

FILE FOLDER

DESCRIPTION ON TAB:

Storm Water Runoff

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Outside/inside of actual folder did contain hand written information

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QUN To Danny for info.

ASSISTANT CHIEF OF STAFF, FACILITIES
HEADQUARTERS, MARINE CORPS BASE

DATE 4/21/86

TO:

- ~~BASE MAINT O~~
- ~~PUBLIC WORKS O~~
- ~~COMM-ELECT O~~
- ~~DIR., NAT. RESOURCES~~

DIR, FAMILY HOUSING

Betsy
 Please Advise what this means NLT 2 MAY 86.
 IN memorandum form.
DShorge

ATTN: N.C. Rules

1. Attached is forwarded
 As we expected published -
 of the imp.
2. Please initial, or comment etc.

I'll be attending 6 May pub hng -
 3. ~~Your file copy.~~
 would like to make "official" statement if you advise.

Input by "LET'S THINK OF A FEW REASONS WHY IT CAN BE DONE"
 conc/LANT
 is also being sought.

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11

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ASSISTANT CHIEF OF STAFF, FACILITIES
HEADQUARTERS, MARINE CORPS BASE

DATE 4/21/86

TO:

BASE MAINT O

PUBLIC WORKS O

COMM-ELECT O

DIR., NAT. RESOURCES & ENV. AFFAIRS

DIR, FAMILY HOUSING

DIR, BACHELOR HOUSING

BASE FIRE CHIEF

ATTN: N.C. RUNOFF RULES

1. Attached is forwarded for info/action.

As we expected, draft rules are published - pls review & advise of your impact on MCON projects.

2. ~~Please initial, or comment, and return all papers to this office.~~
etc.

I'll be attending 6 May pub hng -

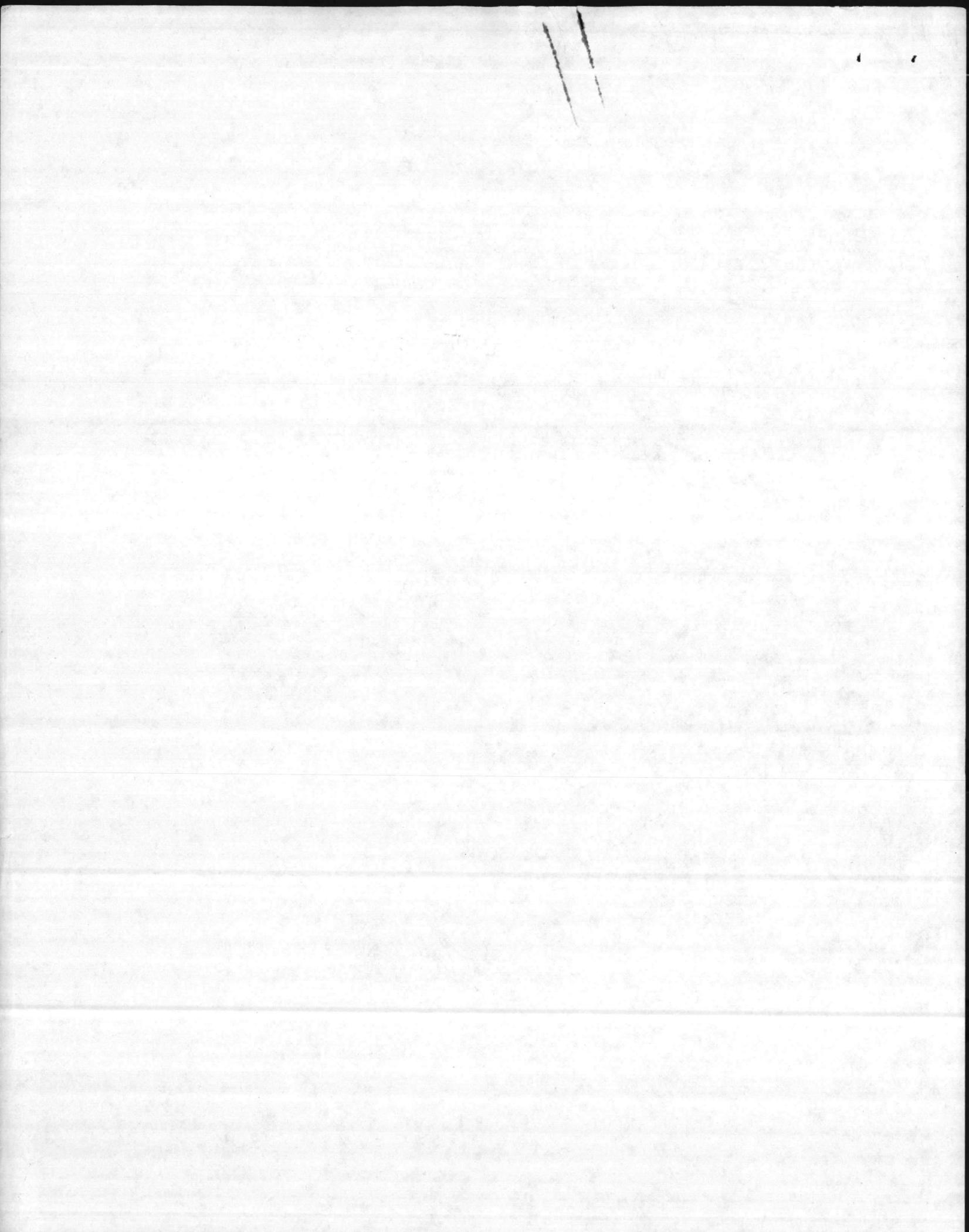
3. ~~Your file copy.~~

would like to make "official" statement if you advise.

Input by "LET'S THINK OF A FEW REASONS WHY IT CAN BE DONE"

conc/LANT is also being sought.

1/2 BOM.



N. C. ENVIRONMENTAL MANAGEMENT COMMISSION

NOTICE OF PUBLIC HEARING TO
CONSIDER REGULATIONS FOR STORMWATER CONTROLS

Notice is hereby given of a public hearing to be held by the North Carolina Department of Natural Resources and Community Development on behalf of the Environmental Management Commission concerning adoption of regulations to control stormwater. The proposed regulations would be effective on August 1, 1986.

PURPOSE: To receive public comment on proposed rules and amendments to 15 NCAC 2B Sections .0200 and .0300 and 2H Sections .0100, .0200, and .0400. The major proposals are:

- 1) Adopt 15 NCAC 2B .0217 STORMWATER CONTROL CRITERIA TO PROTECT WATER QUALITY STANDARDS. This rule sets appropriate frequency and duration criteria for stormwater treatment systems in order to protect water quality standards.
- 2) Amend 15 NCAC 2B .0301 CLASSIFICATIONS: GENERAL. This amendment will change the way of determining the classification of unnamed waters tributary to tidal saltwaters.
- 3) Adopt 15 NCAC 2H .0125 STORMWATER TREATMENT AND DISPOSAL SYSTEMS. This rule adopts by reference U.S. Environmental Protection Agency regulations 40 CFR 122.21(c)(2) and 122.26 as amended through August 29, 1985 which would require NPDES permit applications for certain stormwater point sources. In addition, permits for stormwater treatment and disposal systems can be required if the disposal is a significant source of pollution which threatens water quality standards. This rule also defines stormwater systems which are considered to discharge to surface waters.
- 4) Amend 15 NCAC 2H .0217 POLICY. This rule requires State permits for stormwater treatment and disposal systems which are not considered to discharge to surface waters.
- 5) Amend 15 NCAC 2H .0404 COASTAL WASTE TREATMENT AND DISPOSAL SYSTEMS to specify that no domestic wastewater discharges will be allowed to unnamed tributaries to Class SA waters which are classified C or SC as a result of the proposed amendments to 15 NCAC 2B .0301.
- 6) Adopt 15 NCAC 2H .0408 DISPOSAL OF STORMWATER. This rule specifies requirements for stormwater disposal systems to protect water quality standards of Class SA (shellfishing) waters. Specifications are proposed for the design of stormwater treatment and disposal systems which require a permit and alternatives are proposed so that no permit is required.

DATES/LOCATIONS:

May 5, 1986 @ 7:00 P.M.
Auditorium
N.C. Marine Resources Center
Airport Road
Manteo, N.C.

May 7, 1986 @ 7:00 P.M.
King Auditorium
UNC-Wilmington
601 S. College Road
Wilmington, N.C.

May 6, 1986 @ 7:00 P.M.
Joslyn Hall
Carteret Technical College
3505 Arendell Street
Morehead City, N.C.

May 8, 1986 @ 7:00 P.M.
Ground Floor Hearing Room
Archdale Building
512 N. Salisbury Street
Raleigh, N.C.

COMMENT PROCEDURE:

All persons interested in this matter are invited to attend. Comments, statements, data, and other information may be submitted in writing prior to, during, or within 30 days after the hearing or may be presented orally at the hearing. Statements may be limited to 3 minutes at the discretion of the hearing officer. Submission of written copies of oral presentations is encouraged.

AUTHORITY:

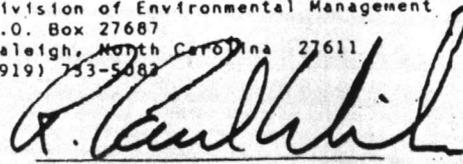
N.C.G.S. 143-214.1, 143-215.3(A)(1)

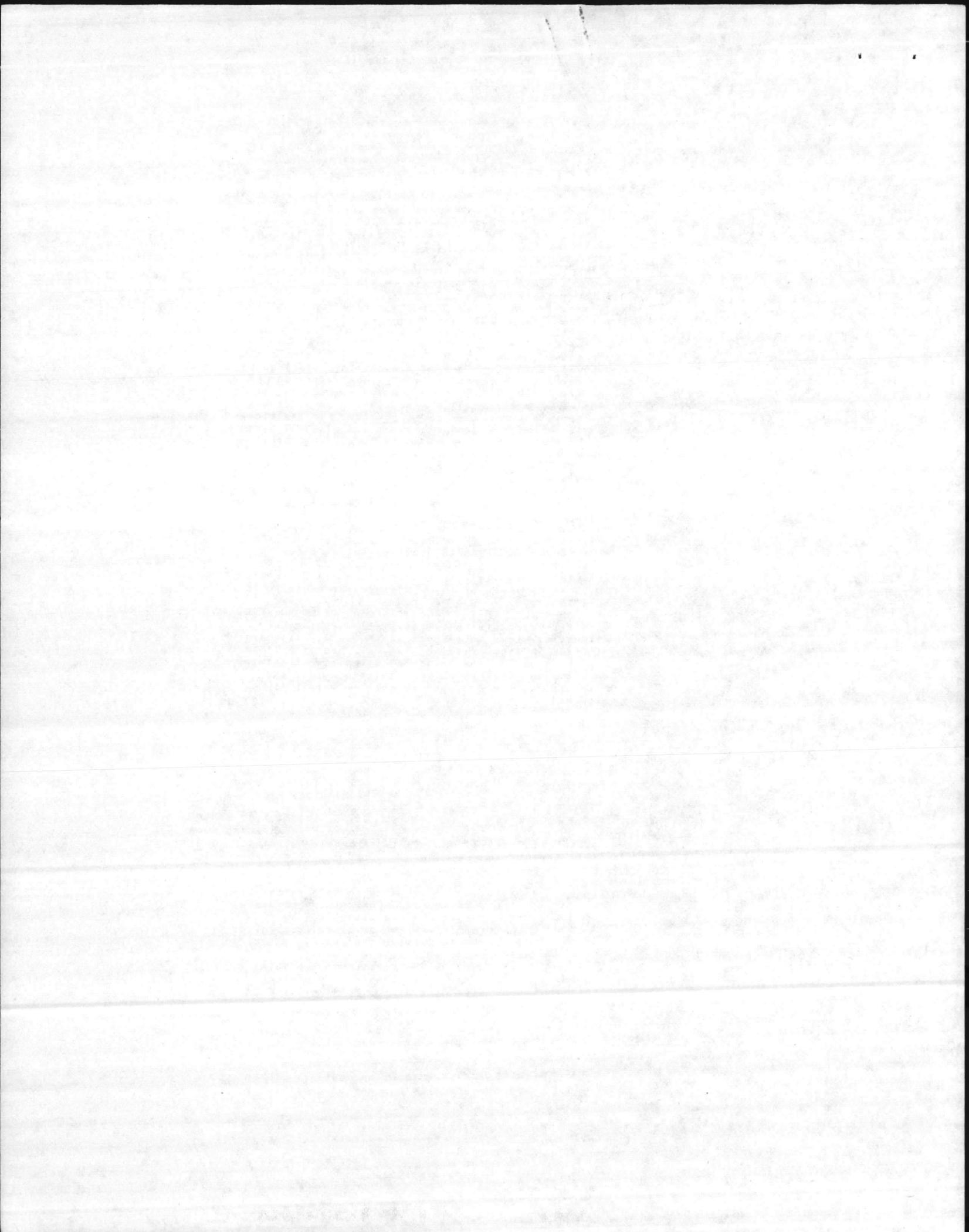
INFORMATION:

Further explanations and details of the proposed regulations may be obtained by writing or calling:

Bill Kreutzberger
Division of Environmental Management
P.O. Box 27687
Raleigh, North Carolina 27611
(919) 753-5082

3/19/86


Paul Miller, Director



SUMMARY OF PROPOSED EMC
REGULATIONS TO IMPLEMENT STORMWATER CONTROLS

. ADOPTION OF EPA STORMWATER REGULATIONS BY REFERENCE

EPA regulations for stormwater point sources are proposed to be adopted by reference. The EPA regulations require NPDES permit applications for stormwater disposal from industrial, commercial, and municipal sites as well as from residential portions of 11 urban areas. Some permit applications are required by December 31, 1987 (industrial sites) while other applications are required by June 30, 1989. The EPA regulations also allow NPDES permits to be required for other significant contributors of stormwater pollution which may threaten water quality standards. The EMC proposals include a finding that stormwater disposal for development near Class SA waters threatens water quality standards and stormwater disposal must be addressed.

