS

Substance*	Maximum Numerical Limits		Application Factors
	Marine Water	Fresh Water	
Aluminum	0.20 mg/l	1.0 mg/l	0.01
Ammonia	0.02 mg/l		0.05
Barium	0.50 mg/l		0.05
Boron	5.00 mg/l		0.10
Bromine (free as Bromate)	0.10 mg/l 100.0 mg/l		- -
Chlorine ¹ (Total Residual)	0.0075 mg/l	0.011 mg/l	0.1
Fluoride	1.50 mg/l	0.80 mg/l	0.1
Iron	0.05 mg/l	3.00 mg/l	-
Manganese	0.02 mg/l		0.2
Molybdenum	-		0.0
Sulfide	0.005 mg/l		0.1 (Applicable to 20-day LC data)
Tributyltin (TBT)	Marine Water Chronic - 0.010 µg/l Acute - 0.356 µg/l	Fresh Water Chronic - 0.64 µg/l Acute - 0.442 µg/l	
Uranium ²	0.00 mg/l		0.01
Vanadium	-		0.05

* Total amounts in indicated chemical state of form.

⁽¹⁾ Greater concentrations of Chlorine may be used to treat a source of drinking water in order to meet the requirements of Subsection II.B.1 of these standards.

⁽²⁾ Naturally occurring Uranium has been reported in concentrations of 0.003 mg/l, 0.00004 mg/l (river water)

Note: Whenever natural concentrations of any toxic substance or element occur and exceed the limits established in these standards, this greater concentration shall constitute the limit, provided that this natural concentration was not directly affected by non-induced causes.

Appendix B - Wetlands

1
2 1. Official Wetland Map:

3
4 The National Wetlands Inventory (NWI) map published by the United States Fish & Wildlife
5 Service (FWS), is the official, interim wetland map adopted for Guam pursuant to Executive Order
6 90-13, entitled "Protection of Wetlands", dated June 12, 1990. See Appendix "D".
7

8 2. Wetland Classification:

9
10 The Classification of Wetlands and Deepwater Habitats was developed by Cowardin et al in
11 1979 for the United States Fish & Wildlife Service FWS. This system provides the basis for
12 wetland-related activities with the FWS. The Cowardin system is hierarchical and thus can
13 provide several levels of detail in classifying wetlands. The "System" and "Subsystem"
14 levels of detail appear to be the most promising for water quality standards. Guam may
15 choose to evaluate wetland function and values for all the wetlands within the Island of
16 Guam based on wetland type (using Cowardin (1979); see Figure 1). It may also evaluate
17 wetlands on a case-by-case basis as individual permit decisions arise to ensure that
18 designated uses are being protected and have reflected existing uses. This interim map is used
19 by the Territory of Guam for classification, inventory, and mapping wetlands, until such time as
20 a new system is developed and accepted for use.
21

22 The hierarchy of the Wetland Classification is shown in Figures I & IA .
23

24 The following are definitions of wetland classifications:

25
26 a) Lacustrine wetlands include wetlands and deepwater habitats with all of the
27 following characteristics:

28 1. situated in a topographic depression or dammed river channel;

29
30 2. lacking persistent emergents, trees, or shrubs with greater than 30% areal
31 coverage; and

32 3. total area exceeding 8 hectares (20 acres).

1 Lacustrine System if an active wave formed or bedrock shoreline feature makes
2 up all or part of the boundary, or if the water depth in the deepest part of the basin
3 exceeds two meters (6.6 ft.) at low water.

4
5 b). Palustrine Wetlands include all nontidal fresh and saline wetlands dominated by
6 trees, shrubs, emergents, shallows (aquatic beds, mudflats, and open water areas), and
7 all such wetlands that occur in tidal areas where salinity due to ocean derived salts are
8 $< 0.5\%$.

9
10 (1) Basin Wetlands are associated with geomorphic depressions and drainage areas
11 that are not associated with streams or lakes. They experience vertical water level
12 fluctuations which may result from seasonal rains. They typically lack permanent,
13 surface water outlets.

14
15 (2) Riparian Wetlands are located in zones that are at least periodically influences
16 by flooding and are adjacent to a flowing body of water that, wetlands of the riparian
17 zone are unique because they are generally hydrologically open to seasonal or periodic
18 flooding. (Mitsch and Gosselink 1986). The water flow is often parallel to the forest
19 and the main hydrologic forcing functions are floods or seasonal rains. (Lugo et al.
20 1988)

21
22 c) Riverine Wetlands include all non-persistent emergent wetlands on the
23 riverfloodplains and shallows contained within a channel (aquatic beds and mudflats).
24 The riverine system is bounded on the landward side by Palustrine or upland systems
25 and on the channel side by deepwater environment (> 6.6 feet in depth). The riverine
26 system terminates with exceedence of ocean derived downstream salts of $> 0.5\%$ or
27 where the channel enters a lake or palustrine wetland.

28 1. Shallows are areas of shallow open water (to 6.6 feet deep) dominated by
29 submerged or floating leaved aquatic beds and/or the zone between low and high water
30 that includes both sand flats and other mudflats. According to the Cowardin
31 classification system, this includes that aquatic beds and unconsolidated shore, as well
32 as open water areas that are not part of the lacustrine system (Frayer et al. 1983).

1 ~~1a. Aquatic beds are wetlands and deepwater habitats dominated by~~
2 ~~macrophytic plants that grow principally on or below the surface of the water for most~~
3 ~~of the growing season in most years.~~

4
5 ~~1b. Mudflats are unconsolidated shores including all wetland habitats with (1)~~
6 ~~unconsolidated substrates (predominantly silt, sand, and clay with less than 75% areal~~
7 ~~cover of stones, boulders, or bedrock; (2) less than 30% areal cover of vegetation other~~
8 ~~than pioneering plants; and (3) any of the following water regimes; irregularly exposed;~~
9 ~~regularly flooded; irregularly flooded; seasonally flooded; temporarily flooded;~~
10 ~~intermittently flooded; saturated; or artificially flooded.~~

11
12 ~~1c. Other Open Water Areas include small (0-30 acres, shallow (0-6.6 feet) saline~~
13 ~~or fresh natural surface depressions that act as precipitation catchment basins, but are~~
14 ~~often ephemeral, because of high evapotranspiration rates. These areas are not densely~~
15 ~~vegetated (have less than 30% vegetation) and include the colloquial classes of prairie~~
16 ~~potholes, plays lakes, and ponds that are open water with little vegetation.~~

17
18 ~~2. Non-persistent emergent wetlands are dominated by plants that fall to the surface~~
19 ~~of the substrate or below the surface of the water at the end of the growing season so~~
20 ~~that, at certain seasons of the year, there is no obvious sign of emergent vegetation~~

21
22 ~~3. Emergent wetlands are characterized by erect, vascular, rooted, herbaceous~~
23 ~~hydrophytes. The primary emergent sub-classes could either be saturated and flooded~~
24 ~~or broadleaved and narrowleaved.~~

25
26 ~~3a. Saturated - includes the erect, vascular, rooted herbaceous hydrophytes~~
27 ~~growing in saturated soil conditions as defined by Cowardin et al. 1979.~~

28
29 ~~3b. Flooded - includes the erect, vascular, rooted, herbaceous hydrophytes~~
30 ~~growing temporarily, seasonally, semi-permanently, and permanently flooded soil~~
31 ~~conditions as defined by Cowardin et al. 1979.~~

1 ~~3c. Broadleaved - dominated by emergent herbaceous plant species which occur~~
2 ~~in wetter wetlands with more organic soils.~~

3
4 ~~3d. Narrowleaved - dominated by grassy vegetation (e.g., Carex, Scirpus) on wet~~
5 ~~soils and is usually distinguished from broadleaved emergents by having less saturation~~
6 ~~and shorter herbage.~~

7
8 ~~4. SS/ZX is a mixed community of primarily deciduous shrubs and emergents. The~~
9 ~~first community in the mixed order denotes the higher life form.~~

10
11 ~~5. Scrub/shrub wetlands are dominated by woody vegetation less than 6 meters (20-~~
12 ~~feet) tall. Species include true shrubs, young trees, and trees and shrubs with stunted~~
13 ~~growth because of environmental conditions.~~

14
15 ~~5a. Evergreen - A shrub community where evergreen shrubs represent more than~~
16 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

17
18 ~~5b. Deciduous - A shrub community where deciduous shrubs represent more than~~
19 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

20
21 ~~6. Forested wetlands are characterized by woody vegetation 6 m. tall or taller. The~~
22 ~~primary forest divisions of interest include evergreen and deciduous communities.~~

23
24 ~~6a. Evergreen - A forest community where evergreen trees represent more than~~
25 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

26
27 ~~6b. Deciduous - A forest community where deciduous trees represent more than~~
28 ~~50% of the total areal coverage of the shrub, tree, or herb vegetation.~~

29
30 3. Criteria for Wetland Identification:

1 The latest version of the Federal Manual for Identification and Delineating
2 Jurisdictional Wetlands Corps of Engineers Wetlands Delineation Manual, adopted by the
3 United States Fish & Wildlife Service, the United States Environmental Protection Agency, and
4 the USDA, Soil Conservation Services, United States Army Corps of Engineers is adopted by
5 reference by these standards. This manual describes technical criteria, field indicators and other
6 sources of information, and methods for identification and delineation of jurisdictional
7 wetlands. This manual shall serve as the technical basis for identifying and delineating
8 jurisdictional wetlands in Guam.

9
10 4. ~~Anti-degradation Policy~~

11
12 a) ~~Existing instream water uses shall be maintained and protected. No further~~
13 ~~water quality degradation which would interfered with or become injurious to existing~~
14 ~~designated uses is allowable.~~

15
16 b) ~~Waters in which existing water quality is better than the criteria prescribed in~~
17 ~~these rules and exceeds those levels necessary to support propagation of fish, shellfish~~
18 ~~and wildlife and recreation in and on the water shall be maintained and protected.~~
19 ~~However, the Administrator of Guam Environmental Protection Agency may approve~~
20 ~~to lower the water quality in wetlands, after compliance with public notice and~~
21 ~~participation, and inter-governmental coordination requirements listed at 40 CFR~~
22 ~~Part 25 and Part 29, and after due consideration of such technical, economic, social and~~
23 ~~other criteria as provided by Section 301, and 302 of the Act. Degradation of water~~
24 ~~quality shall not interfered with or become injurious to existing or planned uses, and~~
25 ~~the Administrator shall require that the most stringent statutory and regulatory~~
26 ~~controls for waste treatment be employed by all new and existing point sources, and the~~
27 ~~that feasible management or regulatory program pursuant to Section 208 and 30 of~~
28 ~~the Act, 33 U.S.C. Section 1298 and 1313, be applied to non-point sources.~~

29
30 c) ~~Guam Resource waters are surface waters of the Territory Guam lying within~~
31 ~~the territorial Guam's park system, wetlands, and wildlife refuges, areas, and~~
32 ~~preserves, and also include wild, scenic and recreational rivers, publicly owned lakes~~

1 ~~and reservoirs and waters of exceptional recreational or ecological significance (e.g.,~~
2 ~~waters which provide a habitat for identified threatened or endangered species) as~~
3 ~~determined by the Administrator of GEPA. All other discharge constituents shall be~~
4 ~~limited to the criteria associated with each designated water use. Areas that do not~~
5 ~~meet general water quality standards in these water use classification shall not be~~
6 ~~further degraded.~~

7 8 4. Wetland Evaluation

9
10 Wetland evaluations should include a plant and wildlife inventory and an evaluation of the wetland
11 functions. High quality wetlands **should maintain water quality and protect against erosion,**
12 **and** include, but are not limited to, those which provide habitat for threatened or endangered
13 species and/or wetlands which are locally or regionally scarce or threatened.

14 15 5. Mitigation:

16
17 All wetlands in Guam are classified as Guam Resource Waters under this regulation and are
18 protected from degradation. However, in certain instances, limited degradation may be permitted
19 provided **reasonable and/or practical alternatives are not available, and** the applicants have
20 **implemented best management practices,** worked to avoid impacts due to hydromodification
21 (including reducing the scale of a proposed project), minimize **minimized** the impacts and agreed
22 to mitigate for the destruction of wetland habitat.

23
24 Acceptable mitigation include **includes** construction of a wetland designed to replace the wetland
25 functions destroyed, **altered or impaired,** and restoration or enhancement of an existing degraded
26 wetland. Protection of an existing functional wetland is not acceptable mitigation for destruction
27 of a wetland, however, as part of a mitigation plan, certification conditions may require protection
28 of on-site wetlands through establishment of deed restrictions or easements. **Mitigation**
29 **conditions may also require long term biological monitoring. The feasibility and general**
30 **acceptability of a given investigation scheme cannot be used to justify permitted alterations.**

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32 **Figure 1**

Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats (from Cowardin et al., 1979).

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FIGURE WETLANDS AND DEEPWATER HABITATS

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~~FIGURE 1A - WETLANDS AND DEEPWATER HABITATS~~

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Appendix C - Constructed Wetlands for Water Quality Improvement

CREATED WETLAND GUIDELINES

This guidance encourages the expansion of and use of the Territory's Guam's Wetland Resources through the creation and restoration of wetlands ~~using municipal wastewater, while also~~ and to allowing for the use of natural wetlands for waste water treatment if specific requirements are met.

If the wetland is created as part of the treatment process, the minimum requirements on the degree of pretreatment shall include secondary treatment, and applicable water quality standards must be met for water bodies that receive the effluent from the wetland treatment system. If the wetland currently ~~exist~~ exists, the following requirement requirements shall be applied:~~apply~~:

1. Minimum of secondary treatment prior to discharge to the wetland;
2. Advanced treatment prior to discharge to the wetland if necessary to meet Guam Water Quality Standards applicable to the wetland.
3. Discharge to the wetland free of toxic contaminants, e.g., chlorine, at levels that would impair beneficial uses; ~~e.g., chlorine~~;
4. Monitoring in the wetland to detect accumulation of toxic contaminants and changes to the plant/animal communities;
5. Section 402 NPDES permit;
6. Section 404 permit if alterations of the wetland are required as part of construction; and
7. Review on a case-by-case basis.

Reference: ~~Appendix D of document entitled "Report on the Use of Wetlands for Municipal Wastewater Treatment and Disposal, dated October 1987, EPA~~

1 430/09-88-005, prepared by U.S.E.P.A., Office of Water, Office of Municipal Pollution
2 Control (WH-546) with September 1988 Guidance to supplement the October 1987
3 Burdick Report.

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5 **The Agency may utilize any scientific and regulatory guidance documents to evaluate**
6 **wetland treatment system designs, objectives and operational considerations as may be**
7 **appropriate, on a case by case basis.**

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Appendix D - Executive Order Number 90-13

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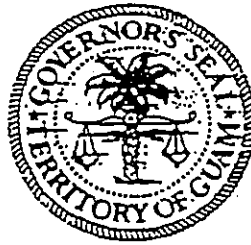
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TERRITORY OF GUAM
 OFFICE OF THE GOVERNOR
 AGAÑA, GUAM 96910
 U.S.F.A.
 EXECUTIVE ORDER NO. 90-13

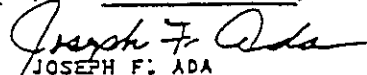
PROTECTION OF WETLANDS

- WHEREAS, Executive Order 78-21 directed the Territorial Land Use Commission to officially designate wetland areas on Guam; and
- WHEREAS, Government agencies have been utilizing three separate maps to identify wetland areas due to the lack of an officially adopted map; and
- WHEREAS, wetlands are areas of particular concern that provide an essential habitat for maintenance of native plant and animal life, prevent soil erosion and stormwave damage, and valuable locations for scientific and educational investigations; and act as floodplains during periods of excessive water flow and a source of fresh water for domestic and agricultural purposes; and
- WHEREAS, the rapid pace of development currently experienced on Guam has placed greater pressure on this valuable resource; and
- WHEREAS, the management of this resource cannot begin until landowners, developers and the Government of Guam utilize a consistent source of wetland information.


NOW, THEREFORE, I, JOSEPH F. ADA, Governor of the Territory of Guam, pursuant to the authority vested in me by the Organic Act of Guam, do hereby declare that:

1. The official, interim wetland map for Guam shall be the National Wetlands Inventory map published by the United States Fish and Wildlife Service.
2. All Government of Guam agencies shall utilize this map in the review of physical development projects.
3. The appropriate land use agencies including the Guam Environmental Protection Agency, the Department of Agriculture, and the Bureau of Planning shall complete a study of wetlands; prepare public information material; and draft all necessary legislation, rules and regulations, and/or executive orders for processing through the appropriate channels.
4. The Executive Order shall remain in effect until the results of such study recommended legal framework are approved as required by applicable law.
5. Executive Order 78-21 is repealed in its entirety.

SIGNED AND PROMULGATED this 12th day of JUNE, 1990.


 JOSEPH F. ADA
 Governor of Guam

COUNTERSIGNED:


 FRANK F. BLAS
 Lieutenant Governor of Guam

Appendix E - Executive Order Number 96-26

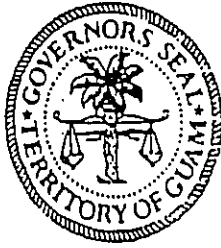
~~EXECUTIVE ORDER NO. 90-09~~

~~ESTABLISHING THE DEVELOPMENT REVIEW COMMITTEE~~

EXECUTIVE ORDER NO. 96-26

Relative to creating the Application Review Committee to replace the Development Review Committee, and to streamline the review process for the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board.

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TERRITORY OF GUAM
OFFICE OF THE GOVERNOR
AGAÑA, GUAM 96910
U. S. A.

EXECUTIVE ORDER NO. 96-26

RELATIVE TO CREATING THE APPLICATION REVIEW
COMMITTEE TO REPLACE THE DEVELOPMENT REVIEW
COMMITTEE, AND TO STREAMLINE THE REVIEW
PROCESS FOR THE TERRITORIAL LAND USE
COMMISSION/TERRITORIAL SEASHORE PROTECTION
COMMISSION/GUAM NATURAL RESOURCES BOARD.

WHEREAS, Title 21, Guam Code Annotated created the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter collectively and individually referred to as the "Commission") and invested in the Commission the authority to review all matters pertaining to the zoning, subdivision, granting of conditional uses and variances, and other land and water related uses of public and private land and development within the Territory of Guam; and

WHEREAS; in general, matters coming before the Commission represent exceptions or departures from the Master Plan or existing land use laws of Guam and thus comprise requests for the Commission, acting on behalf of the people of Guam, to grant such exceptions; and

WHEREAS, Executive Orders Nos. 90-09 and 92-06 established and revised the Development Review Committee (DRC) in order to review the impact of proposed developments in the Territory of Guam, Executive Order No. 90-15 established interim guidelines for the DRC, and Executive Order No. 90-10 established requirements for Environmental Impact Assessments for all Commission actions; and

WHEREAS, there is a need for a more efficient and streamlined review process, which entails replacing the existing Development Review Committee (DRC) with a new Application Review Committee ("Committee" or "ARC"), and charging the ARC with the responsibility of evaluating applications for land use matters, and reporting its findings and recommendations to the Commission; and

WHEREAS, the ARC is formulated for the purpose of providing the Commission with technical and professional review, analysis, and advice through individual agency positions concerning various development activities on Guam, so that the Commission can ensure that proposed developments achieve both maximum utility and livability, through provisions for adequate utilities and facilities such as power, water, drainage, schools, parks, traffic circulation, and open spaces for light and air; and

WHEREAS, commercial and residential development in Guam continues at an accelerated rate, and many aspects of these developmental activities create a significant impact upon the environment of Guam; and

WHEREAS, the Guam Environmental Protection Agency (GEPA), pursuant to Chapters 45 through 52, Title 10, Guam Code Annotated, is responsible for providing a



unified, integrated, and comprehensive territory-wide program of environmental protection and procedures to fulfill that responsibility; and

WHEREAS, conducting environmental review and impact assessments is a vital and integral part of the development planning process and is therefore of substantial value and utility to developers and landowners, as well as being in the public interest.

NOW, THEREFORE, I, CARL T. C. GUTIERREZ, Governor of Guam, by virtue of the authority vested in me by the Organic Act of Guam, as amended, and the laws of Guam, do hereby order that, notwithstanding any other executive order:

- (1) For the purposes of implementing this Executive Order and supplementing definitions not contained in Chapters 61 through 63 of Title 21, Guam Code Annotated, the following definitions shall apply:
 - (a) "Accessory use" means a use of land or a building or a portion thereof, when such use is customary and incidental to the actual principal use of the land or building and such accessory use is located on the same parcel of property as the principal use.
 - (b) "Applicant" means the person, government, or other entity which submits any application for consideration before the Commission.
 - (c) "Application" means the complete application form and all supporting documentation required for a project.
 - (d) "Barracks" means a building containing One (1) or more rooms intended or designed to be used or rented for living and sleeping purposes, typically but not exclusively housing provided by an employer for employees. A barracks shall not be construed to mean a hotel.
 - (e) "Bed and Breakfast Inn" means a house, or portion thereof, where short-term lodging rooms and meals are provided. The operator of the inn shall live on the premises or in adjacent premises.
 - (f) "Club" means an organization which operates an establishment for objectives of an athletic, patriotic, political or social nature and not for pecuniary gain, having a bona fide membership list, the majority of members of which pay dues at least once in every year.
 - (g) "Clubhouse" means a building used to house a club or social organization, not conducted for private profit and not an adjunct to, operated by, or in connection with a public tavern, bar, cafe, or other public place.
 - (h) "Day" means a calendar day unless otherwise specified.
 - (i) "Lodging House" or "Rooming House" means any building, or portion thereof, containing not more than five guest rooms which are used by not more than five guests where rent is paid in money, goods, labor or otherwise. A lodging house shall



comply with all of the requirements of the Building Code for dwellings.

- (j) "Planned Unit Development" means land under unified control to be planned and developed as a whole in a single development operation or a programmed series of development operations or phases. A planned unit development generally as a range of uses including residential, commercial, office, and recreational that are designed to be in a harmonious relationship with each other. Such a development is built according to specific plans that include not only streets, utilities, lots, and building locations, but also site plans for all buildings that are intended to be located, constructed, used and related to each other and plans for other uses and improvements on the land as related to the buildings.
 - (k) "Project" means any type of proposal that comes before the Commission for approval.
- (2) There is created an Application Review Committee ("Committee" or "ARC") which is comprised of the following permanent voting members:
- (a) Department of Land Management, Planning Division (DLM);
 - (b) Guam Environmental Protection Agency (GEPA);
 - (c) Department of Agriculture (DAGR);
 - (d) Guam Waterworks Authority (GWA);
 - (e) Guam Power Authority (GPA);
 - (f) Department of Parks and Recreation (DPR);
 - (g) Department of Public Works (DPW); and
 - (h) Bureau of Planning (BOP).

The heads of such agencies shall assign senior members of their respective departments to attend the ARC meetings.

- (3) Interim ARC Guidelines are hereby established, pending promulgation as rules through the Administrative Adjudication Law. The Interim Guidelines are attached as Appendix A.
- (4) This Executive Order shall govern all land and water uses that come before the ARC and the Commission. All applications and other matters that come before the ARC or Commission shall be in compliance with this Executive Order and the attached and incorporated Interim Application Review Committee (ARC) Guidelines. The requirement to conform to the Interim Guidelines shall cease upon the promulgation of rules pursuant to the Administration Adjudication Law.



- (5) All applications for Commission action shall first be submitted to the voting member agencies of the ARC for their technical review and analysis. The period of this review and analysis shall not exceed Sixty (60) days from the first ARC meeting at which the application appears on the ARC's agenda; provided, however, that this period may be reasonably extended by the Commission upon written request of an ARC member or the applicant. No items shall be placed on the Commission agenda unless the items are first approved by the ARC. All Commission agenda items must be approved by the ARC not less than Two (2) weeks prior to the scheduled Commission meeting. Except for applications for zone changes, the applicant shall apply for and receive a building or grading permit for the approved project within One (1) year of the date of recordation of the Notice of Action, otherwise, the approval of the project as granted by the Commission shall expire; provided, however, that the Commission may grant Two (2) one-year extensions of the above approval period.
- (6) All applications for conditional use, zone change, variance, subdivision approval, golf courses, any proposed developmental action in wetlands, or for development of aquaculture facilities shall be required to submit an Environmental Impact Assessment (EIA) in the format required by the Guam Environmental Protection Agency (GEPA) Administrator; provided, however, that the proposed action may be determined by the GEPA Administrator to be exempt from the EIA requirement as set forth below:
- (a) One (1) or Two (2) single family dwelling units on a single lot;
 - (b) a single duplex;
 - (c) sign or setback variances;
 - (d) reduction, relocation or deletion of easements; and
 - (e) horizontal property regimes.

The above listed projects shall not be exempt from the EIA requirement if the project involves construction and is located within an environmentally sensitive area, which includes, but is not limited to, areas that affect seashore, rivers and streams, wetlands, critical fauna and flora habitats, and aquifer recharge areas.

- (7) When there is a change in ownership, management, or directorship of any development project before, during, or after construction on the project, and the project requires an EIA under provisions of this Executive Order, each subsequent owner, manager, or director of the development project shall be subject to all provisions of the EIA in the same manner as the original owner, manager, or director of the development. The owner of the development project shall give written notice to the GEPA and the Territorial Planner of a change in ownership, project manager, or directorship, within Thirty (30) days of the change.



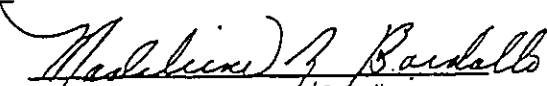
- (8) The Planning Division of the Department of Land Management shall provide administrative support staff and services for the ARC.
- (9) No act prohibited or restricted by any statute, rule, law, or executive order shall be permitted by reason of compliance with this Executive Order No. 96-26.
- (10) No permit, license, or requirement under any statute, rule, or law, federal or territorial, shall be waived by reason of compliance with this Executive Order No. 96-26.
- (11) This Executive Order No. 96-26 shall operate prospectively only, and applies to all applications submitted to the Department of Land Management after the effective date of this Executive Order No. 96-26. All previously submitted applications shall continue under the procedures in force when the applications were accepted by the Department of Land Management.
- (12) The provisions of this Executive Order No. 96-26 are severable and if any provision or part is held invalid, unconstitutional, or inapplicable to any person or circumstances, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of this Executive Order. If the use of the Interim Application Review Committee (ARC) Guidelines are invalid or unlawful, the existing Development Review Committee (DRC) Rules and Regulations, promulgated January 1995, as far as practicable, shall govern all matters before the ARC and Commission until the ARC Rules can be promulgated pursuant to the Administrative Adjudication Law.
- (13) Executive Orders Nos. 90-09, 90-10, 90-15, and 92-06 are rescinded.

SIGNED AND PROMULGATED at Agaña, Guam this 28th day of October, 1996.



CARL T. C. GUTIERREZ
Governor of Guam

COUNTERSIGNED:



MADELEINE Z. BORDALLO
Lieutenant Governor of Guam

APPENDIX A
of Executive Order No. 96-26

INTERIM
APPLICATION REVIEW COMMITTEE (ARC)
GUIDELINES

	Table of Contents
§100.	Authority.
§200.	Official Name.
§300.	Purpose.
§400.	Organization.
§500.	Support Staff.
§600.	Meetings.
§700.	Application Procedure.
§800.	Approval of Agendas.
§900.	Voting.
§1000.	Order of Business.
§1100.	Severability.

§100. Authority. These Interim Guidelines are established under the authority of Executive Order 96-26 pending promulgation through the Administrative Adjudication Law, Chapter 9 of Title 5, Guam Code Annotated.

§200. Official Name. The official name of the Committee is the "Application Review Committee", referred to as "ARC" or "Committee".

§300. Purpose. The Committee is formulated for the purpose of providing the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter referred to as the "Commission") with technical and professional review, analysis, and advice through individual agency positions concerning various development activities in Guam. Within its mandated area of authority, each ARC agency shall:

- (a) Ensure compliance with applicable law, regulatory standards, procedures, policies, and rules within its mandated area of concern;
- (b) Evaluate alternative development strategies with the applicant to provide the best development plan for the developer and the community; and
- (c) Develop and provide official position statements on applications submitted to the Commission.

§400. Organization. (a) Permanent Voting Members. The permanent voting members of the ARC as defined in this Executive Order are:

- (1) Department of Land Management, Planning Division (DLM); (the Territorial Planner shall be the Chairperson)
- (2) Guam Environmental Protection Agency (GEPA);
- (3) Department of Agriculture (DAGR);
- (4) Guam Waterworks Authority (GWA);
- (5) Guam Power Authority (GPA);
- (6) Department of Parks and Recreation (DPR);
- (7) Department of Public Works (DPW); and
- (8) Bureau of Planning (BOP).

(b) **Ex-Officio Members.** Ex-officio members shall be informed of meeting locations, times, and agendas. They shall have no vote on matters before the ARC and shall not be required to submit position statements and Infrastructure Certification Forms. The ex-officio members are:

- (1) Chamorro Language Commission;
- (2) Department of Commerce;
- (3) Department of Education;
- (4) Guam Fire Department; and
- (5) Department of Public Health and Social Services.

Upon approval of the ARC, other agencies may become ex-officio members.

(c) The Chairperson shall call all meetings to order, oversee the application procedure and transmit all comments, recommendations, position statements, and Infrastructure Certification Forms to the Commission. Any Acting Territorial Planner shall automatically become Acting Chairperson of ARC.

(d) The Attorney General's office shall provide legal assistance as necessary.

§500. **Support Staff.** The Planning Division of the Department of Land Management shall provide support staff and services to implement Executive Order No. 96-26 and these Interim Rules. Such support shall include, but not be limited to:

- (a) Retaining complete project files by municipal district, tract, block, lot number, petitioner, and type of application, and developing a means of cross-referencing project files;
- (b) Developing an application package and revising it as needed;
- (c) Providing application package to applicant and receiving the completed application package from applicant;
- (d) Providing ARC minutes to Committee members;

- (e) Receiving the ARC position statements and providing them to the Commission and applicant;
- (f) Providing a summary of Commission actions to the ARC by the next ARC meeting; and
- (g) Providing, upon request, to ARC members at no cost, and to the public at cost, copies of the approved Commission minutes.

§600. Meetings. (a) There shall be at least Two (2) regular ARC meeting per month. The meetings shall be held on alternate Thursdays from the Commission meetings, unless the ARC meeting falls on a legal holiday. If a regular ARC meeting is not held on the aforementioned Thursday, the ARC meeting shall be on the subsequent Tuesday.

(b) Special meetings for administrative matters only may be called by the Territorial Planner. Special meetings shall require at least Four (4) days notice to all permanent voting members.

(c) Majority (50% + 1) of the permanent voting members shall constitute a quorum for the purpose of conducting its business and for all other purposes. A quorum is required for all business conducted.

(d) The Committee shall hold its meetings at a location to be determined by a majority vote of the permanent voting members at any meeting.

§700. Application Procedure. (a) Applications for:

- (1) Conditional Uses;
- (2) Zone Changes;
- (3) Zone Variances;
- (4) Subdivision Variances;
- (5) Tentative and Final Subdivisions;
- (6) Wetland Permits;
- (7) Seashore Clearances;
- (8) Tentative Development Plan;
- (9) Agricultural Subdivisions and Lot Parceling; and
- (10) Other land use permit applications

shall meet the requirements of all relevant laws, executive orders, rules, and the requirements of the Commission and ARC. The applications for the above are available from the Territorial Planner. Completed applications shall be submitted to the Territorial Planner. Applications should be accompanied by an executive summary.

(b) Applications shall be received and initialed by the Territorial Planner or his or her authorized representative, who shall stamp the date and time the application was received.

(c) Upon receipt of the application, the Territorial Planner shall review the application to ensure that all required materials are included, prior to acceptance. The application shall include an affidavit of ownership or authorization signed by the owner, authorizing the application before the Commission. Incomplete applications shall not be accepted by the Territorial Planner who shall notify the applicant thereof. The Territorial Planner may conduct preliminary interviews with the applicant where needed.

(d) After acceptance by the Territorial Planner, applications shall be transmitted to ARC members at least Two (2) weeks prior to the ARC meeting at which the application is scheduled.

(e) The Territorial Planner shall provide a tentative ARC agenda to be approved by the ARC not less than Two (2) weeks prior to its next regularly scheduled meeting. Only agenda items approved by the ARC at its previous meeting shall be considered and heard by the Committee. In no event shall the agenda exceed Ten (10) applications for review at each meeting.

(f) The Committee shall hold a regularly scheduled meeting with the applicant to discuss the application, thus commencing the Sixty (60) day assessment period, which shall not be extended without Commission approval.

(1) At the time of its initial meeting with the applicant, the ARC shall tentatively set the project application for the first regularly scheduled Commission meeting falling after the Sixty (60) day assessment period and the Two (2) week period required under Subsections (a) and (b) of §800 of these Interim Rules, below, has elapsed; provided, however, that the ARC may reschedule the matter to an earlier Commission meeting if all permanent voting members of the ARC have submitted their required positions and Infrastructure Certification Forms and there is no objection from the applicant.

(2) If any permanent voting Committee member finds an application to be incomplete or lacking pertinent information which may reasonably be deemed necessary to formulate comments or recommendations at any time within the first Forty-five (45) days of the assessment period, the ARC member shall notify the applicant in writing (with a copy of the letter or notice to the Territorial Planner) as to precisely what additional information is required from the applicant to adequately review the application.

(3) If at any time within the Sixty (60) day assessment period a permanent voting member of the ARC or the applicant requires additional time for adequate review and determination of a position on the project application,

the member or applicant may, in writing, notify the Territorial Planner, and the applicant, if necessary, that additional time is required and the precise reasons therefor. The Commission shall hear the request for additional time at the earliest opportunity, consistent with law, executive orders, and these Guidelines, but not later than the Commission meeting wherein the matter itself is scheduled to be heard.

(4) Permanent voting members of the ARC shall submit written comments in individual position statements and Infrastructure Certification Form, if required, to the Territorial Planner not later than Sixty (60) days from the initial ARC meeting on the project application.

(g) The position statements shall contain a clear and unambiguous statement indicating whether the agency APPROVES, DISAPPROVES, or APPROVES WITH CONDITIONS the project application. If an Approval with Conditions is given, specific conditions for the approval must be clearly stated. The position statement from GPA, DPW, GWA and GEPA shall include a completed Infrastructure Certification Form, a sample copy of which is attached hereto.

§800. Approval of Commission Agendas. (a) The Territorial Planner shall compile all position statements and Infrastructure Certification Forms and prepare the tentative Commission agenda. No item shall be placed on the Commission agenda unless the item is approved by the ARC. All tentative Commission agenda items must be approved by the ARC not less than Two (2) weeks in advance of the scheduled Commission meeting.

(b) The Territorial Planner shall transmit the approved agenda, applications packages, Infrastructure Certification Forms and position statements to the Commission not later than One (1) week before the Commission meeting.

§900. Voting. (a) Subject to the ARC quorum requirements, motions on all matters before the ARC shall be passed by majority vote of the permanent voting members present, provided, however, that at least Four (4) affirmative votes shall be required for any action to be approved by the Committee.

(b) The Chairperson of the Committee shall vote on all matters before the Committee.

(c) Except as otherwise provided, the parliamentary procedures set forth in Robert's Rules of Order shall govern the conduct of all Committee meetings.

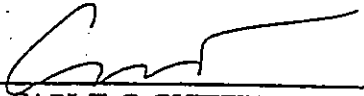
§1000. Order of Business. At the regular meetings of the Committee, the following shall be the order of business:

- (a) Attendance;
- (b) Approval of Minutes;

- (c) Old or Unfinished Business;
- (d) New Business;
- (e) Approval of ARC Agenda;
- (f) Approval of Commission Agenda;
- (g) Administrative and Miscellaneous Matters; and
- (h) Adjournment.

§1100. Severability. The provisions of these Interim Guidelines are severable and if any provision or part is invalid, unconstitutional, or inapplicable to any person or circumstance, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of these Interim Guidelines.

SIGNED and ESTABLISHED at Añaña, Guam on this 28th day of October, 1996.



