

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.

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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 seawater.
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, nonspore-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 (geomean).** 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:

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

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 (305m.), 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. **Statistical Threshold Value (STV).** The STV is a derived value that is the 90th percentile of the water quality distribution of the geometric mean (geomean) which should not be exceeded by more than 10% of samples taken within a 30-day period for a particular water body.

82. **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.

83. **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.

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

85. **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.

86. **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.

87. **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. 48

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88. **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.

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

90. **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.

91. **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.

92. **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.

93. **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.

94. **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).

95. **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 401WQC 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)
Tributyltin	

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 (40CFR § 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 § 401WQC, 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 § 401WQC.

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 § 401WQC.

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)

Appendix A. Priority Toxic Pollutants. (continued)

I. List of 126 Priority Toxic Pollutants

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

Appendix A. Priority Toxic Pollutants. (continued)

I. List of 126 Priority Toxic Pollutants

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

Appendix A. (continued).
II. AQUATIC LIFE CRITERIA TOXIC POLLUTANTS

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

Appendix A. (continued).
 III. Numerical Criteria for Priority Toxic Pollutants:

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