. CRITERIA FOR PROTECTION OF WATER QUALITY STANDARDS FROM STORMWATER

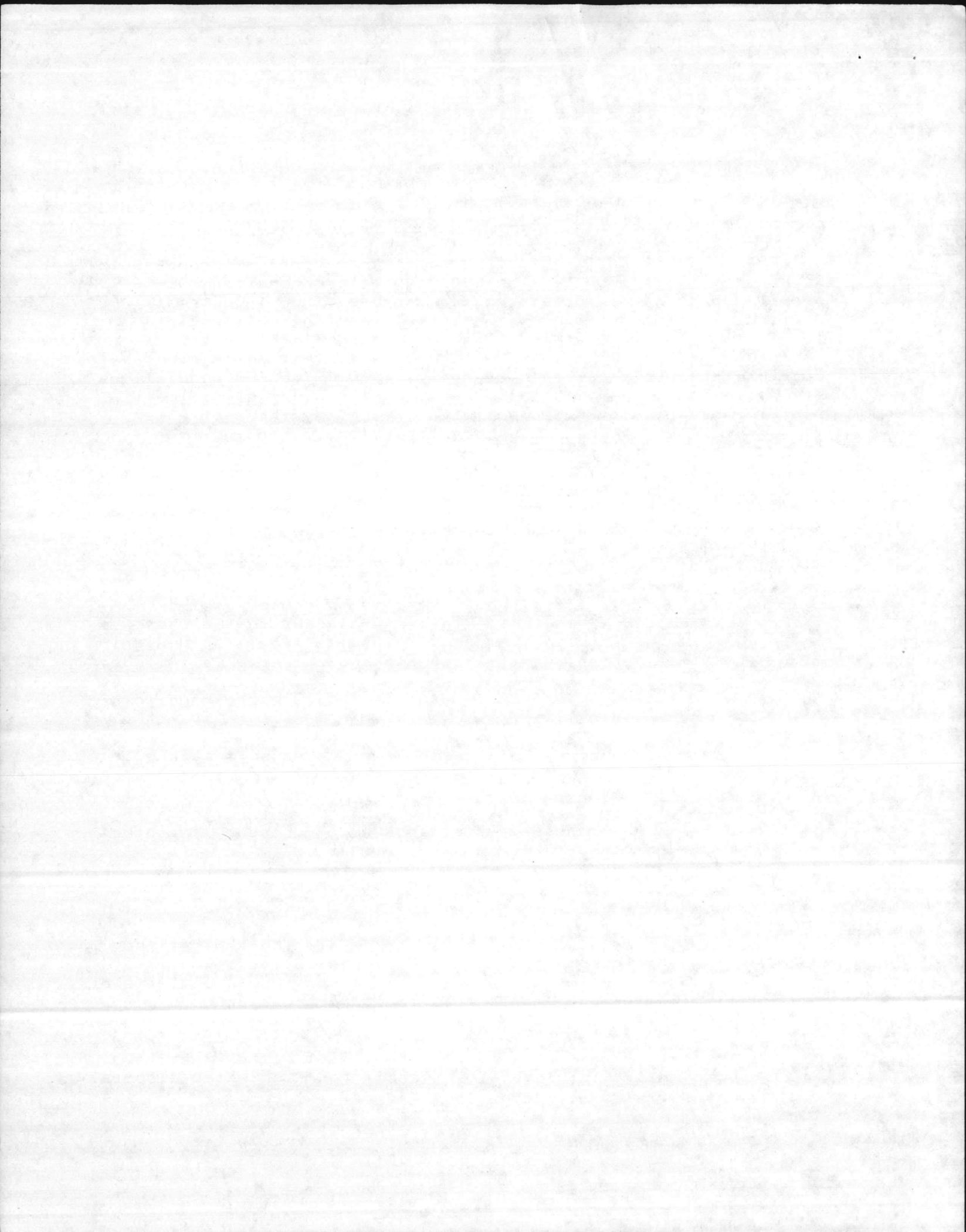
Storm event criteria are proposed for the design of stormwater treatment and disposal systems to protect water quality standards. These criteria are analogous to the use of a low stream flow (such as a 7-day, 10 year low flow) for designing wastewater treatment plants. These stormwater criteria include:

- A) A 10 year-24 hour design storm for direct drainage to Class SA waters.
- B) A 2 year-24 hour design storm for drainage to waters in close proximity to Class SA waters.
- C) Case-by-case determinations of storm event criteria to protect water quality standards when necessary for other waters of the State.

. PROPOSED IMPLEMENTATION SCHEME FOR STORMWATER CONTROLS IN COASTAL AREAS

The proposed regulations require stormwater controls to be considered for development within 1/2 mile of Class SA waters. This distance was selected because it is a reasonable estimate of the immediate watershed and it is a zone which can be incorporated on land use maps.

Within the 1/2 mile zone, development must either meet certain density limits or obtain a permit for stormwater disposal unless it meets one of several exceptions:



- A) The site can be certified by DEM that the drainage does not threaten Class SA waters.
- B) The development is existing development which is defined as development with a permit (CAMA or local building) issued prior to May 5, 1986.
- C) The development is redevelopment following a fire, hurricane or other natural disaster.
- D) The project site is one acre or less and no portion falls within the CAMA AEC.
- E) The stormwater disposal represents an emergency where flooding has occurred and pumping or other diversions are necessary to protect public health and welfare.

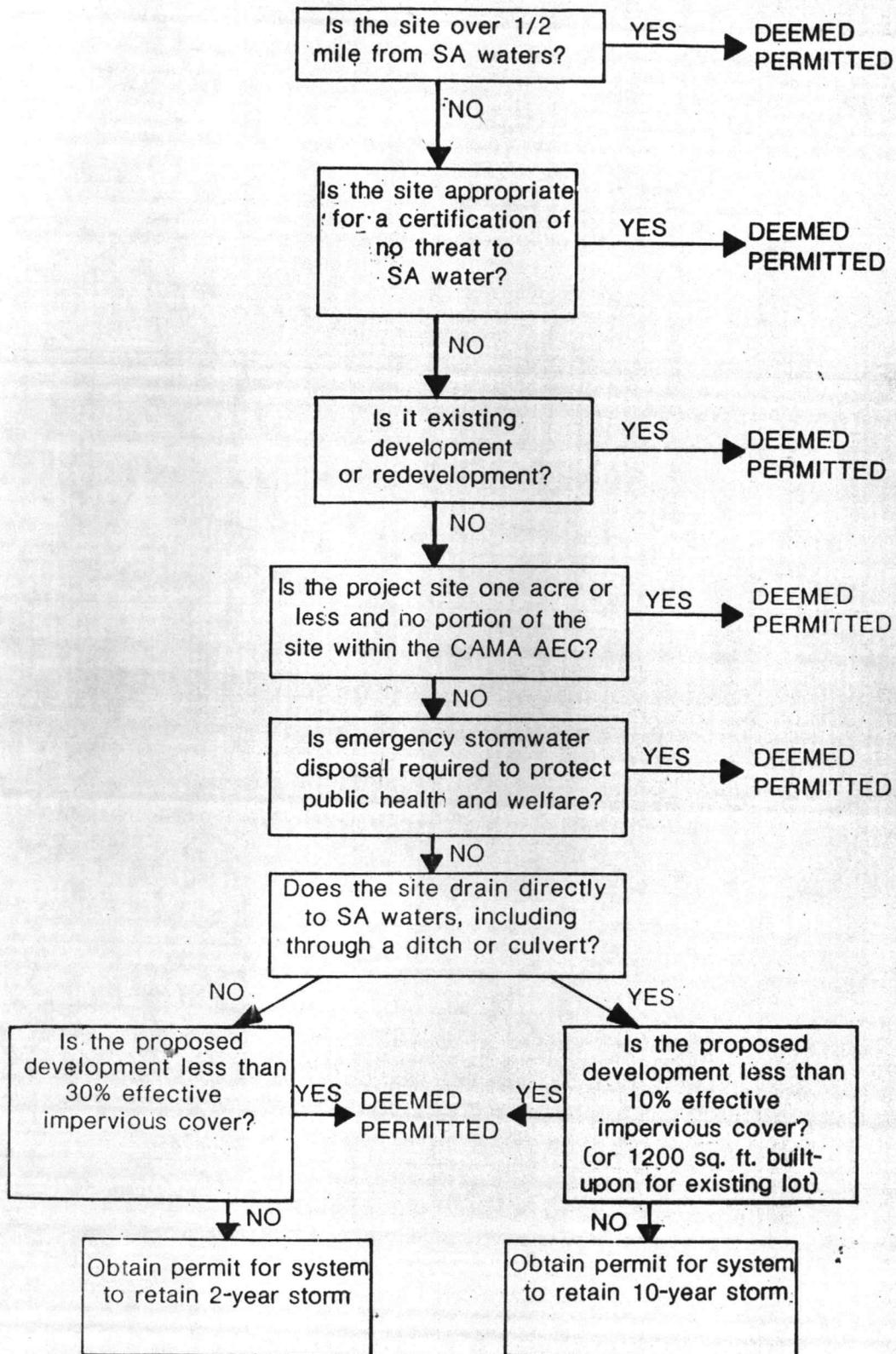
If the development does not meet one of the exceptions, the development must either meet certain density limits or must obtain a permit for a stormwater treatment and disposal system. The requirements vary depending on drainage characteristics as follows:

- A) Direct Drainage to Class SA waters
 - 10% Effective Impervious Area (Density Limit) or
 - 10 year Design Storm for Permitted System
- B) Drainage to waters in Close Proximity to SA waters
 - 30% Effective Impervious Area (Density Limit) or
 - 2 year Design Storm for Permitted System

Other Features of this proposal include:

- A 30 ft set-back for development meeting density limits.
- A minimum 1200 ft² built-upon area for lots platted prior to May 5, 1986
- A 100 ft set-back from SA waters for permitted stormwater infiltration ponds

**SCHEMATIC OF REGULATIONS FOR COASTAL STORMWATER
TO PROTECT CLASS SA WATERS**



PROPOSED REGULATIONS TO IMPLEMENT
STORMWATER CONTROLS

March 25, 1986

15 NCAC 2B .0200 - CLASSIFICATIONS AND WATER QUALITY STANDARDS
APPLICABLE TO SURFACE WATERS OF NORTH
CAROLINA

[The following definitions would be added]

.0202 DEFINITIONS

- (25) Stormwater means any waste discharged primarily in response to precipitation and subsequent runoff which may impair the classified best usage of surface waters.

[The following rule would be added.]

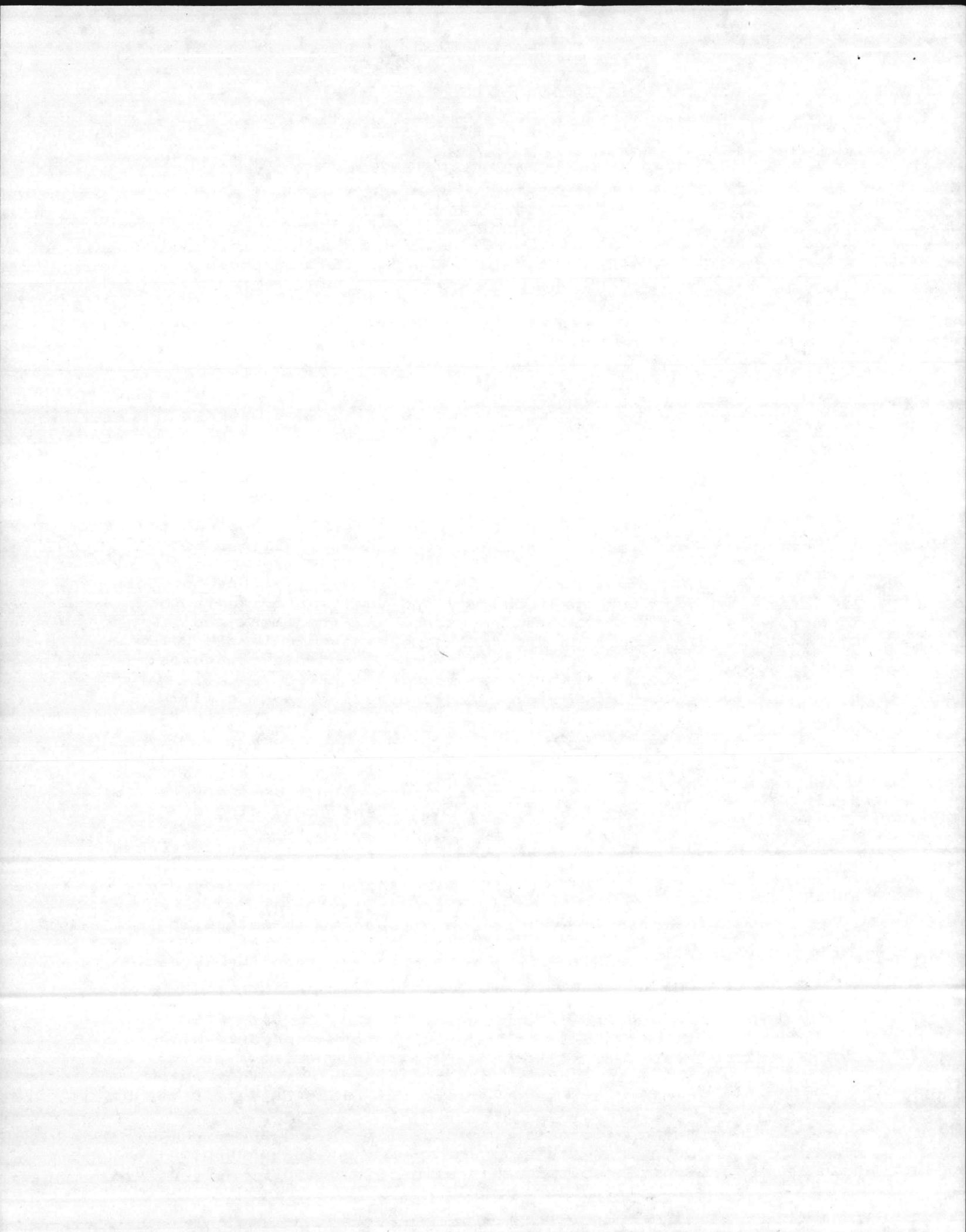
.0217 STORMWATER CONTROL CRITERIA TO PROTECT WATER QUALITY
STANDARDS

(a) In implementing the existing water quality standards to protect waters for their classified "best usage," it may be necessary to require controls of stormwater to fully achieve the uses specified by the stream classification. The purpose of this rule is to set appropriate frequency and duration criteria for developing permit limitations for stormwater treatment and disposal systems requiring a permit according to rules 2H .0125 and .0217 and for the design of stormwater controls to protect water quality standards and "best usage."