CARL T. C. GUTIERREZ
Governor of Guam

ATTACHMENT TO APPENDIX A OF EXECUTIVE ORDER NO. 96-26

Use a separate form for each activity, service or facility certified.

Infrastructure Certification Form

Agency Certifying: _____
Applicant: _____
Location: Tract _____ Block _____ Lot No. _____ Village _____
Type of Application: _____
TLUC/TSPC Application No.: _____
Brief Project Description: _____

For the purposes of this Certification, GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE include, but are not limited to: power lines, poles and facilities; water lines, pumps and facilities; sewer and liquid waste disposal; storm water disposal; solid waste disposal; telephone lines and facilities; schools; health facilities; police and fire fighting service and facilities; roads; traffic and street lights; parks and recreational facilities.

1. I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently AVAILABLE AND IN PLACE to support this project: Yes _____/ No _____/

2. If the answer to #1 above is YES, then:
I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently ADEQUATE to support this project:
Yes _____/ No _____/

3. If the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE currently in place are NOT AVAILABLE or they are AVAILABLE, BUT NOT ADEQUATE, itemize the services, facilities and infrastructure that are needed, the estimated cost thereof and whether funds are currently available and identified to develop such services, facilities and infrastructure:

Services, Facilities and Infrastructure Needed	Cost of Upgrades	Funds Available Yes/No	Date Available	Funds Identified Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No

I hereby certify that the foregoing is true and correct to the best of my knowledge.

Agency/Department Head

Date

Comments:

Appendix F

Appendix F moved to Section 5106

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~~L. SECTION 401 WATER QUALITY CERTIFICATION~~
~~APPLICATION (401A) FORMAT~~

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4 ~~FOR OFFICIAL USE ONLY~~ _____ Prepared By: _____
5 Application No. _____ Title: _____
6 Date Received: _____ Date Prepared: _____
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8
9 ~~SUBJECT: REQUEST FOR A SECTION 401 WATER QUALITY CERTIFICATION~~
10 ~~(401 WQC)~~
11

12 1.a. Applicant and Address: _____
13 _____
14 _____
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16 _____ b.

17 Agent/ _____
18 and Address: _____
19 _____
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23 2. Project Name and _____
24 Location: _____
25 _____
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28 3. Associated Federal _____
29 Permit or File No. _____
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33 Note: For the following items, be sure all items are completed, there are incomplete items, the application will
34 be returned. When references are made to supporting documents, it must identify the document, page
35 number and paragraph. Four (4) copies of the supporting documents will be required.

36
37 _____ The applicant may use this Application Format as the application, if desired.

1 4. Provide for a description of the facility activity, and of any discharge into state which may result from the
2 conduct of any activity including, but not limited to, the construction or operation of the facility or activity.
3 including of the biological, chemical, thermal, and any other characteristics of the discharge, and the location
4 or locations at which such discharge may enter state waters.

5
6 a. description of facility or activity: (provide a facility/project site plan _____
7 _____
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10 b. construction and operation of facility or activity: _____
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16 c. description of biological, chemical, thermal, and other characteristics of discharge: _____
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22 d. location(s) at which such discharge may enter state waters _____
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30 5. Provide information and analysis which describes the effect(s) of the a description of the function and
31 operation of equipment, or facilities or activities treat wastes or other effluents which may be of the discharge
32 including specification of the degree of treatment expected to be attained

33 a. description of describe the function (s) of equipment, or facility or activity to treat ment
34 wastes or other effluent. _____
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~~_____ b. specification of the degree of treatment or protection expected to be obtained:~~

~~6. date or dates on which the activity will begin and end, if known, and the date or dates on which the discharge will take place:~~

~~_____ a. date(s) on which the activity will begin and end, if known: _____~~

~~_____ b. date(s) on which discharge will take place:~~

~~7. Provide a description of methods and means being used or proposed to monitor the water quality and characteristics of the discharge and the operation of equipment or facilities employed in the treatment or control of wastes or other effluents:~~

~~_____ a. description of the methods and means being used to monitor water quality:~~

~~_____ b. and characteristics of the discharge:~~

~~8. Describe the classification of the territory's water and the associated recreational uses of the territory's water at the location(s) of discharge and state whether the basic water quality criteria and the applicable water quality standards will be met:~~

~~_____ a. describe the classification and recreational uses of the territory's water at the discharge:~~

~~_____ b. statement whether the basic water quality criteria and applicable water quality standards will to be met (if yes, complete item c below): _____~~

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~~c. provide a signed statement signed by the applicant that, "There is reasonable assurance that the activity will be conducted in such a manner which will not violate applicable basic water quality criteria and the applicable water quality standards." (Note: This will be one of the key elements in the determination to issue of Section 401 WQC):~~

~~9. Submit applicable plans, specifications, and copies or citation of an Environmental Assessment or Environmental Impact Statement as it may apply~~

~~a. date(s) on which the activity will begin and end. Submit applicable plans, specifications~~

~~b. date(s) on which discharges will take place.~~

~~b. or copies or citation of an Environmental Impact Assessment or environmental Impact Statement as it may apply.~~

~~Comments on the status of above documents:~~

~~to:~~

~~13. Explain any irregularities, recent disturbances (natural or man caused), unique features and/or expected cumulative affects that may influence water quality conditions adjacent to or within the project site:~~

~~If you require assistance in completing this application form you may call Guam EPA at (671) 475-1662 or Fax (671) 9402:~~

WETLAND AREAS PROCEDURAL FLOW CHART

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Appendix F - Guam Water Classification Map

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APPENDIX "H"

EXECUTIVE ORDER NO. 90-10

~~REQUIREMENTS FOR ENVIRONMENTAL IMPACT ASSESSMENTS FOR ALL
TERRITORIAL LAND USE COMMISSION ACTIONS.~~

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APPENDIX I
TRIBUTYL TIN (TBT)

FRESH WATERS

In freshwater, the four-day average concentration of Tributyltin does not exceed 0.64 ug/l more than once every three years on the average and if the one-hour average concentration does not exceed 0.442 ug/l more than once every three years on the average.

MARINE WATERS

In marine waters, the four-day average concentration of tributyltin does not exceed 0.010 ug/l more than once every three years on the average and if the one-hour average concentration does not exceed 0.356 ug/l more than once every three years on the average.

APPENDIX "J"

TABLE III

~~LIMITATIONS FOR DISCHARGES TO CATEGORIES G-2 a, G-2B AND G-3~~

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Appendix G - Recommended Potential Treatment Efficiencies
RECOMMENDED POTENTIAL TREATMENT EFFICIENCIES *

Parameter	CONVENTIONAL PROCESS						SPECIAL PROCESS					
	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Flocul- ation	Lime Softening	Filtr ation	Activated carbon adsorption PAC GAC	Air strip- ping	Demincra- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments	
Aldrin	P		P			G VG			VG			
Antimony			X		A	X						
Arsenic		A	L-G	G-VG	A	P		G-VG	VG	Valencies important		
Asbestos			G-VG		G							
Barium			P	G-VG	A	P P		VG	VG			
Boron			X			G-VG	X		G-VG		pH Important	
Cadmium			L-G	VG	A	P-L						
Chlordane		P	L	L		VG VG			VG			
Chloride							VG					
Chromium			G	G	A	P P		X	X	Valencies important		
Color			VG		A				VG			

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Parameter	Aeration	Chemical oxidation (chlorination, etc)	Coagulation Flocculation	Lime Softening	Filtration	Activated carbon adsorption PAC GAC	Air stripping	Demineralizing (reverse osmosis, etc.)	Ion exchange	Ozone	Comments
Copper	A		F-G		A					VG	
Cyanide		VG									
2, 4-D		P	P		A	VG X					
DDT		P	L-VG	F		VG X				P	
Diazinon						X(L)					
Dieldrin			P-L			VG	L				
Endrin			L			G-VG X-VG					
Fluoride								G	G-VG		
Heptachlor						V-VG X(VG)					
Heptachlor Epoxide						VG X					
Iron	A	A		A	VG				VG		
Lead			G-VG	VG	A	X		G-VG	X		
Lindane		P	P		P	G	G-VG				
Manganese		A	LG	G	A				VG		

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Parameter	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Floccul- ation	Lime Softening	Filtr- ation	Activated carbon adsorption PAC GAC	Air strip- ping	Deminera- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments
Mercury			G	F-G	A	VG VG					Form important
Methoxy- chlor			G	G-VG	A	VG VG					
Methyl Parathion						X X				X	
Nitrate								F	F-VG		
NTA		P								G-VG	
Odor	A	VG				VG VG				VG	
Parathion		P-VG	P	P	A	VG L-VG				G-VG	
pH	A		A	A							
Phenol		G	P			G-VG X				G-VG	
Parameter	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Floccul- ation	Lime Softening	Filtr- ation	Activated carbon adsorption PAC GAC	Air strip- ping	Deminera- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments

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- 2 VG = 90 - 100% removal
- 3 X = possible candidate process (data lacking)
- 4 G = 70 - 90% removal PAC = Powdered Activated Carbon
- 5 F = 50 - 70% removal GAC = Granular Activated Carbon
- 6 L = 25 - 50% removal * = Treatment based on available full-scale, pilot or bench studies and should only be as
- 7 P = 0 - 25% removal Potential indicators.
- 8 A = auxiliary process Treatability studies and/or site experience should be assessed for specific applications.
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10 Source: McDonald 1986.

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Appendix H - Water Quality Criteria Documents

The U.S. Environmental Protection Agency has published water quality criteria for toxic pollutant(s). Copies of water quality criteria documents are available from the National Technical Information Service (NTIS), 5285 Front Royal Road, Springfield, VA 22161, (703) 487-4650. Prices of individual documents may be obtained by contacting NTIS. Order numbers are listed below. Where indicated, documents may be obtained from the Water Resource Center, 401 M St., S.W. RC-4100, Washington, DC 20460, (202) 260-7786.

Chemical	NTIS Order No.	EPA Document No.
Acenaphthene	PB81-117269	EPA 440/5-80-015
Acrolein	PB81-117277	EPA440/5-80-016
Acrylonitrile	PB81-117285	EPA440/5-80-017
Aesthetics	PB263943	EPA440/9-76-023
Aldrin/Dieldrin	PB81-117301	EPA440/5-80-019
Alkalinity	PB263943	EPA440/9-76-023
Aluminum	PB88-245998	EPA440/5-86-008
Ammonia	PB-85-227114	EPA440/5-85-001
Ammonia (saltwater)	PB-89-195242	EPA440/5-88-004
Antimony	PB81-117319	EPA440/5-80-020
Antimony(III)-aquatic (draft)	resource center	
Arsenic -1980	PB81-117327	EPA440/5-80-021
-1984	PB86-227445	EPA440/5-84-033
Asbestos	PB81-117335	EPA440/5-80-022
Bacteria-1976	PB263943	EPA440/9-76-023
-1984	PB86-158045	EPA440/5-84-002
Barium	PB163943	EPA440/9-76-023
Benzene	PB81-117293	EPA440/5-80-018
Benzidine	PB81-117343	EPA440/5-80-023
Beryllium	PB81-117350	EPA440/5-80-024
Boron	PB263943	EPA440/9-76-023
Chemical	NTIS Order No.	EPA Document No.

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Cadmium -1980 -1984	PB81-117368 PB85-224031	EPA440/5-80-025 EPA440/5-84-032
Carbon Tetrachloride	PB81-117376	EPA440/5-80-026
Chlordane	PB81-117384	EPA440/5-88-027
Chloride	PB81-115047	EPA440/5-88-001
Chlorinated Benzenes	PB81-117392	EPA440/5-80-028
Chlorinated Ethanes	PB81-117400	EPA440/5-80-029
Chlorinated Naphthalene	PB81-117426	EPA440/5-80-031
Chlorinated Phenols	PB81-117434	EPA440/5-80-032
Chlorine	PB85-227429	EPA440/5-84-030
Chloroalkyl Ethers	PB81-117418	EPA440/5-80-030
Chloroform	PB81-117442	EPA440/5-80-033
2-Chlorophenol	PB81-117459	EPA440/5-80-034
Cholophenoxy Herbicides	PB263943	EPA440/9-76-023
Chlorpyrifos	PB87-105359	EPA440/5-86-005
Chromium-1980 -1984	PB81-117467 PB85-227478	EPA440/5-80-035 EPA440/5-84-031
Color	PB263943	EPA440/9-76-023
Copper-1980 -1984	PB81-117475 PB85-227023	EPA440/5-80-036 EPA440/5-84-031
Cyanide	PB85-227460	EPA440/5-84-028
Cyanides	PB81-117483	EPA440/5-80-037
DDT and Metabolites	PB81-117491	EPA440/5-80-038
Demeton	PB263943	EPA440/9-76-023
Dichlorobenzenes	PB81-117509	EPA440/5-80-039
Dichlorobenzidine	PB81-117517	EPA440/4-80-040
Dichloroethylenes	PB81-117525	EPA440-5-80-041
2,4-Dimethylphenol	PB81-117558	EPA440/5-80-044
Dinitrotoluene	PB81-117566	EPA440/5-80-045
Chemical	NTIS Order No.	EPA Document No.
Diphyhydrazine	PB81-117731	EPA440/5-80-062
D-2-Ehylhexyl Phthalate-aquatic (draft)	resource center	
Dissolved Oxygen	PB86-208253	EPA440/5-86-003

1	Endosulfan	PB81-117574	EPA440/5-80-046
2	Endrin	PB81-117582	EPA440/5-80-047
3	Ethylbenzene	PB81-117590	EPA440/5-80-048
4	Fluoranthene	PB81-117608	EPA440/5-80-049
5	Gasses, Total Dissolved	PB263943	EPA440/9-76-023
6	Guidelines for Deriving National Water Quality		
7	Criteria for the Protection of Aquatic Organisms		
8	and Their Uses	PB85-227049	
9	Guthion	PB263943	EPA440/9-76-023
10	Haloethers	PB81-117616	EPA440/5-80-050
11	Halomethanes	PB81-117624	EPA440/5-80-051
12	Hardness	PB263943	EPA440/9-76-023
13	Heptachlor	PB81-117632	EPA440/5-80-052
14	Hexachlorobenzene-aquatic (draft)	resource center	
15	Hexachlorobutadiene	PB81-117640	EPA/5-80-053
16	Hexachlorocyclohexane	PB81-117657	EPA440/5-80-054
17	Hexachlorocyclopentadiene	PB81-1176665	EPA440/5-80-055
18	Iron	PB263943	EPA440/9-76-023
19	Isophorone	PB81-117673	EPA440/5-80-056
20	Lead -1980	PB81-117681	EPA440/5-80-057
21	-1984	PB85-227437	EPA440/5-84-027
22	Malathion	PB263943	EPA440/9-76-023
23	Manganese	PB263943	EPA440/9-76-023
24	Mercury-1980	PB81-117699	EPA440/5-80-058
25	-1984	PB85-227452	EPA440/5-84-026
26	Methoxychlor	PB263943	EPA440/9-76-023
27	Chemical	NTIS Order No.	EPA Document No.
28	Mirex	PB263943	EPA440/9-76-023
29	Naphthalene	PB81-117707	EPA440/5-80-059
30	Nickel-1980	PB81-117715	EPA440/5-80-060
31	--1986	PB870105359	EPA440/5-86-004
32	Nitrates/Nitrites	PB263943	EPA440/9-76-023
33	Nitrobenzene	PB81-117723	EPA440/5-80-061

1	Nitrophenols	PB81-117749	EPA440/5-80-063
2	Nitrosamines	PB81-117756	EPA440/5-80-064
3	Oil & Grease	PB263943	EPA440/9-76-023
4	Parathion	PB87-105383	EPA440/5-86-007
5	Pentachlorophenol-1980	PB81-117764	EPA440/5-80-065
6	-1986	PB87-105391	EPA440/5-85-009
7	pH	PB263943	EPA440/9-76-023
8	Phenanthrene-aquatic (draft)	resource center	
9	Phenol	PB81-117772	EPA440/5-80-066
10	Phosphorus	PB263943	EPA440/9-76-023
11	Phthalate Esters	PB81-117780	EPA440/5-80-067
12	Polychlorinated Biphenyls	PB81-117798	EPA440/5-80-068
13	Polynuclear Aromatic Hydrocarbons	PB81-117806	EPA440/5-80-069
14	Selenium-1980	PB81-117814	EPA440/5-80-070
15	-1987	PB88-142239	EPA440/5-87-008
16	Silver	PB81-117822	EPA440/5-80-071
17	Silver-aquatic (draft)	resource center	
18	Solids (dissolved) and Salinity	PB263943	EPA440/9-76-023
19	Solids (suspended) and Turbidity	PB263943	EPA440/9-76-023
20	Sulfides/Hydrogen Sulfide	PB263943	EPA440/9-76-023
21	Tainting Substances	PB263943	EPA440/9-76-023
22	Temperature	PB263943	EPA440/9-76-023
23	2,3,7,8-Tetrachlorodibenzo-P-Dioxin	PB89-169825	EPA440/5-84-007
24	Chemical	NTIS Order No.	EPA Document No.
25	Tetrachloroethylene	PB81-117830	EPA440/5-80-074
26	Thallium	PB81-117848	EPA440/5-80-074
27	Toluene	PB81-117863	EPA440/5-80/075
28	Toxaphene-1980	PB81-117863	EPA440/5-80-076
29	-1986	PB87-105375	EPA440/5-86-006
30	Tributyltin-aquatic (draft)	resource center	
31	Trichloroethylene	PB87-117871	EPA440/5-80-077
32	2,4,5-Trichlorophenol-aquatic (draft)	resource center	
33	Vynil Chloride	PB81-117897	EPA440/5-80-078

Zinc-1980 -1987	PB81-117897 PB87-143581	EPA440/5-80-079 EPA440/5-87-003
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**COMMITTEE ON NATURAL RESOURCES
SENATOR JOANNE M.S. BROWN
CHAIRPERSON**

Public Hearing

**Tuesday, May 22, 2001
9:30 a.m.**

AGENDA

- 1. Introduction of Committee Members**
- 2. Commencement of Public Hearing**
 - Bill 80(LS): AN ACT TO APPROVE AND AMEND
THE GUAM ENVIRONMENTAL PROTECTION
AGENCY WATER QUALITY STANDARDS.**
- 3. Public Comment**
- 4. Adjournment**

I Mina Bente Sais Na Liheslaturan Guahan

COMMITTEE ON NATURAL RESOURCES

PUBLIC HEARING

Tuesday, May 22, 2001 at 9:30 a.m.

Bill 80(LS): AN ACT TO APPROVE AND AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS.

SIGN IN SHEET

<i>Name</i>	<i>Representing</i>	<i>Oral Testimony</i>	<i>Written Testimony</i>
David Long	GEPA	X	
Elizabeth Cruz	GEPA	X	
Randy Sablan	GEPA	X	
Domingo Cabuason	GEPA	X	
Jesus T. Salsas	GEPA		X

**GUAM ENVIRONMENTAL PROTECTION AGENCY
P.O. BOX 22439, GMF BARRIGADA, GUAM 96921**

**TESTIMONY
BEFORE THE TWENTY-FIFTH GUAM LEGISLATURE
COMMITTEE ON NATURAL RESOURCES**

**HEARING ON BILL 80 (LS) AN ACT TO APPROVE AND AMEND
THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY
STANDARDS**

Submitted by

**JESUS T. SALAS, Administrator
Guam Environmental Protection Agency**

Buenas yan Saluda! Please accept my sincere apology for not being able to present this testimony in person due to a conflicting medical appointment. I appreciate this opportunity to address the Committee and provide these brief comments in support of the revised *Guam Water Quality Standards* that are before you for approval.

It might be appropriate to begin my testimony by identifying that the Water Quality Standards have not been revised since June of 1992, even though standard practice is to commence a comprehensive review and possible revision triennially. In their current form, the Standards have been acknowledged as being one of the better regional examples of water quality regulation since their initial development in 1975 and subsequent revisions in 1987 and 1992. Admittedly, there have been challenging circumstances which have delayed revision but that delay has also resulted in a more comprehensive "overhaul", if you would.

It is certainly worth noting that the scope of review and comments on this revised version of the standards represent one of the most comprehensive but also most collaborative effort of any regulation developed during my tenure as Administrator. Credit must be given to the Agency's Water Programs Division in leading the revision effort as well as the technical support of USEPA Region 9, Special Assistants and other Agency key technical staff. What really makes this revision, however, is the high and diverse level of external peer and private sector review and comment. Many excellent comments and suggestions were in fact incorporated into the standards. I would now like to highlight several key features of these revised Standards.

- Our anti-degradation policy was revised and strengthened
- Numeric criteria for groundwater were included
- Numeric criteria for surface waters have been updated
- Effluent limitations have been updated and revised in the following areas
 - Protection is provided for threatened and endangered species
 - Compliance scheduling is provided for point source discharges to phase or implement corrective actions over a period of time
 - The standards require spill prevention plans for petroleum facilities with capacities of 660 gallons or greater
- Water Quality Certification requirements were clarified and streamlined and the opportunity to assess certification fees to support compliance monitoring is proposed.

In closing, I would like to reemphasize that our ground, surface and marine waters are our most precious natural resources. A number of provisions in this regulation greatly enhances our ability to protect, maintain and improve our quality of life including long term economic viability in the areas of tourism and as an American and Asian business hub. Hopefully, in the near future we can again welcome to Guam a major American military presence. None of this economic and strategic activity is possible to the extent we have, and will continue to experience, without clean and sustainable supplies of water. Therefore, I cannot overemphasize the importance of the Standards we have revised and updated and wish to thank you for your interest and participation in the process to get these standards implemented.

Present this morning are the various Agency Division heads who are prepared to elaborate on the development and eventual implementation of the standards. I'm certain you will find their comments helpful and that they will be glad to provide any additional information to you or any member of the Committee toward realizing the timely approval of these Standards.

Thank you.


JESUS T. SALAS

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GENERAL ORDER
No. 00-00014

The "Pacific Daily News", a newspaper of general circulation published in Hagatna, Guam, is designated the official newspaper of the court. Unless otherwise provided by order, every notice required to be published shall be published in the "Pacific Daily News."

District Court of Guam
Territory of Guam
Filed Sept. 29, 2000

**GOVERNMENT OF GUAM EMPLOYEES
FEDERAL CREDIT UNION**
P.O. Box 2833, Agaña, GU 96910 • Tel: (671) 477-8736
• 472-6224 • Fax: (671) 477-1155

VEHICLES FOR SEALED BID SALE
on an "AS IS" basis

**1999 HONDA ACCORD LX
AUTO. 4 DOOR**

Bid applications can be obtained at the GovGuam Employees Federal Credit Union collection department located in Motie. All sealed bid applications must be submitted by May 25, 2001 during normal business hours.

Please contact the Collection Department at 477-8736 for date and time of inspection. We reserve the right to refuse any and all bids.

LSG Sky Chefs
**REQUEST FOR PROPOSAL
FOR FOOD AND BEVERAGE CONCESSION
GUAM INTERNATIONAL AIRPORT**

LSG Luthien Services Guam, Inc. ("LSG") is soliciting proposals from interested firms to operate a food and beverage concession, as a sub-concessionaire, at the Guam International Airport. Interested firms are encouraged to specify in their proposal the types of food products and services they intend to offer and how to best use the space available. This space is available for inspection between 8:00 a.m. to 4:30 p.m., Mondays through Fridays, by appointment only.

Deadline: LSG shall receive proposals no later than 4:00 p.m., June 29, 2001 in order to be considered for the award. The bidders shall in their Proposals provide:
1. Financial Forecast.

Triple J has immediate openings for qualified individuals to fill the following positions:
WAREHOUSE MANAGER
Experience in produce merchandising preferred. Must possess current chauffeur's license.

WAREHOUSE OPERATOR
Some heavy lifting required. Must possess current chauffeur's license.
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MINI BENTE SANS NA LAMESLATUKAN GUAHAN
Committee on Natural Resources
Senator Joanne M. S. Brown
Chairperson

Notice of Public Hearing
The Committee on Natural Resources will be conducting a Hearing on Tuesday, May 22, 2001, 9:30 a.m., at the Legislative Public Hearing Room, 155 Hesler Street, Hagatna on the following:
BILL No. 80 (LS) - AN ACT TO APPROVE AND AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS.

ADA Coordinator: Ann Legaspi at 472-3450
The public is invited to attend.

HELP WANTED
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PUBLIC NOTICE

The public is hereby notified that attorney Theodore R. Mitchell has been suspended from the practice of law in the U.S. District Court for the Northern Marianas Islands for a period of six (6) months, effective June 4, 2001 and continuing up to and including December 4, 2001.

During the term of his suspension, Mr. Mitchell may not represent any party or any matter which has been or may be filed in this court.

Inquiries may be directed to the Clerk of

SPORTS

SCOREBOARD

▲ Continued from Page 46

Michael Allen \$3,400	70-73-73-73-289	John Furry \$19,800	72-66-69-69-273-7
Sonny Skinner \$3,400	70-73-72-74-289	Mark Brooks \$19,800	69-67-67-70-273-7
Dick Mast \$3,400	70-71-72-75-289	Scott McCann \$19,800	69-69-66-70-273-7
Brian Kerns \$2,644	69-72-72-72-280	Grant Wade \$19,800	69-66-67-71-273-7
Bob Heinz \$2,644	74-69-74-73-290	Steve Fleach \$13,703	69-68-70-67-274-6
Mark Johnson \$2,644	75-69-73-73-290	John Cook \$13,703	69-70-67-68-274-6
John Korman \$2,644	71-71-74-71-290	Stuart Appleby \$13,703	67-68-70-69-274-6
Danny Briggs \$2,644	74-69-73-74-290	Brian Gay \$13,703	68-68-69-69-274-6
Clarence Rose \$2,644	72-70-73-75-290	Andrew Magee \$13,703	69-68-69-69-274-6
Jason Knutzen \$2,644	70-73-71-76-290	S. Manuvas \$13,703	69-70-66-69-274-6
Scott Plesner \$2,644	72-72-69-71-290	Robert Alenzy \$13,703	70-69-66-70-274-6
Todd Fisher \$2,644	70-72-72-72-291	Jim Carter \$13,703	68-67-67-72-274-6
Jeff Cove \$2,083	70-70-75-75-291	Tom Byrum \$10,317	71-68-70-66-275-5
D.A. Points \$2,083	72-72-72-75-291	Tom Byrum \$10,317	68-71-69-67-275-5
Don Proby \$2,083	70-74-71-76-291	Harrison Frazz \$10,317	68-67-72-68-275-5
Scott Hebert \$2,083	71-68-75-75-291	D.A. Weibing \$10,317	69-68-69-68-275-5
Mike Standy \$1,785	72-71-77-72-292	Craig Barlow \$10,317	68-71-69-68-275-5
Emlyn Aubrey \$1,785	74-70-73-75-292	G. Herstedt \$10,317	69-70-67-69-275-5
Steve Alker \$1,785	73-70-73-76-292	Steve Pata \$10,317	66-69-69-71-275-5
Jason Caron \$1,615	71-72-76-74-293	Rocco Mediate \$10,317	67-69-67-72-275-5
Patrick Burke \$1,615	71-72-75-75-293	Perry Ahray \$10,317	70-69-65-72-275-5
Jim McGovern \$1,615	73-71-74-75-293	Bob May \$10,317	69-69-69-73-275-5
Tim O'Neal \$1,477	69-71-80-74-294	Steve Lowery \$9,830	67-70-66-71-276-4
Chad Campbell \$1,477	69-71-78-78-294	Chris Smith \$9,830	71-68-65-72-276-4
Brian Chan \$1,477	70-74-75-76-294	Jesper Parnevik \$9,830	70-64-68-74-276-4
Jeff Freeman \$1,477	73-64-70-75-294	Rory Sabbatini \$9,360	70-67-71-69-277-3
Bo Van Pelt \$1,477	72-70-74-78-294	Keri Johnson \$9,360	69-67-69-68-277-3
Matt Peterson \$1,477	72-72-72-72-294	Michael Huhari \$9,360	67-67-72-71-277-3
Jay Hobby \$1,360	74-70-76-75-295	B. Schwarzkopf \$9,000	67-70-72-69-278-2
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Eric Meeks \$1,256	72-71-76-78-297	Jerry Smith \$8,325	69-70-66-75-280-E
Joe Daley \$1,284	73-71-75-79-298	L. Mize \$8,100	67-70-75-70-282-42
R.W. Eaks \$1,264	70-72-72-72-298	Gen Hraha \$8,100	70-64-72-76-282-42
Angel Franco \$1,233	71-73-78-78-300	Jason Caron \$8,100	65-69-72-76-282-42
Steve Flunge \$1,211	72-70-83-83-305	Jay Williamson \$7,920	69-70-75-69-283-43
		E. Canonica \$7,830	71-65-72-76-284-44

TENNIS
ATP TENNIS MASTERS SERIES
 Sunday
 At Rome
 Purse: \$2.95 million
 Surface: Clay-Outdoor
 Singles
 Championship
 Juan Carlos Ferrero (8), Spain, def. Gustavo Kuerten (1), Brazil, 3-6, 6-1, 2-6, 6-4, 6-2
 Doubles
 Championship
 Wayne Ferreira, South Africa, and Yevgeny Kafelnikov (5), Russia, def. Daniel Nestor, Canada, and Sandon Stolle (1), Australia, 6-4, 7-6 (6)

VIRGINIA BEACH

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Purse: \$425,000	
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Jonathan Byrd \$24,650	68-65-73-76-282
David Gossett \$17,000	71-69-72-71-283
Chris Couch \$15,900	72-65-73-74-284

JOB ANNOUNCEMENT

ASSISTANT GENERAL MANAGER..... \$17.11 per hour
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 Duties: Assists General Manager in directing and coordinating activities of tour company for Chinese tourism market, to obtain optimum efficiency and economy of operations and maximize profits. Assists in planning and developing company policies and goals, and implements policies through subordinate operational and administrative personnel. Assists General Manager in coordinating activities of the administrative, financial, and operational divisions to effect operational efficiency and financial viability of company. Assists General Manager in directing and coordinating promotion of company's tour services with Taiwan, Hongkong, and Mainland China tour companies, including assisting in developing and maintaining business contacts with managers of the foreign-based tour companies and assisting with contract negotiations in order to develop new markets, increase share of market, and obtain competitive position in industry. Attends trade and tourism shows and associations in Taiwan, Hongkong, and Mainland China. Analyzes division budget requirements to determine where budget adjustments and assists in allocating of operating budget. Assists General Manager with VIP services, investigating the causes of customer complaints and operational deficiencies, and assists in preparation of directives outlining policy and operational changes to be implemented.

Apply to: Guam Employment Service with the One Stop Career Center, 125 Jun Jesus Cristobal St., Ste. 101 (Sunny's Plaza Bldg.), Tamuning, Guam 96911 (Ref. #2001-0209) Verifiable references and police clearance required.

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What planet are you from? The Pacific Daily News

MINA BENTE SAIS NA LIHESLATURAN GUAHAN
 Committee on Natural Resources
 Senator Joanne M. S. Brown
 Chairperson

Notice of Public Hearing
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Bill No. 80 (LS) - AN ACT TO APPROVE AND AMEND THE GUAM ENVIRONMENTAL PROTECTION AGENCY WATER QUALITY STANDARDS.

ADA Coordinator: Anna Legaspi at 472-3450
 The public is invited to attend.

NOTICE OF SALE UNDER MORTGAGE

NOTICE IS HEREBY GIVEN, pursuant to 18 G.C.A. §3611(3), paragraph 2 (ii) of the below described mortgage and the Notice of Default recorded on March 2, 2001 as instrument No. 634210, that the Mortgage executed on December 8, 1976 by TRINIDAD L. LEON GUERRERO and RONALD C. OKADA ("Mortgage"), in favor of U.S. SMALL BUSINESS ADMINISTRATION, and filed for record in the Department of Land Management, Government of Guam, on January 20, 1977 as Instrument No. 275693, will be FORECLOSED pursuant to a POWER OF SALE contained in the above mortgage.

The Mortgage was assigned to ILP MORTGAGE, LTD., Assignment of Notes and Liens, which was executed on January 26, 2001 and recorded with the Department of Land Management, Government of Guam, on February 26, 2001 as Instrument No. 633659.

The property described below will be sold, WITHOUT WARRANTY BEING GIVEN, express or implied, regarding title, possession, rights of redemption or encumbrances, to the highest bidder at public.

NOTICE OF SALE UNDER MORTGAGE

NOTICE IS HEREBY GIVEN, pursuant to § 2932 of the Civil Code of Guam, as codified by 18 G.C.A. § 3611(3), that the Mortgage executed and delivered by JUAN C. PANGELINAN ("Mortgagor") to PACIFIC FINANCIAL CORPORATION ("Mortgagee"), dated October 31, 1995 and recorded on October 31, 1995, in the Office of the Recorder, Department of Land Management, Government of Guam, as Instrument No. 536288, will be foreclosed pursuant to a power of sale contained in the Mortgage by sale of the premises encumbered by such Mortgage, as hereinafter described to the highest bidder at public auction at the Mayor's office, Municipality of Talofofo, Territory of Guam, at 11:00 a.m., on May 30, 2001, to satisfy the amount due on such Mortgage on the day of sale, the terms of the sale are strictly cash, certified or cashier's check.

The sale will be made without consent or warranty regarding title, possession, or encumbrances, to satisfy the obligation secured by and under said power of sale. The premises described in such Mortgage will be offered separately and sold to satisfy the Mortgage as follows:

LOT NUMBER 55-1-3, SUBDIVISION OF LOT NUMBER 55-1-1, MUNICIPALITY OF TALOFOFO, TERRITORY OF GUAM, SUBURBAN, as said lot is marked and designated on Drawing Number ZM-91-08-A, as L.M. Check Number 302 FY 91, as described in the Petition for Court

**Bureau of Budget & Management Research
Fiscal Note of Bill No. 80 (LS)**

Bill Title (Preamble): An act to approve and amend the Guam Environmental Protection Agency Water Quality Standards

Department/Agency Appropriation Information	
Dept./Agency Affected: GEPA	Dept./Agency Head: Jesus T. Salas
General Fund appropriation(s) to date:	\$ <u>1,108,301</u>
Other Fund (specify): Federal Match appropriation(s) to date:	\$ <u>1,484,462</u>
Total Department/Agency Appropriation(s) to date:	\$ <u>2,592,763</u>

Fund Source Information of Proposed Appropriation			
	General Fund	Other (specify):	Total
FY Adopted Revenues PL 26-01	470,400,000	41,652,230	512,052,230
FY Appro. to P.L. 26-02	469,932,213	42,404,653	512,336,866
Sub-total	467,787	(752,423)	(284,636)
Less appropriation in Bill	-0-		
Total	467,787	(752,423)	(284,636)

Estimated Fiscal Impact of Bill						
	One full FY	For remainder of current FY (if appl.)	Second Year	Third Year	Fourth Year	Fifth Year
General Fund	1/					
Other Fund:						
Total						

1. Does the bill contain "revenue generating" provisions? / X / Yes / / No
If yes, see attachment/footnote.
2. Is amount appropriated adequate to fund the intent of the appropriation? N/A / / Yes / / No
If no, what is the additional amount required? \$ _____
3. Does the Bill establish a new program/agency? / / Yes / X / No
If yes, will the program duplicate existing programs/agencies? N/A / / Yes / / No
Is there a federal mandate to establish the program/agency? N/A / / Yes / / No
4. Will the enactment of this Bill require new physical facilities? / / Yes / X / No
5. Was Fiscal Note coordinated with the affected dept/agency? If no, indicate reason: / X / Yes / / No
/ / Requested agency comments not rec'd by due date / / Other: _____

Analyst: <u>Dina P. Chock</u>	Date: <u>5/17/01</u>	Director: <u>Joseph C. Rivera, Acting</u>	Date: <u>5/18/01</u>
-------------------------------	----------------------	-------------------------------------------	----------------------

Footnotes: 1/Revenues may be generated from the collection of fees for certification reviews and other fees for services provided under the Water Quality Standards as proposed in this Bill. It is recommended by the GEPA that fees be used towards the administration and operations of Water Quality Standards.