(b) Criteria for implementing and protecting water quality standards and classified uses from stormwater depend on stream classification as follows:

(1) Class SA waters:

- (A) Stormwater must not be discharged directly to Class SA waters from precipitation events less severe than the 10-year, 24-hour event, including a 10-year, 1-hour intensity; this requirement applies to discharges to outlets, ditches, discrete drainageways, and other conveyances which drain directly to Class SA waters and are normally dry except in response to precipitation;
- (B) Stormwater must not be discharged to waters in close proximity to Class SA waters from precipitation events less severe than the 2-year, 24-hour event (including a 2-year, 1-hour peak intensity); this requirement applies to discharges to unnamed freshwaters tributary to Class "SA" waters and classified as "C" in accordance with Rule .0301(i) of the Subchapter, as well as to named streams in such close proximity that water quality standards or uses of Class SA waters may be threatened;
- (C) As an alternative, disposal for land areas which complies with rule 2H .0408 of this Subchapter is considered to comply with requirements (A) and (B) of this subparagraph;



- (2) Other waters: Appropriate frequency/duration criteria for the design of stormwater controls for other waters of the State shall be determined on a case-by-case basis by the Commission so as to provide adequate protection of water quality standards and classified uses in waters receiving the stormwater as well as downstream waters with different stream classifications;

15 NCAC 2B .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

[Proposed amendments are shown below with new words underlined.]

.0301 CLASSIFICATIONS: GENERAL

...
(i) Unnamed Streams.

- (1) Any stream which is not named in the schedule of stream classifications carries the same classification as that assigned to the stream segment to which it is tributary except:
- (A) unnamed streams specifically described in the schedule of classifications, or
 - (B) unnamed freshwaters tributary to tidal saltwaters will be classified "C," or
 - (C) after [the effective date of this rule], any newly created areas of tidal saltwater which are connected to Class SA waters by approved dredging projects will be classified "SC" unless case-by-case reclassification proceedings are conducted.
- (2) The following river basins have different policies for unnamed streams entering other states or for specific areas of the basin:

...
[List of River basins is not changed from existing rule.]

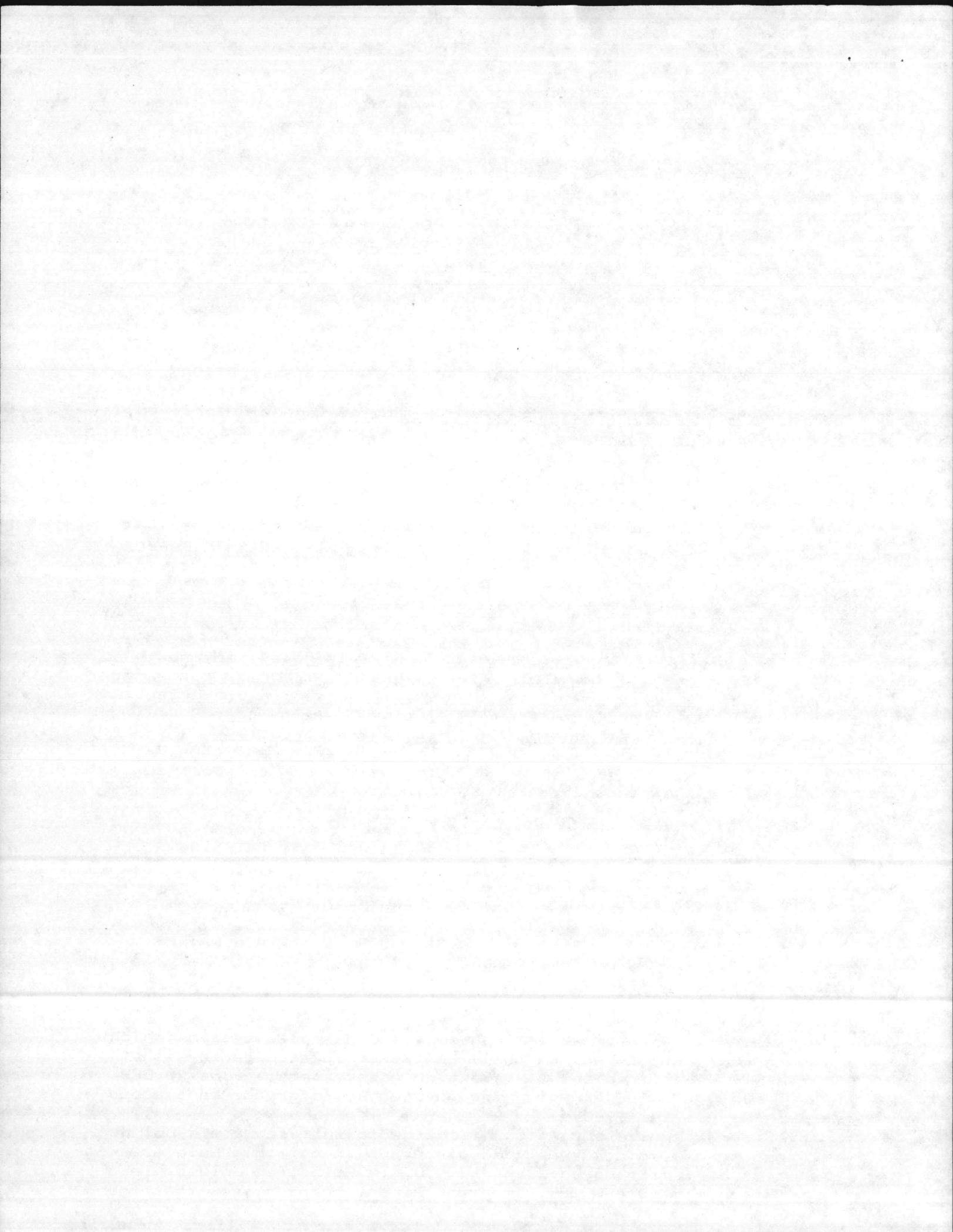
15 NCAC 2H .0100 - WASTEWATER DISCHARGES TO SURFACE WATERS

[The following rule is proposed to be added.]

.0125 STORMWATER TREATMENT AND DISPOSAL SYSTEMS

(a) Permits for stormwater treatment and disposal systems which discharge to surface waters shall be issued in accordance with United States Environmental Protection Agency regulations 40 CFR 122.21(c)(2) and 122.26 which are adopted by reference as amended through August 29, 1985.

(b) Stormwater systems which discharge to surface waters but do not require a permit pursuant to paragraph (a) of this Rule are deemed to be permitted pursuant to G.S. 143-215.1(a) unless, in accordance with 40 CFR 122.26(c) the director determines that the



stormwater disposal or proposed disposal is a significant contributor of pollution to waters of the State which may threaten water quality standards. Rule 2H .0408 of this Subchapter specifies requirements for stormwater treatment and disposal systems in close proximity to sensitive coastal waters which have been determined to be significant contributors of pollution which may threaten water quality standards and specifies alternatives for coastal stormwater disposal which do not need individual permits.

(c) Stormwater disposal systems which discharge in response to a more frequent precipitation event than the 25-year, 24-hour event are considered to discharge to surface waters. Stormwater disposal systems which discharge only in response to a 25-year, 24-hour or less frequent precipitation event are considered nondischarging systems and must comply with Section .0200 of this Subchapter.

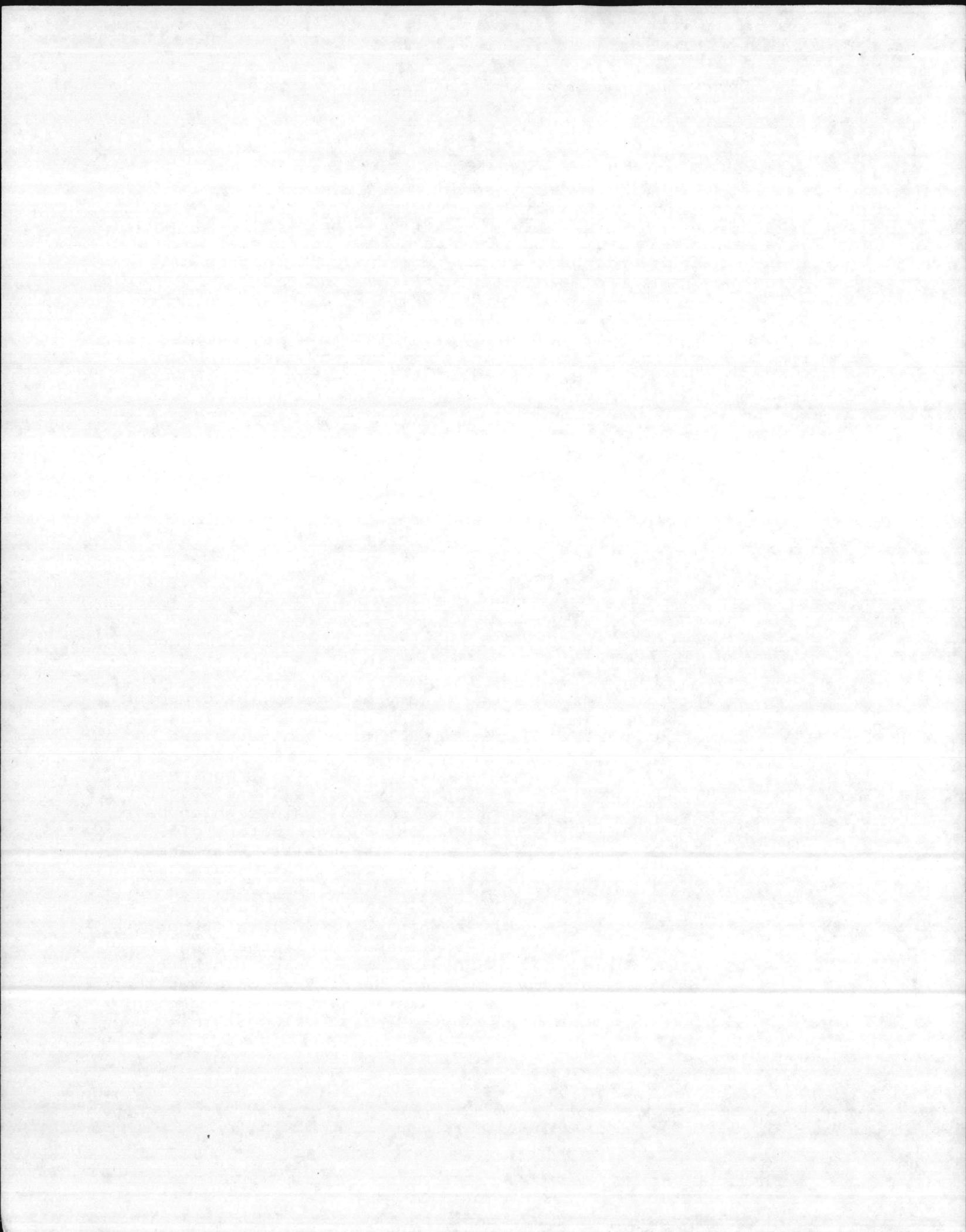
15 NCAC 2H .0200 - WASTE NOT DISCHARGED TO SURFACE WATERS

[The following paragraph is proposed to be added.]

.0217 POLICY

(d) Treatment works and disposal systems for stormwater runoff which do not discharge to surface waters shall be permitted pursuant to G.S. 143-215.1(d) as follows:

- (A) Systems are deemed to be permitted unless the director determines that the system or proposed system is a significant contributor of pollution to the waters of the State which may threaten water quality standards; Rule 2H .0408 of this Subchapter specifies requirements for stormwater treatment and disposal systems within close proximity to sensitive coastal waters which have been determined to be significant contributors of pollution which may threaten water quality standards and specifies alternatives for coastal stormwater disposal which do not need individual permits.
 - (B) Stormwater disposal systems which discharge only in response to a 25-year, 24-hour event or less frequent precipitation event are considered nondischarging systems. Stormwater disposal systems which discharge in response to a more frequent precipitation event than the 25-year, 24-hour event are considered discharging systems and must comply with Section .0100 of this Subchapter.
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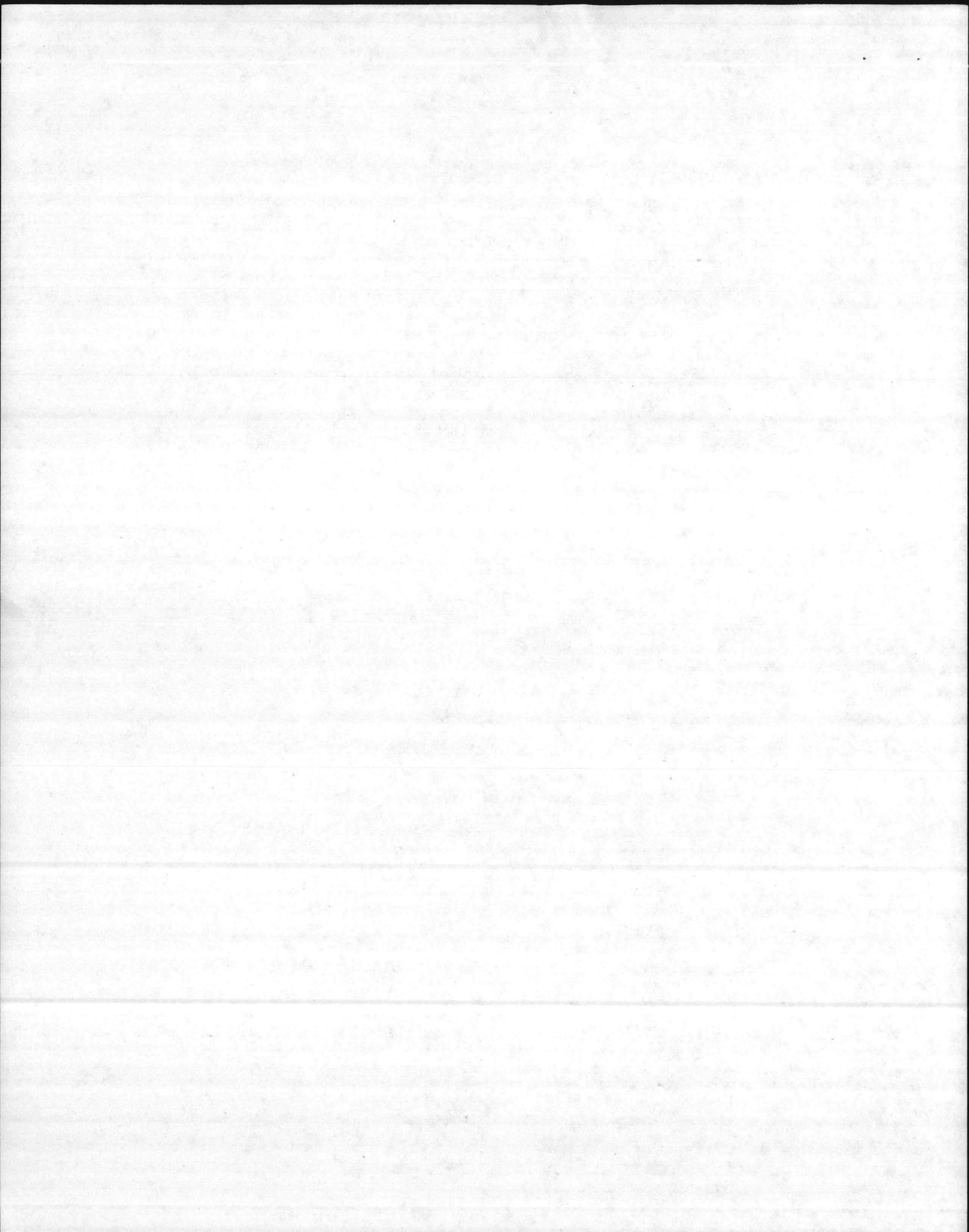
15 NCAC 2H .0400 - COASTAL WASTE TREATMENT DISPOSAL

[Proposed amendments are given below with new words underlined.]

.0404 FACILITY LOCATION AND DESIGN

(a) No domestic sewage regardless of the treatment proposed and no other wastes which could adversely affect the taking of shellfish for market purposes shall be discharged into waters classified "SA" or to waters in such close proximity as to adversely affect such "SA" waters, including to unnamed freshwaters classified "C" or "SC" in accordance with Rule 2B .0301(i)(1)(B) and (C). Wastes discharged into other waters tributary to waters classified "SA" shall be treated in such manner as to assure that no impairment of water quality in the "SA" segments shall occur. No permits shall be issued for discharges into waters classified "SA" unless Shellfish Sanitation, Environmental Health Section, Department of Human Resources, provides written concurrence that the discharge would not adversely affect shellfish water quality or the propagation of shellfish.

...



[The following rule would be added.]

.0409 DISPOSAL OF STORMWATER

(a) Policy. Since stormwater runoff from developed areas is known to contain pollutants that can violate water quality standards for Class SA waters, pose threats to public health, and cause waters to be closed to the taking of shellfish, this regulation specifies requirements for controlling stormwater runoff near coastal waters in order to implement the water quality standards and to protect existing uses.

(b) Relation to other regulations. This Regulation implements water quality standards for Class SA waters given in Rules 2B .0212 and 2B .0217 of this Subchapter. This Regulation also provides criteria for determining whether stormwater disposal for a site requires an individual permit and further provides design criteria for systems which require a permit. Procedures for obtaining individual permits are given in Section 2H .0100 and .0200 of this Subchapter. Point source discharges of stormwater to the Atlantic Ocean are regulated by federal regulations which are adopted by reference in Paragraph .0404(d) of this Section.

(c) Definitions.

- (1) Development means any land disturbing activity which adds or changes the amount of impervious or partially pervious cover on a land area or may otherwise decrease the infiltration of precipitation into the soil thus altering the hydrological characteristics of the area;
- (2) Effective impervious cover means that portion of a land area which due to modification by man allows restricted or no infiltration of precipitation into the soil and is expressed as a percentage of the total land area of the project site; this area is calculated by considering the total built-upon area (including roof-tops, driveways, roads, parking areas, patios, decks, etc.) and giving credits for partially pervious surfaces such as gravel driveways, porous pavements, decking, or practices such as infiltration of roof-top drainage underneath buildings;
- (3) Existing development means any development activity for which a Coastal Area Management Act permit or a local building permit has been issued by May 5, 1986;
- (4) Redevelopment means any rebuilding activity following fires, hurricanes or other natural disasters that occurs on an area that qualifies as existing development pursuant to this Paragraph;

(d) Applicability. Development within 1/2 mile of Class SA waters must either meet certain density limits to minimize the amount of stormwater runoff or an individual permit must be obtained for stormwater treatment and disposal unless development meets one of the following exceptions:

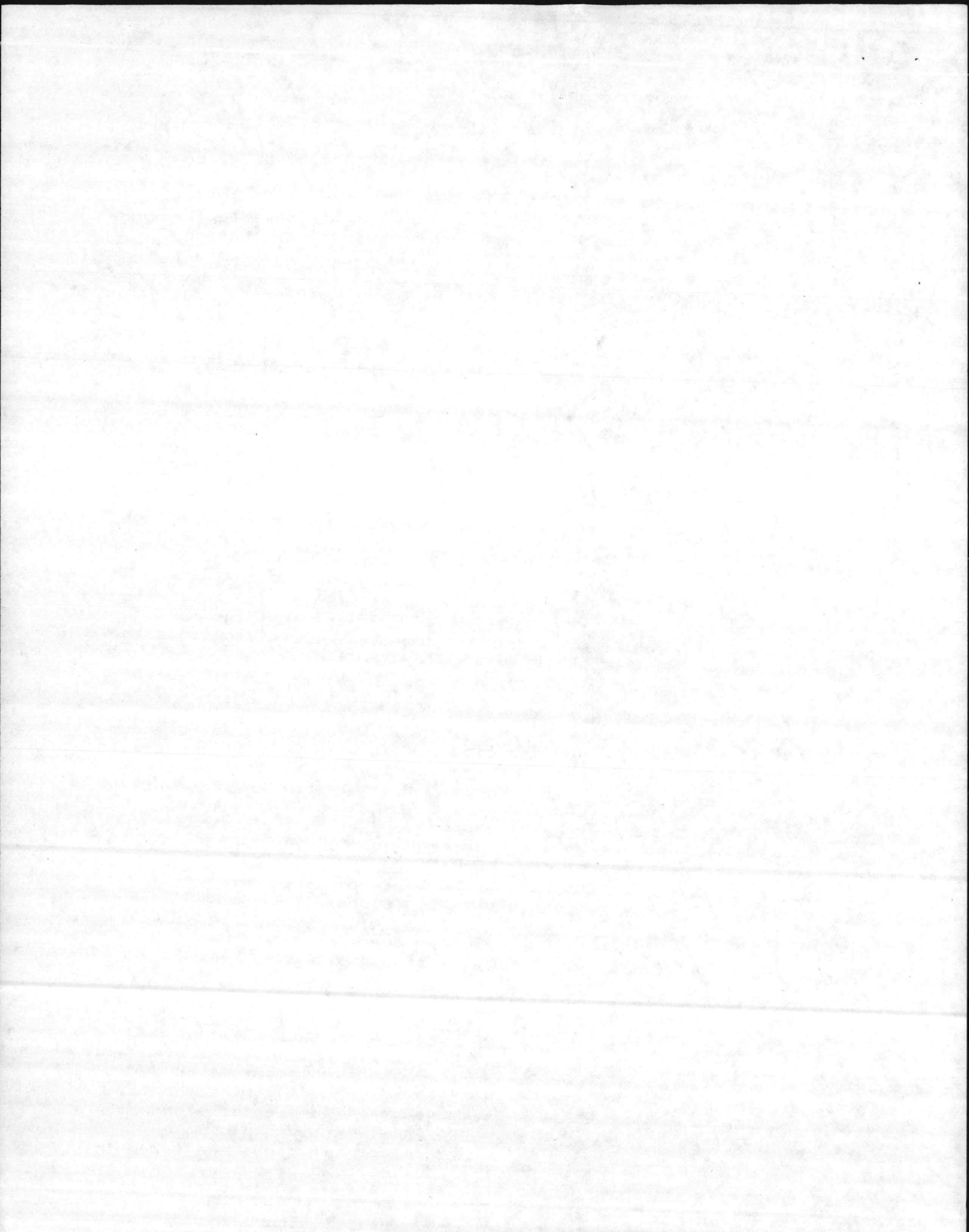
- (1) Certification that disposal from new development does not threaten shellfishing waters: Stormwater disposal for new development does not need to meet the requirements of this Rule if a certification is obtained from the director stating that the site, regardless the level of development, is not so situated that water quality

standards or uses of waters for shellfishing may be threatened;

- (2) Existing development: Stormwater disposal for existing development does not need to comply with the requirements of this Rule unless the director determines that the stormwater disposal alone has caused the loss of a designated use of the waters of the State and that stormwater disposal in compliance with these regulations would regain the lost use; If the director makes this determination, the responsible party will be notified and an appropriate schedule of compliance to meet the requirements of of this Rule shall be established;
- (3) Redevelopment: Redevelopment of a site following a natural disaster does not need to meet the requirements of this Rule if:
 - (A) it is a similar type of development with the same number or fewer units as the previous development; and
 - (B) it employs stormwater controls to the maximum extent practicable with the same level of development;

At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on a form provided by the division; The form shall be signed by the owner or agent certifying that the project is redevelopment and complies with the requirements of this Rule; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;

- (4) Project sites one acre or less: Development does not need to comply with the requirements of this Rule if the total project site is one acre or less and no portion of the site is within Estuarine Shoreline Area of Environmental Concern (AEC) specified in 15 NCAC 7H .0209; For the purposes of this Rule, the project area or site means the total land area being developed, including future and related phases of development; At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on a form provided by the division; The form shall be signed by the owner or agent certifying that the project site is one acre or less and that no portion of the site is within the AEC; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;
- (5) Emergency stormwater disposal to protect public health and welfare: In order to alleviate flooding problems as a result of extreme precipitation events, the Director may temporarily approve the diversion or pumping of stormwater not in accordance with other provisions of this Rule (within 1/2 mile of Class SA waters) if steps are taken to minimize the environmental and public health impacts to the greatest extent practicable. Areas which qualify as



existing development that experience frequent flooding may be required to take appropriate corrective actions to reduce stormwater runoff.

Stormwater disposal which meets one of these exceptions is deemed permitted. Failure to remain in compliance with these exceptions shall be considered a violation of this Rule and will require corrective action or an individual permit for stormwater treatment and disposal.

(e) New development not requiring an individual permit. Stormwater disposal for development within 1/2 mile of Class SA waters is deemed permitted and an individual permit is not required if the development is in accordance with the following:

(1) The following conditions must be met:

(A) Effective impervious cover must not exceed:

(i) 10 percent if the area drains directly to Class SA waters; or

(ii) 30 percent if the area drains to waters in close proximity to Class SA waters;

If an individual lot was platted prior to May 5, 1986, these impervious cover limits may be exceeded provided the total built-upon area of the site is not more than 1200 ft² and an infiltration system beneath the building is used;

(B) The total built upon area must not exceed 50 percent;

(C) Built upon area and infiltration systems beneath structures must be at least 30 feet from surface waters (ie. the mean high water line) or impervious conveyances, if surface drainage is in the direction of the waters or conveyances; however, boat ramps, roads and bridges are allowed within 30 feet of surface waters if they meet the requirements of Subparagraph (4) of this Paragraph;

(D) Project sites must have favorable characteristics such as adequate flushing in adjacent surface waters, soils with moderate to high permeability, and not be near highly productive shellfish beds;

(2) Effective impervious cover will be calculated by giving credits for infiltration systems beneath buildings and credits for partially impervious surfaces as follows:

(A) Only 50 percent of the final building foot print may be considered impervious if the building has gutters which drain to an infiltration system beneath the building;

(B) Partially impervious surfaces are:

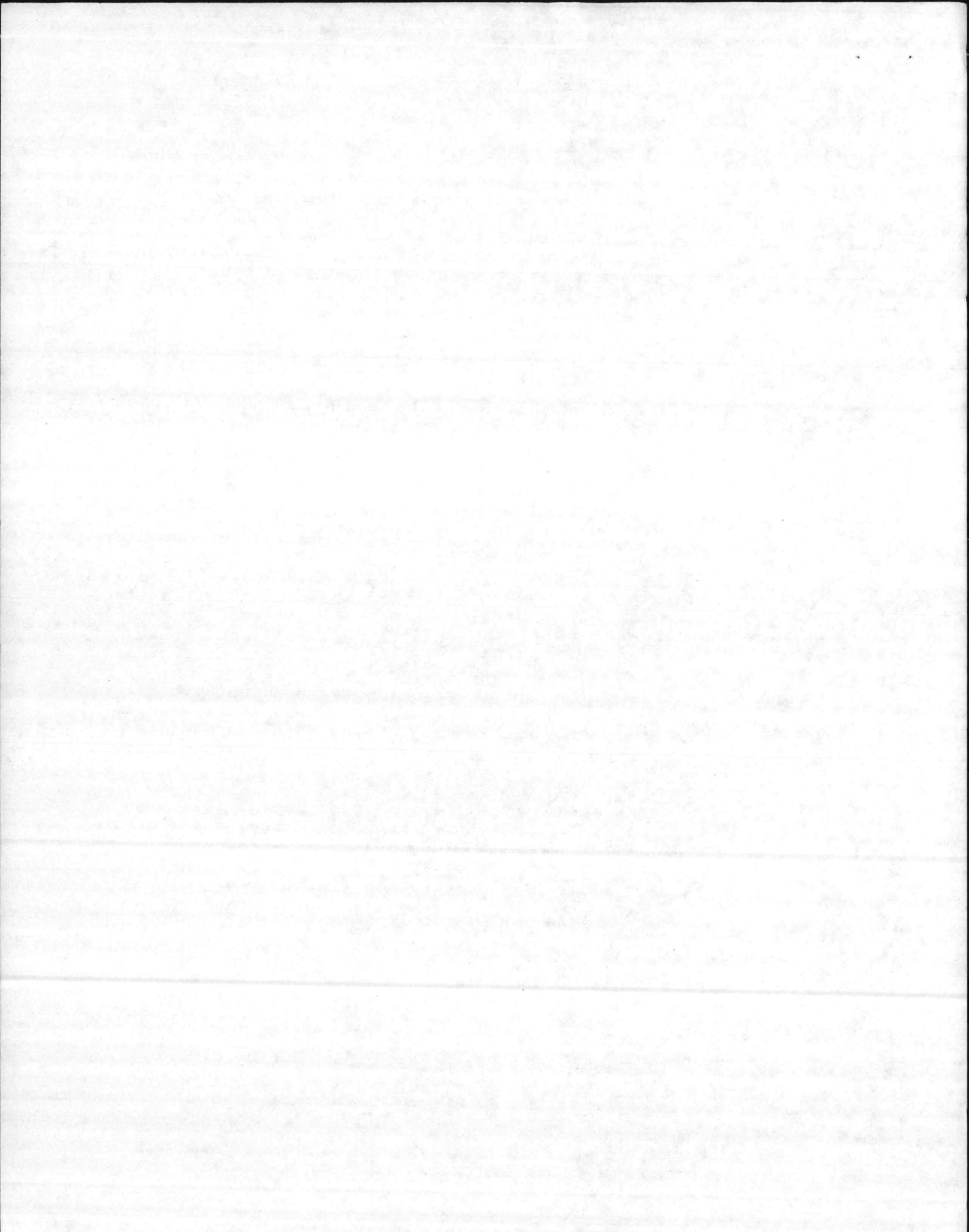
(i) marl and well packed or heavily used gravel roads, 90% impervious

(ii) turfstone and not heavily used gravel, 70% impervious

(iii) elevated wooden walkways and decks with at least 1/2 inch spacing between boards 10 inches or less in width, 10% impervious