MINA 'BENTE SINGKO NA LIHESLATURAN GUAHAN
2001 (FIRST) REGULAR SESSION

Bill No. 80(LS)

Introduced by:

J.M.S. Brown
K.S. Moylan



AN ACT TO APPROVE AND AMEND THE GUAM
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY STANDARDS

1 **BE IT ENACTED BY THE PEOPLE OF GUAM:**

2 **Section 1. Legislative Findings and Intent.** In accordance with the
3 Administrative Adjudication Law, §9303 of Title 5 of the Guam Code Annotated, as
4 amended by Public Law Number 24-27 (1997), the Guam Environmental Protection
5 Agency transmitted to I Liheslaturan Guahan, the ***“Guam Environmental Protection***
6 ***Agency Water Quality Standards.***” I Liheslaturan Guahan agrees with the standards
7 as presented and seeks to approve said regulations.

8 **Section 2. Approval of GEPA Regulations.** I Liheslaturan Guahan hereby
9 approves the GEPA rules and regulations entitled, “Guam Environmental Protection
10 Agency Water Quality Standards,” attached as Exhibit A which were transmitted to I
11 Liheslaturan Guahan on April 12, 2001.

12 **Section 3. Fees.** Guam Enviromental Protection Agency is authorized to
13 establish fees for §401 certification reviews and other fees for services provided
14 under the Water Quality Standards. Guam Enviromental Protection Agency will
15 provide for a 30 day public comment period and a public hearing. The fees will be
16 effective upon approval and adoption by the Guam Enviromental Protection Agency

1 Board of Directors.

2

3 **Section 4. Effective Date of Water Quality Standards.** These water quality
4 standards shall become applicable for the waters of Guam upon the determination by
5 U.S.E.P.A. under Section 303(c)(3) of the Clean Water Act also known as the Water
6 Pollution Control Act that the revised or new standards, meet the requirements of the
7 Water Pollution Control Act.

8 **Section 5. Severability.** If any provision of this Law or its application to any
9 person or circumstance is found to be invalid or contrary to law, such invalidity shall
10 not affect other provisions or applications of this Law which can be given effect
11 without the invalid provisions or application, and to this end the provisions of this
12 Law are severable.

GUAM ENVIRONMENTAL PROTECTION AGENCY

EXHIBIT A

GUAM WATER QUALITY STANDARDS
(FINAL REVISION)



"ALL LIVING THINGS OF THE EARTH ARE ONE "

HARMON PLAZA COMPLEX UNIT D-107
130 ROJAS ST.
HARMON, GUAM 96911



GUAM ENVIRONMENTAL PROTECTION AGENCY



AHENSIAN PRUTEKSION LINA'LA GUAHAN

P.O. BOX 22439 GMF • BARRIGADA, GUAM 96921 • TEL: 475-1658/9 • FAX: 477-9402

GUAM WATER QUALITY STANDARDS (Final Draft Revision)

ADOPTED:	July 18, 1987
1 ST REVISION ADOPTED:	January 2, 1992
2 ND REVISION ADOPTED:	


Board Chairman

Date: 1/31/01

ATTESTED BY:


Board Secretary

Date: 1/31/01

OFFICE OF THE LEGISLATIVE SECRETARY	
ACKNOWLEDGMENT RECEIPT	
Received By	<u>Carol Q</u>
Time	<u>2:46 pm</u>
Date	<u>09/02/01</u>

"ALL LIVING THINGS OF THE EARTH ARE ONE"

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22 GAR GEPA
Division II - Water Control
Chapter 5
Water Quality Standards

7
8

Section 5101 Policies Statement of Policy.

9 A. **Statement of Policy.** It shall be the public policy of Guam to:

10
11 1. conserve, protect, maintain, and improve the quality of Guam's waters for human consumption
12 (drinking, **fish and shellfish harvesting** and food processing), for the growth and propagation of
13 aquatic life, for marine research, and for the preservation of coral reefs and wilderness areas, and for
14 domestic, agricultural, commercial, industrial, recreational and other legitimate uses;

15
16 2. provide that no pollutant is discharged into any of **Guam's** waters, unless (a) the discharge first
17 receives processing/**treatment** which will **to** remove all harmful **or hazardous** products, or provides
18 the control technology necessary to protect the designated beneficial uses of waters; (b) the discharge
19 meets the effluent limitations established for that discharge; and (c) best management practices are
20 applied **as necessary**; ~~to all non-point sources;~~

21
22 3. provide for the prevention, abatement and control of new and existing water pollution sources;

23
24 4. maintain and improve the chemical, physical, and biological integrity of wetlands water quality **the**
25 **waters of Guam** as necessary to meet the Clean Water Act Section 101 (a); ~~and to protect wetlands.~~

26
27 5. provide protection from point or non-point source discharges to wetlands in the same way as other
28 surface waters.

29
30 6. provide protection from point and non-points **nonpoint** discharges, including discharges from
31 ponding basins and ~~via~~ to sinkholes to groundwater **in the same way as surface waters; and**

1 **7. eliminate all point source discharges to certain near-shore waters.**

2
3 Further, under the terms of the U.S. Water Pollution Control Act 92-500 as amended by all Public
4 Law through 1986:

5
6 1. it is the territorial Guam's goal that **to eliminate** the discharge of pollutants into Guam's
7 territorial waters; ~~be eliminated;~~ **and**

8
9 2. it is the territorial Guam's goal that **effective** water quality guidelines **be are** established and
10 enforced which provide for the protection and propagation of fish, shellfish and other aquatic and
11 marine life, and provide for safe public recreation in and on Guam's waters.

12
13 ~~3. it is the territorial policy that the discharge of pollutants in harmful or hazardous amounts be~~
14 ~~prohibited;~~ **and**

15
16 ~~4. it is the territorial goal to eliminate all point source discharges to certain near-shore waters.~~

17
18 Therefore, pursuant to the authority contained in the Guam Water Pollution Control Act (Section
19 47104 and 47108 of Chapter 47, Title 10 of the Guam Code Annotated), which authorized the
20 formulation of standards of water purity and classification of waters according to their most beneficial
21 uses, the Guam Environmental Protection Agency hereby adopts the following standards of water
22 quality for Guam.

23
24 ~~To assist in obtaining these goals, discharges including nonpoint sources to Guam's waters will be~~
25 ~~controlled (permitted) through the Federal National Pollutant Discharge Elimination System~~
26 ~~(NPDES), or through the Guam Environmental Protection Agency's local permit program.~~

27
28 ~~All industrial, public or private projects or development are required, as part of the initial project~~
29 ~~design, to make provisions for the pollutant removal or control technology necessary to protect the~~
30 ~~designated use of receiving waters or maintain the existing high quality of receiving waters.~~

31
32 ~~Point source discharges through storm drainage except for storm water is prohibited by these~~

standards.

Waters whose existing quality is better than the established standards will be maintained at the same high quality.

B. Antidegradation Policy:

1. Existing in-stream water uses, and the level of water quality necessary to protect these uses, shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing designated uses is allowable.

2. Waters whose existing quality is less than the established standards for their uses, due to the presence of substances, conditions, or combinations thereof attributable to domestic, commercial and industrial discharges or agricultural, construction and other land-use practices, shall be improved to comply with the established standards. Water quality for those waters not attaining their uses due to impacts from pollution shall be improved so uses are attained. However, in such cases where **Where** the natural conditions are of lower quality than criteria assigned, the natural conditions shall constitute the water quality criteria.

Waters whose existing quality is better than the established standards will be maintained at the same high quality.

The Administrator of the Guam Environmental Protection Agency, may allow a lowering of water quality, only if it has been demonstrated to the Administrator with An Environmental Impact Statement (EIS) pursuant to the requirement of Executive Order 90-10 (Appendix H) that a lowering of the water quality is the only alternative and is necessary as a result of essential social needs. It must also be demonstrated with the EIS that the lowered water quality will not interfere with or become injurious to any aquatic life or uses made of or potentially possible in the affected waters. A public hearing shall be conducted to give residents of the territory, primarily those residing in the affected area, opportunity to review and comment on the EIS.

1 3. If a project has been proposed, and its implementation may lower water quality in a water
2 whose quality exceeds levels necessary to support the propagation of fish, shellfish and other
3 commonly harvested organisms, and wildlife and recreation in and on the water, that water
4 quality shall be maintained and protected unless:

5
6 a. an interdisciplinary review consistent with the National Environmental Policy Act
7 (NEPA) has been submitted for the project. This review will insure that the project
8 complies with the applicable local and federal laws and regulations and procedures
9 relating to the protection and enhancement of the environment. As necessary, the
10 determination will include mitigative provisions as a condition for granting approval
11 of a specific project. The three basic environmental determinations that will apply to
12 a specific project are: (1) a determination to categorically exclude a project from a
13 formal environmental review; (2) a Finding of No Significant Impact (FNSI) based
14 upon formal environmental review supported by an Environmental Impact Document
15 (EID); and (3) a determination to prepare an Environmental Impact Statement (EIS).
16 The environmental impact determination will consider such technical, economic, social
17 and other criteria as provided by Section 301, and 302 of the Clean Water Act; and

18
19 b. the public has been notified of the anticipated action, and has been provided the
20 information necessary for meaningful public involvement and response, at least 30 days
21 before the action; a public hearing or meeting has been held (in accordance with the
22 Administrative Adjudication Law, 5 GCA Section 9100, and with a 30 day notice) if
23 the Agency determines that there is significant public interest or that a hearing or
24 meeting would be useful; and a responsiveness summary has been completed (which
25 shall identify the public participation activity conducted, describe the matter on which
26 the public was consulted, summarize the public's views and significant comments and
27 set forth the Agency's responses); and

28
29 c. the Administrator finds that:

30
31 i. allowing lower water quality is necessary to accommodate important
32 economic or social development; and

1 A GPZ map has been developed as a land use management overlay applicable to any and all
2 zoning and subdivision development requirements in Guam, including military land use
3 activities. One primary determinate of land use development potential, use intensity, density
4 and patterns of growth is the availability of public sewer systems. This determinant is
5 especially critical over Guam's Northern Aquifer to ensure that many potentially harmful
6 (wastewater) pollutants generated are transported to acceptable treatment/disposal works.

7
8 The GPZ includes most but not all of the following: drinking water production wells and their
9 respective well head protection zones, the Northern Guam Watershed, high development-
10 potential, substantial agricultural, government subsidized rural housing, military, and existing
11 industrial and commercial development lands.

12
13 1. Land use guidelines and performance standards should be applied in all appropriate
14 circumstances within the GPZ and over the Northern Aquifer, including, but not limited the
15 following:

16
17 a. industrial development should not occur without adequate public sewer
18 infrastructure;

19
20 b. high density residential development (more than one dwelling per half acre) should
21 not occur without adequate public sewer service;

22
23 c. individual wastewater disposal systems and ponding basins and similar point source
24 waste or storm water disposal works should not be permitted within a Wellhead
25 Protection Zone; and

26
27 d. as practical, storm water disposal systems should be designed and operated to
28 terminate in close proximity to or within project property boundaries to facilitate
29 groundwater recharge.

1 Section 5102 Categories of Waters.

2 The following categories of water established under these standards are Groundwater, Marine waters,
3 and Surface waters. relate to the different liquid components of the hydrologic cycle. All categories
4 of water are referenced on the Water Classification Map. Scaled down copies of these maps are
5 included in these standards, enabling readers to understand their relative position, application and use.
6

7 A. Groundwater

8 This major type of water category encompasses all subsurface water and includes basal and parabasal
9 water, perched water, all water below the groundwater table, water percolating through the
10 unsaturated zone (vadose water), all saline waters below and along the perimeter of the basal fresh
11 water body (freshwater lens), and water on the surface that has been collected with the specific intent
12 of recharging or disposing of that water to the subsurface by means of injection, infiltration,
13 percolation, etc.—~~or other means~~. The Northern Guam Water lens, which is the Principal Source
14 Aquifer, and any other groundwater resources as they are identified shall continue to receive
15 protection under the Guam Wellhead Protection Program and other applicable Guam's
16 groundwater regulations.
17

18 1. Category G-1 Resource Zone.

19 The primary use of groundwater within this zone is for drinking (human consumption) and this use
20 must be protected. Virtually all water of the saturated zone of Guam is included. Specifically, it
21 includes all water occurring in the saturated zone below the groundwater table, all vadose water
22 occurring in an unsaturated zone extending 100 feet (30.5 m) above any water table, or within 20 feet
23 of the ground surface of all fresh groundwater bodies, all water of the basal and parabasal freshwater
24 bodies, and all water of and below the freshwater/salt-water transition zone beneath the basal water
25 body (Examples, e.g.: Wells A-1, A-2, A-3, MJ-1, & MJ-5). Table 1 and 2 contain specific
26 numerical standards for inorganic and organic chemicals, radionucleides and microorganisms.
27

28 2. Category G-2 Recharge Zone

29 Water within this zone is tributary to, replenishes, and recharges the Category G-1 groundwater and
30 must be of drinking water quality before it enters the Resource Zone. All Water water discharges
31 within the Recharge Zone must receive treatment to the degree necessary to protect the underlying
32 Category G-1 groundwater from any contamination, and must comply with the requirements of

1 the groundwater quality standards, unless it can be shown by an engineering feasibility study
 2 that there will be no significant adverse effects on G-1 waters.

3
 4 Category G-2 is divided into two distinct sub-categories based upon the boundaries of the
 5 Groundwater Management Protection Zone (GWMPZ):

6
 7 Category G-2a exists within the GWMPZ and extends from the land surface to the top
 8 of the G-1 zone.

9
 10 Category G-2b exists only outside the GWMPZ and includes all waters
 11 which are collected and recharged or disposed of within a zone which is bounded above by G-3 and
 12 below by G-1. Vertically, this Category G-2b Zone begins 20 feet below the ground surface and
 13 extends to the upper surface of the Category G-1 waters. Inputs to ground water within this zone
 14 occurs primarily through storm water injection wells.

15
 16 It is recognized that water within this zone will percolate through soil/rock media
 17 before reaching the Resource Zone. In this way it may undergo some degree of natural treatment
 18 consisting of filtration and subsequent purification. However, the degree of treatment is not easily
 19 demonstrated. Thus, due to the need to protect G-1 waters and considering the difficulty in tracing
 20 pollutants reaching the G-1 zone to a particular source, discharge limitations have been established
 21 to regulate discharges to the G-2 a and G-2b zone. All discharges must meet the discharge limitations
 22 established in Table III below. All discharges within this zone may be required by the Agency to
 23 obtain discharge permits under these standards.

24 **TABLE III**
 25 **Limitations for Discharges to Categories G-2**

Ground -water Category	E- Coli	COD (mg/l)	pH	Chlorides (mg/l)	Orthophosph ate (PO ₄ -P) (mg/l)	Nitrate-Nitrogen (mg/l)	Oil and Grease (mg/l)
G-2	0	0	6-10	250	10	5	0

32
 33 (3) ~~Category G-3~~ -- Category G-3 exists only outside the GWMPZ and Buffer Zone

1 includes all waters which are collected and disposed of or recharged at or near the existing ground
2 water supply. Vertically, the zone for this category extends from the ground surface to 20 ft (6.0 m)
3 below the surface. Disposal methods which may result in discharges to groundwater within this zone
4 include, but are not limited to, ponding basins, rapid infiltration, slow rate land treatment, surface or
5 spray irrigation and all subsurface discharges (seepage, leaching).

6
7 For reasons similar to those discussed for Category G-2a and G-2b discharge limitations
8 for G-3 are also established in Table III (Appendix J). Discharges equal to or less than 3,000 gallons
9 per day (gpd) within the G-3 zone are designated by G-3a. Water quality criteria for all discharges
10 within zone G-3 which are greater than 3,000 gpd are designated G-3b. This differentiation in criteria
11 addresses the fact that minor discharges typified by small scattered individual dwelling units probably
12 have less adverse impact on underlying groundwater than major point source discharges and thus are
13 allowed less restrictive water quality limits (i.e. equivalent to primary treatment).

14
15 ~~All discharges within this zone may be required by the Agency to obtain discharge~~
16 ~~permits under these regulations.~~

17
18 B. Marine Waters.

19 This category includes all coastal waters off-shore from the mean high water mark, including
20 estuarine waters, lagoons and bays, brackish areas, wetlands and other special aquatic sites, and other
21 inland waters that are subject to ebb and flow of the tides. Refer to Water Classification Map.

22
23 1. Category M-1 EXCELLENT.

24 Waters in this category must be of high enough quality **to protect for whole body contact**
25 **recreation and** to ensure **the** preservation and protection of marine life, including corals and reef
26 dwelling organisms, fish and related fisheries resources, and enable the pursuit of marine scientific
27 research as well as aesthetic enjoyment. This category of water shall remain substantially free from
28 pollution attributed to domestic, commercial and industrial discharges, shipping and boating, or
29 mariculture, construction and other activities which can reduce the waters' quality. Furthermore,
30 there shall be no zones of mixing within this category water.

31
32 2. Category M-2 GOOD.

1 Water in this category must be of sufficient quality to allow for the propagation and survival of
2 marine organisms, particularly shellfish and other similarly harvested aquatic organisms, corals
3 and other reef related resources, and whole body contact recreation. Other important and intended
4 uses include mariculture activities, aesthetic enjoyment and compatible recreation inclusive of related
5 activities.

6
7 3. Category M-3 FAIR.

8 Water in this category is intended for general, commercial and industrial use, while allowing for
9 protection of aquatic life, aesthetic enjoyment and compatible recreation with limited body contact.
10 Specific intended uses include the following: shipping, boating and berthing, industrial cooling water,
11 and marinas.

12
13 C. Surface Waters

14 This Category includes all of surface fresh-water and includes: (1) waters that flow continuously over
15 land surfaces in a defined channel or bed, such as streams and rivers; (2) standing water in basins such
16 lakes, wetlands, marshes, swamps, ponds, sinkholes, ponding basins, impoundments, and reservoirs
17 either natural or man-made; and (3) all waters flowing over the land as runoff, or as runoff confined
18 to channels with intermittent flow. ~~(Refer to Water Classification Map); and (4) waters under these~~
19 ~~categories are those waters which are collected with specific intent of disposal by recharging them~~
20 ~~into the ground (i.e., ponding basin).~~

21
22 1. Category S-1 HIGH.

23 Surface waters in this category are used for drinking water resources, ~~conservation of wilderness~~
24 areas, and propagation and preservation of aquatic life, whole body contact recreation and aesthetic
25 enjoyment. It is the objective of these standards that these waters shall be kept free of substances or
26 pollutants from domestic, commercial and industrial discharges, or agricultural activities,
27 construction or other land-use practices that may impact water quality. ~~No pollutant discharges will~~
28 ~~be permitted into S-1 waters via discharge or as a result of land uses adjacent to S-1 waters.~~

29
30 2. Category S-2 MEDIUM.

31 Surface water in this category is used for recreational purposes including water whole body contact
32 recreation, for use as potable water supply after adequate treatment is provided, and propagation and

1 preservation of aquatic wildlife and aesthetic enjoyment. All discharges under this category shall meet
2 the established safe drinking water supply standards.

3
4 3. Category S-3 LOW.

5 Surface water in this category is primarily used for commercial, agricultural and industrial activities.
6 Aesthetic enjoyment and **limited body contact** compatible recreation are acceptable in this zone, as
7 well as maintenance of aquatic life. Compatible recreation may include limited body contact
8 activities. All discharges **Discharges** within this zone which are not **may be** required to have
9 construction and/or discharge permits under existing **Guam Sediment and Soil Erosion** regulations
10 may be required by this Agency to obtain such permits under these regulations. **or under NPDES.**

11
12 **D. Outstanding Resource Waters.**

13
14 **1. Category Outstanding Resource Waters.**

15 **These waters may include surface waters (marine, freshwater, wetlands, etc.) in parks, wildlife**
16 **refuges, and publicly owned lakes and reservoirs, and waters of exceptional recreational or**
17 **ecological significance (e.g., waters which provide a habitat for identified threatened or**
18 **endangered species), as determined by the Administrator.**

19
20 **Section 5103 Water Quality Criteria.**

21
22 **A. General Criteria Applicable To All Territorial Waters of Guam**

23
24 1. All waters shall meet generally accepted aesthetic qualifications, shall be capable of supporting
25 desirable aquatic life, and shall be free from substances, conditions or combinations thereof
26 attributable to domestic, commercial and industrial discharges or agricultural, construction and
27 land-use practices or other human activities that:

- 28
29 a. cause visible floating materials, debris, oils, grease, scum, foam, or other floating matter
30 which degrades water quality or use;
- 31 b. produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;
- 32 c. produce objectionable color, odor, or taste, directly or by chemical or biological action;

- 1 d. injure or are toxic or harmful to humans, animals, plants or aquatic life; and or
2 e. induce the growth of undesirable aquatic life.

3
4 2. Analytical testing methods for these criteria shall be in accordance with the most recent editions
5 of "Standard Methods for the Examination of Water and Wastewater" **prepared and published**
6 **jointly by American Public Health Association (APHA), American Water Works Associations**
7 **(AWWA), and Water Pollution Control Federation (WPCF) (now Water Environment**
8 **Federation); "Methods for Chemical Analysis of Water and Wastes" (U.S. Environmental Protection**
9 **Agency Environmental Monitoring & Support Division, Cincinnati, Ohio 45268, (EPA-600/4-**
10 **79-020) March 1983**, and other methods acceptable to GEPA and possessing adequate procedural
11 precision and accuracy.

12
13 ~~Effects of high temperature, biocide, pathogenic organisms, toxic, corrosive, or other deleterious~~
14 ~~substances at levels or combinations sufficient to be toxic or harmful to human, animal, plant or~~
15 ~~aquatic life or in amounts sufficient to interfere with any beneficial use of the water, shall be evaluated~~
16 ~~as a minimum, by use of a 96-hour bioassay as described in the most recent edition of EPA Manual~~
17 ~~or ASTM. Survival of test organisms shall not be less than that of controls which utilize appropriate~~
18 ~~water. Failure to determine presence of toxic substances by this method shall not preclude~~
19 ~~determination of excessive levels of toxic substances on the basis of other criteria or methods.~~

20
21 **B. Water Quality Criteria for Groundwater G-1 and G-2.**

22
23 **1. The numerical groundwater quality standards limit the physical, chemical, radiological and**
24 **microbiological characteristics of drinking water in terms of maximum acceptable**
25 **concentrations. Although the groundwater limits presented herein represent drinking water**
26 **of acceptable quality, there is no inference that better quality water supplies may be degraded.**

27 **2. Table 1 presents groundwater quality standards to protect drinking water quality by**
28 **limiting the levels of specific contaminants that can adversely affect public health and are**
29 **known to occur in public water systems. The table divides these contaminants into Inorganic**
30 **Chemicals, Organic Chemicals, Radionucleides, and Microorganisms.**

TABLE 1
Inorganic Chemicals

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Antimony</u>	<u>0.006</u>
<u>Arsenic</u>	<u>0.05</u>
<u>Asbestos (fibers >10µm)</u>	<u>7 MF/L (million fibers/liter > 10 µm)</u>
<u>Barium</u>	<u>2.0</u>
<u>Beryllium</u>	<u>0.004</u>
<u>Cadmium</u>	<u>0.005</u>
<u>Chromium (total)</u>	<u>0.1</u>
<u>Copper</u>	<u>1.3</u>
<u>Cyanide (as free cyanide)</u>	<u>0.2</u>
<u>Fluoride</u>	<u>4.0</u>
<u>Lead</u>	<u>0.015</u>
<u>Inorganic Mercury</u>	<u>0.002</u>
<u>Nickel</u>	<u>0.1</u>
<u>Nitrate (as nitrogen)</u>	<u>10</u>
<u>Nitrite (as nitrogen)</u>	<u>1</u>
<u>Selenium</u>	<u>0.05</u>
<u>Sulfate</u>	<u>500</u>
<u>Thallium</u>	<u>0.0005</u>

Organic Chemicals

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Acrylamide</u>	<u>zero</u>
<u>Alachlor</u>	<u>0.002</u>
<u>Aldicarb</u>	<u>0.001</u>
<u>Aldicarb sulfone</u>	<u>0.001</u>
<u>Aldicarb sulfoxide</u>	<u>0.001</u>
<u>Atrazine</u>	<u>0.003</u>
<u>Benzo(a)anthracene (PAH)</u>	<u>0.0001</u>

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Benzene</u>	<u>0.005</u>
<u>Benzo(a)pyrene (PAH)</u>	<u>0.0002</u>
<u>Benzo(k)fluoranthene (PAH)</u>	<u>0.0002</u>
<u>Butyl benzyl phthalate (PAE)</u>	<u>0.1</u>
<u>Carbofuran</u>	<u>0.04</u>
<u>Carbon tetrachloride</u>	<u>0.005</u>
<u>Chlordane</u>	<u>0.002</u>
<u>Chrysene (PAH)</u>	<u>0.00032</u>
<u>2,4-D</u>	<u>0.07</u>
<u>Dalapon</u>	<u>0.2</u>
<u>Di{2-ethylhexyl}adipate</u>	<u>0.4</u>
<u>Dibenzo(a,h)anthracene (PAH)</u>	<u>0.0003</u>
<u>1,2-Dibromo-3-chloropropane (DBCP)</u>	<u>0.0002</u>
<u>Dichlorobenzene(orth-)</u>	<u>0.6</u>
<u>Dichlorobenzene (dmeta-)</u>	<u>0.6</u>
<u>Dichlorobenzene (para-)</u>	<u>0.075</u>
<u>Dichloroethane (1,2-)</u>	<u>0.005</u>
<u>Dichloroethylene (1,1-)</u>	<u>0.007</u>
<u>Dichloroethylene (cis-1,2-)</u>	<u>0.07</u>
<u>Dichloroethylene (trans-1,2-)</u>	<u>0.1</u>
<u>Dichloromethane (methylene chloride)</u>	<u>0.005</u>
<u>Dichloropropane (1,2-)</u>	<u>0.005</u>
<u>Di(2-ethylhexyl) phthalate (PAE)</u>	<u>0.006</u>
<u>Dinoseb</u>	<u>0.007</u>
<u>Diquat</u>	<u>0.02</u>
<u>Endothall</u>	<u>0.1</u>
<u>Endrin</u>	<u>0.002</u>
<u>Epichlorohydrin</u>	<u>zero</u>
<u>Ethylbenzene</u>	<u>0.7</u>
<u>Ethylene dibromide</u>	<u>0.00005</u>
<u>Glyphosate</u>	<u>0.7</u>

<u>Pollutants</u>	<u>(mg/l)</u>
<u>Heptachlor</u>	<u>0.0004</u>
<u>Heptachlor epoxide</u>	<u>0.0002</u>
<u>Hexachlorobenzene</u>	<u>0.001</u>
<u>Hexachlorocyclopentadiene</u>	<u>0.05</u>
<u>Indeno(1,2,3-c,d)pyrene</u>	<u>0.0004</u>
<u>Lindane</u>	<u>0.0002</u>
<u>Methoxychlor</u>	<u>0.04</u>
<u>Monochlorobenzene</u>	<u>0.1</u>
<u>Oxamyl (vydate)</u>	<u>0.2</u>
<u>Pentachlorophenol</u>	<u>0.001</u>
<u>Picloram</u>	<u>0.5</u>
<u>Polychlorinated Biphenyls (PCB's)</u>	<u>0.0005</u>
<u>Simazine</u>	<u>0.004</u>
<u>Styrene</u>	<u>0.1</u>
<u>2,3,7,8-TCDD (dioxin)</u>	<u>0.00000003</u>
<u>Tetrachloroethylene</u>	<u>0.005</u>
<u>Toluene</u>	<u>1</u>
<u>Toxaphene</u>	<u>0.003</u>
<u>2,4,5-TP (silvex)</u>	<u>0.05</u>
<u>1,2,4-Trichlorobenzene</u>	<u>0.07</u>
<u>Trichloroethane (1,1,1-)</u>	<u>0.2</u>
<u>Trichloroethane (1,1,2-)</u>	<u>0.003</u>
<u>Trichloroethylene</u>	<u>0.005</u>
<u>Tribalomethanes</u>	<u>0.100</u>
<u>* Chloroform</u>	
<u>* Bromodichloromethane</u>	
<u>* Dibromochloromethane</u>	
<u>* Bromoform</u>	
<u>Vinyl chloride</u>	<u>0.002</u>
<u>Xylenes (total)</u>	<u>10</u>

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Radionuclides

<u>Pollutants</u>	<u>Acceptable levels</u>
<u>Beta particle and photon activity (formerly man-made radionuclides)</u>	<u>4 mrem/year</u>
<u>Gross alpha particle activity</u>	<u>15 pCi/l</u>
<u>Radium 226 & Radium 228</u>	<u>5 pCi/l</u>
<u>Uranium</u>	<u>0.02 pCi/l</u>

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Microorganisms

<u>Pollutants</u>	<u>Acceptable levels</u>
<u>Giardia lamblia</u>	<u>zero</u>
<u>Legionella</u>	<u>zero</u>
<u>Standard Plate Count</u>	<u>n/a</u>
<u>Total Coliform (including fecal coliform and E. Coliⁱ)</u>	<u>zero</u>
<u>Turbidity</u>	<u>1.0 NTU</u>
<u>Viruses</u>	<u>zero</u>

3. Table 2 presents groundwater quality standards that are considered advisory (MTBE (methyl-t-butyl ether)), or secondary. Secondary standards are those which may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The Administrator may choose to utilize these as enforceable standards.

TABLE 2

Pollutants	Numeric Standards (mg/l)
Aluminum	0.05 to 0.2
Chloride	250
<u>Color</u>	<u>15 (color units)</u>
<u>Copper</u>	<u>1.0</u>
<u>Corrosivity</u>	<u>non-corrosive</u>
<u>Fluoride</u>	<u>2.0</u>
<u>Foaming Agents</u>	<u>0.5</u>
<u>Iron</u>	<u>0.3</u>
<u>Manganese</u>	<u>0.05</u>
<u>Odor</u>	<u>3 threshold odor number</u>
<u>pH</u>	<u>6.5 - 8.5</u>
<u>Silver</u>	<u>0.10</u>
<u>Sulfate</u>	<u>250</u>
<u>Total Dissolved Solids</u>	<u>500</u>
<u>Zinc</u>	<u>5</u>
<u>Oil and Grease</u>	<u>0</u>
MTBE (methyl-t-butyl ether)	<u>0.02</u>

C. Specific Numeric Water Quality Criteria for Marine and Surface Waters.

1. Microbiological Requirements	Applicable to
<p><u>a. All marine water bodies require the use of enterococci bacterial indicator. Microbiological Requirements</u></p> <p>i. Concentrations of total coliform <u>enterococci</u> bacteria at any point shall not be increased from natural conditions than 10% of the <u>exceed 35 enterococci/100 ml based on the geometric mean of five sequential samples taken over a period of 30 days. No instantaneous reading shall exceed 104 enterococci/100 ml.</u></p>	<p>M-1, <u>M-2</u> S-1</p>
<p>The fecal coliform bacteria shall not in the range exceed an arithmetic mean 70 per 100 ml during 30-day period (per month);</p>	<p>M-2 S-2</p>
<p><u>ii. Concentrations of The enterococci fecal coliform bacteria count concentrations bacteria count shall not exceed an be in the range arithmetic 35 enterococci/100 ml based on geometric mean of five sequential samples taken over a thirty day period. No instantaneous reading shall exceed mean of 200 per 100 ml during 276 enterococci/100 ml. 30-day period 400 per 100 ml.</u></p> <p>To determine compliance with the above microbiological requirements where a "30-day period" is specified, a minimum of four samples shall be collected at approximately equal intervals.</p>	<p>M-3 S-3</p>

1 b. For all surface waters, microbiological analysis may
2 include the use of Escherichia coli (*E. coli*) indicator and/or
3 enterococci indicator.

4
5 i. Concentrations of *E. coli* shall be no greater than 126
6 CFU/100 ml based on the geometric mean of five sequential
7 samples taken over a thirty day period. No instantaneous
8 reading shall exceed 235 CFU/100 ml.

S-1, S-2

9
10 ii. Concentrations of enterococci shall be no greater than 33
11 CFU/100 ml based on the geometric mean of five sequential
12 samples taken over a thirty day period. No instantaneous
13 reading shall exceed 61 CFU/100 ml.

S-1, S-2

14
15 iii. Concentrations of *E. Coli* shall be no greater than 126
16 CFU/ml based on the geometric mean of five sequential
17 samples taken over a thirty day period nor shall any
18 instantaneous reading exceed 406 CFU/100 ml.

S-3

19
20 iv. Concentrations of enterococci shall be no greater than 33
21 CFU/100 ml based on the geometric mean of five sequential
22 samples taken over a thirty day period nor shall any
23 instantaneous reading exceed 108 CFU/100 ml.

S-3

24
25 c. Where shellfish are commonly collected for human consumption, the following criteria
26 apply: EPA's official criteria for shellfish growing areas are: (1) water samples collected at
27 growing areas will maintain no more than a median of 14 fecal coliform/100 ml; and (2) ten
28 percent (10%) of water samples taken from a growing area should not exceed 43 fecal
29 coliform/100 ml. For recreational use (swimming/wading only) at growing sites, the assigned
30 Marine Water Category shall be in effect (see Guam Water Classification Map).the
31 microbiological standard for M-1 waters shall apply.
32

2. pH	Applicable to
<p>The ambient pH of fresh and estuarine waters and wetlands ranges from 6.5-8.5 and 7.0-9.0 for marine waters. Variations of more than 0.5 pH units from ambient shall not be allowed.</p>	<p>M-1 S-1 M-2 S-2 M-3 S-3</p>
<p><u>i. pH shall remain within the range of 6.5-8.5</u></p>	<p><u>M-1, M-2, M-3</u></p>
<p><u>ii. pH shall remain within the range of 6.5-9.0</u></p>	<p><u>S-1, S-2, S-3</u></p>
<p><u>iii. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation or in any case outside the range of 6.5-8.5.</u></p>	<p><u>M-1, M-2, M-3</u></p>

3. Nutrients	Applicable to
<p>a. Phosphorus:</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.025 mg/l</p> <p>Orthophosphate (PO₄-P) shall exceed 0.05 mg/l</p> <p>Orthophosphate (PO₄-P) shall not exceed 0.10 mg/l</p> <p>b. Nitrogen</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.10 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.20 mg/l</p> <p>Nitrate-nitrogen (NO₃-N) shall not exceed 0.50 mg/l</p>	<p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p> <p>M-1 S-1</p> <p>M-2 S-2</p> <p>M-3 S-3</p>
<p><u>c. Ammonia nitrogen per liter limits vary with pH:</u></p> <p><u>i. The one-hour average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three years on the average, the Criteria Maximum Concentration (CMC - see Section 5105 Definitions) calculated using the following equation:</u></p> $CMC = \frac{0.411}{1 + 10^{(7.204 - pH)}} + \frac{58.4}{1 + 10^{(pH - 7.204)}}$ <p><u>ii. The thirty-day average concentration of total ammonia nitrogen (mg N/l) does not exceed, more than once every three years on the average, the Criteria Chronic Concentration (CCC - see Section 5105 Definitions) calculated using the following equation:</u></p>	<p><u>S-1, S-2, S-3</u></p>

$$CCC = \frac{0.0858}{1 + 10^{(7.688 - pH)}} + \frac{3.70}{1 + 10^{(pH - 7.688)}}$$

iii. CMC and CCC (mg N/l) at a few example pH Values.

<u>pH</u>	<u>CMC</u>	<u>CCC</u>
<u>6.5</u>	<u>48.8</u>	<u>3.48</u>
<u>7.0</u>	<u>36.1</u>	<u>3.08</u>
<u>7.5</u>	<u>19.9</u>	<u>2.28</u>
<u>8.0</u>	<u>8.40</u>	<u>1.27</u>
<u>8.5</u>	<u>3.20</u>	<u>0.57</u>
<u>9.0</u>	<u>1.32</u>	<u>0.25</u>

iv. The ambient concentration, averaged over a period of 30 days, should not exceed the CCC. The ambient concentration, averaged over four days, should not exceed a concentration two times greater than the CCC. The averaging period applicable to the CMC is one hour.