(iv) water surface of

- swimming pools, 0% impervious
- (v) drainfields and rotary distributors for wastewater disposal with no diversion of runoff, 0% impervious
- (C) Asphalt, concrete, brick, wood, and other impermeable surfaces which prevent land area from infiltrating stormwater are 100% impervious.
- (D) Coastal wetland areas shall not be included as part of the total project site in calculating the effective impervious cover of a project site. Coastal wetlands are defined in 15 NCAC 7H .0205 and include any salt marsh or other marsh subject to regular or occasional flooding by tides including wind tides.
- (3) Infiltration systems beneath structures must:
- (A) not be located under pavement or other inaccessible surfaces;
- (B) provide at least 12 inches vertically of permeable natural soil or sand between points of release of stormwater and the seasonally high water table.
- (C) provide settling wells to trap particulate matter;
- (D) distribute the stormwater over as large an area under the structure as is reasonable but in no event shall that be less than 75 percent of the area of the structure.
- (4) Boat ramps, public roads and bridges are acceptable if:
- (A) impervious surfaces are minimized, stormwater is diverted away from the water, buffer areas are utilized, and sites with favorable characteristics such as high flushing are selected; and
- (B) boat ramps drain only the surface of the ramp and not drainage from adjacent facilities; and
- (C) the boat ramp, public road or bridge, alone or in combination with other boat ramps, roads and bridges in the vicinity, is not expected to substantially increase the frequency of violations of water quality standards or the closure of the waters to shellfishing;
- (5) At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on form provided by the division; The form shall be signed by the owner or agent certifying that the project complies with the requirements of this Paragraph; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;
- (f) Disposal requiring an individual permit. If development is not deemed to be permitted as specified in Paragraphs (d) and (e) of this Rule, stormwater disposal within 1/2 mile of Class SA waters shall be in accordance with the following:



- (1) For areas that drain directly to Class SA waters including through a dry ditch or conveyance:
 - (A) All stormwater runoff from a storm up to a 10-year, 24-hour storm, including the 10-year, 1-hour intensity, shall be infiltrated on-site, diverted to an adequate disposal site, or treated to comply with the standards prior to discharge;
 - (B) The bottom of any lagoon or other means for infiltrating collected stormwater shall be greater than or equal to three feet above the seasonally high water table and the design must be justified by site specific evaluations which indicate a drawdown time of 72 hours or less;
- (2) For areas which drain to waters in close proximity to Class SA waters:
 - (A) All stormwater runoff from a storm up to a 2-year, 24-hour storm, including the 2-year, 1-hour intensity, shall be infiltrated on-site, diverted to an adequate disposal site, or treated to comply with the standards prior to discharge;
 - (B) The bottom of any lagoon or other means for infiltrating collected stormwater shall be greater than or equal to two feet above the seasonally high water table and the design must be justified by site specific evaluations which indicate a drawdown time of 72 hours or less;
- (3) Infiltration systems or permeable storage lagoons for collected stormwater (not including infiltration systems beneath structures) shall be located at least 100 feet from the mean high water line of Class SA waters and 50 feet from other surface waters including coastal wetland areas;
- (4) An operation and maintenance plan or manual shall be provided for stormwater systems, indicating what operation and maintenance actions are needed, what specific quantitative criteria will be used for determining when those actions are to be taken, and who is responsible for those actions;
- (5) Innovative measures for controlling stormwater pollution or methods for designing stormwater systems which are not well established through actual experience may be individually permitted on a demonstration basis under the following criteria:
 - (A) there is a reasonable expectation that the innovative measure will be successful;
 - (B) demonstration projects shall be located where site characteristics will minimize possible impacts on shellfish waters and shall not be located where failure of the project could directly pollute highly productive shellfish beds;

- (C) demonstration projects shall have a monitoring program to adequately establish the effectiveness of the innovative measure or method; and

Due to the need to assure reliable disposal of stormwater, not more than two demonstration projects for each innovative measure or method shall be permitted until the effectiveness of the measure or method has been demonstrated for an appropriate time period to be specified at the time the permit is issued; The division shall issue public notice of a proposed project with innovative measures for stormwater treatment and disposal and if there is significant public concern, hold a public meeting to obtain comments and information.

(g) Permit transfer. A person holding a permit for stormwater disposal is responsible for compliance with the permit until the permit is transferred to another person. Upon transfer of property, both the person yielding and the person receiving responsibility for stormwater disposal have responsibility for assuring proper permit transfer including notification of the division.

(h) Policy on the role of local governments. The commission recognizes that local units of government must play a central role in effective management of stormwater. It is the commission's intent and policy that local units of government develop stormwater management programs which inspect and enforce proper operation and maintenance of stormwater controls and which incorporate stormwater controls into local building and zoning ordinances. In addition, municipalities, counties, local boards or commissions, water and sewer authorities, or other groups of municipalities and counties may apply to the commission for approval to administer programs for reviewing, approving and maintaining stormwater disposal for new development not requiring an individual permit according to Paragraph (h) of this Rule. The commission will review these applications on a case-by-case basis to ensure that the requirements of this Rule will be adequately implemented and maintained.

BETZ



SODIUM BISULFITE

Material Safety Data Sheet

Mallinckrodt, Inc.
Science Products Division
P.O. Box M
Paris, Kentucky 40361

Emergency Telephone No. 311-222-7000

Effective Date: July 30, 1985

Product Identification:

Synonyms: Sodium Acid Sulfite; Sulfurous Acid, Monosodium
Sodium Hydrogen Sulfite, solid

CAS Number: 7631-90-5 Sodium Bisulfite
7681-57-4 Sodium Metabisulfite

Molecular Weight

Chemical Formula: Usually a mixture of
NaHSO₃ and Na₂S₂O₅

Hazardous Ingredients:
Both the metabisulfite and
the bisulfite are ACGIH listed.

PRECAUTIONARY INFORMATION

WARNING! HARMFUL IF SWALLOWED.

Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, give several glasses of water to drink to dilute. Do not induce vomiting. Call a physician. Never give anything by mouth to an unconscious person.

SEE SECTION 5.

DOT Hazard Class: ORM-B

Physical Data

SECTION 1

Appearance: Coarse white granules

Odor: Slight odor of sulfur dioxide

Solubility: Very soluble in water, insoluble in alcohol.

Boiling Point: Not Applicable

Vapor Density: No information found.

Melting Point: Decomposes
above 150°C (302°F)

Vapor Pressure: No information found.

Specific Gravity: 1.48

Evaporation Rate: No information found.

-2-

SECTION 2

Not a fire hazard.

Not an explosion hazard.

Use any medium suitable for extinguishing supporting fire.

In the event of a fire wear full protective clothing and NIOSH approved self-contained breathing apparatus, full facepiece operated in the pressure demand or other positive pressure mode.

Special Information:

Reactivity Data

SECTION 3

Stability:

Strength diminishes somewhat with age. Gradually decomposes in air to sulfate, generating sulfurous acid gas.

Hazardous Decomposition Products:

When heated to decomposition it emits toxic fumes of sodium oxide and sulfur oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, oxidizers, aluminum powder.

Leak/Spill Disposal Information SECTION 4

Spills: Ventilate area of leak or spill. Clean-up personnel need skin, eye, and respiratory protection.

Sweep up dry material into a suitable metal container with a cover for reclamation or disposal. Flush residue to sewer, providing ventilation to clear sulfur dioxide fumes generated from water contact.

Disposal: Whatever cannot be saved for reclamation may be disposed in an approved waste facility.

Ensure compliance with local, state and federal regulations.

Reportable Quantity (RQ) (CWA Sec. 311): 5,000 lbs.

Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Inhalation:

May cause irritation to the mucous membranes.

Ingestion:

May cause gastric irritation by the liberation of sulfurous acid. Large doses may be fatal.

Skin Contact:

Concentrated solutions may be irritating to the skin.

Eye Contact:

May cause irritation, redness, pain.

Chronic Exposure:

No information found.

Aggravation of

Pre-existing Conditions:

Some individuals are said to be dangerously sensitive to minute amounts of sulfites in foods. Symptoms may include broncho constriction, shock, gastrointestinal disturbances, angio edema, flushing, and tingling sensations.

B. FIRST AID

Inhalation:

Remove to fresh air. Get medical help for any breathing difficulty.

Ingestion:

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Exposure:

Wash exposed areas with soap and water. Get medical advice if irritation develops.

Eye Exposure:

Wash thoroughly with running water. Get medical advice if irritation develops.

C. Toxicity Data: (RTECS, 1982)

Oral Rat LD₅₀: 2000 mg/Kg
Mutation references cited.

Occupational Control Measures

SECTION 6

Airborne Exposure Limit:

- ACGIH Threshold Limit Value (TLV): 5 mg/m³ (TWA)

Ventilation System:

A system of general and/or local exhaust is recommended to keep employee exposures below the airborne exposure limits. Local exhaust ventilation is generally preferred because it can control the emissions of the vapor at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators:
(NIOSH approved)

If the TLV is exceeded, a dust respirator may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:

Impervious gloves, labcoat, apron or coveralls.

Eye Protection:

Chemical safety goggles.

Maintain eye wash fountain and quick drench facilities in work area.

Storage and Special Information

SECTION 7

Protect against physical damage and moisture. Separate from combustible, organic, or other readily oxidizable substances.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, Mallinckrodt, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, Mallinckrodt, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information. NO REPRESENTATIONS, OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR TO THE PRODUCT TO WHICH THE INFORMATION REFERS.



SODIUM BISULFITE

Material Safety Data Sheet

Mallinckrodt, Inc.
Science Products Division
P.O. Box M
Paris, Kentucky 40361

Emergency Telephone No.
314-982-5000

Effective Date: July 30, 1985

Product Identification:

Synonyms: Sodium Acid Sulfite; Sulfurous Acid, Monosodium Salt;
Sodium Hydrogen Sulfite, solid

CAS Number: 7631-90-5 Sodium Bisulfite Molecular Weight: 104.06
7681-57-4 Sodium Metabisulfite

Chemical Formula: Usually a mixture of Hazardous Ingredients:
NaHSO₃ and Na₂S₂O₅ Both the metabisulfite and
the bisulfite are ACGIH listed.

PRECAUTIONARY INFORMATION

WARNING! HARMFUL IF SWALLOWED.

Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, give several glasses of water to drink to dilute. Do not induce vomiting. Call a physician. Never give anything by mouth to an unconscious person.
SEE SECTION 5.

DOT Hazard Class: ORM-B

Physical Data

SECTION 1

Appearance: Coarse white granules

Odor: Slight odor of sulfur dioxide

Solubility: Very soluble in water, insoluble in alcohol.

Boiling Point: Not Applicable

Vapor Density: No information found.

Melting Point: Decomposes
above 150°C (302°F)

Vapor Pressure: No information found.

Specific Gravity: 1.48

Evaporation Rate: No information found.

-2-

Fire and Explosion
Information

SECTION 2

Fire:

Not a fire hazard.

Explosion:

Not an explosion hazard.

Fire Extinguishing Media:

Use any medium suitable for extinguishing supporting fire.

Special Information:

In the event of a fire wear full protective clothing and NIOSH approved self-contained breathing apparatus, full facepiece operated in the pressure demand or other positive pressure mode.

Reactivity Data

SECTION 3

Stability:

Strength diminishes somewhat with age. Gradually decomposes in air to sulfate, generating sulfurous acid gas.

Hazardous Decomposition Products:

When heated to decomposition it emits toxic fumes of sodium oxide and sulfur oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, oxidizers, aluminum powder.

Leak/Spill Disposal Information

SECTION 4

Spills: Ventilate area of leak or spill. Clean-up personnel need skin, eye, and respiratory protection.

Sweep up dry material into a suitable metal container with a cover for reclamation or disposal. Flush residue to sewer, providing ventilation to clear sulfur dioxide fumes generated from water contact.

Disposal: Whatever cannot be saved for reclamation may be disposed in an approved waste facility.

Ensure compliance with local, state and federal regulations.

Reportable Quantity (RQ) (CWA Sec. 311): 5,000 lbs.

Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Inhalation:

May cause irritation to the mucous membranes.

Ingestion:

May cause gastric irritation by the liberation of sulfurous acid. Large doses may be fatal.

Skin Contact:

Concentrated solutions may be irritating to the skin.

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May cause irritation, redness, pain.

Chronic Exposure:

No information found.

Aggravation of

Pre-existing Conditions:

Some individuals are said to be dangerously sensitive to minute amounts of sulfites in foods. Symptoms may include broncho constriction, shock, gastrointestinal disturbances, angio edema, flushing, and tingling sensations.

B. FIRST AID

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Remove to fresh air. Get medical help for any breathing difficulty.

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Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Exposure:

Wash exposed areas with soap and water. Get medical advice if irritation develops.

Eye Exposure:

Wash thoroughly with running water. Get medical advice if irritation develops.

C. Toxicity Data: (RTECS, 1982)

Oral Rat LD₅₀: 2000 mg/Kg
Mutation references cited.

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SECTION 6

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A system of general and/or local exhaust is recommended to keep employee exposures below the airborne exposure limits. Local exhaust ventilation is generally preferred because it can control the emissions of the vapor at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators:

(NIOSH approved)

If the TLV is exceeded, a dust respirator may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:

Impervious gloves, labcoat, apron or coveralls.

Eye Protection:

Chemical safety goggles.

Maintain eye wash fountain and quick drench facilities in work area.

Storage and Special Information

SECTION 7

Protect against physical damage and moisture. Separate from combustible, organic, or other readily oxidizable substances.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, Mallinckrodt, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, Mallinckrodt, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information. NO REPRESENTATIONS, OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR TO THE PRODUCT TO WHICH THE INFORMATION REFERS.

File
ASSISTANT CHIEF OF STAFF, FACILITIES
HEADQUARTERS, MARINE CORPS BASE

DATE 4/21/86

TO:

- BASE MAINT O
- PUBLIC WORKS O
- COMM-ELECT O
- DIR., NAT. RESOURCES & ENV. AFFAIRS

- DIR, FAMILY HOUSING
- DIR, BACHELOR HOUSING
- BASE FIRE CHIEF

ATTN: N.C. RUNOFF RULES

1. Attached is forwarded for info/action.

As we expected, draft rules are published - pls review & ^{comment} advise of the impact on MCON projects.

2. Please initial, or comment, and return all papers to this office. etc.

I'll be attending 6 May pub hng -

~~3. Your file copy.~~

would like to make "official" statement if you advise.

Input by CONC/LANT
"LET'S THINK OF A FEW REASONS WHY IT CAN BE DONE"

is also being sought.

4/R BOW

182



Mr. R. R. R. R.

As we expect that this will be
published - the reason is obvious
of your report on MCM project.

I'll be attending to this this day

would like to make "obvious"

statement if you advise

W. R. R. R.

Report by
is also being
correct

N. C. ENVIRONMENTAL MANAGEMENT COMMISSION
NOTICE OF PUBLIC HEARING TO
CONSIDER REGULATIONS FOR STORMWATER CONTROLS

Notice is hereby given of a public hearing to be held by the North Carolina Department of Natural Resources and Community Development on behalf of the Environmental Management Commission concerning adoption of regulations to control stormwater. The proposed regulations would be effective on August 1, 1986.

PURPOSE: To receive public comment on proposed rules and amendments to 15 NCAC 2B Sections .0200 and .0300 and 2H Sections .0100, .0200, and .0400. The major proposals are:

- 1) Adopt 15 NCAC 2B .0217 STORMWATER CONTROL CRITERIA TO PROTECT WATER QUALITY STANDARDS. This rule sets appropriate frequency and duration criteria for stormwater treatment systems in order to protect water quality standards.
- 2) Amend 15 NCAC 2B .0301 CLASSIFICATIONS: GENERAL. This amendment will change the way of determining the classification of unnamed waters tributary to tidal saltwaters.
- 3) Adopt 15 NCAC 2H .0125 STORMWATER TREATMENT AND DISPOSAL SYSTEMS. This rule adopts by reference U.S. Environmental Protection Agency regulations 40 CFR 122.21(c)(2) and 122.26 as amended through August 29, 1985 which would require NPDES permit applications for certain stormwater point sources. In addition, permits for stormwater treatment and disposal systems can be required if the disposal is a significant source of pollution which threatens water quality standards. This rule also defines stormwater systems which are considered to discharge to surface waters.
- 4) Amend 15 NCAC 2H .0217 POLICY. This rule requires State permits for stormwater treatment and disposal systems which are not considered to discharge to surface waters.
- 5) Amend 15 NCAC 2H .0404 COASTAL WASTE TREATMENT AND DISPOSAL SYSTEMS to specify that no domestic wastewater discharges will be allowed to unnamed tributaries to Class SA waters which are classified C or SC as a result of the proposed amendments to 15 NCAC 2B .0301.
- 6) Adopt 15 NCAC 2H .0408 DISPOSAL OF STORMWATER. This rule specifies requirements for stormwater disposal systems to protect water quality standards of Class SA (shellfishing) waters. Specifications are proposed for the design of stormwater treatment and disposal systems which require a permit and alternatives are proposed so that no permit is required.

DATES/LOCATIONS:

May 5, 1986 @ 7:00 P.M.
Auditorium
N.C. Marine Resources Center
Airport Road
Manteo, N.C.

May 6, 1986 @ 7:00 P.M.
Joslyn Hall
Carteret Technical College
3505 Arendell Street
Morehead City, N.C.

May 7, 1986 @ 7:00 P.M.
King Auditorium
UNC-Wilmington
601 S. College Road
Wilmington, N.C.

May 8, 1986 @ 7:00 P.M.
Ground Floor Hearing Room
Archdale Building
512 N. Salisbury Street
Raleigh, N.C.

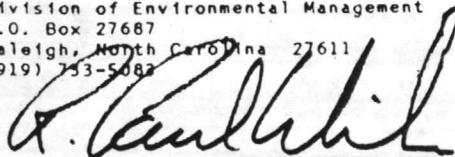
COMMENT PROCEDURE: All persons interested in this matter are invited to attend. Comments, statements, data, and other information may be submitted in writing prior to, during, or within 30 days after the hearing or may be presented orally at the hearing. Statements may be limited to 3 minutes at the discretion of the hearing officer. Submission of written copies of oral presentations is encouraged.

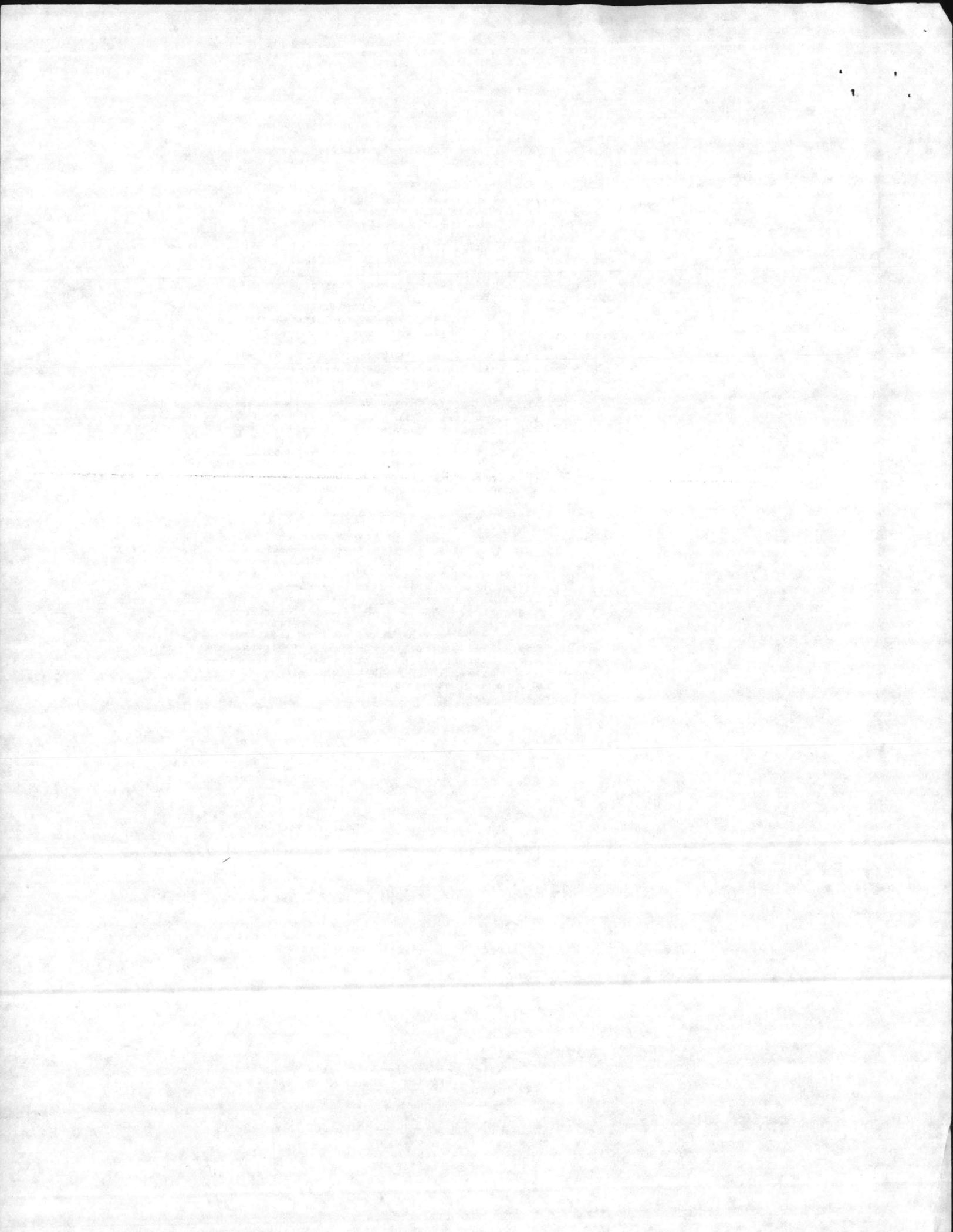
AUTHORITY: N.C.G.S. 143-214.1, 143-215.3(A)(1)

INFORMATION: Further explanations and details of the proposed regulations may be obtained by writing or calling:

Bill Kreuzberger
Division of Environmental Management
P.O. Box 27687
Raleigh, North Carolina 27611
(919) 753-5082

5/19/86
Date


R. Paul Wilms, Director



SUMMARY OF PROPOSED EMC
REGULATIONS TO IMPLEMENT STORMWATER CONTROLS

. ADOPTION OF EPA STORMWATER REGULATIONS BY REFERENCE

EPA regulations for stormwater point sources are proposed to be adopted by reference. The EPA regulations require NPDES permit applications for stormwater disposal from industrial, commercial, and municipal sites as well as from residential portions of 11 urban areas. Some permit applications are required by December 31, 1987 (industrial sites) while other applications are required by June 30, 1989. The EPA regulations also allow NPDES permits to be required for other significant contributors of stormwater pollution which may threaten water quality standards. The EMC proposals include a finding that stormwater disposal for development near Class SA waters threatens water quality standards and stormwater disposal must be addressed.

. CRITERIA FOR PROTECTION OF WATER QUALITY STANDARDS FROM STORMWATER

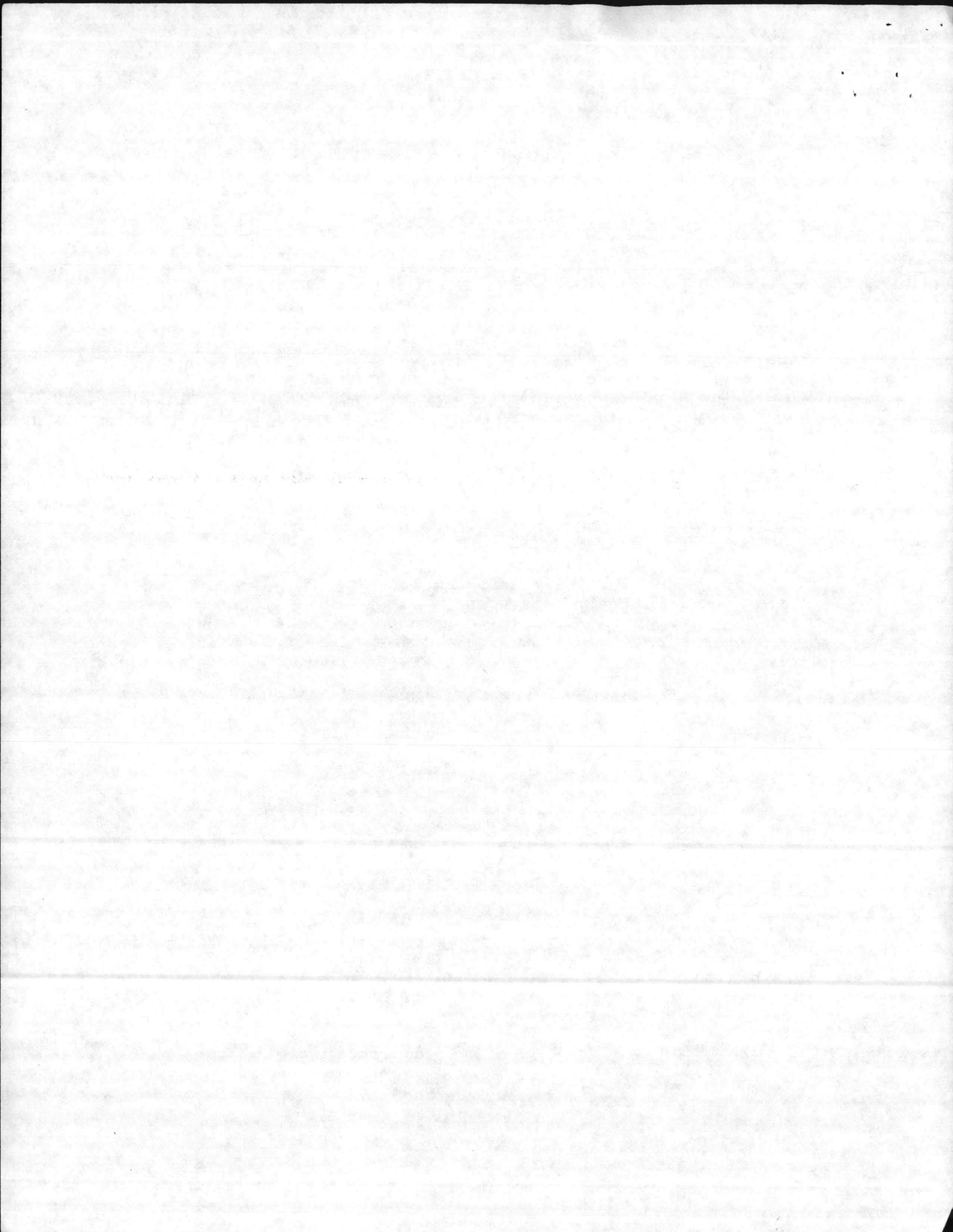
Storm event criteria are proposed for the design of stormwater treatment and disposal systems to protect water quality standards. These criteria are analagous to the use of a low stream flow (such as a 7-day, 10 year low flow) for designing wastewater treatment plants. These stormwater criteria include:

- A) A 10 year-24 hour design storm for direct drainage to Class SA waters.
- B) A 2 year-24 hour design storm for drainage to waters in close proximity to Class SA waters.
- C) Case-by-case determinations of storm event criteria to protect water quality standards when necessary for other waters of the State.

. PROPOSED IMPLEMENTATION SCHEME FOR STORMWATER CONTROLS IN COASTAL AREAS

The proposed regulations require stormwater controls to be considered for development within 1/2 mile of Class SA waters. This distance was selected because it is a reasonable estimate of the immediate watershed and it is a zone which can be incorporated on land use maps.