~~Guam's groundwater has nitrate-nitrogen concentrations up to 5 mg/l. It is the intent of these standards to control nitrate-nitrogen concentrations, by requiring secondary wastewater treatment, or when determined by the Administrator, limit the number or decrease the facilities discharging treated wastewater to a particular body of water. Treatment in excess of advance secondary treatment may be required and will be reviewed on a case by case basis. Levels of nutrients in receiving waters will be used as a guide in determining if treatment is required. Point source discharges will be regulated in accordance with the Federal NPDES permitting process, specifying effluent standards and operational requirements.~~

~~Activities which may result in non-point discharges of nutrients shall be conducted in accordance with the best management practices reasonably determined by the agency to be necessary to preclude or minimize such discharges of nutrients not to allow levels beyond those explicitly stated above.~~

In all cases, discharges containing nutrients, primarily total-nitrogen, ammonia, and/or phosphorous shall be treated to the extent necessary to prevent damage to coral reefs or growth of aquatic species which create a public nuisance or interfere with beneficial uses as defined in §5101.

4. Dissolved Oxygen	Applicable to
Concentration of dissolved oxygen shall not be decreased <u>to less than</u> 75% (percent) saturation at any time, as influenced by salinity or naturally occurring temperature variations. Where natural conditions cause lower dissolved oxygen levels, controllable water quality factors shall not cause further reductions.	<u>M-1, M-2, M-3</u> <u>S-1, S-2, S-3</u> All waters of the Territory

Table I. Saturation D.O.

Freshwater		Marine Water And Wetlands			
Sat.	75%	Temp.	Salinity	Sat.	75%
mg/l	mg/l	C	ppt	mg/l	mg/l
7.6	5.6	30	32	6.2	4.6
8.2	6.2	26	32	6.7	5.0

5. Salinity	Applicable to
a. Marine Waters: No alterations of marine environments shall occur that would alter the salinity of marine or estuarine waters and wetlands of Guam more than +10% of the ambient conditions, except when due to natural conditions.	M-1, M-2, M-3 estuarine waters and wetlands of the territory
b. Fresh-water: The maximum allowable amount of chlorides and sulfates shall be 250 mg/l, and the total dissolved solids shall not exceed 500 mg/l or 133% of the ambient condition. The salinity of freshwater sources and wetlands shall not be more than 20% above ambient by discharges of saline water.	S-1, S-2, S-3

<p>1 6. Total Non-Filterable Suspended Solids</p>	<p>Applicable to</p>
<p>2 a. Concentrations of suspended matter at any point 3 shall not be increased from ambient conditions at 4 any time, and the total concentration should not 5 exceed 5 mg/l except when due to natural 6 conditions.</p>	<p>M-1 S-1</p>
<p>7 b. Concentrations of suspended matters at any point 8 shall not be increased more than 10% from 9 ambient at any time, and the total concentration 10 should not exceed 20 mg/l except when due to 11 natural conditions.</p>	<p>M-2 S-2</p>
<p>12 c. Concentrations of suspended matter at any point 13 shall not be increased more than 25% from ambient at any time, 14 and the total concentration should not exceed 40 mg/l except 15 when due to natural conditions.</p>	<p>M-3 S-3</p>

7. Turbidity	Applicable to
<p>a. Turbidity at any point, as measured by nephelometric turbidity units (NTU), shall not exceed 0.5 NTU over ambient conditions except when due to natural conditions.</p>	<p>M-1 S-1</p>
<p>b. Turbidity values (NTU) at any point shall not exceed 1.0 NTU over ambient conditions except when due to natural conditions.</p>	<p>M-2, M-3 S-2, S-3</p>
<p>c. Since <u>When</u> debris, rapidly settling particles and true color give low readings when using nephelometric methods in making turbidity determinations, and one or more of these conditions may exist in marine and surface water, secchi-disc determinations will be used. when these conditions exist. Secchi-disc visibility shall not decrease by more than 5 meters from ambient conditions except when due to natural conditions.</p>	

8. Radioactive Materials	Applicable to
<p>Discharges of radioactive materials at any level into any waters territory of Guam is strictly prohibited.</p>	<p>All waters of the Territory <u>M-1, M-2, M-3</u> <u>S-1, S-2, S-3</u></p>

9. Temperature	Applicable to
Water temperature shall not be changed more than 1.0 degree Centigrade (1.8 of the degree Fahrenheit) from ambient conditions. <u>outside an established mixing zone Effluent (thermal) not meeting this standard shall be considered as having an adverse effect on coral and other aquatic resources</u>	All surface waters of the Territory M-1, M-2, M-3 S-1, S-2, S-3
10. Concentrations of Oil or Petroleum Products	Applicable to
The limits described below are unacceptable: 1) detectable as a visible film, or sheen, or results in visible discoloration of the surface with a corresponding oil or petroleum product odor; 2) causes damage to fish, invertebrates or objectionable degradation of drinking water quality; or 3) forms an oil deposit on the shores or bottom of the receiving body of water.	M-1, M-2, M-3 S-1, S-2, S-3

11. Toxic Substances

a. General

i. All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological, acute or chronic responses in human, plant, animal or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate, scientifically defensible methods.

ii. All waters shall be maintained free of toxic substances in concentrations that produce contamination in harvestable aquatic life to the extent that it causes detrimental physiological, acute or chronic responses in humans or protected wildlife, when consumed.

1 iii. The survival of aquatic life in marine and surface waters subjected to a
2 waste discharge, or other controllable water quality factors, shall not be less
3 than that for the same water body in areas unaffected by the waste
4 discharge.

5
6 iv. Note Whenever natural concentrations of any toxic substance or element
7 occur and exceed the limits established in these standards, this greater
8 concentration shall constitute the limit, provided that this natural concentration
9 was not directly affected by man human- induced causes.

10
11 **b. Numeric Criteria**

12
13 **i. Appendix A contains a matrix** of Criteria for the 126 CWA Section 307 (A)
14 Toxic Pollutants **as well as a table of several additional toxic pollutants.** listed
15 by the US Environmental Protection Agency, to which this standard applies, are
16 incorporated by reference into the Guam WQS. A list of the Toxic Pollutants is
17 Given in Appendix A. **Absence from this matrix or table** list does not mean
18 that a substance is non-toxic, as **the results of on-going or future research may**
19 **result in it being added at a later date.** ~~it may be added later.~~

20
21 **All Appendix A toxic pollutant criteria are to be applied to Guam's categories of**
22 **waters, as follows:**

<u>Water Categories</u>	<u>Applicable Criteria</u>
<u>M-1</u>	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
<u>M-2</u>	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
<u>M-3</u>	<u>Columns C1, C2 and D2</u> <u>all pollutants</u>
<u>S-1</u>	<u>Columns B1, B2, and D1</u> <u>all pollutants</u>
<u>S-2</u>	<u>Columns B1, B2 and D2</u> <u>all pollutants</u>
<u>S-3</u>	<u>Columns B1, B2 and D2</u> <u>all pollutants</u>

ii. For those priority pollutants in the Appendix A matrix that are metals, the limits are applied as total recoverable; for those that are carcinogens, the 10 to the minus sixth power risk level will be used (10^{-6}).

Numerical receiving water limits including EPA's Section 304(a) criteria for Section 307(a) toxic pollutants (Appendix A) as cited at 53 57 FR 177 60848 and summarized in EPA 440/5-86-001 Quality Criteria for Water 1986, Washington D.C., OWRS, May 1, 1986, as amended by Update #1, September 16, 1986, and Update #2, May 1, 1987 ("Quality Criteria for water") will apply. The numeric water quality standards from included in this reference are those for the parameters that are the Section 307 (a) priority pollutants (Appendix A). These standards are intended to protect both aquatic life and human health. For protection of aquatic life, they are maximum levels not to be exceeded, and GEPA will utilize the national criteria guidance four-day average concentration limits or 24-hour average limits, whichever is most current, as standards. For protection of human health in fresh surface waters, the GEPA will apply the national criteria guidance for ingestion through water and contaminated aquatic organisms as 30-day average limits. For other territorial waters the GEPA will apply the national criteria guidance for ingestion through contaminated aquatic organisms alone as 30-day average limits. For those priority

1 pollutants that are carcinogens, the 10 to the minus sixth power risk level will be used (10^{-6}).

2
3 In addition to the 126 listed toxics, Table II shows the maximum allowable concentrations
4 and application factors for additional toxic substances.

5
6 **c. Pesticides**

7
8 Concentrations of pesticides shall not exceed one percent of the 24-hour LC50 value determined
9 using the receiving water in question and the most sensitive species of aquatic organisms affected.

10
11 Where the concentration based on the LC50 data exceeds the recommended maximum
12 concentrations, the maximum concentrations shall constitute the criteria.

13
14 i. For acceptable concentrations the listing of all pesticides (Organochlorides,
15 Organo-phosphates, Carbamates, Herbicides, Fungicides, Defoliant, and
16 Botanicals) please refer to the U.S. Water Quality Criteria Guidance "Blue Book"
17 (NAS/NAE, 1973) (US-GPO#5501-00520), "Red Book" (USEPA, 1976),
18 "Green Book", (FWPCA, 1968) and "Gold Book" (USEPA, 1986a) which
19 is updated periodically.

20
21 ii. Note: The setting or publishing of maximum concentration (limits) for specific
22 pesticides and other toxics should in no way be construed as official approval or
23 authorization for their use where such use is contrary to U.S. Environmental
24 Protection Agency or other Federal or local regulations.

25
26 Section 5104 Effluent Limitations.

27
28 A. General Requirements Criteria.

29 The Agency reserves the right to amend or extend the following criteria as improved standard
30 methods are developed or revisions consistent with the enhancement of water quality are justified.

1 1. Dilution of the effluent from any source as a sole means of treatment is not acceptable as a
2 method of treatment of wastes in order to meet the standards set forth in this Section. Rather,
3 it shall be the obligation of any person discharging pollutants of any kind to the waters of the
4 Territory Guam to provide the best pollutant removal or control consistent with technological
5 feasibility, economic reasonableness, and sound engineering judgement. In making a
6 determination as to what degree of treatment is the best pollutant removal or control within the
7 meaning of this paragraph, any person shall consider the following **shall be considered**:

- 8
- 9 a. the degree of waste reduction that can be achieved by process change, improved
10 house-keeping and recovery of individual waste components for reuse; and
11
- 12 b. whether individual process wastewater streams should be segregated or combined.
13

14 2. ~~To assist in obtaining these goals,~~ **All point source** discharges including nonpoint sources to
15 Guam's waters will be controlled (permitted) through the Federal National Pollutant Discharge
16 Elimination System (NPDES), or through the Guam Environmental Protection Agency's local
17 permit program, **consistent with the requirements of these programs**.

18

19 **3. A new or expanded facility using seawater shall conduct independent baseline studies**
20 **of the existing ecosystems in the area that could be affected by the facility, before its**
21 **construction.**

22

23 **4. For each new or expanded coastal power plant or other industrial installation using**
24 **seawater for cooling, heating, or industrial processing, the best available site, design,**
25 **technology, and mitigation measures feasible shall be used to minimize the intake,**
26 **detrimental impacts to, and mortality of all forms of marine life.**

27

28 **5. Where otherwise permitted, new warmed or cooled water discharges into coastal**
29 **wetlands or into areas of special biological importance, such as marine**
30 **reserves, shall not impair the designated use or significantly lower the water quality of the**
31 **receiving area.**
32

1 6. All sewage shall be treated to the degree required by the Agency to achieve standards of water
2 quality prior to being discharged to the waters of the Territory Guam. Industrial waters and
3 other wastes shall also be treated to the degree required by the Agency. All permitted
4 discharges shall comply with all applicable water quality criteria. Highest priority shall be
5 given to improving or eliminating discharges that adversely affect any of the following:

6
7 a. wetlands, estuaries, coral and other biologically sensitive sites;

8
9 b. areas important for water contact sports;

10
11 c. areas that produce shellfish or other similarly harvested for human
12 consumption;

13
14 d. ocean areas subject to massive waste discharge.

15
16 7. Secondary Treatment. The following paragraphs describe the minimum level of
17 effluent quality to be attained when secondary treatment is required. However, a lower
18 percent removal may be allowed on a case by case basis provided that the permittee
19 satisfactorily demonstrates that: (1) the treatment works is consistently meeting, or will
20 consistently meet, its permit effluent concentration limits but its percent removal
21 requirements cannot be met due to less concentrated influent wastewater, (2) to meet the
22 percent removal requirements, the treatment works would have to achieve significantly
23 more stringent limitations than would otherwise be required by the concentration-based
24 standards, and (3) the less concentrated influent wastewater is not the result of excessive
25 infiltration/inflow.

26
27 a. Biochemical Oxygen Demand (five-day).

28
29 i. The arithmetical mean of the values for effluent samples collected over
30 a period 30 consecutive days shall not exceed 30 mg/l.

1 ii. The arithmetic mean of the values for effluent samples collected in over
2 a period of seven consecutive days shall not exceed 45 mg/l.

3
4 iii. The arithmetic mean of the values for effluent samples collected over
5 a period of 30 consecutive days shall not exceed 15 percent of the
6 arithmetic mean of the values for influent samples collected at
7 approximately the same times during the same period (85 percent
8 removal).

9
10 **b. Suspended solids**

11
12 i. The arithmetic mean of the values for effluent samples collected over a
13 period of 30 consecutive days shall not exceed 30 mg/l.

14
15 ii. The arithmetic mean of the values for effluent samples collected over a
16 period of seven consecutive days shall not exceed 45 mg/l.

17
18 iii. The arithmetic mean of the values for effluent samples collected over
19 a period of 30 consecutive days shall not exceed 15 percent of the arithmetic
20 mean of the values for influent samples collected approximately the same
21 times during the same period (85 percent removal).

22
23 **c. ~~Fecal coliform bacteria~~ Microbiology**

24
25 i. The appropriate Guam EPA microbiological indicator and standard for
26 receiving waters classification will apply to effluent and/or;

27
28 ii. The arithmetic mean of the fecal coliform values for effluent samples
29 collected over a period of 30 consecutive days shall not exceed 200 per 100
30 ml.

1 **iii. The arithmetic mean of the fecal coliform values for effluent samples**
2 **collected over a period of seven consecutive days shall not exceed 400 per 100**
3 **ml.**

4
5 **d. pH**

6
7 **i. The effluent values for pH shall remain within the limits of 6.0 to 9.0.**

8
9 **8. Toxic and hard-to-treat substances should be pretreated at the source if such substances**
10 **result in pass-through or interfere with treatment process of a municipal treatment plant**
11 **or which may contaminate sludge. In addition, effluent limits based upon acute and/or**
12 **chronic toxicity tests of effluents may be prescribed by the Administrator.**

13
14 9. In addition to other requirements no No effluent shall, alone, or in combination with other
15 sources, cause a violation of any applicable water quality standard. If the Agency finds that a
16 discharge which complies with treatment requirements under the Authority of §5103(A) of these
17 standards would cause or is causing a violation of water quality standards, the Administrator shall
18 take appropriate action under §47109 of the Water Pollution Control Act to require the discharge
19 to meet whatever effluent limits are necessary to ensure compliance with the water quality
20 standards. When such a violation is caused by the cumulative effect of more than one source,
21 several sources may be joined in a schedule of compliance. Measures necessary for effluent
22 limitations will be determined on the basis of technical feasibility, economic reasonableness, and
23 fairness to all dischargers.

24
25 10. Measurement of pollutant concentrations to determine compliance with the effluent
26 limitations shall be made by the discharger at the point immediately following the final treatment
27 process and before mixing with other waters. Points of measurement shall be designated by the
28 Agency in an individual permit, after consideration of the elements contained in this section. If
29 necessary, the concentrations so measured shall be recomputed to exclude the effect of any
30 dilution that is improper under this standard.

11. ~~In order to provide maximum protection of the propagation of fish and wildlife, concentrations of toxic substances (persistent or non-persistent, cumulative or non-cumulative);~~
(a) Compliance with toxicity requirements may be evaluated with a 96-hour bioassay or short-term method for estimating chronic toxicity. Allowable concentration(s) of the toxic pollutant(s) shall not exceed five percent (0.05) of the 96-hour LC50 at any time or place, one percent (0.01) of the 24 hour average 96-hour LC50 concentration, or a level calculated by multiplying the appropriate application factor, where available, by the 96-hour LC50 value determined by using the most sensitive species of aquatic organism affected: The tests are to be conducted using the receiving water in question and the most sensitive species of affected aquatic organisms, as is practical. ~~Whichever value (a or b) is less shall be the maximum allowable concentration, unless this value exceeds that Maximum Numerical Limit, then the numerical limit shall constitute the maximum allowable concentration.~~

References for these methods are: EPA 600/4-91/002 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving waters to Freshwater Organisms, ~~March, 1989~~ Second Edition, 1994; or EPA 600/4-85/013 90/027F Methods for Measuring the Acute Toxicity of Effluents and receiving waters to Freshwater and Marine Organisms, Cincinnati, Ohio, EMSL, ~~March, 1985~~ Fourth Edition, 1993; or EPA ~~600/4-87/028~~ 600 R-95/136 Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine Estuarine Organisms, Cincinnati, Ohio, EMSL, May, ~~1988~~ 1995.

12. Every person permitted facility discharging effluent to the waters of the Territory Guam shall submit operating reports to the Agency at a frequency to be determined by the Agency. Such reports shall contain information of those physical, chemical and bacteriological parameters which shall be specified by the Agency, and any additional information the Agency may reasonably require.

13. Schedule of Compliance:

a. It is presumed that new and existing permitted point source dischargers will promptly comply with any new or more restrictive water quality-based effluent limitations ("WQBELs") based on adopted water quality criteria.

1 b. Where an existing discharger reasonably believes that it will be infeasible to
2 promptly comply with a new or more restrictive WQBEL, the discharger may
3 request approval from the permit issuing authority for a schedule of compliance.

4
5 c. A compliance schedule shall require compliance with WQBEL, as soon as
6 possible, taking into account the discharger's technical ability to achieve
7 compliance with such WQBEL.

8
9 d. In no event shall the permit issuing authority approve a schedule of
10 compliance for a point source discharge which exceeds five years from the date
11 of a new permit's issuance, or an existing permit's reissuance, or modification.

12
13 e. If the schedule of compliance exceeds one year from the date of a new
14 permit's issuance, or an existing permit's reissuance or modification, the
15 schedule shall set forth interim requirements and dates for their achievement.
16 The dates of completion between each requirement may not exceed one year.
17 If the time necessary for completion of any requirement is more than one year
18 and is not readily divisible into stages for completion, the permit shall require,
19 at a minimum, specified dates for annual submission of progress reports on the
20 status of interim requirements.

21
22 f. The administrative record for the permit shall reflect final permit limits and
23 final compliance dates.

24
25 14. All discharges within this zone S-3 which are not otherwise required to have construction
26 and/or discharge permits under existing Guam Soil Erosion Control Regulations, operating
27 permits and or NPDES, may be required by this Agency to obtain such permits under these
28 regulations.

1 15. Any existing permitted point source discharging to near shore waters of classified as M-1
2 or M-2 classifications as of the effective date of these standards shall submit to the Administrator
3 for approval a plan and schedule for elimination of the discharge to near shore waters . by
4 December 31, 1999. Any such plan shall consider all alternate disposal options and give
5 preferential consideration to eliminating all point source discharges to the waters of the Territory
6 Guam. After approval of the plan by the Administrator, the Administrator shall not certify
7 compliance with these standards to the USEPA in connection with issuance or reissuance of
8 a NPDES permit for the discharge unless the permit includes the aforementioned plan and
9 schedule.

10
11 ~~G) The Administrator shall not certify compliance with these standards to the USEPA in~~
12 ~~connection with issuance of a NPDES permit for a new discharge to near shore waters.~~

13
14 B. Effluent Discharge Limitations For Groundwater Category G-2 ~~Categories G2a, G-2b,~~
15 ~~And G-3.~~

16 ~~Any water percolating to the groundwater table is in the state of transition from being a discharge~~
17 ~~to becoming part of a useable body of water. Because of the difficulty involved in tracing the~~
18 ~~source and eliminating pollutants after they have reached the ground water table, limitations for~~
19 ~~discharges to G-2 a, G-2b, and G-3 waters are established in Table III (Appendix). This Table~~
20 ~~provides criteria for some common water quality parameters. The Agency will set limits for other~~
21 ~~parameters as necessary on a case-by-case basis.~~

22
23 The Agency will allow the application of G-3a discharge limitations flows
24 greater than 10,000 gallons per day if it can be shown by an engineering feasibility
25 study that there will be no significant adverse effect on the waters of the Territory.

26
27 The Agency also reserves the right to set more stringent standards than those
28 shown in Table III (Appendix J) if there is reason to believe that significant environmental
29 damage will result from any discharge. Effluent limitations have not been set for G-1 waters
30 because the Agency prohibit such discharges.

1 1. The Agency may allow discharges to G-2 waters if it can be shown by an engineering
2 feasibility study that there will be no significant adverse effects on G-1 waters.

3
4 2. The Agency reserves the right to set more stringent standards than those provided in
5 Section 1503(B) Tables 1 and 2, if there is reason to believe that significant environmental
6 damage may result from the discharge.

7
8 C. Mixing Zones In Receiving Waters.

9 The following criteria requirements apply to all mixing zones:

10
11 1. Mixing zones may be allowed permitted during the NPDES permit process on a case by
12 case basis upon after careful analyses of the nature of the effluent, a thorough study to assess
13 the consequences of the effluent on the environment, and approval of an Environmental Impact
14 Statement. A mixing zone shall be considered designated only when approved by the Guam
15 Environmental Protection Agency and when concurrence of the US EPA has been received.

16
17 2. The area or volume of an individual mixing zone shall be limited to an area or volume that will
18 minimize impacts on uses. Whenever a mixing zone is allowed by the Agency for the mixture of
19 an effluent with its receiving waters, the zone in which mixing occurs will not adversely affect the
20 designated uses of the receiving waters. ~~If mixing zones are used, water~~ Water quality standards
21 for a receiving water must be met at every point outside the boundaries of the designated mixing
22 zone.

23
24 3. For those water quality criteria eligible for a mixing zone, alternate Water quality limits will
25 be established if the limits in Section 5104 (2)(b) are to be revised in the zone of mixing.

26
27 4. Mixing zones will not be allowed within the boundaries of Category categories M-1 and S-1.

28
29 5. Mixing Zones shall be restricted such that they do not encroach on areas often used for
30 fish harvesting, particularly of stationary species such as shellfish.

1 6. Whenever mixing zones are allowed, zones of passage, i.e., continuous water routes of the
2 volume, area, and quality necessary to allow passage of free-swimming and drifting organisms with
3 no significant effects produced on their populations; shall be provided.

4
5 ~~B. Where two or more mixing zones are in close proximity, they shall be so defined that a~~
6 ~~continuous zone of passage for aquatic life is available.~~

7
8 7. Biologically important areas, including spawning and nursery areas, **and habitat for**
9 **threatened and endangered species**, shall be protected.

10
11 8. No criteria shall be set aside in the mixing zone which shall cause conditions in the mixing zone
12 to become lethal to aquatic life and wildlife which may enter the zone or **Mixing zones shall not**
13 **cause conditions to be lethal to those aquatic life and wildlife passing through the zone, or**
14 become injurious to human health in the event of a temporary exposure.

15
16 ~~F. The Discharges shall not violate the basic standards applicable to all waters [§5102(A) and~~
17 ~~§5103(E)] nor shall they unreasonably interfere with any actual or probable use of the water within~~
18 ~~the mixing zones.~~

19
20 **9. Mixing Zones for Aquaculture Projects : The federal regulations relating to aquaculture**
21 **(40 CFR 122.56 and 125.11) provide that the aquaculture project area and project approval**
22 **must not result in the enlargement of any previously approved mixing zone, or include so**
23 **large a portion of the body of water that a substantial portion of the indigenous biota will**
24 **be exposed to conditions within the designated projects area. Areas designated for**
25 **approved aquaculture projects should be treated in the same manner as other mixing zones.**
26 **Special allowances shall not be made for these areas.**

27
28 **10. Mixing Zones for the Discharge of Dredged or Fill Material: federal regulations (40**
29 **CFR 230.11(f)) provide guidelines for determining the acceptability of mixing discharge**
30 **zones. The particular pollutant involved should be evaluated carefully in establishing**
31 **dredging mixing zones. Dredged spoil discharges generally result in temporary short-term**
32 **disruption and do not represent continuous discharge that will affect designated uses on a**

1 long term. Minimal disruption of uses should be the primary consideration in establishing
2 mixing zones for dredge and fill activities.

3
4
5 11. Critical Low-Flows: During critical low-flow conditions, waters shall be free from
6 substances that settle to form objectionable deposits; float as debris, scum, oil, or other
7 matter; produce objectionable color, odor, taste, or turbidity; cause acutely toxic
8 conditions; or produce undesirable or nuisance aquatic life.

9 Specific low-flow requirements for streams and rivers are adopted to protect designated
10 uses against the effects of toxics (refer to Technical Guidance Manual for Water Quality-
11 based Toxics Control (USEPA, 1991a); Technical Guidance Manual for Performing
12 Wasteloads, Book 6, Design Conditions, (USEPA, 1986c)). In the case of aquatic life, more
13 frequent violations than the assumed exceedence of once every 3 years would result in
14 diminished vitality of stream ecosystems characteristics by the loss of desired species.
15 Numeric water quality criteria should apply at all flows that are equal to or greater than
16 flows specified in Table 3.

17
18 Table 3

<u>AQUATIC LIFE</u>	
<u>Acute Criteria (CMC)</u>	<u>1Q10 or 1B3</u>
<u>Chronic criteria (CCC)</u>	<u>7Q10 or 4B3</u>
<u>HUMAN HEALTH</u>	
<u>Non-carcinogens</u>	<u>30Q5</u>
<u>Carcinogens</u>	<u>Harmonic Mean Flow</u>

1
2 **Where:**

3 **1Q10 - is the lowest one day flow with an average recurrence frequency of once in 10 years,**
4 **determined hydrologically;**

5 **1B3 - is biologically based and indicates an allowable exceedence of once every 3 years. It is**
6 **determined by EPA's computerized method (DFLOW model);**

7 **7Q10 - is the lowest average 7 consecutive day low flow with an average recurrence frequency of once**
8 **in 10 years, determined hydrologically;**

9 **4B3 - is biologically based and indicates an allowable exceedence for 4 consecutive days once every 3**
10 **years. It is determined by EPA's computerized method (DFLOW model);**

11 **30Q5 - is the lowest average 30 consecutive day low flow with an average recurrence frequency of**
12 **once in 5 years, determined hydrologically; and**

13 **Harmonic mean flow - is a long term mean flow value calculated by dividing the number of daily flows**
14 **analyzed by the sum of the reciprocals of those daily flows.**

15
16 **It should be noted that when a criterion specifies a 4-day average concentration that**
17 **should not be exceeded more than once every 3 years, this should not be interpreted as**
18 **implying that a 4Q3 low-flow is appropriate for use as the design flow.**

19
20 **D. Mixing Zones for Non-Thermal Discharges**

21 Non-thermal discharges shall be permitted by the National Pollutant Discharge Elimination System
22 (NPDES) permit process or through the Agency's local permit program, until January 1, 1998 only
23 after careful analysis of the nature of the effluent, and a thorough study to assess the consequences
24 of the effluent upon the environment. Mixing zones for non-thermal discharges may be granted
25 only after careful analysis of the nature of the effluent and a thorough study to assess the
26 consequences of the effluent upon the environment. Mixing zones for non-thermal discharges shall
27 be based on the following models, taking into consideration the criteria in III(B) above:

28
29 **1. Mixing Zones for Non-thermal Discharges into Streams and Rivers.**

30
31 a. For non-thermal discharges into streams and rivers, the mixing zone, at the point of
32 discharge, is limited to 25% of the cross sectional area of the stream at the minimum flow
33 at which the appropriate water quality standard can be met by thorough mixing of the
34 effluent with the receiving waters.

1 b. The length of the mixing zone shall extend downstream no more that than 5 times the
2 natural width of the stream at the point of discharge at the minimum flow condition.

3
4 c. The applicable water quality standard must be achieved at all points outside the mixing
5 zone.

6
7 d. Mixing zones will not be permitted in standing bodies of water.

8
9 2. Mixing Zones for Non-Thermal Discharges into Coastal Waters.

10
11 a. For non-thermal discharges to coastal waters, the mixing zone shall be equal in depth
12 to the depth of the water over the diffuser, in width to twice the depth of the water plus
13 the width of the diffuser, and in length to twice the depth of the water plus the length of
14 the diffuser, with the diffuser geographically centered within the mixing zone.

15
16 b. All discharges to marine waters will comply with the ocean discharge criteria
17 promulgated under Section 403(6)(c) of the Federal Clean Water Act.

18
19 **c. When practical, discharges and mixing zones should be located within coastal**
20 **waters entrapped below the thermocline.**

21
22 E. Mixing Zones For Thermal Discharges.

23 Thermal discharges pertain to effluent water with a temperature component either above or below
24 ambient conditions of the receiving body of water. All thermal discharges, existing or proposed,
25 into M-2 or M-3 receiving bodies of water located on ~~M-2 and M-3~~ shall be subject to criteria
26 **provisions** established in Section 316 (a) of the Federal Water Pollution Control Act (FWPCA),
27 Public Law 95-217. ~~Thermal discharges shall be permitted by the National Pollutant Discharge~~
28 ~~Elimination System (NPDES) permit process. Mixing zone for thermal discharge may be granted~~
29 ~~after careful analysis of the nature of the effluent and a thorough study to assess the~~
30 ~~consequences of the effluent upon the environment.~~

31
32 1. All above-Ambient Discharges:

1 a. Above-Ambient Discharges shall conform to a zone of mixing defined for that
2 particular discharge on a case-by-case basis. This zone of mixing shall be defined by
3 "EPA/505/2-90-001, PB91-127415, March 1991 Technical Support Document For
4 Water Quality- based Toxic Control", the following references or other references
5 depicting appropriate thermal mixing zone models, and take into consideration the
6 following criteria:

7
8 ~~-EPA/505/2-90-001, PB91-127415, March 1991 Technical Support Document~~
9 ~~For Water Quality- based Toxic Control, and take into consideration the following criteria:~~

- 10
11 i. time of exposure;
- 12
13 ii. temperature of effluent;
- 14
15 iii. depth of discharge;
- 16
17 iv. type of environment;
- 18
19 v. volume of discharge;
- 20
21 vi. mass of pollutant rate of critical materials;
- 22
23 vii. aesthetics and the assessment of damage to biota on the population basis.

24
25 ~~Final authority in defining a zone of mixing rests with the Agency.~~

26
27 b. Above-Ambient Discharges shall not increase the temperature of the receiving body
28 of water to cause substantial damage or harm to the flora and fauna or interfere with the
29 beneficial uses assigned therein.

30
31 c. Above-Ambient Discharges shall comply with all other water quality criteria as
32 defined in these standards, and specific criteria established in the discharge permit.

1 d. These zones of mixing shall be monitored by the discharger on a regular schedule
2 established by the NPDES Permit, to ensure compliance with established criteria.

3
4 e. If the Agency, pursuant to notice and opportunity for public hearings, finds evidence
5 that a discharge has caused substantial damage, it may require conversion of such
6 discharge to an approved alternative method. In making such a determination, the Agency
7 may consider:

8
9 i. the nature and extent of damage to the environment;

10
11 ii. projected lifetime of discharge;

12
13 iii. adverse economic and environmental impacts, marine and terrestrial, resulting
14 from such conversion;

15
16 iv. all available data, reports, surveys and projects related to the discharge;

17
18 v. such other factors which may prove to be appropriate.

19
20 2. Above-Ambient Discharges in Existence Prior to Approval of These Standards.

21
22 a. Such discharges shall be given special attention when defining a zone of mixing.
23 All criteria established for part D-1 above, shall apply with special emphasis on
24 specific criteria listed in part D-1a.

25
26 ~~b. Description of mixing zones for Tanguisson and Piti/Cabras Power Plants.~~

27
28 b. Tanguisson Power Plant Zone of Mixing: The zone of mixing for the
29 Tanguisson Power Plant is defined as a rectangle of approximately 10,000 sq.m.
30 with the following reference points.

31
32 i. northern boundary - North side of intake channel

1 ii. south boundary - 1969 ft (600 m) south of intake channel

2
3 iii. eastern boundary - Shoreline at mean high tide

4
5 iv. western boundary - 591 ft (180 m) off-shore to a depth beyond the reef
6 margin of about one meter which is the top of the zone of passage.

7
8 c. Piti/Cabras Zone of Mixing. The zone of mixing for the Piti/Cabras Power Plants
9 combined is the Piti Channel, from the power plants to a distance 300 feet back from
10 where the channel joins the harbor proper and from there to a depth of about one
11 meter or 3.28 feet to a line from the GORCO Pier and the Navy Fuel Pier on Dry
12 Dock Island.

13
14 3. Below-Ambient Discharges.

15 All below-ambient discharges shall follow the same guidelines set down for thermal discharges and
16 be evaluated on a case-by-case basis.

17
18 F. Prohibited Discharges

19 1. No person shall cause or permit:

20
21 a. the discharge of any wastes or wastewater without first securing required
22 NPDES permit(s) or securing local permit(s), as may be required regardless of
23 volume; ~~unless authorized by the Administrator under Section 47106 of the Water~~
24 ~~Pollution Control Act. or unless subject to control or modification required by a~~
25 ~~schedule of compliance established by the GEPA Board of Directors;~~

26
27 b. ~~the discharge of any pollutant in toxic amounts, including the substances which~~
28 ~~may accumulate to toxic amounts, during the expected life of organisms in the~~
29 ~~receiving water, which are lethal to, or which produce deleterious genetic,~~
30 ~~physiological, or behavioral effects in the organisms; any discharge which would~~
31 ~~cause organisms in the receiving waters to exhibit deleterious effects or~~
32 ~~otherwise impair species recruitment, reproduction or survivorship, or which~~

1 would cause organisms normally harvested for food to become harmful to
2 humans, wildlife or other organisms, if consumed, except in accordance with
3 Section 5104. This includes the discharge of any radiological, chemical,
4 biological warfare agents, or radioactive wastes and contaminated radioactive
5 materials;

6
7 ~~c. the discharge of any radiological, chemical, biological warfare agents, or radio-~~
8 ~~active wastes and contaminated radioactive materials from research and medical~~
9 ~~facilities;~~

10
11 c. any discharge which would substantially impair anchorage and navigation,
12 including any discharge which the Secretary of the Army, acting through the Corps
13 of Engineers, finds would result in this damage;

14
15 d. any discharge which the Administrator of the United States Environmental
16 Protection Agency has objected to in writing pursuant to any right to object provided
17 by the Federal Water Pollution Control Act, as amended;

18
19 e. any discharge which is in conflict with an approved Territorial **Guam** plan;

20
21 f. the discharge of sewage from vessels while moored, berthed or docked, or
22 underway in waters of the Territory **Guam** except through a properly functioning
23 Coast Guard approved type II Marine Sanitation Device; and

24
25 g. any new point source discharge into G-1 waters, because any water
26 discharges within this zone will (by definition) be tributary to groundwater
27 bodies which are actual or potential sources of fresh, potable water supply;

28
29 h. any new point source pollutant discharge into M-1 or S-1, ~~or G-1~~ waters as
30 defined in §5101 of these Standards;

1 i. any discharge of visible floating materials including scum and foam; and

2
3 **j. point source discharges to storm water drainage, except for storm water.**

4
5 2. All vessels exceeding 400 gross tons which are berthed or docked in the waters of the Territory
6 Guam, without fully functional U.S. Coast Guard approved oil pollution prevention devices (for
7 longer than 72 hours detention) must be completely encircled with flotation booms to contain any
8 discharged oil. The Administrator may require any vessel, regardless of gross tonnage, operating
9 ability, oil pollution prevention devices, duration of moorage or dockage time, will be completely
10 encircled with floating booms if in this opinion such measures are necessary to control potential
11 oil discharges into Territorial waters **of Guam** including, but not limited to, instances where
12 excessive oil is present on the vessel's deck or in the vessel's bilges; when major machinery repairs
13 are undertaken; or when a vessel cannot close its scuppers effectively during bunkering
14 operations.