Within the 1/2 mile zone, development must either meet certain density limits or obtain a permit for stormwater disposal unless it meets one of several exceptions:



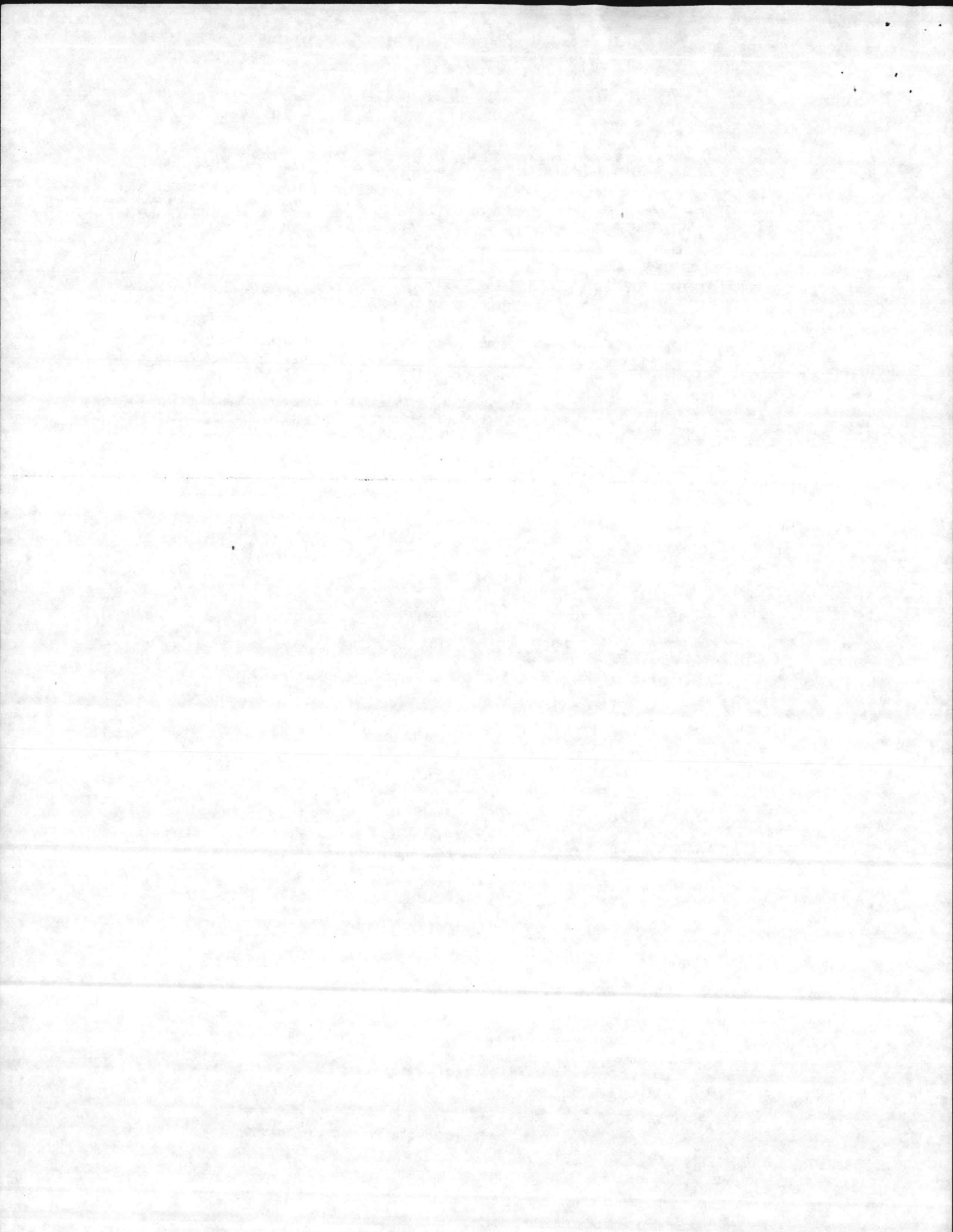
- A) The site can be certified by DEM that the drainage does not threaten Class SA waters.
- B) The development is existing development which is defined as development with a permit (CAMA or local building) issued prior to May 5, 1986.
- C) The development is redevelopment following a fire, hurricane or other natural disaster.
- D) The project site is one acre or less and no portion falls within the CAMA AEC.
- E) The stormwater disposal represents an emergency where flooding has occurred and pumping or other diversions are necessary to protect public health and welfare.

If the development does not meet one of the exceptions, the development must either meet certain density limits or must obtain a permit for a stormwater treatment and disposal system. The requirements vary depending on drainage characteristics as follows:

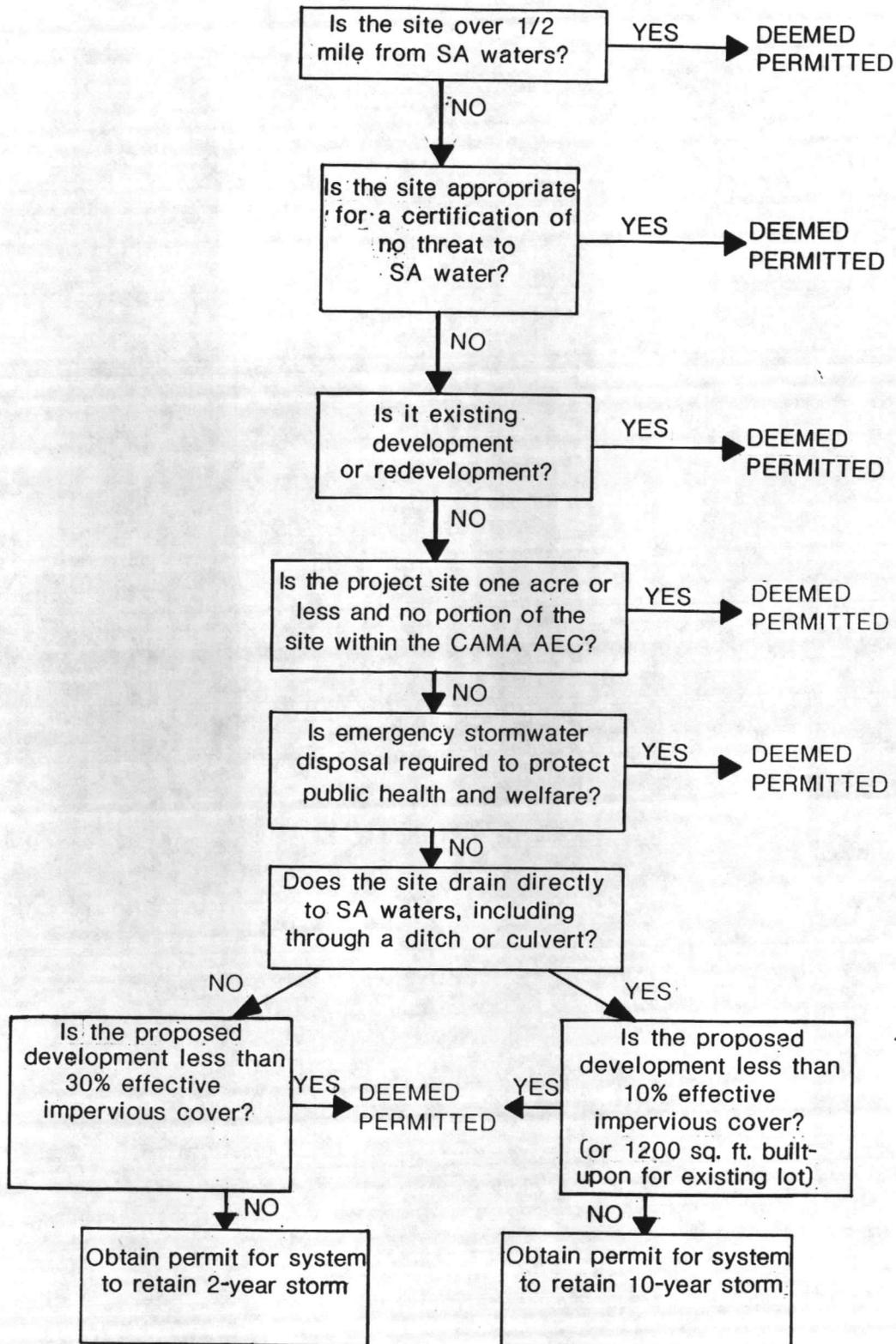
- A) Direct Drainage to Class SA waters
 - 10% Effective Impervious Area (Density Limit) or
 - 10 year Design Storm for Permitted System
- B) Drainage to waters in Close Proximity to SA waters
 - 30% Effective Impervious Area (Density Limit) or
 - 2 year Design Storm for Permitted System

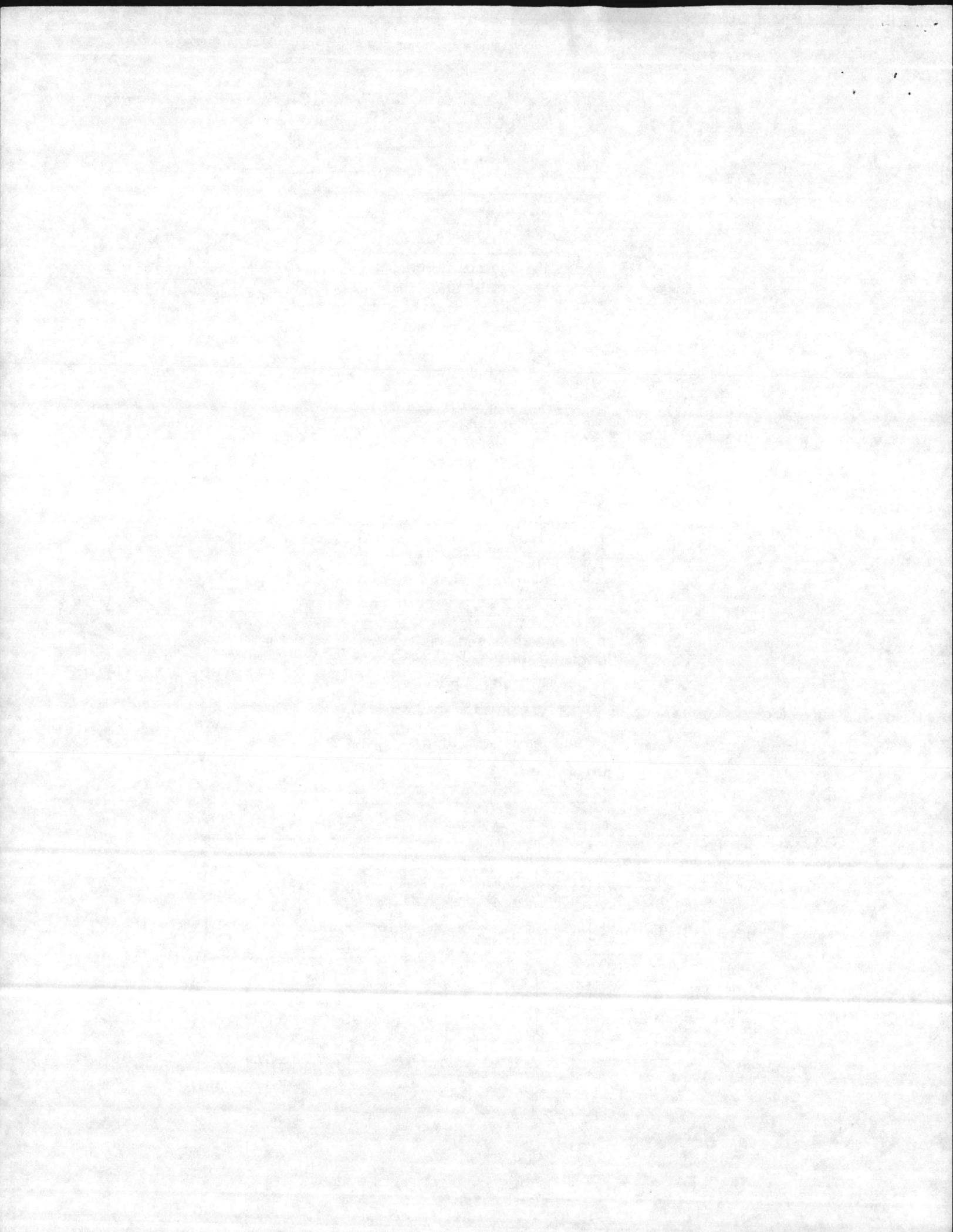
Other Features of this proposal include:

- A 30 ft set-back for development meeting density limits
- A minimum 1200 ft² built-upon area for lots platted prior to May 5, 1986
- A 100 ft set-back from SA waters for permitted stormwater infiltration ponds



**SCHEMATIC OF REGULATIONS FOR COASTAL STORMWATER
TO PROTECT CLASS SA WATERS**





PROPOSED REGULATIONS TO IMPLEMENT
STORMWATER CONTROLS
March 25, 1986

15 NCAC 2B .0200 - CLASSIFICATIONS AND WATER QUALITY STANDARDS
APPLICABLE TO SURFACE WATERS OF NORTH
CAROLINA

[The following definitions would be added]

.0202 DEFINITIONS

- (25) Stormwater means any waste discharged primarily in response to precipitation and subsequent runoff which may impair the classified best usage of surface waters.

[The following rule would be added.]

.0217 STORMWATER CONTROL CRITERIA TO PROTECT WATER QUALITY
STANDARDS

(a) In implementing the existing water quality standards to protect waters for their classified "best usage," it may be necessary to require controls of stormwater to fully achieve the uses specified by the stream classification. The purpose of this rule is to set appropriate frequency and duration criteria for developing permit limitations for stormwater treatment and disposal systems requiring a permit according to rules 2H .0125 and .0217 and for the design of stormwater controls to protect water quality standards and "best usage."

(b) Criteria for implementing and protecting water quality standards and classified uses from stormwater depend on stream classification as follows:

(1) Class SA waters:

- (A) Stormwater must not be discharged directly to Class SA waters from precipitation events less severe than the 10-year, 24-hour event, including a 10-year, 1-hour intensity; this requirement applies to discharges to outlets, ditches, discrete drainageways, and other conveyances which drain directly to Class SA waters and are normally dry except in response to precipitation;
- (B) Stormwater must not be discharged to waters in close proximity to Class SA waters from precipitation events less severe than the 2-year, 24-hour event (including a 2-year, 1-hour peak intensity); this requirement applies to discharges to unnamed freshwaters tributary to Class "SA" waters and classified as "C" in accordance with Rule .0301(i) of the Subchapter, as well as to named streams in such close proximity that water quality standards or uses of Class SA waters may be threatened;
- (C) As an alternative, disposal for land areas which complies with rule 2H .0408 of this Subchapter is considered to comply with requirements (A) and (B) of this subparagraph;

- (2) Other waters: Appropriate frequency/duration criteria for the design of stormwater controls for other waters of the State shall be determined on a case-by-case basis by the Commission so as to provide adequate protection of water quality standards and classified uses in waters receiving the stormwater as well as downstream waters with different stream classifications;

15 NCAC 2B .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

[Proposed amendments are shown below with new words underlined.]

.0301 CLASSIFICATIONS: GENERAL

...

(i) Unnamed Streams.

- (1) Any stream which is not named in the schedule of stream classifications carries the same classification as that assigned to the stream segment to which it is tributary except:
- (A) unnamed streams specifically described in the schedule of classifications, or
 - (B) unnamed freshwaters tributary to tidal saltwaters will be classified "C," or
 - (C) after [the effective date of this rule], any newly created areas of tidal saltwater which are connected to Class SA waters by approved dredging projects will be classified "SC" unless case-by-case reclassification proceedings are conducted.
- (2) The following river basins have different policies for unnamed streams entering other states or for specific areas of the basin:

...

[List of River basins is not changed from existing rule.]

15 NCAC 2H .0100 - WASTEWATER DISCHARGES TO SURFACE WATERS

[The following rule is proposed to be added.]

.0125 STORMWATER TREATMENT AND DISPOSAL SYSTEMS

(a) Permits for stormwater treatment and disposal systems which discharge to surface waters shall be issued in accordance with United States Environmental Protection Agency regulations 40 CFR 122.21(c)(2) and 122.26 which are adopted by reference as amended through August 29, 1985.