15
16 G. Land Disposal Of Treated Waste Waters.

17
18 1. Approval of land disposal of treated liquid wastewater requires that:

19
20 a. waste waters shall be restricted to the premises of the disposal site;

21
22 b. provision shall be made by the discharger for monitoring the quality of the effluent with
23 the exception of single family dwelling units unless there are more than five (5) units
24 connected to a single system, or the Agency requires it after identifying a potential hazard;

25
26 c. all monitoring data and reports required under a discharge permit shall be submitted
27 to the Agency;

28
29 d. land disposal shall not create a public health hazard, a nuisance condition or an air
30 pollution problem;

1 e. these standards do not solely govern water/wastewater to be reused to produce
2 products which may end up in the human food chain, such as crops, animal products. The
3 Agency will consider such reuse on a case-by-case basis using available guidelines on best
4 available technology.

5
6 2. The evaluation for a permit for land treatment and/or disposal of waste-water(s) should include,
7 but not necessarily be limited to consideration of the following items:

8
9 a. The type of wastewater(s) proposed for disposal. (The wastewater(s) should be
10 biologically degradable but other wastewater(s) will be considered provided it can be
11 shown that disposal of the wastewater(s) will not adversely affect the designated use of the
12 waters underlying or adjacent to the disposal site.)

13
14 b. The nature of the earth material(s) underlying the disposal site. (The applicant must
15 provide positive assurance that the earth material(s) underlying the proposed disposal site
16 will not allow movement of pollutants into underlying ground waters so as to exceed
17 ground water standards).

18
19 c. The vegetative cover of the disposal site. The selection of a vegetative cover should
20 reflect the disposal season(s), the duration and frequency of disposal and the response of
21 the vegetative cover to the wastewater. If the wastewater proves to be deleterious to
22 vegetative cover, a higher degree to of treatment or another means of disposal will be
23 required.

24
25 3. Improperly and/or inadequately treated sewage shall not be allowed to accumulate on the
26 ground surface in such a manner that it may create a health hazard and/or a nuisance condition.

27
28 4. It shall be a violation of these standards to store, dispose of, or allow to accumulate any solid
29 waste or other deleterious material adjacent to or in the immediate vicinity of any streams, rivers,
30 wetlands, or marine waters in a manner that such material, or contaminated runoff, leachate or
31 residual from such materials, will directly or indirectly enter such waters or wetlands. Such
32 material shall include, but not be limited to sewage sludge, trash, rubbish, garbage, oil, gasoline,

1 chemicals, sawdust, accumulations of manure, and stockpiles of soil.

2
3 5. In case of accidental spills of deleterious materials, responsible persons in charge shall
4 immediately notify the Administrator of any such spills and make every reasonable effort to contain
5 spilled material in such a manner that it will not pollute waters of the Territory **Guam**.

6
7 6. Wastewater discharged to disposal wells for underground disposal shall receive, prior to
8 discharge, treatment necessary to protect potable water resources and any adjacent marine waters
9 or fresh surface waters. See Table III (Appendix J).

10
11 H. Petroleum Storage Facilities.

12
13 1. Any storage facility storing 55 gallons or more of containing petroleum products or
14 hazardous materials in any single above-ground container shall be substances not directly
15 adjacent to navigable waters and below the ~~SPCC capacity requirements of 600 gallons~~
16 provided with secondary containment to protect Guam's groundwater resources and navigable
17 waters from potential threat to from oil or hazardous substances materials discharges.

18
19 2. Facilities having a capacity of 660 gallons or greater are also required to develop a
20 Storage Facility Spill Prevention (SFSP) Plan. The Plan shall be based on the storage
21 capacity, type of product/hazardous materials and the potential threat the respective facility
22 may pose to Guam's groundwater resources. In case of spills the requirements shall be adhered
23 to: Facilities should refer to 40 CFR Part 112 guidelines and/or contact the Agency when
24 developing a SFSP Plan for their respective facility.

25
26 3. Pipeline systems that transport petroleum products and hazardous materials should
27 comply with the following requirements with the exception of facilities regulated under the
28 underground storage tank (UST) regulations, 40 CFR Part 280.

29
30 a. No pipeline system component may be buried unless that component has
31 an external protection coating that is designed to mitigate corrosion of the buried
32 component.

1 b. A cathodic protection system must be installed for all buried facilities to
2 mitigate corrosion that might result in structural failure. A test procedure must
3 be developed to determine whether adequate cathodic protection has been
4 achieved.

- 5
6 1. Each operator shall, each calendar year (annually) conduct tests on each
7 buried (in contact with the ground) pipeline system to determine whether
8 the entire cathodic protection system is adequate and working
9 properly. If the system is inadequate or not working properly the
10 operator shall immediately take appropriate action to repair and correct
11 the cathodic protection system to ensure proper corrosion protection. In
12 addition, cathodic protection rectifiers shall be inspected every 2 months.
13 Records of such inspections, and maintenance should be kept available
14 at the facility for the service life of the cathodic protection system.
15 Cathodic protection system inspections shall be carried out consistent
16 with the API 570 guidelines.

17
18 c. No pipeline system shall be put in operation unless it has been pressure
19 tested and found to be without leakage. In addition, no segment of pipeline that
20 has been replaced, relocated, or otherwise changed shall be returned to service
21 until it has been pressure tested and found to be without leakage.

- 22
23 1. The operator shall conduct pressure testing of its pipeline systems
24 to ensure that the pipeline system is not leaking. These tests shall
25 be conducted within 5 years of the initial pressure test and at
26 succeeding intervals not exceeding 5 years cycles. Records of such
27 tests shall be kept in the facility files for the service life of the
28 facility.

29
30 d. No pipeline system shall be put in operation unless a operator prepares and
31 follows, for each pipeline system, a manual of written procedures for conducting
32 normal operations and maintenance activities and handling abnormal operations

1 and emergencies. The manual shall be prepared before initial operation of a
2 pipeline system commences, and appropriate parts shall be kept at locations
3 where operations and maintenance are conducted.

4
5 1. The manual should contain a preventive maintenance program that
6 ensures the continued operational reliability of any pipeline or
7 pipeline system affecting quality, safety, and pollution prevention.
8 The program shall include all applicable guideline prescribed in the
9 latest edition of the API 570, Piping Inspection Code. The manual
10 should be made available to the regulatory agency for review upon
11 its request.

12
13 e. Each operator shall maintain each valve that is necessary for the safe
14 operation of its pipeline systems in good working order at all times to the extent
15 that leaks are prevented. In addition, each operator shall every six months,
16 inspect each valve in the pipeline system to ensure that it is functioning properly
17 and not leaking.

18
19 f. Operators shall provide the Guam EPA with a schedule of compliance for
20 existing pipelines installed before the effective date of these standards, which do
21 not have cathodic protection and external protection coating. The schedule shall
22 be subject to review and approval by the Administrator of Guam EPA.

23
24 **Section 5105 Definitions:**

25
26 **A. Definitions.**

27 The following definitions are used for the purpose of clarification where such terms, phrases and
28 words are used or implied in the text of these water quality standards.

29
30 **ACUTE TOXICITY: Any toxic effect that is produced within a short period of time,**
31 **generally 96 hours or less. Although the effect most frequently considered is mortality, the**
32 **end result could be any harmful biological effect.**

1
2 ADMINISTRATOR: Primary responsible person of the Guam Environmental Protection Agency.

3
4 ADVERSELY AFFECT: Damage to the waters of the Territory of Guam that result results in,
5 but is not limited to any of the following:

6
7 a. substantial increase or decrease in abundance or distribution of any species or
8 representative of the highest community development achievable in receiving waters
9 of comparable quality. A substantial decrease in abundance or diversity of indigenous
10 species. Change(s) in community structure to resemble a simpler successional stage
11 than is that are not natural for the locality and season in question;

12
13 b. degradation in appearance, odor or taste of the waters;

14
15 c. elimination of an established or potential economic or recreational a designated
16 or existing use of the waters; or

17
18 d. reduction of the successful completion of life cycles of indigenous species,
19 including those of migratory species.

20 ~~7) Substantial reduction of community heterogeneity or tropic structure.~~

21
22 AGENCY: Guam Environmental Protection Agency (GEPA).

23
24 AMBIENT: Existing conditions in surrounding waters taking into account
25 established human activity at that time and place (should approach natural conditions
26 that would be present without the presence of human activities). Existing environmental
27 conditions in waters.

28
29 AMBIENT MONITORING: Monitoring that is carried out to determine ambient conditions.
30 It is typically used for comparison purposes (e.g. changes over time and/or differences
31 between locations.) within lakes, rivers, estuaries, wetlands, springs, swamps, mangroves, etc.;

1 to determine the existing natural system.
2

3 AQUIFER: A water-bearing stratum of permeable rock, sand or gravel.
4

5 **BACKGROUND CONDITIONS: The biological, chemical, and physical conditions of**
6 **a water body, upstream from the point or nonpoint source discharge under consideration.**
7 **Background sampling location in an enforcement action will be upstream from the point of**
8 **discharge, but not upstream from other inflows. If several discharges to any water body**
9 **exist, and an enforcement action is being taken for possible violations to the standards,**
10 **background sampling will be undertaken immediately upstream from each discharge.**
11

12 BASAL GROUNDWATER: Fresh groundwater floating directly on sea water.
13

14 **BENEFICIAL USES: Desirable uses that water quality should support.**
15 **Examples are drinking water supply, primarily contact recreation (such as swimming), and**
16 **aquatic life support.**
17

18 BEST AVAILABLE TECHNOLOGY: Subject to economic and engineering feasibility limitation,
19 BAT should incorporate the best available current technology with a capacity up to and including
20 no discharge of pollutants. Considerations include the age of the equipment and facilities involved;
21 the process used; the engineering aspects of applying various types of control techniques; process
22 changes; the cost of achieving the effluent reduction resulting from applying the technology; and
23 non-water quality environmental impacts.
24

25 **BEST MANAGEMENT PRACTICE (BMP): Schedules of activities, prohibitions of**
26 **practices, maintenance procedures, and other management practices to prevent or reduce**
27 **the pollution of waters. BMPs also include but are not limited to treatment requirements,**
28 **operating procedures, and practices to decrease or eliminate generation of pollutants and**
29 **to control plant site runoff, spillage or leaks, sludge or wastewater disposal, aquaculture**
30 **pollutants, or drainage from raw material storage.** Application of the most current and
31 effective techniques, methods and procedures, practices or design and performance standards for
32 a specific purpose.

1 ~~BEST POLLUTANT REMOVAL OR CONTROL: A feasible process which, as demonstrated~~
2 ~~by general use, demonstration process or pilot plants represents good engineering practice at a~~
3 ~~reasonable cost at the time a discharge permit is issued by the Agency.~~

4
5 **BIOASSAY: A test used to evaluate the relative potency of a chemical or a mixture of**
6 **chemicals by comparing its effect on living organisms with the effect of a standard**
7 **preparation on the same type of organisms.**

8
9 **BIOLOGICAL MONITORING: Monitoring which uses aquatic organisms to indicate**
10 **compliance with water quality standards or effluent limits and to document water quality**
11 **trends. Methods of biological monitoring may include, but are not limited to, toxicity**
12 **testing (such as ambient toxicity testing or whole-effluent toxicity testing) and biological**
13 **surveys. It is also known as biomonitoring.**

14
15 BIOTA: The animal, plant and microbial life of a region.

16
17 **BOARD: Board of Directors of Guam Environmental Protection Agency.**

18
19 BOUNDARY: The physical interface between adjoining discreet areas. A fine line as applied to
20 ground waters, but as applied to surface and marine waters the line may shift due to storm
21 conditions, tides, water current changes and surface winds.

22 **CATHODIC PROTECTION SYSTEM: An external corrosion control system that is in**
23 **conformance with standard engineering practice including the appropriate standards under**
24 **the National Association of Corrosion Engineers (Standard RPO 169-92).**

25
26 **CHRONIC: A stimulus that lingers or continues for a relatively long**
27 **period of time, often one-tenth of the life span or more. Chronic should be considered a**
28 **relative term depending on the life span of an organism. The measurement of a chronic**
29 **effect can be reduced growth, reduced reproduction, etc., in addition to lethality.**

30
31 COASTAL WATERS: Includes near-shore, off-shore and estuary waters within the jurisdiction
32 of the Territory Guam.

1 COLIFORM BACTERIA:

2
3 a. TOTAL COLIFORM BACTERIA: All of the aerobic and facultative anaerobic
4 gram-negative, non spore-forming, rod-shaped bacteria that ferment lactose broth
5 with gas formation within 48 hours at 35 degrees centigrade +/- 0.5 degrees
6 centigrade.

7
8 b. FECAL COLIFORM: That portion of the coliform group which is present in the
9 gut or the feces of warm-blooded animals. It generally includes organisms capable
10 of producing gas from lactose broth in a suitable culture medium within 24 hours at
11 44 degrees centigrade +/-0.2 degrees centigrade. This elevated temperature will
12 eliminate non-fecal and non-coliform organisms and selectively culture fecal coliform
13 bacteria.

14
15 COMMUNITY: An association of living organisms in a given area or region in which the various
16 species are more or less interdependent upon each other.

17
18 ~~CONTROLLABLE WATER QUALITY: The aspects of water quality that can be protected or~~
19 ~~modified by human activity.~~

20
21 ~~CONSERVATION: Planned management of a natural resource to prevent exploration, destruction~~
22 ~~or neglect.~~

23
24 CREATED WETLAND: A human-made wetland. Created wetlands are designed to meet a
25 variety of human benefits including, but not limited to, the treatment of water pollution discharges
26 (e.g., municipal waste-water, storm water, etc.) and the mitigation of wetland losses permitted
27 under Section 404 of the Clean Water Act. This term encompasses the term "constructed
28 wetland" as used in other EPA guidance and documents. Created wetlands designed and
29 specifically created and used solely for the purpose of wastewater treatment do not qualify as
30 waters of Guam. The discharges from the created wetlands must meet applicable water quality
31 standards for the receiving waters.
32

1 CRITERIA: Elements of water quality standards, expressed as constituent concentrates,
2 levels or narrative statements representing a quality of water that supports a particular use.
3 When criteria are met, water quality will generally protect the designated use.

4
5 CRITERIA CONTINUOUS CONCENTRATION (CCC): A chronic concentration. It is
6 the 4-day average concentration of a pollutant in ambient water that should not be exceeded
7 more than once every 3 years on average.

8
9 CRITERIA MAXIMUM CONCENTRATION: An acute concentration. It is the 1-hour
10 average concentration in ambient waters that should not be exceeded more than once every
11 3 years on average.

12
13 DESIGNATED USES: Those uses specified in water quality standards for each water body
14 or segment whether or not they are being attained.

15
16 ~~DEVELOPMENT: Means the placement or erection of any solid material or structure, including~~
17 ~~structures on pilings, discharge or disposal of any dredged material or of any gaseous, liquid, solid~~
18 ~~or thermal waste, grading, removing, dredging, mining or extraction of any materials, change in~~
19 ~~the density or intensity of use of land, including, but not limited to, subdivision of land and any~~
20 ~~other division of land including, lot parceling, change in the intensity of use of water, ecology~~
21 ~~related thereto or of access thereto, construction or reconstruction, demolition or alteration of the~~
22 ~~size of any structure, including any facility of any private, public or municipal utility, and the~~
23 ~~removal of significant vegetation.~~

24
25 ~~DIRECT MOVEMENT: The movement of effluent through the soil and underlying rock strata~~
26 ~~in such a manner that pollutants which would adversely impact on the designated uses of the~~
27 ~~receiving water are not removed.~~

28
29 ~~DISCHARGE: The direct or indirect outflow of liquid waste or wastewater substance or~~
30 ~~material from any domestic, commercial, industrial, agricultural or any other source onto land or~~
31 ~~into air, land and waters of the Territory of Guam. The term "discharge" includes either the~~
32 ~~discharge of a single pollutant or the discharge of multiple pollutants.~~

1 DISCHARGER: Any person or entity that discharges any wastewater, substance or material into
2 the waters of the Territory of Guam whether or not such substance causes pollution.

3
4 EFFLUENT: The liquid waste that is discharged directly or indirectly, into a waterbody,
5 storm drain, or sewage system. ~~Solid, liquid or gaseous material discharged into the~~
6 ~~environment.~~

7
8 EFFLUENT LIMITATION: Any restriction or prohibition established under territorial Guam
9 or Federal Law including, but not limited to parameters for toxic and non-toxic discharges,
10 standards of performance for new sources, or ocean discharge criteria. The restrictions or
11 prohibitions shall specify quantities, rates, and concentrations of chemical, physical, biological and
12 other constituents which are discharged to waters of the Territory Guam.

13
14 ENTEROCOCCI: are a subgroup of fecal streptococci and are able to grow in 6.5% sodium
15 chloride, at pH 9.6, and at 10°C and 45°C. The enterococci portion of the fecal
16 streptococcus group is a valuable bacterial indicator for determining the extent of fecal
17 contamination of recreational surface waters. Studies indicate that swimming-associated
18 gastroenteritis is related directly to the quality of the bathing water and that enterococci are
19 the most efficient bacterial indicator of water quality.

20
21 ENVIRONMENTAL IMPACT ASSESSMENT: ~~A documentary evaluation of the impact upon~~
22 ~~the environment of any human activity.~~

23
24 ENVIRONMENTAL IMPACT STATEMENT: ~~A documentary presentation justifying an~~
25 ~~adverse environmental impact. A document analyzing impacts of alternative proposed actions~~
26 ~~and identifying, in detail, mitigation for significant environmental impacts of a proposed~~
27 ~~project or activity.~~

28
29 ENVIRONMENTAL PROTECTION PLAN: ~~A written document required by the Agency~~
30 ~~prior to the start of construction in which the developer/contractor describes the~~
31 ~~methods/equipment selected for use in the development, the environmental problems expected~~
32 ~~during and after development and the methods or equipment chosen to avoid, mitigate or control~~

\bar{x}_g = geometric mean

x_i = original data points

n = number of samples

To obtain a geometric mean, five samples (taken within 30 days) should be applied to the equation. (From Standard Methods 18th ed. 1992)

HABITAT: The environment occupied by individuals of a particular species, population or community.

HAZARDOUS MATERIALS: A substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

HIGHER DEGREE OF TREATMENT: Any physical, biological and/or chemical method directed at removing a specified portion of the remaining pollutants after secondary treatment.

~~HYDROLOGIC CYCLE: That natural system dealing with the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.~~

INDUSTRIAL WASTE: Any discharge containing gaseous, solid, dissolved or suspended material resulting from any process of industry, manufacturing, trade or business or from the processing of any natural resource, together with such sewage as may be present, which may pollute the waters of the territory Guam.

INSTANTANEOUS READING: a single sample result obtained from the appropriate method analysis during a one-time sampling event.

LAND TREATMENT: Any treatment of wastewater which involves the use of plants, soil surface and the soil matrix for wastewater treatment, including irrigation systems, infiltration systems,

1 overland flow systems and other systems of wastewater treatment via land application.

2
3 **LETHAL CONCENTRATION - 50 PERCENT (LC₅₀):** That concentration of a toxic substance
4 in water which for a given time period causes 50 percent of the exposed individuals of an aquatic
5 test organism to die.

6
7 **LIMITED BODY CONTACT:** Any recreational or other use in which contact with the water is
8 either incidental or accidental and in which the probability of ingesting appreciable quantities of
9 water is minimal.

10
11 **LINE OF MEAN HIGH WATER:** The shoreline as indicated on the 1:24,000 Series
12 (Topographic) Maps of the Island of Guam prepared by the U.S. Geological Survey.

13
14 **MARINE SANITATION DEVICE:** Equipment or process for installation on vessel or water craft
15 which is designed to receive, retain, treat, or discharge sewage or other pollutants or any process
16 to treat such sewage, or other pollutants which has received U.S. Coast Guard approval.

17
18 **MARINE WATERS: Near-shore and estuary waters within the jurisdiction of Guam**
19 **having dissolved inorganic ions (salinity) greater than 500 parts per million (ppm).**

20
21 **MIXING ZONE:** The area or volume of a waterbody within which effluent(s) shall become
22 physically mixed with the receiving waters through initial dilution. Initial dilution is the process
23 through which the wastewater immediately mixes with the receiving water due to the momentum
24 of the waste discharge and the difference in density between the discharge and the receiving water.
25 ~~The total area or volume of water designated as a mixing zone shall be limited to that area or~~
26 ~~volume which will not interfere with biological communities or populations of important species~~
27 ~~to a degree which is damaging to the ecosystem and which will not cause substantial damage to~~
28 ~~or impairment of designated water uses within the mixing zone or in surrounding waters. A mixing~~
29 ~~zone shall be considered designated only when approved by the Guam Environmental Protection~~
30 ~~Agency and when concurrence of the U.S. EPA has been received.~~

31
32 **MUNICIPAL WASTES:** Water carrying human and animal wastes from homes, buildings,

1 industrial establishments and other places either alone or in combination with industrial wastes.

2
3 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT: A
4 federal program, authorized under the Clean Water Act, for issuing, modifying, revoking
5 and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing
6 pretreatment requirements. permit used as the principal regulatory tool for reducing the quantity
7 permit used as the principal regulatory tool reducing the quantity of pollutant discharges to the
8 waters of the territory and for obtaining data on point source discharges.

9
10 NATURAL CONDITIONS: The resulting water quality in the absence of any measurable
11 pollution effect due to human activities.

12
13 NEAR-SHORE WATERS: All coastal waters lying within a defined reef area; all coastal waters
14 of a depth of less than ten seaward to a depth seventeen fathoms (60 102 feet, 18.3 31.10 m.),
15 and all coastal waters greater than 10 fathoms up to or to a distance off-shore of 1,000 feet (305
16 m.), whichever is greater. off-shore where there is no defined reef area.

17
18 NEW SOURCE: Any wastewater facility sources, the for which construction of which is
19 commenced on or after the 1968 effective date of these standards.

20
21 NONPOINT SOURCE: Diffuse pollution sources (i.e. without a single point of origin or not
22 introduced into a receiving water from a specific outlet), that are not regulated as point
23 sources. The pollutants are generally carried off the land by storm water.

24
25 NONPOINT SOURCE POLLUTION: Pollution from nonpoint sources. In practical terms,
26 nonpoint source pollution generally results from sources such as on-site sewage disposal,
27 automobiles, storm drain runoff and agricultural runoff.

28
29 OFF-SHORE WATERS: All coastal waters beyond the limits defined for "near-shore waters" to
30 the Territorial of Guam Limit as recognized by International
31 Law.

1 ~~OIL SPILL PREVENTION DEVICES: Shall mean any U.S. Coast Guard approved device, such~~
2 ~~as an oil/water separator, a sludge tank (for oily deposits), a standard discharge connection or~~
3 ~~other equipment or apparatus required by the MAROL Convention of 1973/1978 for the~~
4 ~~prevention of oil pollution of vessels.~~

5
6 OTHER WASTE: Garbage, municipal refuse, sand, offal, oil, tar, chemicals and all other
7 substances which may pollute the waters of the territory Guam.

8
9 OUTFALL: The conduit from its connection to a from wastewater treatment facilities/storm
10 water drainage to its outlet through diffusers into off-shore waters.

11
12 PARABASAL GROUNDWATER: Fresh groundwater hydraulically connected with basal water
13 but lying directly on impermeable basement rock.

14
15 PASSAGEWAY: A continuous stretch where water characteristics are affected only by the
16 environment in such a manner that the free flow or continuous drifting of biota is always possible.

17
18 PERMIT: A permit issued pursuant to Section 47106 of the Guam Water Pollution Control Act.

19
20 PERSON(S): Means any individual, firm, partnership, association or corporation, both public and
21 private, including the agencies of the Government of Guam and of the United States of America.

22
23 **PIPE or LINE PIPE: A tube, usually cylindrical, through which oil flows from one point to**
24 **another.**

25
26 **PIPELINE SYSTEM: A pipeline through which oil or hydrocarbon fuel moves including,**
27 **but not limited to line pipe, valves, other appurtenances connected to line pipe, fabricated**
28 **assemblies associated with pumping units, and delivery stations, and fabricated assemblies**
29 **therein. Systems included terminal and overland (above and below ground) pipeline**
30 **systems.**

31
32 POINT SOURCE: Any discernible, confined and discrete conveyance including, but not limited

1 to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock,
2 concentrated animal feeding operation, or vessel or other floating craft from which pollutants are
3 or may be discharged. This term does not include flows from irrigated agriculture, or agricultural
4 storm water runoff.

5
6 POLLUTANT: Means dredged spoil, solid waste, incinerator residue, sewage, garbage,
7 sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat,
8 wrecked, or discarded equipment, rock, sand, celler dirt and industrial, municipal, and
9 agricultural waste discharged into water.

10
11 POLLUTION: The alteration of the physical, chemical, or biological integrity and or radiological
12 integrity properties of any waters of the Territory Guam due to human activities which
13 adversely and unreasonably impairs the water quality of the territory or which renders said waters
14 hazardous to human health or harmful or detrimental to the aquatic and wildlife in or about the
15 waters or to the most beneficial uses of the waters.

16
17 POTABLE WATER RESOURCES: Waters of the Territory Guam actually used or intended to
18 be used for drinking water or general domestic use.

19
20 PRESSURE TESTING: The application of internal pressure above the normal or maximum
21 operating pressure to a pipeline or a segment of pipeline, under no-flow conditions, for a
22 fixed period of time, utilizing a liquid test medium. Pressure testing will be consistent with
23 the pressure testing requirements to the extent it is appropriate under the Department of
24 Transportation pipeline safety regulations (Subpart E-Pressure Testing).

25
26 PRIMARY TREATMENT: A level of sewage treatment that involves settling or screening to
27 separate sewage solids from liquid wastes.

28
29 RECEIVING WATER(S): Water(s) of the Territory Guam into which wastes or wastewater are,
30 or may be discharged.

31
32 RESTORATION: Return of a natural resource to a close approximation of its condition

1 **prior to disturbance.** An activity returning a wetland from a disturbed or altered condition with
2 lesser acreage or functions to a previous condition with greater wetland acreage or functions. For
3 example, restoration might involve the plugging of a
4 drainage ditch to restore the hydrology to an area that was a wetland before the
5 installation of the drainage ditch.

6
7 **SCHEDULE OF COMPLIANCE:** A schedule of corrective measures and times including an
8 enforceable sequence of actions or operations leading to compliance with any control regulation
9 or effluent limitation in a specified time period.

10
11 **SECONDARY TREATMENT:** A level of sewage treatment that involves the introduction of
12 bacteria which bind to solids and aid in their removal. The liquid wastewater is also
13 partially disinfected.

14
15 **SEWAGE:** The water-carried waste products from the residences, public buildings, institutions
16 or other buildings, including the excrement or other discharge from the bodies of human beings
17 or animals, together with such ground water infiltration and surface water as may be present.

18
19 **SHELLFISH:** Mollusks, crustaceans and other forms of marine animal and plant life other
20 than finfish, marine mammals and birds.

21
22 **SPECIAL AQUATIC SITES:** Sites possessing special ecological characteristics and values
23 including wetlands, wildlife sanctuaries and refuges, mud flats, vegetated shallows, coral reefs,
24 riffle and pool complexes.

25
26 **STORM WATER RUNOFF:** Water from rain which travels via flow across surfaces to
27 storm drain systems or receiving waters. As it flows, it often picks up pollutants such as soil,
28 automobile fluids, animal wastes, pesticides and fertilizers.

29
30 **SURFACE WATERS:** Any natural or artificial water source including all streams, sinkholes,
31 lakes, ponds, wetlands, impounding reservoirs, inland watercourses and waterways, springs,
32 irrigation systems and all other inland water bodies or accumulated waters. For the purpose of this

1 regulation, the term does not include coastal waters or those subject to the ebb and flow of tides.

2
3 THERMAL DISCHARGE: Discharge of water into the environment which has temperature
4 component either above or below the temperature of the receiving body of water.

5
6 TOXIC: ~~Lethal, teratogenic or mutagenic, or otherwise damaging to man or other living~~
7 ~~organisms. Causing death, disease, behavioral abnormalities, cancer, genetic mutations,~~
8 ~~physiological malfunctions (including malfunctions in reproduction) or physical~~
9 ~~deformations in organisms. The quantities and exposures necessary to cause these effects~~
10 ~~can vary widely.~~

11
12 TOXICITY TEST: A procedure to determine the toxicity of a chemical or an effluent using
13 living organisms. A toxicity test measures the degree of effect on exposed test organisms of
14 a specific chemical or effluent.

15
16 TRANSITION ZONE: In basal water the interface between the bottom of the freshwater lens and
17 the underlying saltwater. Salinity is low at the top of the transition zone and increases to that of
18 seawater at the bottom of the zone.

19
20 UPLAND: Any area that does not qualify as wetland because the associated hydrologic regime
21 is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics
22 associated with wetlands, ~~or is defined as open waters.~~

23
24 WASTEWATER: Sewage, industrial waste, or other waste, excluding thermal discharge, or any
25 combination of these, whether treated or untreated, plus any admixed land runoff.

26
27 WATER QUALITY STANDARDS: ~~The designated water body uses or classifications and the~~
28 ~~criteria including anti-degradation provisions and provisions for implementation to protect those~~
29 ~~uses and classifications. Provisions of law which consist of designated use or uses of a~~
30 ~~waterbody or a segment of a waterbody and the water quality criteria that is necessary to~~
31 ~~protect the use or uses of that particular waterbody. Water quality standards also include~~
32 ~~an anti-degradation policy, and may contain various implementation policies.~~

1 WATERS OF THE TERRITORY GUAM: All waters within three miles from the high waterline
2 surrounding Guam, streams (including intermittent streams), lakes, wells, springs, wetlands,
3 irrigation systems, marshes, watercourses, waterways, sink holes, drainage systems and other
4 bodies of water, surface and underground, natural or artificial, publicly or privately owned.

5
6 **WETLAND: An area that is inundated or saturated by surface water or groundwater at a**
7 **frequency and duration sufficient to support, and that under normal circumstances does**
8 **support, a prevalence of vegetation typically adapted for life in saturated soil conditions.**

9 **Wetlands typically include swamps, marshes, bogs and similar areas.** Means areas of land
10 where the water table is at, near or above the land surface long enough each year to result in the
11 formation of characteristically wet (hydric) soil types, and support the growth of water
12 dependent (hydrophytic) vegetation. Wetlands include, but are not limited to, marshes, swamps,
13 mangroves, natural ponds, surface springs, estuaries, bogs, and other such low-lying or similar
14 areas. Inland wetlands will include all wetlands meeting the following conditions:

15 1) Wetlands greater than one hectare in size with less than 0.5% (ocean derived) salinity, and 2)
16 Palustrine, Riverine and Lacustrine wetlands with greater than 30% wetland vegetation cover.
17 Wetlands must meet applicable water quality standard requirements, based on where it is situated
18 in accordance with Category Classification of the Water Quality Standards.

19
20 **WETLAND FUNCTIONS:** The beneficial uses of wetlands which are protected by these water
21 quality standards including but not limited to groundwater recharge/discharge, flood water
22 retention/attenuation, sediment stabilization, nutrient removal/transformation, wildlife
23 diversity/abundance, aquatic diversity/abundance, and recreation.

24
25 **WHOLE BODY CONTACT RECREATION:** Any recreation or other use in which there is
26 whole body contact with the water (e.g., including but not limited to activities such as skin
27 diving and swimming), involving a risk sufficient to pose a significant health hazard either by
28 contact with or ingestion of the water.

29
30 **ZONE OF PASSAGE:** Shall mean a A continuous water route which joins segments of river,
31 stream, reservoir, estuary, or channel above, below, or around a mixing zone without going
32

1 through the mixing zone. ~~As a minimum, no less than one-third of the cross-section of the water~~
2 ~~body shall be retained in compliance with the water quality criteria in Section II.~~

3
4 Appendix F

5
6 **Section 5106 § 401 Certifications**

7
8 ~~Guidelines for the Review and Issuance of 401 Water Quality Certification Pursuant to Section~~
9 ~~401 of the Federal Clean Water Act Applicable to All Waters of the Territory Guam Including~~
10 ~~Wetlands and Special Aquatic Sites:~~

11
12 A.I. Primary Goal goals of the § 401 Water Quality Certification (WQC)

13
14 **1. To restore and maintain the biological integrity of Guam's waters;**

15
16 2. To protect the Territory's waters of Guam and special aquatic areas and wetlands
17 from chemical, physical, and biological impacts and other types of alterations, and

18
19 **3. To eliminate all discharges of pollutants (including dredged and fill**
20 **materials).**

21 ~~_____ b) Guam 401 Certification covers any activity including, but not limited to the~~
22 ~~_____ construction or operation of facilities which may result in any discharges.~~

23
24 **B.H. Applicability for § 401 Water Quality Certification WQC**

25
26 ~~As a requirement of Section 401, Water Quality Certification (WQC) the Clean~~
27 ~~Water Act of 1977 (Public Law 95-217), "Any applicant for a Federal license or permit to~~
28 ~~conduct any activity including, but not limited to, the construction or operation of facilities, which~~
29 ~~may result in any discharge into the navigable water, shall provide the licensing or permitting~~
30 ~~agency a certification from the State or Territory, in which the discharge originates or will~~
31 ~~originate, or if appropriate, that any such discharge will comply with the applicable provisions of~~
32 ~~sections 301, 302, 303, 304, 306, 307, 318 and 405, of this Act". Of concern here are the~~

1 construction activities and as one of statements required in the certification is a statement that
2 there is reasonable assurance that the activity will be conducted in a manner which will not violate
3 applicable water quality standards (WQS).

4
5 **1. An applicant for a federal license or permit to conduct any activity including, but not**
6 **limited to, the construction or operation of facilities which may result in any discharge into**
7 **waters of the United States, shall provide the licensing or permitting agency a 401 WOC**
8 **from the Agency, certifying that the discharge will comply with Guam Water Quality**
9 **Standards.**

10
11 **2. The following more common federal permits require a 401 WOC prior to issuance: (it**
12 **is recommended that the applicant check with the issuing Federal agency).**

13
14 **a. Section 404 Permit of the Clean Water Act of 1977. This section of the Act**
15 **prohibits the discharge of dredged or fill material into waters of the United**
16 **States without a permit from the U.S. Army Corps of Engineers (ACOE).**
17 **Discharge refers to the physical placement of materials into waters. Dredge or**
18 **fill materials in this case are heterogeneous in nature.**

19
20 **b. Nationwide Permits (NWP) under Section 404 of the Clean Water Act.**
21 **The Agency may elect to deny, certify or waive 401 WOC for all or certain**
22 **proposed NWP. The Agency may determine that some NWP do not warrant**
23 **an “insignificant” impact determination which may apply to other U.S.**
24 **jurisdictions or as modified through regional conditioning. Because Guam has**
25 **a proportionally small wetland resource base, unique landscape, and water**
26 **quality resource management and biological considerations that differ from the**
27 **national perspective, the Agency often requires individual permit reviews of**
28 **NWP. The permit reviews may entail the application of a “water dependency**
29 **test” and/or a practicable alternative analysis as determined to be necessary by**
30 **the Administrator.**

31
32 **c. Section 402 of the Clean Water Act of 1977. This section prohibits the**

1 discharge of dredged or fill material without a permit from the USEPA.
2 Dredge or fill materials in this case are homogeneous in nature.

3
4 d. National Pollution Discharge Elimination System (NPDES) permits are
5 required under Section 402 of the Federal Clean Water Act for a number of
6 effluent, storm and waste water discharges to Waters of the Unites States.
7 This permit (system) requirement is typically associated with continuous or
8 periodic point source discharges from treatment plants and other industrial
9 and commercial facilities to control surface water pollution and ultimately
10 improve and/or maintain water quality of receiving waters. The assignment
11 of pre-treatment and monitoring performance standards and conditions are
12 generally required for target water quality parameters . Section 401 Water
13 Quality Certification must be issued for all NPDES permits.

14
15 A. ~~The goals are to restore and maintain a biological integrity of the territory's waters and to~~
16 ~~eliminate all discharges of pollutants (including dredged and fill materials.)~~

17
18 C. § 401 WQC Authority.

19 The Administrator of the Agency is the designated issuing authority for § 401 WQC.

20
21 D. IV: Applicable Laws, Statues and Regulations

- 22
23 1. Public Law 92-500, Federal Water Pollution Control Act (FWPCA) of 1972.
24
25 2. Public Law 95-217, Clean Water Act (CWA) of 1977 (~~Note: Some changes are~~
26 ~~amendments to the FWPCA and some are independent provisions.~~)
27
28 3. Title 10, Chapter 47, Guam Code annotated (GCA), Water Pollution Control Act, as
29 amended by Public Law 17-87.
30
31 4. Guam Water Quality Standards.
32

1 ~~5. Note: The Federal Nationwide 401 Permits are inapplicable in Guam.~~

2
3 E. V. Application Requirements and Contents

4
5 1. A § 401 WQC application Application should be filed at least 60 days prior to the needed
6 date of the 401 WQC. construction or discharge date.

7
8 2. Before issuing a § 401 WQC, the Agency will collect a certification fee to be assessed
9 in accordance with a fee schedule as established by the Agency. ~~There is no filing fee for~~
10 ~~the 401 WQC.~~

11
12 2. 3. An applicant for 401 WQC shall submit to the Administrator a complete completed
13 application form (available from the Agency). This form requires information on the
14 proposed project including, but not limited to: description of the discharge involved in the
15 activity for which certification is sought, with a request for certification signed by the applicant.
16 Each application shall include the following:

17
18 a. A description of the facility or activity activity, and associated discharges of
19 any discharge into territory's Guam's waters which may result from the conduct of
20 any activity including, but not limited to, the construction or operation of the facility,
21 including the biological, chemical, thermal, and other characteristics of the discharge,
22 and the location or locations at which such discharge may enter territory's waters.

23
24 b. A description of the system or methods for treating function and operation of
25 equipment or facilities to treat wastes or other effluents which may be discharged,
26 including specification of the degree of treatment expected to be attained.

27
28 c. The date or dates on which the proposed activity will begin and end, if known,
29 and the date or dates on which the associated discharge will take place.

30
31 d. The plan for monitoring A description of the methods and means being used or
32 proposed to monitor the water quality and characteristics of the discharge, and the

1 operation of equipment or facilities employed in the treatment or control of wastes
2 or other effluents.

3
4 e. A description of, and potential impacts to, applicable water quality
5 standards. (Water bodies which are territorial Guam's resource waters are
6 considered high quality.) Describe the recreational uses of the territory water at the
7 discharge and state whether the basic water quality criteria and the applicable Guam
8 water quality standards will be met.
9

10 ~~6. Submit plans, specifications and copies or citation of an Environmental Impact Assessment or~~
11 ~~Environmental Impact Statements it may apply.~~

12
13 ~~7. Submit historical overview and ecological evaluation of the site (including biota inventory and~~
14 ~~existing bioaccumulation studies).~~

15
16 ~~8. Submit a sediment physical characterization (to predict contaminant levels), and~~

17
18 ~~9. Submit sediment analysis.~~

19
20 ~~F. 401 Water Quality Certification Requirements~~ Additional Permit Information
21 Requirements:

22
23 1. The following is required to accompany an application for 401 Water Quality Certification: for
24 the Agency to start the review process:

25
26 1. Construction drawings/plans and specifications (operational data such as
27 pump/discharge rates, holding capacity, detention time, turnover rates, etc.).

28
29 2. Wetland Delineation Map

30
31 3. A historical overview and ecological evaluation of the project site (including biota inventory
32 and existing bioaccumulation studies). This A brief review of historical data from the area is

1 necessary to properly evaluate a project. This review should address: the following **(1)** known or
2 suspected pollutant sources, **(2)** and types of potential sediment contaminants, **(3)** previous
3 dredging activities, **(4)** previous disposal methods and locations, **and (5) pertinent information**
4 **related to the** quantity and quality of these **dredge** materials ~~and any benefits or problems~~
5 ~~associated with these activities.~~

6
7 ~~4. A historical overview and~~ **An** ecological evaluation of the **proposed affected** site (including
8 biota inventory and existing bioaccumulation studies). ~~An ecological evaluation~~ **This** should
9 include a review of existing inventories describing the area **area's** biota to determine **identify** local
10 populations **and to determine if threatened or** endangered species are present. Conditions that
11 support their well-being should be noted. ~~The applicable beneficial use designation should be~~
12 ~~determined. (Water bodies which are territorial resource waters are considered high quality.)~~
13 ~~Review existing bioaccumulation studies to determine if any~~ **Any concerns associated with the**
14 **uptake of heavy metals or organics, identified through existing bioaccumulation studies or**
15 **other sources of information, should be documented.** ~~problems exist with the uptake of heavy~~
16 ~~metals or organics.~~

17
18 **5. An Environmental Baseline Survey (marine, freshwater aquatic, or adjacent upland, as**
19 **appropriate), an Environmental Protection Plan, and/or an Environmental Impact**
20 **Assessment/Statement (EIA/EIS).**

21
22 ~~6. A sediment physical characterization (to predict contaminant levels) and~~
23 Characterization of the sediment particle size and composition, **which** is important in assessing
24 potential contaminant levels. Sand and coarse-grained inorganic sediments (greater than 0.24 mm)
25 rarely are contaminated. Conversely, fine organic sediments (less than 0.24 mm) generally retain
26 the highest levels of contaminants. This information is helpful in determining the need for chemical
27 analyses of the sediment. ~~Generally, sediment physical characterization is conducted when in-~~
28 ~~water disposal is proposed or contamination of sediment is suspected. based on the results of the~~
29 ~~Historical and Ecological Evaluation~~

30
31 7. Sediment Chemical Analyses.

32 Chemical characterization of the sediment can be done in two ways: **(1) bulk sediment analysis,**

1 **and (2) elutriate analyses.** The bulk analyses determines the total levels of sediment parameters
 2 on a dry-weight basis. Suggested parameters include, but are not limited to, those and are listed
 3 below. In both cases, the parameter list should be modified as necessary to address site-specific
 4 concerns. ~~If the historic overview indicates the potential presence of organics, then sediment~~
 5 ~~samples must be analyzed for these compounds.~~ A parameter list should be prepared on a site-
 6 specific basis, using the Guam EPA Priority Pollutants list and the Guam Water Quality Standards
 7 as guidance.

8
 9 a. **Suggested parameters for bulk sediment analysis**

10
 11 Parameters (dry-weight)

12 Ammonia (NH ₃ -N)	Nickel (N ₁)
13 Arsenic (As)	Oil & Grease
14 Cadmium (Cd)	Phosphorus (P, Total)
15 Chromium (Cr)	Total Kjeldahl Nitrogen
16 Chemical Oxygen Demand	Polychlorinated Biphenols
17 Copper (Cu)	Volatile Solids (%)
18 Iron (Fe)	Total organic carbon
19 Zinc (Zn)	Cyanide, Total
20 Phenolics, Total	Mercury (Hg)
21 Tributyltin	

22
 23 b. **Suggested parameters for elutriate analyses**

24 Parameters

25 Ammonia (NH ₃ -N)	Nickel (N ₁)
26 Arsenic (As)	Oil and Grease
27 Cadmium (Cd)	Phosphorus (P, Total)
28 Chromium (Cr)	Iron (Fe)
29 Copper (Cu)	Mercury (Hg)
30 Zinc (Zn)	Phenolics, Total
31 Cyanide, Total	Polychlorinated Biphenols
32 Tributyltin	

1 8. Sediment Bioassay

2 An important consideration in evaluating a dredging or disposal activity is the impact on the
3 aquatic organisms. ~~Two basic types of tests can be used to evaluate this impact: Algal~~
4 Bioassays, which can measure acute or and chronic effects, are the most appropriate method
5 for assessing impact. Methods and test organisms vary and it is recommended that the bioassays
6 use local (Guam) organisms and be coordinated with the U.S.EPA, Region IX, the local
7 Department of Agriculture and the U.S. Fish & Wildlife Service.

8
9 ~~6. If sediment contamination levels warrant, upland disposal projects, specify conditions to~~
10 ~~minimize the adverse impacts from upland site run-off and discharge of decant water.~~

11
12 ~~2. No certification may be issued by the Agency unless the applicant has demonstration of that~~
13 ~~activities permitted by Section 404 of the Federal Clean Water Act of 1987 will not:~~

14
15 a. ~~prevent or interfere with the attainment or maintenance of applicable water quality~~
16 ~~standards;~~

17
18 b. ~~result in a violation of any applicable Guam Water Quality Standard. additionally, the~~
19 ~~Agency may deny a request notwithstanding the applicant's demonstration of the above if~~
20 ~~it concludes that the activity "will result in adverse long or short term impacts on water~~
21 ~~quality."~~

22
23 G. VIII. Restrictions on Discharges to Territory's Waters. Prohibited discharges

24 The discharge of dredged or fill material is prohibited (i.e. no permit certification will not be
25 issued) if:

26
27 a) if there is a less-damaging practical alternative. This restriction is interpreted as:
28 "avoiding fill in waters of the territory will be avoided whenever possible, regardless of
29 the availability of mitigation". Mitigation should not be used to justify unnecessary fills.

30
31 1. there are less-damaging practical alternatives, regardless of the availability of
32 compensatory mitigation. A discharge that is water dependent, but for which upland

1 alternatives are available, is prohibited. Mitigation cannot be used to justify unnecessary
2 fills;

3
4 2. impacts cannot be reasonably mitigated through acceptable certification conditioning.
5 Mitigation as used here are those control measures that would reduce, lessen or minimize
6 impacts in the immediate vicinity of the discharge. "Compensatory" mitigation differs in
7 that it implies that an agreed upon plan to compensate or replace resources lost through or
8 resulting from an authorized permit was developed;

9
10 3. appropriate and practical steps have not been taken to minimize potential adverse
11 impacts of the discharge on the aquatic ecosystem (i.e. mitigation requirements);

12
13 4. it would cause or contribute to violations of any applicable Guam Water Quality
14 Standard, or would cause or contribute to significant degradation of the waters of Guam;

15
16 5. it would jeopardize any federal or Guam-listed threatened or endangered species;

17
18 6. it would violate any federal marine sanctuary requirement; or

19
20 7. the project is not water-dependent and the discharge associated with the project is
21 proposed in "special aquatic sites" (e.g.; wetlands, mudflats, sanctuaries, refuges and
22 preserves, vegetated shallows, coral reef areas, or riffle and pool complexes), and the project
23 applicant has failed to prove that there is no less-damaging practical alternative available
24 to achieve the overall project purposes, regardless of economic considerations.

25
26 The "water dependency test" means: the project's purpose is dependent upon fill in a
27 special aquatic site (i.e. restaurants, by definition, do not require fill in wetlands to be
28 restaurants).

29
30 b) Furthermore, if a project is not water-dependent and the discharge associated with the
31 project is proposed in "special aquatic site" (specifically: wetlands, mudflats, sanctuaries,
32 and refuges and, vegetated shallows, coral reefs, or riffle and pool complexes), the project

~~that there is no less-damaging practicable alternative available to
uses regardless of economic considerations.~~

~~interpreted as follows: the project's purpose is
(i.e. do restaurants, by definition, require fill~~

~~into waters of the Territory if it:~~

~~applicable Guam Water Quality~~

~~d threatened or~~

~~the Territory~~

*GUAM WATER QUALITY STANDARDS
(FINAL REVISION)*



~~.es,~~

~~discharge of dredged or fill material into waters of the Territory unless~~

1 appropriate and practicable steps have been taken which will minimize potential adverse
2 impacts of the discharge on the aquatic ecosystem (i.e. mitigation requirements);

3
4 ~~f) Require a finding of non-compliance for (and therefore prohibit) the discharge of~~
5 ~~dredged or fill material if there is insufficient information upon which to base a~~
6 ~~determination that the discharge will comply with the Guidelines.~~

7
8 ~~g) If the project is not water dependent, the certification will be denied.~~

9
10 ~~h) If the project is water dependent, the certification will be denied if there is a viable~~
11 ~~alternative (e.g., available upland is viable alternative).~~

12
13 ~~f) If no viable alternatives exist and impacts to wetland cannot be made acceptable~~
14 ~~through conditions on certification (e.g., fish movement criteria, creation of floodways~~
15 ~~to bypass oxbows, flow through criteria), the certification will be denied.~~

16
17 ~~j) If the project would interfere with existing uses and the project is not water dependent~~
18 ~~the certification will be denied.~~

19
20 ~~C. 401 Water Quality Certification (WQC) Authority.~~

21 ~~The Administrator of the Guam Environmental Protection Agency as is the designated-issuing~~
22 ~~authority for 401 WQC.~~

23
24 ~~10. Applicability~~

25
26 ~~A Territorial Guam's Water Quality Certification pursuant to Section 401 of the~~
27 ~~Clean Water Act is required by any applicant for a Federal license or permit to conduct an activity~~
28 ~~in the territorial Guam's waters that would include, but not limited to, the construction and~~
29 ~~operation of facilities that may result in any discharge, as defined in Sections 502(6), 502(12),~~
30 ~~502(16) of the Clean Water Act.~~

31
32 ~~The following more common Federal permits require a 401 WQC prior to issuance:~~

(it is recommended that the applicant check with the issuing and permit Federal agency):

1. ~~Section 404 Permit of the Clean Water Act of 1977. Section 301 of this Act prohibits the discharge of dredged or fill material into waters of the United States without a permit from the U.S. Army Corps of Engineers (ACOE). Discharge refers to the fill (placement) construction activities. Dredging or fill material in this case are heterogeneous in nature. Issuing authority is the ACOE.~~

2. ~~Section 402 Permit of the Clean Water Act of 1977. Also, prohibits the discharge of dredged or fill material without a permit from the U.S. Environmental Protection Agency (EPA). Dredge or fill material in this case are homogeneous in nature. Issuing authority in the authority is the U.S. EPA.~~

3. ~~Section 9 Permit of the Rivers and Harbors Act of 1989. Section 9 prohibits the construction of bridges or dams across navigable waters of the United States without congressional consent and U.S. ACOE permit approval.~~

4. ~~Section 102 Permit of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended. MPRSA controls the ocean dumping of material. Section 102 permits apply to the transport and disposal of non-dredged material. Issuing authority is the U.S. EPA.~~

5. ~~Section 103 Permit of the MPRSA of 1972, as amended. Section 103 permits apply to the transport and disposal of dredged material. Issuing authority is the U.S. ACOE.~~

6. ~~Discretionary authority of the Administrator as to applicability to any Federal activity not conforming to Section 404(r) of the Clean Water Act of 1977, which applies to Federal exemption (e.g., Civil Works Project). Issuing authority none because Congress authorizes the Federal project and the responsible Federal agency would not issue a permit to itself.~~

H. EX. Mitigation Policy Statements

GEPA will actively promote and support mitigation for all projects subject to Section 404 of the Clean Water Act in accordance with the 404(b)(1) Guidelines (40 CFR 230.10).

1. ~~GEPA will consider mitigation in the following sequence:~~

1
2
3 1. ~~GEPA~~ The Agency will actively promote project alternatives which avoid all adverse
4 environmental impacts associated with the proposed action, consistent with 40 CFR 230.10(a).
5 For proposed discharges of dredged or fill material for non-water dependent activities in special
6 aquatic sites, the burden of proof shall be on the applicant to demonstrate that practical,
7 practicable, less environmentally damaging alternatives are not available ~~irregardless~~ regardless
8 of economic considerations. For all other proposed discharges, GEPA will require information
9 demonstrating that the proposed action is the only available practicable practical alternative. In
10 the absence of such demonstration, The Agency will deny approval or require modification of the
11 ~~404 permit~~ § 401 WOC. In evaluating an analysis of practicable practical alternatives, proposed
12 habitat compensation will not be considered in determining which of the alternatives examined is
13 the least environmentally damaging.

14
15 2. The Agency will actively promote alternatives which reduce or minimize adverse environmental
16 impacts. This will include requirements to reduce the amount and extent of fill (or dredging), and
17 to modify the timing of construction.

18
19 3. For projects which have been conclusively demonstrated to have no practicable practical
20 alternative, The Agency will may consider compensation by in-kind aquatic habitat replacement
21 in close proximity to the project site.

22
23 4. The Agency will promote and support pre-application conferences and field inspections to
24 develop acceptable mitigation proposals, including the exploration of reasonable alternatives which
25 avoid or minimize adverse environmental impacts on the aquatic ecosystem.

26
27 5. The Agency will coordinate mitigation activities with the U.S. Fish & Wildlife Service, the
28 Corps of Engineers, the ~~United States Environmental Protection Agency~~ USEPA, and other
29 appropriate federal and territorial local agencies in order to address all relevant concerns and
30 avoid duplication of effort.

31
32 6. The Agency will seek the inclusion of mitigation as an integral part of projects subject to

1 Section 404 permit authority, and will deny § 401 WOC approval for any project which does not
2 include an acceptable mitigation plan. The Agency will deny approval of ~~404 permits~~ § 401 WOC
3 unless it is clear that the permitting authority can revoke or suspend the permit for failure to
4 implement the approved mitigation, and unless the permit conditions involving mitigation are
5 enforceable. ~~by the Agency.~~

6
7 7. The Agency will require monitoring for all mitigative actions involving habitat creation,
8 enhancement or restoration. The period of monitoring will be determined on a case-by-case basis,
9 in consultation with appropriate state and federal resource agencies, and will be of sufficient length
10 to adequately assess project success.

11
12 8. The Agency will may require pilot studies for any mitigative action which has not been
13 scientifically demonstrated to be successful, or about which there is significant resource agency
14 uncertainty. The pilot studies must be completed, before ~~USEPA, Region IX will agree to the~~
15 proposed discharge a § 401 WOC is issued.

16
17 9. The Agency will consider mitigation banking only in those instances where such an approach
18 will result in resource gains which are demonstrably superior to those expected using case-by-case
19 mitigation.

20
21 10. Where feasible, GEPA will promote the fee title transfer of mitigation sites to the local
22 resource agency with management responsibility for the created or preserved aquatic habitat.

23
24 11. Preservation of existing aquatic resources, in the absence of any enhancement of those
25 resources, will not be considered mitigation, as such a policy would sanction an irretrievable net
26 loss of aquatic resources.

27 I. X. Public process procedures

28 The procedures shall be similar to rule making procedure, except that the Applicant shall determine
29 whether to go or not to go directly to public hearing as provided in these guidelines for
30 application and issuance of § 401 WOC include the Agency's review, preliminary
31 determination, possible public noticing and public hearing, and a final decision.

1 **1. Projects requiring § 401 WQC which do not require public notices or public hearings**
2 **include, but are not limited to, the following:**

3
4 a) **In general, all Nationwide Permits (NWP) may be exempted from public**
5 **noticing unless the Administrator otherwise determines that significant**
6 **environmental or water quality issues warrant public involvement. This**
7 **conditional exemption stems from the Agency's position that some NWPs do**
8 **not take into consideration small tropical island environmental conditions. The**
9 **Agency maintains the option of individual certification reviews of any NWP.**

10
11 b) **In general, all National Pollution Discharge Elimination System (NPDES)**
12 **Permits may be exempted since all such permits and permit renewals are**
13 **publicly noticed by USEPA with full opportunity for public hearing and**
14 **comment in Guam.**

15
16 2. The applicant shall submit a § 401 WQC application to the Agency. ~~data-based on the~~
17 ~~requirements contained in this interim guideline section according to the provided, "Application~~
18 ~~Format" guidelines together with a request (refer to Section K of Regulations for the signatory~~
19 ~~requirements) for a 401 WQC.)~~ After reviewing the application for completeness, the
20 Administrator shall review and assess the application and make an initial determination that the
21 construction or **proposed** activity will **or will** not meet the applicable Guam WQS. After the
22 **Administrator's** initial determination, the Administrator **Agency** will **may** prepare the public
23 notice for publication in the newspaper(s) of general circulation the application for 401 WQS. In
24 addition, the public notice shall be mailed **and distribution** to interested parties listed on the
25 notification mailing list established by the Guam Environmental Protection Agency.

26
27 c) ~~The Application Format (Appendix L) made part of these Water Quality Standards~~
28 ~~is subject to a periodic revision by the Administrator and it shall the responsibility of the applicant~~
29 ~~to have the latest copy of the application format.~~

30
31 a. All costs for public notices of intent to issue; **or** to modify § 401 WQC or for
32 public hearings for § 401 WQC shall be borne by the applicant.

1 b. For public notices of intent to issue or modify 401 WQC, publication Publication
2 shall be two consecutive days in a newspaper of general circulation on the dates
3 specified by the Administrator.

4
5 c. It is imperative that the public notice by is published on the date(s) specified by
6 the Administrator so that there are no delays in the processing of the 401 WQC
7 request are minimized. In addition, when the public notice proof copy is edited by
8 the applicant, it should be carefully checked for accuracy to avoid republication. An
9 affidavit certifying publication will be required.

10
11 d. The Administrator may elect to provide public notice by letter to affected
12 or interested parties.

13
14 3. In the event that a reasonable request is made for a public hearing ~~that is supported by~~
15 ~~justifiable evidence~~, the Administrator shall provide a public hearing, in accordance with the Guam
16 Administrative Adjudication Act. ~~Public hearings will be held on the villagers located in the~~
17 ~~vicinity of the project.~~

18
19 a. For public notices of public hearing, publication Publication of public hearing
20 notices shall be as specified in the Guam Administrative Adjudication Act. The
21 public notice will be published in a local newspaper of general circulation as directed
22 by the Administrator.

23
24 b. Public hearings will be arranged (date, time, place) by the Agency Environmental
25 Review Section staff and the hearing will be conducted by the Administrator.
26 ~~Guam EPA Board of Directors.~~ In addition to the ~~Guam EPA Board of Directors,~~
27 ~~as ERS staff member~~ Agency staff will be present to serve as a resource. The and
28 the applicant will be or his/her representative, should requested to send a
29 representative to attend the scheduled hearing to present testimony supporting the
30 § 401 WQC request.

31
32 4. After the public notice and/or public hearing ~~as the case maybe~~, the Administrator shall consider

1 all evidence and testimonies presented and make a final § 401 WQC determination. for the ~~401~~
2 ~~WQC~~ This determination will be completed within 60 days of the submittal of the
3 application or not less than 30 days after any required public notice or hearing, whichever
4 is longer.

5
6 5. The Administrator shall issue § 401 WQC for a term equal to but not exceeding five years
7 for NPDES and other facility operational permits. Furthermore, the term of any re-
8 certification shall not exceed one extension for construction related permits. Subsequent
9 requests for certification extensions (second, third, etc.) for construction related or
10 temporary discharge permits may be granted, and if granted, may not coincide with the
11 associated federal permit term. The Administrator reserves the right to adjust any and all
12 certification terms. The Administrator shall issue a 401 WQC for a term not to exceed five years:
13

14 6. Any order or decision of the Administrator pursuant to these regulations shall become final,
15 unless a hearing before the GEPA Board of Directors is requested within 30 days after the notice
16 of the final decision.

17
18 7. The GEPA Board of Directors shall have the power to review and to affirm, modify or reverse
19 any order or decision of the Administrator. Such appeal shall be made pursuant to the provisions
20 of the Administrative Adjudication Law, Title 5 Guam Code Annotated § 9100 et. seq.

21
22 8. Any order or decision of the Board pursuant to these regulations shall be subject to an appeal
23 therefrom to the Superior Court of Guam. Such appeal shall be made pursuant to the provision
24 of the Administrative Adjudication Law, Title 5 Guam Code Annotated § 9100 et. seq.

25
26 ~~H. PUBLIC NOTICES~~

27
28 ~~I. PUBLIC HEARINGS~~

29
30 ~~J. XI.~~ Content of the Agency's § 401 WQC certification

31 ~~As a matter of information, the following shall be contained in the 401 WQC statement:~~
32

1. The name and address of the applicant.

2. A statement description of the information used by the Administrator to make his/her decision. that the Administrator has either (i) examined the application made by the applicant to the Administrator and based its certification upon an evaluation of the information contained in such application which is relevant to water quality considerations, or (ii) examined other information furnished by the applicant sufficient to permit the Administrator to make the statement described in paragraph (3,) of this section.

3. A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable WQS.

4. A statement of any Any conditions which the Administrator deems necessary or desirable with respect to the discharge or the activity.

5. Any other conditions as the Administrator may determine to be appropriate.

~~6. Any conditions specified in the 401 WQC shall be requested to be included as part of the issued Federal license or permit conditions.~~

K. XH. Signatory requirement for § 401 Water Quality Certification WQC

1. For municipal, state, federal, or other public agency. For Guam Environmental Protection Agency - The Administrator, as chief executive officer of the agency.

2. In the case of Federal agencies, the chief executive officer of the agency, or the senior executive officer have having responsibility for the overall operations of a principal geographic unit of the agency.

3. For a partnership or sole proprietorship, a general partner (partnership) or a proprietor (sole proprietorship).

1 4. For a corporation, the president or his/her representative. , ~~Vice President, Secretary or~~
2 ~~Treasurer of the corporation and in charge of a principal business function, or one that performs~~
3 ~~similar policy or decision making functions for the corporation.~~

4
5 ~~Contested case and Adjudicatory Hearings~~

6
7 a) ~~Contested case and adjudicatory hearings may be held as pointed in the "Proce-dure"~~
8 ~~portion of these guidelines.~~

9
10 **L. XIII: Modification, suspension, or revocation of a § 401 WQC**

11
12 1. The Administrator may, on his own motion or the application of any person, modify, suspend
13 or revoke the § 401 WQC if, after a hearing the Administrator determines that:

14
15 a. there is a violation of any condition of the § 401 WQC;

16
17 b. the § 401 WQC was obtained by misrepresentation, or failure to disclose fully all
18 relevant facts; or

19
20 c. there is an unreasonable or significant change in the scope of the project and
21 activity. ;or

22
23 ~~4. Such is in the public interest.~~

24
25 **M. XIV: Dam construction review for § 401 Water Quality Certification. WQC.**

26
27 **1. An applicant must complete an Environmental Impact Assessment or Statement**
28 **(EIA/EIS) for any dam or reservoir project prior to a request for § 401 WQC.**

29
30 **a. The Agency will not act on a § 401 WQC request until the EIA/EIS has been**
31 **approved and full opportunity for public comment has been provided on the**
32 **proposed project.**

1 b. As part of an EIA/EIS for a dam, the Applicant **applicant** must provide
2 conduct investigations of and assess performed for the **impact(s) which will occur**
3 as a result of the project on all aquatic and terrestrial biological resources
4 including those associated with wetlands, streams, and forested areas which
5 will be lost as a result of the project. of the construction of the project. Mitigative
6 creation of new wetlands should be located on newly created headwater areas.

7
8 c. Potential for mitigation (restoration, replacement or enhancement) must be
9 thoroughly investigated to determine if there are mitigation locations within
10 the same watershed as the proposed activity at up stream or headwater areas.
11 Only after a thorough investigation reveals that this potential does not exist
12 shall off-site or alternative watershed locations be considered.

13
14 ~~b) Assure adequate filtration of run-off prior to its entry into the reservoir.~~

15
16 d. Compensatory (Replacement) mitigation for Replace the aquatic resource being
17 lost must occur on an acre for acre basis.

18
19 e. Compensatory mitigation should be designed to match in-kind resource
20 types and/or functions lost.

21
22 f. The applicant Applicant shall submit to provide a watershed management plan
23 to minimize pollution loadings into the reservoir. This plan must be approved by the
24 Agency prior to operation of the new dam facility. Any pollutant loading certified
25 identified during field surveys shall be eliminated or minimized to the extent possible
26 given available technology.

27
28 2. § 401 WOC may be denied if:

29
30 a. The construction and operation of the project will result in the significant
31 loss of wetlands and related habitat and acreage. More specifically:
32

1 i. The destruction of the wetlands will have an adverse impact on the river
2 ecosystem.

3
4 ii. The destruction of the wetlands will cause the loss of beds of emergent
5 aquatic vegetation that serve as habitat for juvenile fish which will
6 adversely affect the relative abundance of juvenile and adult fish.

7
8 iii. The resources or wetlands which will be lost are critical habitat in the
9 affected area, including listed species or those which are candidates for
10 listing.

11
12 iv. All affected wetlands areas are important and, to the extent that the loss
13 of these wetlands can be mitigated, the applicant has failed to demonstrate
14 that the mitigation proposed is adequate.

15
16 b. The applicant has (1) failed to demonstrate that there will be no adverse
17 water quality impacts from increased groundwater levels resulting from the
18 project, (2) used a groundwater model that is not acceptable due to erroneous
19 assumptions or the lack of sensitivity analysis, or (3) not provided sufficient
20 information concerning the impact of increased groundwater levels on existing
21 sites of subsurface contamination, adequacy of subsurface sewage replacement
22 areas or the impact of potential increased surface flooding. Additionally, the
23 certification may be denied if information was not provided to adequately
24 assess the effect of raised groundwater on sewer rehabilitation measures and
25 the potential for increased flows at a specified wastewater treatment plant.

26
27 c. The applicant has failed to demonstrate that there will not be an
28 unacceptable water quality impact upstream or downstream of the proposed
29 project.

30
31 d. The applicant has failed to demonstrate that the construction and operation
32 of the proposed dam will not have an adverse impact on the aquatic resources

upstream of the proposed impoundment.

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e. Dam construction will have an adverse impact on upstream and downstream migration of fish, even with the construction of fish passageways for migration.

Appendices

1

Appendix A - Priority Toxic Pollutants

I. List of 126 Priority Toxic Pollutants Designated under Section 307(a) (1) of the Clean Water Act Which Are Codified at 40 CFR 131.36(b), July 1995.*

6	Acenaphthene	1,2-dichlorobenzene
7	Acenaphthylene (PAH)**	1,3-dichlorobenzene
8	Acrolein	1,4-dichlorobenzene
9	Acrylonitrile	3,3-dichlorobenzidine
10	Aldrin	1,1-dichloroethane
11	Antimony	1,2-dichloroethane
12	Anthracene	1,1-dichloroethylene
13	Arsenic	1,2-trans-dichloroethylene
14	Asbestos	Dichlorobromomethane (Halomethanes)
15	1,2-benzanthracene (PAH)	Dichloromethane (Halomethanes)
16	Benzene	2,4-dichlorophenol
17	Benzidine	1,2-dichloropropane
18	Benzo(a)pyrene (3,4-benzo-pyrene) (PAH)	1,3-dichloropropene
19	3,4-benzofluoranthene (PAH)	Dieldrin
20	Benzo(k)fluoranthene (PAH)	2,4-dimethylphenol
21	1,12-benzoperylene (PAH)	Diethylphthalate
22	Beryllium	Dimethylphthalate
23	Bromoform (Tribromomethane)	2,4-dinitrotoluene
24	Bromomethane (Methyl Bromide)	2,6-dinitrotoluene
25	4-bromophenyl phenyl ether	2,4-dinitrophenol
26	Cadmium	2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD)
27	Carbon tetrachloride	1,2-diphenylhydrazine
28	(tetrachloromethane)	Alpha endosulfan
29	Chlordane	Beta endosulfan
30	Chlorobenzene (monochloro-benzene)	Endosulfan sulfate
31	Chlorodibromomethane (halomethane)	Endrin
32	Chlorethane (monochloroethane)	Endrin aldehyde
33	Fluorene (PAH)	Ethylbenzene
34	Bis(2-chloroethyl)ether	Fluoranthene
35	Bis(2-chloroethoxy)methane	Heptachlor
36	2-chloroethyl vinyl ether (mixed)	Heptachlor epoxide
37	4-chloro-3-methylphenol	Hexachloroethane

1	Chloromethane (methyl chloride)	Hexachlorobenzene
2	Chloroform (trichloromethane)	Hexachlorobutadiene
3	2-chlorophenol	Hexachlorocyclohexane (lindane)
4	Bis(2-chloroisopropyl)ether	Hexachlorocyclohexane (Alpha)
5	2-chloronaphthalene	Hexachlorocyclohexane (Beta)
6	4-chlorophenyl ether	Hexachlorocyclohexane (Delta)
7	Chromium (HEX) aivalent	Hexachlorocyclopentadiene
8	Chromium (TRI) valent	Indeno (1,2,3-cd) pyrene (PAH)
9	Chrysene (PAH)	Isophorone
10	Copper	Lead
11	4,4-DDT	Mercury
12	4,4-DDE (p,p-DDX)	Naphthalene
13	4,4-DDD (p,p-TDE)	Nickel
14	1,2,5,6-bibenzanthracene	Nitrobenzene
15	{dibenzo(a,h) anthracene}	Di-N-butyl phthalate
16	Di-n-octyl phthalate	2-nitrophenol
17	Pyrene (PAH)	4-nitrophenol
18	Selenium	4,6-dinitro-2-methylphenol
19	Silver	N-nitrosodimethylamine
20	1,1,2,2-tetrachloroethane	N-nitrosodiphenylamine
21	Tetrachloroethylene	N-nitrosodi-n-propylamine
22	Thallium	PCB-1242
23	Toluene	PCB-1254
24	Toxaphene	PCB-1221
25	1,2,4-trichlorobenzene	PCB-1232
26	1,1,1-trichloroethane	PCB-1248
27	1,1,2-trichloroethane	PCB-1260
28	Trichloroethylene	PCB-1016
29	2,4,6-Trichlorophenol	Phenol
30	Vinyl chloride (chloroethylene)	Pentachlorophenol
31	Phenanthrene (PAH)	Zinc
32	Bis(2-ethyl hexyl)phthalate	Butyl benzyl phthalate

Note: * Three volatile chemicals were removed from the original of 129 (44 CFR 44502, July 30, 1979, as amended at 46 FR 2266, January 8, 1981, 46 FR 10724, February 4, 1981)

** (PAH) means Polycyclic Aromatic Hydrocarbon

1 **II. AQUATIC LIFE CRITERIA TOXIC POLLUTANTS**

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<u>1. Arsenic</u>	<u>11. Cyanide</u>	<u>21. Heptachlor</u>
<u>2. Cadmium</u>	<u>12. Pentachlorophenol</u>	<u>22. Heptachlor-epoxide</u>
<u>3. Chromium (III and VI)</u>	<u>13. Aldrin</u>	<u>23. PCB-1242</u>
<u>4. Copper</u>	<u>14. Gamma-BHC</u>	<u>24. PCB-1254</u>
<u>5. Lead</u>	<u>15. Chlordane</u>	<u>25. PCB-1221</u>
<u>6. Mercury</u>	<u>16. 4,4-DDT</u>	<u>26. PCB-1232</u>
<u>7. Nickel</u>	<u>17. Dieldrin</u>	<u>27. PCB-1248</u>
<u>8. Selenium</u>	<u>18. Alpha-endosulfan</u>	<u>28. PCB-1260</u>
<u>9. Silver</u>	<u>19. Beta-endosulfan</u>	<u>29. PCB-1016</u>
<u>10. Zinc</u>	<u>20. Endrin</u>	<u>30. Toxaphene</u>

III. Numerical Criteria for Priority Toxic Pollutants:

	A		B		C		D	
	(#) COMPOUND	CAS Number	FRESHWATER CMC d (ug/l) B1	CCC d (ug/l) B2	SALTWATER CMC d (ug/l) C1	CCC d (ug/l) C2	HUMAN HEALTH For Consumption of: Water & Organisms (ug/l) D1	Organism Only (ug/l) D2
1	1. Antimony	7440360	340 m	150 m	69	36	14a	4300 a
2	2. Arsenic	7440382					5	
3	3. Beryllium	7440417					j	j
4	4. Cadmium	7440439	3.9 d, m	1.1 d, m	42	9.3	j	j
5	5a. Chromium (III)	16065831	1700 d	210 d			j	j
6	b. Chromium (VI)	8540299	16 m	11 m	1100	50	j	j
7	6. Copper	7440508	18 d, m	12 d, m	4.8	3.1	1300	
8	7. Lead	7439921	82 d	3.2 d	210	8.1	j	j
9	8. Mercury	7439976	2.4 m	0.012 m	2.1	0.025	0.050 a	0.051 a
10	9. Nickel	7440020	470 d, m	52 d, m	74	8.2	610 a	4600 a
11	0. Selenium	7782492	20	5.0	290	71	j	j
12	11. Silver	7440224	4.1 d		2..3		1.7 a	6.3a
13	12. Thallium	7440280					9,100	69,000
14	13. Zinc	7440666	120 d, m	110 d, m	95	86	700a	200,000 a, h
15	14. Cyanide	57125	22 n	5.2 n	1	1	7,000,000 fibers/L	i
16	15. Asbestos	1332214						

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	Organism Only (ug/l) D2
16. 2,3,7,8-TCDD (Dioxin)	1746016					0.000000013 b	0.000000014 b
17. Acrolein	107028					320	780
18. Acrylonitrile	107131					0.059 a, b	0.66 a, b
19. Benzene	71432					1.2 a, b	71 a, b
20. Bromoform	75252					4.3 a, b	360 a, b
21. Carbon Tetrachloride	56235					0.25 a, b	4.4 a, b
22. Chlorobenzene	108907					680 a	21,000 a, h
23. Chlorodibromomethane	124481					0.41 a, b	34 a, b
24. Chloroethane	75003						
25. 2-Chloroethylvinyl - Ether	110758						
26. Chloroform	67663					5.7 a, b	470 a, b
27. Dichlorobromomethane	75274					0.56 a, b	46 a, b
28. 1,1-Dichloroethane	75343					0.38 a, b	99 a, b
29. 1,2-Dichloroethane	107062					0.057 a, b	3.2 a, b
30. 1,1-Dichloroethylene	75354					0.52 a	39 a
31. 1,2-Dichloropropane	78875					10 a	1700 a
32. 1,3-Dichloropropene	542756						

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A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
33. Ethylbenzene	100414					3,100 a	29,000 a
34. Methyl Bromide	74839					48 a	4,000 a
35. Methyl Chloride	74873					j	j
36. Methylene Chloride	75092					4.7 a, b	1,600 a, b
37. 1,1,2,2-Tetra- chloroethane	79345					0.17 a, b	11 a, b
38. Tetrachloroethylene	127184					0.8 b	8.85 b
39. Toluene	108883					6,800 a	200,000 a
40. 1,2-Trans-Dichloro- ethylene	156605					700 a	140,000 a
41. 1,1,1-Trichloroethane	71556					j	j
42. 1,1,2-Trichloroethane	79005					0.60 a, b	42 a, b
43. Trichloroethylene	79016					2.7 b	81 b
44. Vinyl Chloride	75014					2 b	525 b
45. 2-Chlorophenol	95578					120 a	400 a
46. 2,4-Dichlorophenol	120832					93 a	790 a
47. 2,4-Dimethylphenol	105679					540 a	2300 a

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A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
48. 2-Methyl-4,6-Dinitro-phenol	534521					13.4	765
49. 2,4-Dinitrophenol	51285					70 a	14,000 a
50. 2-Nitrophenol	88755						
51. 4-Nitrophenol	100027						
52. 3-Methyl-4-Chloro-phenol	59507						
53. Pentachlorophenol	87865	19 e, m	15 e, m	13	7.9	0.28 a, b	8.2 a, b, h
54. Phenol	108952					21,000 a	4,600,000 a,h
55. 2,4,6-Trichlorophenol	88062					2.1 a, b	6.5 a, b
56. Acenaphitene	83329					1,200 a	2,700 a
57. Acenaphthylene	208968						
58. Anthracene	120127					9,600 a	110,000 a
59. Benzidine	92875					0.00012 a, b	0.00054 a, b
60. Benzo(a)Anthracene	56553					0.0044 a, b	0.049 a, b
61. Benzo(a)Pyrene	50328					0.0044 a, b	0.049 a, b

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A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	For Consumption of: Water & Organisms (ug/l) D1	Organism Only (ug/l) D2
1	62. Benzo(b)Fluoranthene	205992				0.0044 a, b	0.049 a, b
2	63. Benzo(ghi)Perylene	191242				0.0044 a, b	0.049 a, b
3	64. Benzo(k)Fluoranthene	207089					
4	65. Bis(2-Chloroethoxy) - Methane	111911					
5							
6	66. Bis(2-Chloroethyl)- Ether	111444				0.031 a, b	1.4 a, b
7							
8	67. Bis(2-Chloroisopropyl)- Ether	108601				1,400 a	170,000 a
9							
10	68. Bis(2-Ethylhexyl)- Phthalate	117817				1.8 a, b	5.9 a, b
11							
12	69. 4-Bromophenyl Phenyl Ether	101553					
13							
14	70. Butylbenzyl Phthalate	85687				3,000 a	5,200 a
15	71. 2-Chloronaphthalene	91587				1,700 a	4,300 a
16	72. 4-Chlorophenyl - Phenyl Ether	7005723					
17							
18	73. Chrysene	218019				0.0044 a, b	0.049 a, b
19							
20	74. Dibenzo (a,h) - Anthracene	53703				0.0044 a, b	0.049 a, b
21	75. 1,2-Dichlorobenzene	95501				2,700 a	17,000 a
22	76. 1,3-Dichlorobenzene	541731				400	2,600

A		B		C		D	
(#) COMPOUND	CAS Number	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
1	77. 1,4-Dichlorobenzene					400	2,600
2	78. 3,3-Dichlorobenzidine					0.04 a, b	0.077 a, b
3	79. Diethyl Phthalate					23,000 a	120,000 a
4	80. Dimethyl Phthalate					313,000	2,900,000
5	81. Di-n-Butyl Phthalate					2,700 a	12,000 a
6	82. 2,4-Dinitrotoluene					0.11 b	9.1 b
7	83. 2,6-Dinitrotoluene						
8	84. Di-n-Octyl Phthalate						
9	85. 1,2-Diphenylhydrazine					0.040 a, b	0.54 a, b
10	86. Fluoranthene					300 a	370 a
11	87. Fluorene					1,300 a	14,000 a
12	88. Hexachlorobenzene					0.00075 a, b	0.00077 a, b
13	89. Hexachlorobutadiene					0.44 a, b	50 a, b
14	90. Hexachlorocyclopentadiene					240 a	17,000 a,h
15	77474						
16	91. Hexachloroethane					1.9 a, b	8.9 a, b
17	92. Indeno(1,2,3-cd)-						
18	Pyrene					0.0044 a, b	0.049 a, b
19	93. Isophorone					36 b	2,600 b
20	94. Naphthalene						
21	95. Nitrobenzene					17a	1,900 a,h

A		B		C		D	
#	COMPOUND	FRESHWATER		SALTWATER		HUMAN HEALTH	
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	Water & Organisms (ug/l) D1	For Consumption of: Organism Only (ug/l) D2
1	96 N-Nitrosodimethyl- amine						
2	62759					0.00069 a, b	8.1 a, b
3	97. N-Nitrosodi-n-Propylamine						
4	621647					0.005 a, b	1.4 a, b
5	98. N-Nitrosodiphenyl-amine						
6	86306					5.0 a, b	16 a, b
7	99. Phenanthrene						
8	100. Pyrene					960 a	11,000 a
9	101. 1,2,4-Trichlorobenzene					260	940
10	102. Aldrin	3 f		1.3 f		0.00013 a, b	0.00014 a,b
11	103. alpha-BHC					0.0039 a, b	0.013 a, b
12	104. beta-BHC					0.014 a, b	0.046 a, b
13	105. gamma-BHC	0.95 m		0.16 f		0.019b	0.063 b
14	106. delta-BHC						
15	107. Chlordane	2.4 f	0.0043 f	0.09 f	0.004 f	0.0021 a, b	0.0022 a, b
16	108. 4-4-DDT	1.1 f	0.001 f	0.13 f	0.001 f	0.00059 a, b	0.00059 a, b
17	109. 4,4-DDE					0.00059 a, b	0.00059 a, b
18	110. 4,4-DDD					0.00083 a, b	0.00084 a, b

A (#) COMPOUND	CAS Number	B FRESHWATER		C SALTWATER		D HUMAN HEALTH For Consumption of: Water & Organisms (ug/l) D1 Organism Only (ug/l) D2
		CMC d (ug/l) B1	CCC d (ug/l) B2	CMC d (ug/l) C1	CCC d (ug/l) C2	
111. Dieldrin	60571	0.24 m	0.056 m	0.71 f	0.0019 f	0.00014 a, b
112. alpha-Endosulfan	959988	0.22 f	0.056 f	0.034 f	0.0087 f	110 a
113. beta-Endosulfan	33213659	0.22 f	0.056 f	0.034 f	0.0087 f	110 a
114. Endosulfan Sulfate	1031078					110 a
115. Endrin	72208	0.086 m	0.036 m	0.037 f	0.0023 f	0.76 a
116. Endrin Aldehyde	7421934					0.76 a
117. Heptachlor	76448	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00021 a, b
118. Heptachlor Epoxide	1024573	0.52 f	0.0038 f	0.053 f	0.0036 f	0.00010 a, b
119. PCBs			0.014 f, k		0.03 f, k	0.000171
126. Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00073 a, b
Total No. of Criteria (h) =		24	28	23	27	99

FOOTNOTES:

a. These criteria have been revised to reflect the US EPA q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of October 1, 1996.

The fish tissue bioconcentration factor (BCF) from the 1980 documents was retained in each case.

b. These criteria are based on carcinogenicity of 10 (-6) risk.

c. The Criteria Maximum Concentration (CMC) is an acute concentration. It is the 1-hour average concentration in ambient waters that should not be exceeded more than once every 3 years on average. Criteria Continuous Concentration (CCC) is a chronic concentration. It is the 4-day average concentration of a pollutant in ambient water that should not be exceeded more than once every 3 years on average. ug/l equals micrograms per liter.

d. These freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/l) in the water body. Values displayed above in the matrix correspond to a total hardness of 100 mg/l. The equations for calculating metals criteria are provided below:

1 $CMC = WER \times CMC \times (\exp\{m_A[\ln(\text{hardness})] + b_A\})$

2 $CCC = WER \times CCC \times (\exp\{m_C[\ln(\text{hardness})] + b_C\})$

3 Where WER = Water Effects Ratio

4 Final CMC and CCC values should be rounded to two significant figures.

5

Metal	m_A	b_A	m_C	b_C
Cadmium	1.128	-3.6867	0.7852	-2.715
Copper	0.9422	-1.700	0.8545	-1.702
Chromium (III)	0.8190	3.688	0.8190	1.561
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.52	---	---
Zinc	0.8473	0.884	0.8473	0.884

6

7 NOTE: The term "exp" represents the base exponential function.

8 For waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations. For
 9 waters with a hardness of over 400 mg/l as calcium carbonate, a hardness of 400 mg/l as calcium carbonate shall be used with a default Water-Effect Ratio
 10 (WER) of 1, or the actual hardness of the ambient surface water shall be used with a WER.

11

12 e. These freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed above in the matrix correspond to a
 13 pH of 7.8. Values are calculated as follows:

14 $CMC = \exp(1.005(\text{pH} - 4.869))$

15 $CCC = \exp(1.005(\text{pH}) - 5.134)$

16

17 f. These aquatic life criteria for these compounds were issued by US EPA in 1980 utilizing the 1980 Guidelines for criteria development. The acute values
 18 shown are final acute values (FAV) which by the 1980 Guidelines are instantaneous values as contrasted with a CMC which is a short-term average.

- 1
- 2 g. These totals simply sum the criteria in each column. For aquatic life, there are 30 priority toxic pollutants with some type of freshwater or saltwater,
- 3 acute or chronic criteria. For human health, there are 100 priority toxic pollutants with either "water + organism" or "organism only" criteria. Note that
- 4 these totals count chromium as one pollutant even though US EPA has developed criteria based on two
- 5 valence states. In the matrix, the Agency has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that this list of 126 priority
- 6 pollutants includes only a single listing for chromium.
- 7
- 8 h. No criteria for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in
- 9 the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even
- 10 though the results of such a calculation were not shown in the document.
- 11
- 12 i. This criterion for asbestos is the MCL (40 CFR 141.62).
- 13
- 14 j. The Agency is not adopting human health criteria for these contaminants. However, permit authorities should address these contaminants in NPDES
- 15 permit actions using Guam's existing narrative criteria for toxics.
- 16
- 17 k. PCBs are a class of chemicals which include aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219, 11097691, 11104282,
- 18 11141165, 12672296, 11096825, and 12674112, respectively. The aquatic life criteria apply to this set of PCBs.
- 19
- 20 l. This criterion applies to total PCBs or congener or isomer analyses.
- 21
- 22 m. This criterion has been recalculated pursuant to the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient
- 23 Water, Office of Water, EPA-820-B-96-001, September 1996. See also Great Lakes Water Quality Initiative Criteria Documents for the Protection of
- 24 Aquatic Life in Ambient Water, Office of Water, EPA-80-B-95-004, March 1995.
- 25
- 26 n. This criterion is expressed as μg free cyanide (as CN) / l.
- 27

1 **General Notes:**

2
3 **1. This chart lists all of EPA's priority toxic pollutants whether or not criteria guidance are available. Blank**
4 **spaces indicate the absence of criteria guidance. Because of variations in chemical nomenclature systems, this**
5 **listing of toxic pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. The Chemical Abstracts**
6 **Service (CAS) registry numbers are added to provide a unique identification for each chemical.**

7
8 **2. The following chemicals have organoleptic-based criteria recommendations that are not included on this**
9 **matrix: zinc, 3-methyl-4-chlorophenol.**

TABLE IV
ADDITIONAL TOXIC POLLUTANTS

Substance*	Maximum Numerical Limits		Application Factors
	Marine Water	Fresh Water	
Aluminum	0.20 mg/l	1.0 mg/l	0.01
Ammonia	0.02 mg/l		0.05
Barium	0.50 mg/l		0.05
Boron	5.00 mg/l		0.10
Bromine (free as Bromate)	0.10 mg/l 100.0 mg/l		- -
Chlorine ¹ (Total Residual)	0.0075 mg/l	0.011 mg/l	0.1
Fluoride	1.50 mg/l	0.80 mg/l	0.1
Iron	0.05 mg/l	3.00 mg/l	-
Manganese	0.02 mg/l		0.2
Molybdenum	-		0.0
Sulfide	0.005 mg/l		0.1 (Applicable to 20-day LC data)
Tributyltin (TBT)	Marine Water Chronic - 0.010 µg/l Acute - 0.356µg/l	Fresh Water Chronic - 0.64 µg/l Acute - 0.442µg/l	
Uranium ²	0.00 mg/l		0.01
Vanadium	-		0.05

* Total amounts in indicated chemical state of form.

⁽¹⁾ Greater concentrations of Chlorine may be used to treat a source of drinking water in order to meet the requirements of Subsection II.B.1 of these standards.

⁽²⁾ Naturally occurring Uranium has been reported in concentrations of 0.003mg/l, 0.00004 mg/l (river water)

Note: Whenever natural concentrations of any toxic substance or element occur and exceed the limits established in these standards, this greater concentration shall constitute the limit, provided that this natural concentration was not directly affected by non-induced causes.

Appendix B - Wetlands

1
2 1. Official Wetland Map:

3
4 The National Wetlands Inventory (NWI) map published by the United States Fish & Wildlife
5 Service (FWS), is the official, interim wetland map adopted for Guam pursuant to Executive Order
6 90-13, entitled "Protection of Wetlands", dated June 12, 1990. See Appendix "D".
7

8 2. Wetland Classification:

9
10 The Classification of Wetlands and Deepwater Habitats was developed by Cowardin et al in
11 1979 for the United States Fish & Wildlife Service FWS. This system provides the basis for
12 wetland-related activities with the FWS. The Cowardin system is hierarchical and thus can
13 provide several levels of detail in classifying wetlands. The "System" and "Subsystem"
14 levels of detail appear to be the most promising for water quality standards. Guam may
15 choose to evaluate wetland function and values for all the wetlands within the Island of
16 Guam based on wetland type (using Cowardin (1979); see Figure 1). It may also evaluate
17 wetlands on a case-by-case basis as individual permit decisions arise to ensure that
18 designated uses are being protected and have reflected existing uses. This interim map is used
19 by the Territory of Guam for classification, inventory, and mapping wetlands, until such time as
20 a new system is developed and accepted for use.
21

22 The hierarchy of the Wetland Classification is shown in Figures I & IA .
23

24 The following are definitions of wetland classifications:
25

26 a) Lacustrine wetlands include wetlands and deepwater habitats with all of the
27 following characteristics:

28 1. situated in a topographic depression or dammed river channel;

29
30 2. lacking persistent emergents, trees, or shrubs with greater than 30% areal
31 coverage; and

32 3. total area exceeding 8 hectares (20 acres).

1 Lacustrine System if an active wave formed or bedrock shoreline feature makes
2 up all or part of the boundary, or if the water depth in the deepest part of the basin
3 exceeds two meters (6.6 ft.) at low water.

4
5 b) Palustrine Wetlands include all nontidal fresh and saline wetlands dominated by
6 trees, shrubs, emergents, shallows (aquatic beds, mudflats, and open water areas), and
7 all such wetlands that occur in tidal areas where salinity due to ocean-derived salts are
8 $\leq 0.5\%$.

9
10 (1) Basin Wetlands are associated with geomorphic depressions and drainage areas
11 that are not associated with streams or lakes. They experience vertical water level
12 fluctuations which may result from seasonal rains. They typically lack permanent,
13 surface water outlets.

14
15 (2) Riparian Wetlands are located in zones that are at least periodically influences
16 by flooding and are adjacent to a flowing body of water that, wetlands of the riparian
17 zone are unique because they are generally hydrologically open to seasonal or periodic
18 flooding. (Mitsch and Gosselink 1986). The water flow is often parallel to the forest
19 and the main hydrologic forcing functions are floods or seasonal rains. (Lugo et al.
20 1988)

21
22 c) Riverine Wetlands include all non-persistent emergent wetlands on the
23 river floodplains and shallows contained within a channel (aquatic beds and mudflats).
24 The riverine system is bounded on the landward side by Palustrine or upland systems
25 and on the channel side by deepwater environment (>6.6 feet in depth). The riverine
26 system terminates with exceedence of ocean-derived downstream salts of $>0.5\%$ or
27 where the channel enters a lake or palustrine wetland.

28 1. Shallows are areas of shallow open water (to 6.6 feet deep) dominated by
29 submerged or floating leaved aquatic beds and/or the zone between low and high water
30 that includes both sand flats and other mudflats. According to the Cowardin
31 classification system, this includes that aquatic beds and unconsolidated shore, as well
32 as open water areas that are not part of the lacustrine system (Frayer et al. 1983).

1 1a. ~~Aquatic beds are wetlands and deepwater habitats dominated by~~
2 ~~macrophytic plants that grow principally on or below the surface of the water for most~~
3 ~~of the growing season in most years.~~

4
5 1b. ~~Mudflats are unconsolidated shores including all wetland habitats with (1)~~
6 ~~unconsolidated substrates (predominantly silt, sand, and clay with less than 75% areal~~
7 ~~cover of stones, boulders, or bedrock; (2) less than 30% areal cover of vegetation other~~
8 ~~than pioneering plants, and (3) any of the following water regimes; irregularly exposed,~~
9 ~~regularly flooded, irregularly flooded, seasonally flooded, temporarily flooded,~~
10 ~~intermittently flooded, saturated, or artificially flooded.~~

11
12 1c. ~~Other Open Water Areas include small (0-30 acres, shallow (0-6.6 feet) saline~~
13 ~~or fresh natural surface depressions that act as precipitation catchment basins, but are~~
14 ~~often ephemeral, because of high evapotranspiration rates. These areas are not densely~~
15 ~~vegetated (have less than 30% vegetation) and include the colloquial classes of prairie~~
16 ~~potholes, plays lakes, and ponds that are open water with little vegetation.~~

17
18 2. ~~Non-persistent emergent wetlands are dominated by plants that fall to the surface~~
19 ~~of the substrate or below the surface of the water at the end of the growing season so~~
20 ~~that, at certain seasons of the year, there is no obvious sign of emergent vegetation~~

21
22 3. ~~Emergent wetlands are characterized by erect, vascular, rooted, herbaceous~~
23 ~~hydrophytes. The primary emergent sub-classes could either be saturated and flooded~~
24 ~~or broadleaved and narrowleaved.~~

25
26 3a. ~~Saturated - includes the erect, vascular, rooted herbaceous hydrophytes~~
27 ~~growing in saturated soil conditions as defined by Cowardin et al. 1979.~~

28
29 3b. ~~Flooded - includes the erect, vascular, rooted, herbaceous hydrophytes~~
30 ~~growing temporarily, seasonally, semi-permanently, and permanently flooded soil~~
31 ~~conditions as defined by Cowardin et al. 1979.~~

1 ~~3c. Broadleaved - dominated by emergent herbaceous plant species which occur~~
2 ~~in wetter wetlands with more organic soils.~~

3
4 ~~3d. Narrowleaved - dominated by grassy vegetation (e.g., Carex, Scirpus) on wet~~
5 ~~soils and is usually distinguished from broadleaved emergents by having less saturation~~
6 ~~and shorter herbage.~~

7
8 ~~4. SS/ZX is a mixed community of primarily deciduous shrubs and emergents. The~~
9 ~~first community in the mixed order denotes the higher life form.~~

10
11 ~~5. Scrub/shrub wetlands are dominated by woody vegetation less than 6 meters (20~~
12 ~~feet) tall. Species include true shrubs, young trees, and trees and shrubs with stunted~~
13 ~~growth because of environmental conditions.~~

14
15 ~~5a. Evergreen - A shrub community where evergreen shrubs represent more than~~
16 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

17
18 ~~5b. Deciduous - A shrub community where deciduous shrubs represent more than~~
19 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

20
21 ~~6. Forested wetlands are characterized by woody vegetation 6 m. tall or taller. The~~
22 ~~primary forest divisions of interest include evergreen and deciduous communities.~~

23
24 ~~6a. Evergreen - A forest community where evergreen trees represent more than~~
25 ~~50% of total areal coverage of the shrub, tree, or herb vegetation.~~

26
27 ~~6b. Deciduous - A forest community where deciduous trees represent more than~~
28 ~~50% of the total areal coverage of the shrub, tree, or herb vegetation.~~

29
30 3. Criteria for Wetland Identification:

1 The latest version of the Federal Manual for Identification and Delineating
2 Jurisdictional Wetlands Corps of Engineers Wetlands Delineation Manual, adopted by the
3 United States Fish & Wildlife Service, the United States Environmental Protection Agency, and
4 the USDA, Soil Conservation Services, United States Army Corps of Engineers is adopted by
5 reference by these standards. This manual describes technical criteria, field indicators and other
6 sources of information, and methods for identification and delineation of jurisdictional
7 wetlands. This manual shall serve as the technical basis for identifying and delineating
8 jurisdictional wetlands in Guam.

9
10 ~~4. Anti-degradation Policy~~

11
12 a) ~~Existing instream water uses shall be maintained and protected. No further~~
13 ~~water quality degradation which would interfered with or become injurious to existing~~
14 ~~designated uses is allowable.~~

15
16 b) ~~Waters in which existing water quality is better than the criteria prescribed in~~
17 ~~these rules and exceeds those levels necessary to support propagation of fish, shellfish~~
18 ~~and wildlife and recreation in and on the water shall be maintained and protected.~~
19 ~~However, the Administrator of Guam Environmental Protection Agency may approve~~
20 ~~to lower the water quality in wetlands, after compliance with public notice and~~
21 ~~participation, and inter-governmental coordination requirements listed at 40 CFR~~
22 ~~Part 25 and Part 29, and after due consideration of such technical, economic, social and~~
23 ~~other criteria as provided by Section 301, and 302 of the Act. Degradation of water~~
24 ~~quality shall not interfered with or become injurious to existing or planned uses, and~~
25 ~~the Administrator shall require that the most stringent statutory and regulatory~~
26 ~~controls for waste treatment be employed by all new and existing point sources, and the~~
27 ~~that feasible management or regulatory program pursuant to Section 208 and 30 of~~
28 ~~the Act, 33 U.S.C. Section 1298 and 1313, be applied to non-point sources.~~

29
30 c) ~~Guam Resource waters are surface waters of the Territory Guam lying within~~
31 ~~the territorial Guam's park system, wetlands, and wildlife refuges, areas, and~~
32 ~~preserves, and also include wild, scenic and recreational rivers, publicly owned lakes~~

1 and reservoirs and waters of exceptional recreational or ecological significance (e.g.,
2 waters which provide a habitat for identified threatened or endangered species) as
3 determined by the Administrator of GEPA. All other discharge constituents shall be
4 limited to the criteria associated with each designated water use. Areas that do not
5 meet general water quality standards in these water use classification shall not be
6 further degraded.

7 8 4. Wetland Evaluation 9

10 Wetland evaluations should include a plant and wildlife inventory and an evaluation of the wetland
11 functions. High quality wetlands **should maintain water quality and protect against erosion,**
12 **and include**, but are not limited to, those which provide habitat for threatened or endangered
13 species and/or wetlands which are locally or regionally scarce or threatened.

14 15 5. Mitigation: 16

17 All wetlands in Guam are classified as Guam Resource Waters under this regulation and are
18 protected from degradation. However, in certain instances, limited degradation may be permitted
19 provided **reasonable and/or practical alternatives are not available, and** the applicants have
20 **implemented best management practices**, worked to avoid impacts due to hydromodification
21 (including reducing the scale of a proposed project), minimize **minimized** the impacts and agreed
22 to mitigate for the destruction of wetland habitat.

23
24 Acceptable mitigation include **includes** construction of a wetland designed to replace the wetland
25 functions destroyed, **altered or impaired**, and restoration or enhancement of an existing degraded
26 wetland. Protection of an existing functional wetland is not acceptable mitigation for destruction
27 of a wetland, however, as part of a mitigation plan, certification conditions may require protection
28 of on-site wetlands through establishment of deed restrictions or easements. **Mitigation**
29 **conditions may also require long term biological monitoring. The feasibility and general**
30 **acceptability of a given investigation scheme cannot be used to justify permitted alterations.**

31 32 **Figure 1**

Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats (from Cowardin et al., 1979).

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FIGURE WETLANDS AND DEEPWATER HABITATS

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~~FIGURE IA - WETLANDS AND DEEPWATER HABITATS~~

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Appendix C - Constructed Wetlands for Water Quality Improvement

CREATED WETLAND GUIDELINES

This guidance encourages the expansion of **and use of** the Territory's **Guam's** Wetland Resources through the creation and restoration of wetlands using municipal wastewater, ~~while also~~ **and to** allowing **for** the use of natural wetlands for **waste water** treatment if specific requirements are met.

If the wetland is created as part of the treatment process, the minimum requirements on the degree of pretreatment shall include secondary treatment, and applicable water quality standards must be met for water bodies that receive the effluent from the wetland treatment system. If the wetland currently exist **exists**, the following requirement **requirements shall be applied**; apply:

1. Minimum of secondary treatment prior to discharge to the wetland;
2. Advanced treatment prior to discharge to the wetland if necessary to meet Guam Water Quality Standards applicable to the wetland.
3. Discharge to the wetland free of toxic contaminants, **e.g., chlorine**, at levels that would impair beneficial uses; ~~e.g., chlorine~~;
4. Monitoring in the wetland to detect accumulation of toxic contaminants and changes to the plant/animal communities;
5. Section 402 NPDES permit;
6. Section 404 permit if alterations of the wetland are required as part of construction; **and**
7. Review on a case-by-case basis.

Reference: ~~Appendix D of document entitled "Report on the Use of Wetlands for Municipal Wastewater Treatment and Disposal, dated October 1987, EPA~~

1 430/09-88-005, prepared by U.S.E.P.A., Office of Water, Office of Municipal Pollution
2 Control (WH-546) with September 1988 Guidance to supplement the October 1987
3 Burdick Report.

4
5 **The Agency may utilize any scientific and regulatory guidance documents to evaluate**
6 **wetland treatment system designs, objectives and operational considerations as may be**
7 **appropriate, on a case by case basis.**

Appendix D - Executive Order Number 90-13

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TERRITORY OF GUAM
OFFICE OF THE GOVERNOR
AGAÑA, GUAM 96910
U.S.A.
EXECUTIVE ORDER NO: 90-13

PROTECTION OF WETLANDS

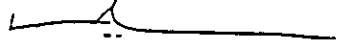
- WHEREAS, Executive Order 78-21 directed the Territorial Land Use Commission to officially designate wetland areas on Guam; and
- WHEREAS, Government agencies have been utilizing three separate maps to identify wetland areas due to the lack of an officially adopted map; and
- WHEREAS, wetlands are areas of particular concern that provide an essential habitat for maintenance of native plant and animal life, prevent soil erosion and stormwave damage, and valuable locations for scientific and educational investigations, and act as floodplains during periods of excessive water flow and a source of fresh water for domestic and agricultural purposes; and
- WHEREAS, the rapid pace of development currently experienced on Guam has placed greater pressure on this valuable resource; and
- WHEREAS, the management of this resource cannot begin until landowners, developers and the Government of Guam utilize a consistent source of wetland information.

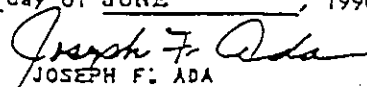
NOW, THEREFORE, I, JOSEPH F. ADA, Governor of the Territory of Guam, pursuant to the authority vested in me by the Organic Act of Guam, do hereby declare that:

1. The official, interim wetland map for Guam shall be the National Wetlands Inventory map published by the United States Fish and Wildlife Service.
2. All Government of Guam agencies shall utilize this map in the review of physical development projects.
3. The appropriate land use agencies including the Guam Environmental Protection Agency, the Department of Agriculture, and the Bureau of Planning shall complete a study of wetlands; prepare public information material; and draft all necessary legislation, rules and regulations, and/or executive orders for processing through the appropriate channels.
4. The Executive Order shall remain in effect until the results of such study recommended legal framework are approved as required by applicable law.
5. Executive Order 78-21 is repealed in its entirety.

SIGNED AND PROMULGATED this 12th day of JUNE, 1990.

COUNTERSIGNED:


FRANK F. BLAS:
Lieutenant Governor of Guam


JOSEPH F. ADA
Governor of Guam

Appendix E - Executive Order Number 96-26

~~EXECUTIVE ORDER NO. 90-09~~

~~ESTABLISHING THE DEVELOPMENT REVIEW COMMITTEE~~

EXECUTIVE ORDER NO. 96-26

Relative to creating the Application Review Committee to replace the Development
Review Committee, and to streamline the review process for the Territorial Land Use
Commission/Territorial Seashore Protection Commission/Guam Natural Resources
Board.

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TERRITORY OF GUAM
OFFICE OF THE GOVERNOR
AGAÑA, GUAM 96910
U. S. A.

EXECUTIVE ORDER NO. 96-26

RELATIVE TO CREATING THE APPLICATION REVIEW
COMMITTEE TO REPLACE THE DEVELOPMENT REVIEW
COMMITTEE, AND TO STREAMLINE THE REVIEW
PROCESS FOR THE TERRITORIAL LAND USE
COMMISSION/TERRITORIAL SEASHORE PROTECTION
COMMISSION/GUAM NATURAL RESOURCES BOARD.

WHEREAS, Title 21, Guam Code Annotated created the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter collectively and individually referred to as the "Commission") and invested in the Commission the authority to review all matters pertaining to the zoning, subdivision, granting of conditional uses and variances, and other land and water related uses of public and private land and development within the Territory of Guam; and

WHEREAS; in general, matters coming before the Commission represent exceptions or departures from the Master Plan or existing land use laws of Guam and thus comprise requests for the Commission, acting on behalf of the people of Guam, to grant such exceptions; and

WHEREAS, Executive Orders Nos. 90-09 and 92-06 established and revised the Development Review Committee (DRC) in order to review the impact of proposed developments in the Territory of Guam, Executive Order No. 90-15 established interim guidelines for the DRC, and Executive Order No. 90-10 established requirements for Environmental Impact Assessments for all Commission actions; and

WHEREAS, there is a need for a more efficient and streamlined review process, which entails replacing the existing Development Review Committee (DRC) with a new Application Review Committee ("Committee" or "ARC"), and charging the ARC with the responsibility of evaluating applications for land use matters, and reporting its findings and recommendations to the Commission; and

WHEREAS, the ARC is formulated for the purpose of providing the Commission with technical and professional review, analysis, and advice through individual agency positions concerning various development activities on Guam, so that the Commission can ensure that proposed developments achieve both maximum utility and livability, through provisions for adequate utilities and facilities such as power, water, drainage, schools, parks, traffic circulation, and open spaces for light and air; and

WHEREAS, commercial and residential development in Guam continues at an accelerated rate, and many aspects of these developmental activities create a significant impact upon the environment of Guam; and

WHEREAS, the Guam Environmental Protection Agency (GEPA), pursuant to Chapters 45 through 52, Title 10, Guam Code Annotated, is responsible for providing a



unified, integrated, and comprehensive territory-wide program of environmental protection and procedures to fulfill that responsibility; and

WHEREAS, conducting environmental review and impact assessments is a vital and integral part of the development planning process and is therefore of substantial value and utility to developers and landowners, as well as being in the public interest.

NOW, THEREFORE, I, CARL T. C. GUTIERREZ, Governor of Guam, by virtue of the authority vested in me by the Organic Act of Guam, as amended, and the laws of Guam, do hereby order that, notwithstanding any other executive order:

- (1) For the purposes of implementing this Executive Order and supplementing definitions not contained in Chapters 61 through 63 of Title 21, Guam Code Annotated, the following definitions shall apply:
 - (a) "Accessory use" means a use of land or a building or a portion thereof, when such use is customary and incidental to the actual principal use of the land or building and such accessory use is located on the same parcel of property as the principal use.
 - (b) "Applicant" means the person, government, or other entity which submits any application for consideration before the Commission.
 - (c) "Application" means the complete application form and all supporting documentation required for a project.
 - (d) "Barracks" means a building containing One (1) or more rooms intended or designed to be used or rented for living and sleeping purposes, typically but not exclusively housing provided by an employer for employees. A barracks shall not be construed to mean a hotel.
 - (e) "Bed and Breakfast Inn" means a house, or portion thereof, where short-term lodging rooms and meals are provided. The operator of the inn shall live on the premises or in adjacent premises.
 - (f) "Club" means an organization which operates an establishment for objectives of an athletic, patriotic, political or social nature and not for pecuniary gain, having a bona fide membership list, the majority of members of which pay dues at least once in every year.
 - (g) "Clubhouse" means a building used to house a club or social organization, not conducted for private profit and not an adjunct to, operated by, or in connection with a public tavern, bar, cafe, or other public place.
 - (h) "Day" means a calendar day unless otherwise specified.
 - (i) "Lodging House" or "Rooming House" means any building, or portion thereof, containing not more than five guest rooms which are used by not more than five guests where rent is paid in money, goods, labor or otherwise. A lodging house shall



comply with all of the requirements of the Building Code for dwellings.

- (j) "Planned Unit Development" means land under unified control to be planned and developed as a whole in a single development operation or a programmed series of development operations or phases. A planned unit development generally as a range of uses including residential, commercial, office, and recreational that are designed to be in a harmonious relationship with each other. Such a development is built according to specific plans that include not only streets, utilities, lots, and building locations, but also site plans for all buildings that are intended to be located, constructed, used and related to each other and plans for other uses and improvements on the land as related to the buildings.
 - (k) "Project" means any type of proposal that comes before the Commission for approval.
- (2) There is created an Application Review Committee ("Committee" or "ARC") which is comprised of the following permanent voting members:
- (a) Department of Land Management, Planning Division (DLM);
 - (b) Guam Environmental Protection Agency (GEPA);
 - (c) Department of Agriculture (DAGR);
 - (d) Guam Waterworks Authority (GWA);
 - (e) Guam Power Authority (GPA);
 - (f) Department of Parks and Recreation (DPR);
 - (g) Department of Public Works (DPW); and
 - (h) Bureau of Planning (BOP).

The heads of such agencies shall assign senior members of their respective departments to attend the ARC meetings.

- (3) Interim ARC Guidelines are hereby established, pending promulgation as rules through the Administrative Adjudication Law. The Interim Guidelines are attached as Appendix A.
- (4) This Executive Order shall govern all land and water uses that come before the ARC and the Commission. All applications and other matters that come before the ARC or Commission shall be in compliance with this Executive Order and the attached and incorporated Interim Application Review Committee (ARC) Guidelines. The requirement to conform to the Interim Guidelines shall cease upon the promulgation of rules pursuant to the Administration Adjudication Law.



- (5) All applications for Commission action shall first be submitted to the voting member agencies of the ARC for their technical review and analysis. The period of this review and analysis shall not exceed Sixty (60) days from the first ARC meeting at which the application appears on the ARC's agenda; provided, however, that this period may be reasonably extended by the Commission upon written request of an ARC member or the applicant. No items shall be placed on the Commission agenda unless the items are first approved by the ARC. All Commission agenda items must be approved by the ARC not less than Two (2) weeks prior to the scheduled Commission meeting. Except for applications for zone changes, the applicant shall apply for and receive a building or grading permit for the approved project within One (1) year of the date of recordation of the Notice of Action, otherwise, the approval of the project as granted by the Commission shall expire; provided, however, that the Commission may grant Two (2) one-year extensions of the above approval period.
- (6) All applications for conditional use, zone change, variance, subdivision approval, golf courses, any proposed developmental action in wetlands, or for development of aquaculture facilities shall be required to submit an Environmental Impact Assessment (EIA) in the format required by the Guam Environmental Protection Agency (GEPA) Administrator; provided, however, that the proposed action may be determined by the GEPA Administrator to be exempt from the EIA requirement as set forth below:
- (a) One (1) or Two (2) single family dwelling units on a single lot;
 - (b) a single duplex;
 - (c) sign or setback variances;
 - (d) reduction, relocation or deletion of easements; and
 - (e) horizontal property regimes.

The above listed projects shall not be exempt from the EIA requirement if the project involves construction and is located within an environmentally sensitive area, which includes, but is not limited to, areas that affect seashore, rivers and streams, wetlands, critical fauna and flora habitats, and aquifer recharge areas.

- (7) When there is a change in ownership, management, or directorship of any development project before, during, or after construction on the project, and the project requires an EIA under provisions of this Executive Order, each subsequent owner, manager, or director of the development project shall be subject to all provisions of the EIA in the same manner as the original owner, manager, or director of the development. The owner of the development project shall give written notice to the GEPA and the Territorial Planner of a change in ownership, project manager, or directorship, within Thirty (30) days of the change.



- (8) The Planning Division of the Department of Land Management shall provide administrative support staff and services for the ARC.
- (9) No act prohibited or restricted by any statute, rule, law, or executive order shall be permitted by reason of compliance with this Executive Order No. 96-26.
- (10) No permit, license, or requirement under any statute, rule, or law, federal or territorial, shall be waived by reason of compliance with this Executive Order No. 96-26.
- (11) This Executive Order No. 96-26 shall operate prospectively only, and applies to all applications submitted to the Department of Land Management after the effective date of this Executive Order No. 96-26. All previously submitted applications shall continue under the procedures in force when the applications were accepted by the Department of Land Management.
- (12) The provisions of this Executive Order No. 96-26 are severable and if any provision or part is held invalid, unconstitutional, or inapplicable to any person or circumstances, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of this Executive Order. If the use of the Interim Application Review Committee (ARC) Guidelines are invalid or unlawful, the existing Development Review Committee (DRC) Rules and Regulations, promulgated January 1995, as far as practicable, shall govern all matters before the ARC and Commission until the ARC Rules can be promulgated pursuant to the Administrative Adjudication Law.
- (13) Executive Orders Nos. 90-09, 90-10, 90-15, and 92-06 are rescinded.

SIGNED AND PROMULGATED at Agaña, Guam this 28th day of October, 1996.

CARL T. C. GUTIERREZ
Governor of Guam

COUNTERSIGNED:

MADELEINE Z. BORDALLO
Lieutenant Governor of Guam

APPENDIX A
of Executive Order No. 96-26

INTERIM
APPLICATION REVIEW COMMITTEE (ARC)
GUIDELINES

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§100.	Authority.
§200.	Official Name.
§300.	Purpose.
§400.	Organization.
§500.	Support Staff.
§600.	Meetings.
§700.	Application Procedure.
§800.	Approval of Agendas.
§900.	Voting.
§1000.	Order of Business.
§1100.	Severability.

§100. **Authority.** These Interim Guidelines are established under the authority of Executive Order 96-26 pending promulgation through the Administrative Adjudication Law, Chapter 9 of Title 5, Guam Code Annotated.

§200. **Official Name.** The official name of the Committee is the "Application Review Committee", referred to as "ARC" or "Committee".

§300. **Purpose.** The Committee is formulated for the purpose of providing the Territorial Land Use Commission/Territorial Seashore Protection Commission/Guam Natural Resources Board (hereinafter referred to as the "Commission") with technical and professional review, analysis, and advice through individual agency positions concerning various development activities in Guam. Within its mandated area of authority, each ARC agency shall:

- (a) Ensure compliance with applicable law, regulatory standards, procedures, policies, and rules within its mandated area of concern;
- (b) Evaluate alternative development strategies with the applicant to provide the best development plan for the developer and the community; and
- (c) Develop and provide official position statements on applications submitted to the Commission.

§400. **Organization.** (a) **Permanent Voting Members.** The permanent voting members of the ARC as defined in this Executive Order are:

- (1) Department of Land Management, Planning Division (DLM); (the Territorial Planner shall be the Chairperson)
- (2) Guam Environmental Protection Agency (GEPA);
- (3) Department of Agriculture (DAGR);
- (4) Guam Waterworks Authority (GWA);
- (5) Guam Power Authority (GPA);
- (6) Department of Parks and Recreation (DPR);
- (7) Department of Public Works (DPW); and
- (8) Bureau of Planning (BOP).

(b) **Ex-Officio Members.** Ex-officio members shall be informed of meeting locations, times, and agendas. They shall have no vote on matters before the ARC and shall not be required to submit position statements and Infrastructure Certification Forms. The ex-officio members are:

- (1) Chamorro Language Commission;
- (2) Department of Commerce;
- (3) Department of Education;
- (4) Guam Fire Department; and
- (5) Department of Public Health and Social Services.

Upon approval of the ARC, other agencies may become ex-officio members.

(c) The Chairperson shall call all meetings to order, oversee the application procedure and transmit all comments, recommendations, position statements, and Infrastructure Certification Forms to the Commission. Any Acting Territorial Planner shall automatically become Acting Chairperson of ARC.

(d) The Attorney General's office shall provide legal assistance as necessary.

§500. **Support Staff.** The Planning Division of the Department of Land Management shall provide support staff and services to implement Executive Order No. 96-26 and these Interim Rules. Such support shall include, but not be limited to:

- (a) Retaining complete project files by municipal district, tract, block, lot number, petitioner, and type of application, and developing a means of cross-referencing project files;
- (b) Developing an application package and revising it as needed;
- (c) Providing application package to applicant and receiving the completed application package from applicant;
- (d) Providing ARC minutes to Committee members;

- (e) Receiving the ARC position statements and providing them to the Commission and applicant;
- (f) Providing a summary of Commission actions to the ARC by the next ARC meeting; and
- (g) Providing, upon request, to ARC members at no cost, and to the public at cost, copies of the approved Commission minutes.

§600. Meetings. (a) There shall be at least Two (2) regular ARC meeting per month. The meetings shall be held on alternate Thursdays from the Commission meetings, unless the ARC meeting falls on a legal holiday. If a regular ARC meeting is not held on the aforementioned Thursday, the ARC meeting shall be on the subsequent Tuesday.

(b) Special meetings for administrative matters only may be called by the Territorial Planner. Special meetings shall require at least Four (4) days notice to all permanent voting members.

(c) Majority (50% + 1) of the permanent voting members shall constitute a quorum for the purpose of conducting its business and for all other purposes. A quorum is required for all business conducted.

(d) The Committee shall hold its meetings at a location to be determined by a majority vote of the permanent voting members at any meeting.

§700. Application Procedure. (a) Applications for:

- (1) Conditional Uses;
- (2) Zone Changes;
- (3) Zone Variances;
- (4) Subdivision Variances;
- (5) Tentative and Final Subdivisions;
- (6) Wetland Permits;
- (7) Seashore Clearances;
- (8) Tentative Development Plan;
- (9) Agricultural Subdivisions and Lot Parceling; and
- (10) Other land use permit applications

shall meet the requirements of all relevant laws, executive orders, rules, and the requirements of the Commission and ARC. The applications for the above are available from the Territorial Planner. Completed applications shall be submitted to the Territorial Planner. Applications should be accompanied by an executive summary.

(b) Applications shall be received and initialed by the Territorial Planner or his or her authorized representative, who shall stamp the date and time the application was received.

(c) Upon receipt of the application, the Territorial Planner shall review the application to ensure that all required materials are included, prior to acceptance. The application shall include an affidavit of ownership or authorization signed by the owner, authorizing the application before the Commission. Incomplete applications shall not be accepted by the Territorial Planner who shall notify the applicant thereof. The Territorial Planner may conduct preliminary interviews with the applicant where needed.

(d) After acceptance by the Territorial Planner, applications shall be transmitted to ARC members at least Two (2) weeks prior to the ARC meeting at which the application is scheduled.

(e) The Territorial Planner shall provide a tentative ARC agenda to be approved by the ARC not less than Two (2) weeks prior to its next regularly scheduled meeting. Only agenda items approved by the ARC at its previous meeting shall be considered and heard by the Committee. In no event shall the agenda exceed Ten (10) applications for review at each meeting.

(f) The Committee shall hold a regularly scheduled meeting with the applicant to discuss the application, thus commencing the Sixty (60) day assessment period, which shall not be extended without Commission approval.

(1) At the time of its initial meeting with the applicant, the ARC shall tentatively set the project application for the first regularly scheduled Commission meeting falling after the Sixty (60) day assessment period and the Two (2) week period required under Subsections (a) and (b) of §800 of these Interim Rules, below, has elapsed, provided, however, that the ARC may reschedule the matter to an earlier Commission meeting if all permanent voting members of the ARC have submitted their required positions and Infrastructure Certification Forms and there is no objection from the applicant.

(2) If any permanent voting Committee member finds an application to be incomplete or lacking pertinent information which may reasonably be deemed necessary to formulate comments or recommendations at any time within the first Forty-five (45) days of the assessment period, the ARC member shall notify the applicant in writing (with a copy of the letter or notice to the Territorial Planner) as to precisely what additional information is required from the applicant to adequately review the application.

(3) If at any time within the Sixty (60) day assessment period a permanent voting member of the ARC or the applicant requires additional time for adequate review and determination of a position on the project application,

the member or applicant may, in writing, notify the Territorial Planner, and the applicant, if necessary, that additional time is required and the precise reasons therefor. The Commission shall hear the request for additional time at the earliest opportunity, consistent with law, executive orders, and these Guidelines, but not later than the Commission meeting wherein the matter itself is scheduled to be heard.

(4) Permanent voting members of the ARC shall submit written comments in individual position statements and Infrastructure Certification Form, if required, to the Territorial Planner not later than Sixty (60) days from the initial ARC meeting on the project application.

(g) The position statements shall contain a clear and unambiguous statement indicating whether the agency APPROVES, DISAPPROVES, or APPROVES WITH CONDITIONS the project application. If an Approval with Conditions is given, specific conditions for the approval must be clearly stated. The position statement from GPA, DPW, GWA and GEPA shall include a completed Infrastructure Certification Form, a sample copy of which is attached hereto.

§800. Approval of Commission Agendas. (a) The Territorial Planner shall compile all position statements and Infrastructure Certification Forms and prepare the tentative Commission agenda. No item shall be placed on the Commission agenda unless the item is approved by the ARC. All tentative Commission agenda items must be approved by the ARC not less than Two (2) weeks in advance of the scheduled Commission meeting.

(b) The Territorial Planner shall transmit the approved agenda, applications packages, Infrastructure Certification Forms and position statements to the Commission not later than One (1) week before the Commission meeting.

§900. Voting. (a) Subject to the ARC quorum requirements, motions on all matters before the ARC shall be passed by majority vote of the permanent voting members present, provided, however, that at least Four (4) affirmative votes shall be required for any action to be approved by the Committee.

(b) The Chairperson of the Committee shall vote on all matters before the Committee.

(c) Except as otherwise provided, the parliamentary procedures set forth in Robert's Rules of Order shall govern the conduct of all Committee meetings.

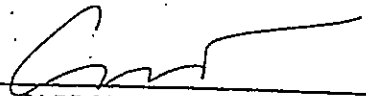
§1000. Order of Business. At the regular meetings of the Committee, the following shall be the order of business:

- (a) Attendance;
- (b) Approval of Minutes;

- (c) Old or Unfinished Business;
- (d) New Business;
- (e) Approval of ARC Agenda;
- (f) Approval of Commission Agenda;
- (g) Administrative and Miscellaneous Matters; and
- (h) Adjournment.

§1100. Severability. The provisions of these Interim Guidelines are severable and if any provision or part is invalid, unconstitutional, or inapplicable to any person or circumstance, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of these Interim Guidelines.

SIGNED and ESTABLISHED at Añaña, Guam on this 28th day of October, 1996.



CARL T. C. GUTIERREZ
Governor of Guam

ATTACHMENT TO APPENDIX A OF EXECUTIVE ORDER NO. 96-26

Use a separate form for each activity, service or facility certified.

Infrastructure Certification Form

Agency Certifying: _____
 Applicant: _____
 Location: Tract _____ Block _____ Lot No. _____ Village _____
 Type of Application: _____
 TLUC/TSPC Application No.: _____
 Brief Project Description: _____

For the purposes of this Certification, GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE include, but are not limited to: power lines, poles and facilities; water lines, pumps and facilities; sewer and liquid waste disposal; storm water disposal; solid waste disposal; telephone lines and facilities; schools; health facilities; police and fire fighting service and facilities; roads; traffic and street lights; parks and recreational facilities.

1. I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently AVAILABLE AND IN PLACE to support this project: Yes _____/ No _____/

2. If the answer to #1 above is YES, then:
 I hereby certify that the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE are currently ADEQUATE to support this project:
 Yes _____/ No _____/

3. If the required GOVERNMENT SERVICES, FACILITIES and INFRASTRUCTURE currently in place are NOT AVAILABLE or they are AVAILABLE, BUT NOT ADEQUATE, itemize the services, facilities and infrastructure that are needed, the estimated cost thereof and whether funds are currently available and identified to develop such services, facilities and infrastructure:

Services, Facilities and Infrastructure Needed	Cost of Upgrades	Funds Available Yes/No	Date Available	Funds Identified Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No
_____	_____	Yes/No	_____	Yes/No

I hereby certify that the foregoing is true and correct to the best of my knowledge.

Agency/Department Head Date,

Comments:

Appendix F

Appendix F moved to Section 5106

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~~L. SECTION 401 WATER QUALITY CERTIFICATION~~
~~APPLICATION (401A) FORMAT~~

FOR OFFICIAL USE ONLY _____ Prepared By: _____
Application No. _____ Title: _____
Date Received: _____ Date Prepared: _____

~~SUBJECT: REQUEST FOR A SECTION 401 WATER QUALITY CERTIFICATION~~
~~(401 WQC)~~

1.a. Applicant and Address: _____

_____ b.

Agent/ _____
and Address: _____

2. Project Name and _____
Location: _____

3. Associated Federal _____
Permit or File No. _____

Note: For the following items, be sure all items are completed, there are incomplete items, the application will be returned. When references are made to supporting documents, it must identify the document, page number and paragraph. Four (4) copies of the supporting documents will be required.

The applicant may use this Application Format as the application, it desired.

1 4. Provide for a description of the facility activity, and of any discharge into state which may result from the
2 conduct of any activity including, but not limited to, the construction or operation of the facility or activity:
3 including of the biological, chemical, thermal, and any other characteristics of the discharge, and the location
4 or locations at which such discharge may enter state waters:

5
6 a. description of facility or activity: (provide a facility/project site plan _____
7 _____
8 _____
9 _____

10 b. construction and operation of facility or activity: _____
11 _____
12 _____
13 _____
14 _____
15 _____

16
17 c. description of biological, chemical, thermal, and other characteristics of discharge: _____
18 _____
19 _____
20 _____
21 _____
22 _____

23 d. location(s) at which such discharge may enter state waters _____
24 _____
25 _____
26 _____
27 _____
28 _____
29 _____

30 5. Provide information and analysis which describes the effect(s) of the a description of the function and
31 operation of equipment, or facilities or activities treat wastes or other effluents which may be of the discharge
32 including specification of the degree of treatment expected to be attained

33 a. description of describe the function (s) of equipment, or facility or activity to treat ment
34 wastes or other effluent. _____
35 _____
36 _____
37 _____
38 _____

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_____ b. specification of the degree of treatment or protection expected to be obtained:

6. ~~date or dates on which the activity will begin and end, if known, and the date or dates on which the discharge will take place.~~

_____ a. date(s) on which the activity will begin and end, if known: _____

_____ b. date(s) on which discharge will take place :

7. ~~Provide a description of methods and means being used or proposed to monitor the water quality and characteristics of the discharge and the operation of equipment or facilities employed in the treatment, or control of wastes or other effluents.~~

_____ a. description of the methods and means being used to monitor water quality:

_____ b. and characteristics of the discharge:

8. ~~Describe the classification of the territory's water and the associated recreational uses, of the territory's water at the location(s) of discharge and state whether the basic water quality criteria and the applicable water quality standards will be met.~~

_____ a. describe the classification and recreational uses of the territory's water at the discharge:

_____ b. ~~statement whether the basic water quality criteria and applicable water quality standards will to be met (if yes, complete item c below):~~ _____

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~~c. provide a signed statement signed by the applicant that, "There is reasonable assurance that the activity will be conducted in such a manner which will not violate applicable basic water quality criteria and the applicable water quality standards." (Note: This will be one of the key elements in the determination to issue of Section 401 WQC).~~

~~9. Submit applicable plans, specifications, and copies or citation of an and Environmental Assessment or Environmental Impact Statement as it may apply~~

~~a. date(s) on which the activity will begin and end Submit applicable plans, specifications _____~~

~~b. date(s) on which discharges will take place: _____~~

~~b. _____ or copies or citation of an Environmental Impact Assessment or environmental Impact Statement as it may apply.~~

~~Comments on the status of above documents:~~

~~10:~~

~~13. Explain any irregularities, recent disturbances (natural or man caused), unique features and/or expected cumulative affects that may influence water quality conditions adjacent to or within the project site:~~

~~If you require assistance in completing this application form you may call Guam EPA at (671) 475-1662 or Fax (671-9402:~~

WETLAND AREAS PROCEDURAL FLOW CHART

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Appendix F - Guam Water Classification Map



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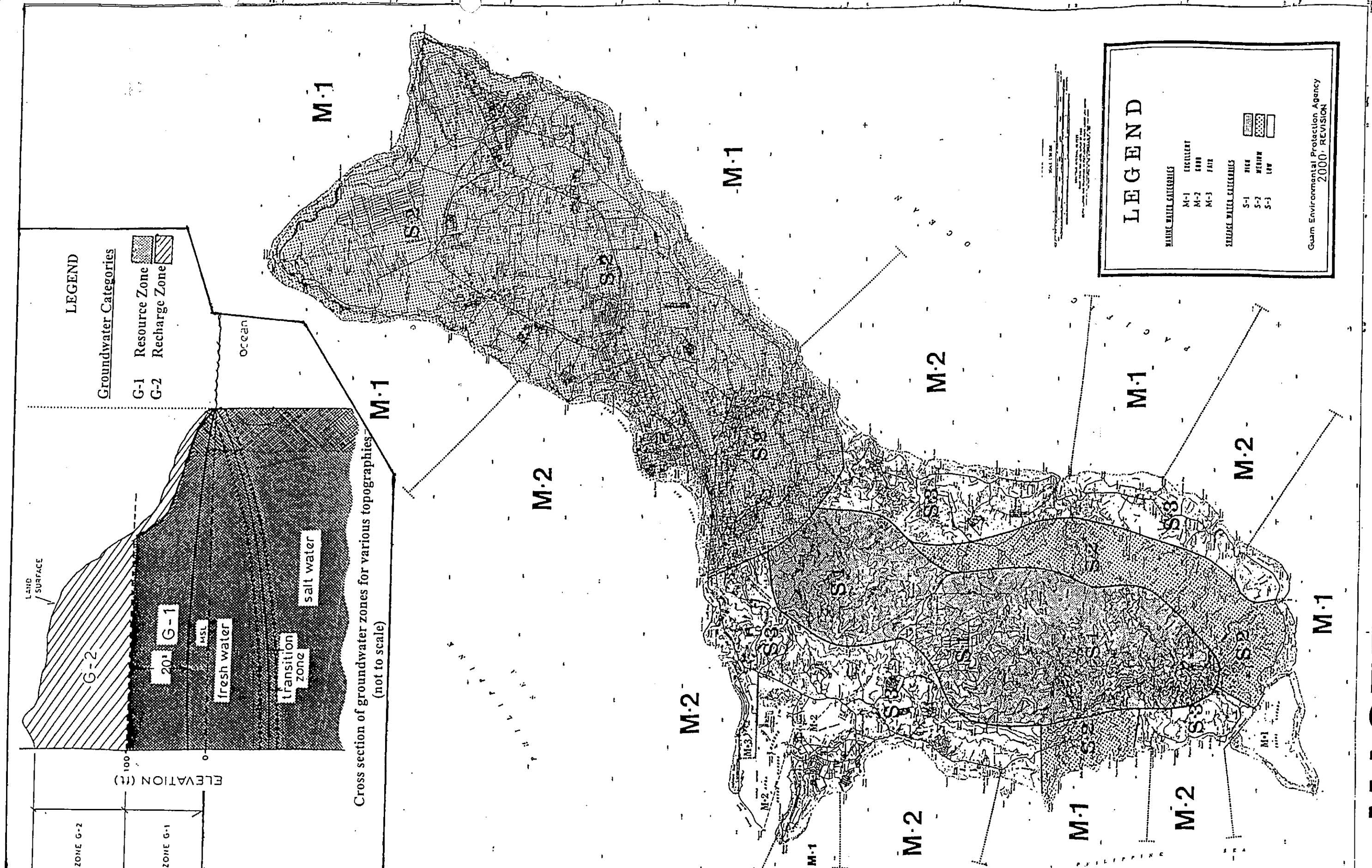


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GUAM WATER CLASSIFICATION



LEGEND

Groundwater Categories

- G-1 Resource Zone
- G-2 Recharge Zone

LEGEND

WATER QUALITY CATEGORIES

- M-1 EXCELLENT
- M-2 GOOD
- M-3 FAIR

RECHARGE WATER CATEGORIES

- S-1 HIGH
- S-2 MEDIUM
- S-3 LOW

Guam Environmental Protection Agency
2000 - REVISION

MASTER MAP

APPENDIX "H"

EXECUTIVE ORDER NO. 90-10

~~REQUIREMENTS FOR ENVIRONMENTAL IMPACT ASSESSMENTS FOR ALL
TERRITORIAL LAND USE COMMISSION ACTIONS.~~

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APPENDIX I
TRIBUTYL TIN (TBT)

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FRESH WATERS

In freshwater, the four-day average concentration of Tributyltin does not exceed 0.64 ug/l more than once every three years on the average and if the one-hour average concentration does not exceed 0.442 ug/l more than once every three years on the average.

MARINE WATERS

In marine waters, the four-day average concentration of tributyltin does not exceed 0.010 ug/l more than once every three years on the average and if the one-hour average concentration does not exceed 0.356 ug/l more than once every three years on the average.

APPENDIX "J"

TABLE-III

~~LIMITATIONS FOR DISCHARGES TO CATEGORIES G-2 a, G-2B AND G-3~~

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Appendix G - Recommended Potential Treatment Efficiencies

RECOMMENDED POTENTIAL TREATMENT EFFICIENCIES *

CONVENTIONAL PROCESS										SPECIAL PROCESS				
Parameter	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Flocul- ation	Lime Softening	Filtr- ation	Activated carbon PAC GAC	Air strip- ping	Deminera- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments			
Aldrin	P		P			G VG				VG				
Antimony			X		A	X								
Arsenic		A	L-G	G-VG	A	P		G-VG	VG		Valencies important			
Asbestos			G-VG		G									
Barium			P	G-VG	A	P P		VG	VG					
Boron			X			G-VG		X	G-VG					
Cadmium			L-G	VG	A	P-L					pH Important			
Chlordane		P	L	L		VG VG								
Chloride								VG	VG					
Chromium			G	G	A	P P		X	X		Valencies important			
Color			VG		A					VG				

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Parameter	Aeration	Chemical oxidation (chlorination, etc)	Coagulation Flocculation	Lime Softening	Filtration	Activated carbon adsorption PAC GAC	Air stripping	Deminceralizing (reverse osmosis, etc.)	Ion exchange	Ozone	Comments
1											
2	Copper	A	F-G		A						
3	Cyanide									VG	
4	2, 4-D		P		A	VG X					
5	DDT		L-VG	F		VG X				P	
6	Diazinon					X(L)					
7	Dieldrin		P-L			VG G-L					
8	Endrin		L			G-VG X-VG					
9	Fluoride							G	G-VG		
10	Heptachlor					V-VG X(VG)					
11	Heptachlor Epoxide					VG X					
12	Iron	A		A	VG				VG		
13	Lead		G-VG	VG	A	X		G-VG	X		
14	Lindane		P		P	G G-VG					
15	Manganese		LG	G	A				VG		

Parameter	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Flocul- ation	Lime Softening	Filtr- ation	Activated carbon adsorption PAC GAC	Air strip- ping	Deminera- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments
1 Mercury			G	F-G	A	VG VG					Form important
2 Methoxy- chlor			G	G-VG	A	VG VG					
3 Methyl Parathion						X X				X	
4 Nitrate											
5 NTA		P						F	F-VG	G-VG	
6 Odor	A	VG				VG VG				VG	
7 Parathion		P-VG	P	P	A	VG L-VG				G-VG	
8 pH	A		A	A							
9 Phenol		G	P			G-VG X				G-VG	
10 Parameter	Aer- a- tion	Chemical oxidation (chlorin- ation, etc)	Coagul- ation Flocul- ation	Lime Softening	Filtr- ation	Activated carbon adsorption PAC GAC	Air strip- ping	Deminera- lizing (reverse osmosis, etc.)	Ion exch- ange	Ozone	Comments

1	Radionuclide																		
2	226Ra																		
3	90Sr																		
4	137Cs																		
5	131I																		
6	Selenium																		
7	Silver																		Valencies important
8	Sulphate																		
9	Sulphide																		
10	2,4,5-TP																		
11	T.Dissolved																		
12	Solids																		
13	Toxaphene																		
14	Trihalomethane																		
15	Parameter																		
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- 2 VG = 90 - 100% removal
- 3 X = possible candidate process (data lacking)
- 4 G = 70 - 90% removal PAC = Powdered Activated Carbon
- 5 F = 50 - 70% removal GAC = Granular Activated Carbon
- 6 L = 25 - 50% removal * = Treatment based on available full-scale, pilot or bench studies and should only be as
- 7 P = 0 - 25% removal Potential indicators.
- 8 A = auxiliary process Treatability studies and/or site experience should be assessed for specific applications.
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10 Source: McDonald 1986.

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Appendix H - Water Quality Criteria Documents

The U.S. Environmental Protection Agency has published water quality criteria for toxic pollutant(s). Copies of water quality criteria documents are available from the National Technical Information Service (NTIS), 5285 Front Royal Road, Springfield, VA 22161, (703) 487-4650. Prices of individual documents may be obtained by contacting NTIS. Order numbers are listed below. Where indicated, documents may be obtained from the Water Resource Center, 401 M St., S.W. RC-4100, Washington, DC 20460, (202) 260-7786.

Chemical	NTIS Order No.	EPA Document No.
Acenaphthene	PB81-117269	EPA 440/5-80-015
Acrolein	PB81-117277	EPA440/5-80-016
Acrylonitrile	PB81-117285	EPA440/5-80-017
Aesthetics	PB263943	EPA440/9-76-023
Aldrin/Dieldrin	PB81-117301	EPA440/5-80-019
Alkalinity	PB263943	EPA440/9-76-023
Aluminum	PB88-245998	EPA440/5-86-008
Ammonia	PB-85-227114	EPA440/5-85-001
Ammonia (saltwater)	PB-89-195242	EPA440/5-88-004
Antimony	PB81-117319	EPA440/5-80-020
Antimony(III)-aquatic (draft)	resource center	
Arsenic -1980	PB81-117327	EPA440/5-80-021
-1984	PB86-227445	EPA440/5-84-033
Asbestos	PB81-117335	EPA440/5-80-022
Bacteria-1976	PB263943	EPA440/9-76-023
-1984	PB86-158045	EPA440/5-84-002
Barium	PB163943	EPA440/9-76-023
Benzene	PB81-117293	EPA440/5-80-018
Benzidine	PB81-117343	EPA440/5-80-023
Beryllium	PB81-117350	EPA440/5-80-024
Boron	PB263943	EPA440/9-76-023
Chemical	NTIS Order No.	EPA Document No.

1	Cadmium -1980	PB81-117368	EPA440/5-80-025
2	-1984	PB85-224031	EPA440/5-84-032
3	Carbon Tetrachloride	PB81-117376	EPA440/5-80-026
4	Chlordane	PB81-117384	EPA440/5-88-027
5	Chloride	PB81-115047	EPA440/5-88-001
6	Chlorinated Benzenes	PB81-117392	EPA440/5-80-028
7	Chlorinated Ethanes	PB81-117400	EPA440/5-80-029
8	Chlorinated Naphthalene	PB81-117426	EPA440/5-80-031
9	Chlorinated Phenols	PB81-117434	EPA440/5-80-032
10	Chlorine	PB85-227429	EPA440/5-84-030
11	Chloroalkyl Ethers	PB81-117418	EPA440/5-80-030
12	Chloroform	PB81-117442	EPA440/5-80-033
13	2-Chlorophenol	PB81-117459	EPA440/5-80-034
14	Cholophenoxy Herbicides	PB263943	EPA440/9-76-023
15	Chlorpyrifos	PB87-105359	EPA440/5-86-005
16	Chromium-1980	PB81-117467	EPA440/5-80-035
17	-1984	PB85-227478	EPA440/5-84-031
18	Color	PB263943	EPA440/9-76-023
19	Copper-1980	PB81-117475	EPA440/5-80-036
20	-1984	PB85-227023	EPA440/5-84-031
21	Cyanide	PB85-227460	EPA440/5-84-028
22	Cyanides	PB81-117483	EPA440/5-80-037
23	DDT and Metabolites	PB81-117491	EPA440/5-80-038
24	Demeton	PB263943	EPA440/9-76-023
25	Dichlorobenzenes	PB81-117509	EPA440/5-80-039
26	Dichlorobenzidine	PB81-117517	EPA440/4-80-040
27	Dichloroethylenes	PB81-117525	EPA440-5-80-041
28	2,4-Dimethylphenol	PB81-117558	EPA440/5-80-044
29	Dinitrotoluene	PB81-117566	EPA440/5-80-045
30	Chemical	NTIS Order No.	EPA Document No.
31	Diphyhydrazine	PB81-117731	EPA440/5-80-062
32	D-2-Ethylhexyl Phthalate-aquatic (draft)	resource center	
33	Dissolved Oxygen	PB86-208253	EPA440/5-86-003

1	Endosulfan	PB81-117574	EPA440/5-80-046
2	Endrin	PB81-117582	EPA440/5-80-047
3	Ethylbenzene	PB81-117590	EPA440/5-80-048
4	Fluoranthene	PB81-117608	EPA440/5-80-049
5	Gasses, Total Dissolved	PB263943	EPA440/9-76-023
6	Guidelines for Deriving National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses	PB85-227049	
9	Guthion	PB263943	EPA440/9-76-023
10	Haloethers	PB81-117616	EPA440/5-80-050
11	Halomethanes	PB81-117624	EPA440/5-80-051
12	Hardness	PB263943	EPA440/9-76-023
13	Heptachlor	PB81-117632	EPA440/5-80-052
14	Hexachlorobenzene-aquatic (draft)	resource center	
15	Hexachlorobutadiene	PB81-117640	EPA/5-80-053
16	Hexachlorocyclohexane	PB81-117657	EPA440/5-80-054
17	Hexachlorocyclopentadiene	PB81-1176665	EPA440/5-80-055
18	Iron	PB263943	EPA440/9-76-023
19	Isophorone	PB81-117673	EPA440/5-80-056
20	Lead -1980	PB81-117681	EPA440/5-80-057
21	-1984	PB85-227437	EPA440/5-84-027
22	Malathion	PB263943	EPA440/9-76-023
23	Manganese	PB263943	EPA440/9-76-023
24	Mercury-1980	PB81-117699	EPA440/5-80-058
25	-1984	PB85-227452	EPA440/5-84-026
26	Methoxychlor	PB263943	EPA440/9-76-023
27	Chemical	NTIS Order No.	EPA Document No.
28	Mirex	PB263943	EPA440/9-76-023
29	Naphthalene	PB81-117707	EPA440/5-80-059
30	Nickel-1980	PB81-117715	EPA440/5-80-060
31	--1986	PB870105359	EPA440/5-86-004
32	Nitrates/Nitrites	PB263943	EPA440/9-76-023
33	Nitrobenzene	PB81-117723	EPA440/5-80-061

1	Nitrophenols	PB81-117749	EPA440/5-80-063
2	Nitrosamines	PB81-117756	EPA440/5-80-064
3	Oil & Grease	PB263943	EPA440/9-76-023
4	Parathion	PB87-105383	EPA440/5-86-007
5	Pentachlorophenol-1980	PB81-117764	EPA440/5-80-065
6	-1986	PB87-105391	EPA440/5-85-009
7	pH	PB263943	EPA440/9-76-023
8	Phenanthrene-aquatic (draft)	resource center	
9	Phenol	PB81-117772	EPA440/5-80-066
10	Phosphorus	PB263943	EPA440/9-76-023
11	Phthalate Esters	PB81-117780	EPA440/5-80-067
12	Polychlorinated Biphenyls	PB81-117798	EPA440/5-80-068
13	Polynuclear Aromatic Hydrocarbons	PB81-117806	EPA440/5-80-069
14	Selenium-1980	PB81-117814	EPA440/5-80-070
15	-1987	PB88-142239	EPA440/5-87-008
16	Silver	PB81-117822	EPA440/5-80-071
17	Silver-aquatic (draft)	resource center	
18	Solids (dissolved) and Salinity	PB263943	EPA440/9-76-023
19	Solids (suspended) and Turbidity	PB263943	EPA440/9-76-023
20	Sulfides/Hydrogen Sulfide	PB263943	EPA440/9-76-023
21	Tainting Substances	PB263943	EPA440/9-76-023
22	Temperature	PB263943	EPA440/9-76-023
23	2,3,7,8-Tetrachlorodibenzo-P-Dioxin	PB89-169825	EPA440/5-84-007
24	Chemical	NTIS Order No.	EPA Document No.
25	Tetrachloroethylene	PB81-117830	EPA440/5-80-074
26	Thallium	PB81-117848	EPA440/5-80-074
27	Toluene	PB81-117863	EPA440/5-80-075
28	Toxaphene-1980	PB81-117863	EPA440/5-80-076
29	-1986	PB87-105375	EPA440/5-86-006
30	Tributyltin-aquatic (draft)	resource center	
31	Trichloroethylene	PB87-117871	EPA440/5-80-077
32	2,4,5-Trichlorophenol-aquatic (draft)	resource center	
33	Vinyl Chloride	PB81-117897	EPA440/5-80-078

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Zinc-1980	PB81-117897	EPA440/5-80-079
-1987	PB87-143581	EPA440/5-87-003