(b) Stormwater systems which discharge to surface waters but do not require a permit pursuant to paragraph (a) of this Rule are deemed to be permitted pursuant to G.S. 143-215.1(a) unless, in accordance with 40 CFR 122.26(c) the director determines that the

stormwater disposal or proposed disposal is a significant contributor of pollution to waters of the State which may threaten water quality standards. Rule 2H .0408 of this Subchapter specifies requirements for stormwater treatment and disposal systems in close proximity to sensitive coastal waters which have been determined to be significant contributors of pollution which may threaten water quality standards and specifies alternatives for coastal stormwater disposal which do not need individual permits.

(c) Stormwater disposal systems which discharge in response to a more frequent precipitation event than the 25-year, 24-hour event are considered to discharge to surface waters. Stormwater disposal systems which discharge only in response to a 25-year, 24-hour or less frequent precipitation event are considered nondischarging systems and must comply with Section .0200 of this Subchapter.

15 NCAC 2H .0200 - WASTE NOT DISCHARGED TO SURFACE WATERS

[The following paragraph is proposed to be added.]

.0217 POLICY

...

(d) Treatment works and disposal systems for stormwater runoff which do not discharge to surface waters shall be permitted pursuant to G.S. 143-215.1(d) as follows:

- (A) Systems are deemed to be permitted unless the director determines that the system or proposed system is a significant contributor of pollution to the waters of the State which may threaten water quality standards; Rule 2H .0408 of this Subchapter specifies requirements for stormwater treatment and disposal systems within close proximity to sensitive coastal waters which have been determined to be significant contributors of pollution which may threaten water quality standards and specifies alternatives for coastal stormwater disposal which do not need individual permits.
 - (B) Stormwater disposal systems which discharge only in response to a 25-year, 24-hour event or less frequent precipitation event are considered nondischarging systems. Stormwater disposal systems which discharge in response to a more frequent precipitation event than the 25-year, 24-hour event are considered discharging systems and must comply with Section .0100 of this Subchapter.
-

15 NCAC 2H .0400 - COASTAL WASTE TREATMENT DISPOSAL

[Proposed amendments are given below with new words underlined.]

.0404 FACILITY LOCATION AND DESIGN

(a) No domestic sewage regardless of the treatment proposed and no other wastes which could adversely affect the taking of shellfish for market purposes shall be discharged into waters classified "SA" or to waters in such close proximity as to adversely affect such "SA" waters, including to unnamed freshwaters classified "C" or "SC" in accordance with Rule 2B .0301(i)(1)(B) and (C). Wastes discharged into other waters tributary to waters classified "SA" shall be treated in such manner as to assure that no impairment of water quality in the "SA" segments shall occur. No permits shall be issued for discharges into waters classified "SA" unless Shellfish Sanitation, Environmental Health Section, Department of Human Resources, provides written concurrence that the discharge would not adversely affect shellfish water quality or the propagation of shellfish.

...

[The following rule would be added.]

.0408 DISPOSAL OF STORMWATER

(a) Policy. Since stormwater runoff from developed areas is known to contain pollutants that can violate water quality standards for Class SA waters, pose threats to public health, and cause waters to be closed to the taking of shellfish, this regulation specifies requirements for controlling stormwater runoff near coastal waters in order to implement the water quality standards and to protect existing uses.

(b) Relation to other regulations. This Regulation implements water quality standards for Class SA waters given in Rules 2B .0212 and 2B .0217 of this Subchapter. This Regulation also provides criteria for determining whether stormwater disposal for a site requires an individual permit and further provides design criteria for systems which require a permit. Procedures for obtaining individual permits are given in Section 2H .0100 and .0200 of this Subchapter. Point source discharges of stormwater to the Atlantic Ocean are regulated by federal regulations which are adopted by reference in Paragraph .0404(d) of this Section.

(c) Definitions.

- (1) Development means any land disturbing activity which adds or changes the amount of impervious or partially pervious cover on a land area or may otherwise decrease the infiltration of precipitation into the soil thus altering the hydrological characteristics of the area;
- (2) Effective impervious cover means that portion of a land area which due to modification by man allows restricted or no infiltration of precipitation into the soil and is expressed as a percentage of the total land area of the project site; this area is calculated by considering the total built-upon area (including roof-tops, driveways, roads, parking areas, patios, decks, etc.) and giving credits for partially pervious surfaces such as gravel driveways, porous pavements, decking, or practices such as infiltration of roof-top drainage underneath buildings;
- (3) Existing development means any development activity for which a Coastal Area Management Act permit or a local building permit has been issued by May 5, 1986;
- (4) Redevelopment means any rebuilding activity following fires, hurricanes or other natural disasters that occurs on an area that qualifies as existing development pursuant to this Paragraph;

(d) Applicability. Development within 1/2 mile of Class SA waters must either meet certain density limits to minimize the amount of stormwater runoff or an individual permit must be obtained for stormwater treatment and disposal unless development meets one of the following exceptions:

- (1) Certification that disposal from new development does not threaten shellfishing waters: Stormwater disposal for new development does not need to meet the requirements of this Rule if a certification is obtained from the director stating that the site, regardless the level of development, is not so situated that water quality

standards or uses of waters for shellfishing may be threatened;

- (2) Existing development: Stormwater disposal for existing development does not need to comply with the requirements of this Rule unless the director determines that the stormwater disposal alone has caused the loss of a designated use of the waters of the State and that stormwater disposal in compliance with these regulations would regain the lost use; If the director makes this determination, the responsible party will be notified and an appropriate schedule of compliance to meet the requirements of of this Rule shall be established;
- (3) Redevelopment: Redevelopment of a site following a natural disaster does not need to meet the requirements of this Rule if:
 - (A) it is a similar type of development with the same number or fewer units as the previous development; and
 - (B) it employs stormwater controls to the maximum extent practicable with the same level of development;

At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on a form provided by the division; The form shall be signed by the owner or agent certifying that the project is redevelopment and complies with the requirements of this Rule; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;

- (4) Project sites one acre or less: Development does not need to comply with the requirements of this Rule if the total project site is one acre or less and no portion of the site is within Estuarine Shoreline Area of Environmental Concern (AEC) specified in 15 NCAC 7H .0209; For the purposes of this Rule, the project area or site means the total land area being developed, including future and related phases of development; At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on a form provided by the division; The form shall be signed by the owner or agent certifying that the project site is one acre or less and that no portion of the site is within the AEC; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;
- (5) Emergency stormwater disposal to protect public health and welfare: In order to alleviate flooding problems as a result of extreme precipitation events, the Director may temporarily approve the diversion or pumping of stormwater not in accordance with other provisions of this Rule (within 1/2 mile of Class SA waters) if steps are taken to minimize the environmental and public health impacts to the greatest extent practicable. Areas which qualify as

existing development that experience frequent flooding may be required to take appropriate corrective actions to reduce stormwater runoff.

Stormwater disposal which meets one of these exceptions is deemed permitted. Failure to remain in compliance with these exceptions shall be considered a violation of this Rule and will require corrective action or an individual permit for stormwater treatment and disposal.

(e) New development not requiring an individual permit. Stormwater disposal for development within 1/2 mile of Class SA waters is deemed permitted and an individual permit is not required if the development is in accordance with the following:

(1) The following conditions must be met:

(A) Effective impervious cover must not exceed:

(i) 10 percent if the area drains directly to Class SA waters; or

(ii) 30 percent if the area drains to waters in close proximity to Class SA waters;

If an individual lot was platted prior to May 5, 1986, these impervious cover limits may be exceeded provided the total built-upon area of the site is not more than 1200 ft² and an infiltration system beneath the building is used;

(B) The total built upon area must not exceed 50 percent;

(C) Built upon area and infiltration systems beneath structures must be at least 30 feet from surface waters (ie. the mean high water line) or impervious conveyances, if surface drainage is in the direction of the waters or conveyances; however, boat ramps, roads and bridges are allowed within 30 feet of surface waters if they meet the requirements of Subparagraph (4) of this Paragraph;

(D) Project sites must have favorable characteristics such as adequate flushing in adjacent surface waters, soils with moderate to high permeability, and not be near highly productive shellfish beds;

(2) Effective impervious cover will be calculated by giving credits for infiltration systems beneath buildings and credits for partially impervious surfaces as follows:

(A) Only 50 percent of the final building foot print may be considered impervious if the building has gutters which drain to an infiltration system beneath the building;

(B) Partially impervious surfaces are:

(i) marl and well packed or heavily used gravel roads, 90% impervious

(ii) turfstone and not heavily used gravel, 70% impervious

(iii) elevated wooden walkways and decks with at least 1/2 inch spacing between boards 10 inches or less in width, 10% impervious

(iv) water surface of

- swimming pools, 0% impervious
- (v) drainfields and rotary distributors for wastewater disposal with no diversion of runoff, 0% impervious
- (C) Asphalt, concrete, brick, wood, and other impermeable surfaces which prevent land area from infiltrating stormwater are 100% impervious.
- (D) Coastal wetland areas shall not be included as part of the total project site in calculating the effective impervious cover of a project site. Coastal wetlands are defined in 15 NCAC 7H .0205 and include any salt marsh or other marsh subject to regular or occasional flooding by tides including wind tides.
- (3) Infiltration systems beneath structures must:
- (A) not be located under pavement or other inaccessible surfaces;
- (B) provide at least 12 inches vertically of permeable natural soil or sand between points of release of stormwater and the seasonally high water table.
- (C) provide settling wells to trap particulate matter;
- (D) distribute the stormwater over as large an area under the structure as is reasonable but in no event shall that be less than 75 percent of the area of the structure.
- (4) Boat ramps, public roads and bridges are acceptable if:
- (A) impervious surfaces are minimized, stormwater is diverted away from the water, buffer areas are utilized, and sites with favorable characteristics such as high flushing are selected; and
- (B) boat ramps drain only the surface of the ramp and not drainage from adjacent facilities; and
- (C) the boat ramp, public road or bridge, alone or in combination with other boat ramps, roads and bridges in the vicinity, is not expected to substantially increase the frequency of violations of water quality standards or the closure of the waters to shellfishing;
- (5) At least 60 days prior to beginning construction, a description of the proposed project and stormwater disposal must be submitted to the Regional Office of the division on form provided by the division; The form shall be signed by the owner or agent certifying that the project complies with the requirements of this Paragraph; Construction may begin unless the division notifies the owner that the proposed project does not comply with this Rule;
- (f) Disposal requiring an individual permit. If development is not deemed to be permitted as specified in Paragraphs (d) and (e) of this Rule, stormwater disposal within 1/2 mile of Class SA waters shall be in accordance with the following:

- (1) For areas that drain directly to Class SA waters including through a dry ditch or conveyance:
 - (A) All stormwater runoff from a storm up to a 10-year, 24-hour storm, including the 10-year, 1-hour intensity, shall be infiltrated on-site, diverted to an adequate disposal site, or treated to comply with the standards prior to discharge;
 - (B) The bottom of any lagoon or other means for infiltrating collected stormwater shall be greater than or equal to three feet above the seasonally high water table and the design must be justified by site specific evaluations which indicate a drawdown time of 72 hours or less;
- (2) For areas which drain to waters in close proximity to Class SA waters:
 - (A) All stormwater runoff from a storm up to a 2-year, 24-hour storm, including the 2-year, 1-hour intensity, shall be infiltrated on-site, diverted to an adequate disposal site, or treated to comply with the standards prior to discharge;
 - (B) The bottom of any lagoon or other means for infiltrating collected stormwater shall be greater than or equal to two feet above the seasonally high water table and the design must be justified by site specific evaluations which indicate a drawdown time of 72 hours or less;
- (3) Infiltration systems or permeable storage lagoons for collected stormwater (not including infiltration systems beneath structures) shall be located at least 100 feet from the mean high water line of Class SA waters and 50 feet from other surface waters including coastal wetland areas;
- (4) An operation and maintenance plan or manual shall be provided for stormwater systems, indicating what operation and maintenance actions are needed, what specific quantitative criteria will be used for determining when those actions are to be taken, and who is responsible for those actions;
- (5) Innovative measures for controlling stormwater pollution or methods for designing stormwater systems which are not well established through actual experience may be individually permitted on a demonstration basis under the following criteria:
 - (A) there is a reasonable expectation that the innovative measure will be successful;
 - (B) demonstration projects shall be located where site characteristics will minimize possible impacts on shellfish waters and shall not be located where failure of the project could directly pollute highly productive shellfish beds;

(C) demonstration projects shall have a monitoring program to adequately establish the effectiveness of the innovative measure or method; and

Due to the need to assure reliable disposal of stormwater, not more than two demonstration projects for each innovative measure or method shall be permitted until the effectiveness of the measure or method has been demonstrated for an appropriate time period to be specified at the time the permit is issued; The division shall issue public notice of a proposed project with innovative measures for stormwater treatment and disposal and if there is significant public concern, hold a public meeting to obtain comments and information.

(g) Permit transfer. A person holding a permit for stormwater disposal is responsible for compliance with the permit until the permit is transferred to another person. Upon transfer of property, both the person yielding and the person receiving responsibility for stormwater disposal have responsibility for assuring proper permit transfer including notification of the division.

(h) Policy on the role of local governments. The commission recognizes that local units of government must play a central role in effective management of stormwater. It is the commission's intent and policy that local units of government develop stormwater management programs which inspect and enforce proper operation and maintenance of stormwater controls and which incorporate stormwater controls into local building and zoning ordinances. In addition, municipalities, counties, local boards or commissions, water and sewer authorities, or other groups of municipalities and counties may apply to the commission for approval to administer programs for reviewing, approving and maintaining stormwater disposal for new development not requiring an individual permit according to Paragraph (h) of this Rule. The commission will review these applications on a case-by-case basis to ensure that the requirements of this Rule will be adequately implemented and maintained.



THE UNIVERSITY OF CHICAGO
LIBRARY

In many areas of the state, stream flows during this recent drought have been at or below the 7Q10 flow level. This means that streams receiving wastewater will be carrying high concentrations of waste and may experience depressed levels of dissolved oxygen and increased levels of nutrients and other pollutants carried with the waste.

Low flows also impact lake water quality. When flows are low, the flushing time for lakes increases. This means that pollutants discharged to the lake or washed into the lake from the land will be trapped for long periods of time. The long residence time increases the accumulation of nutrients and increases the chances for accelerated algae growth. Several of our piedmont lakes have shown very high levels of Chlorophyll a (a measure of algae content) this summer.

Some of these quality problems can affect the suitability of a source for water supply. For example, algae blooms can cause taste and odor problems, and low dissolved oxygen levels can release iron and manganese from sediments. Communities having problems and needing assistance with water source quality problems can contact the Division of Environmental Management regional offices listed below.

DIVISION OF ENVIRONMENTAL MANAGEMENT
REGIONAL OFFICES

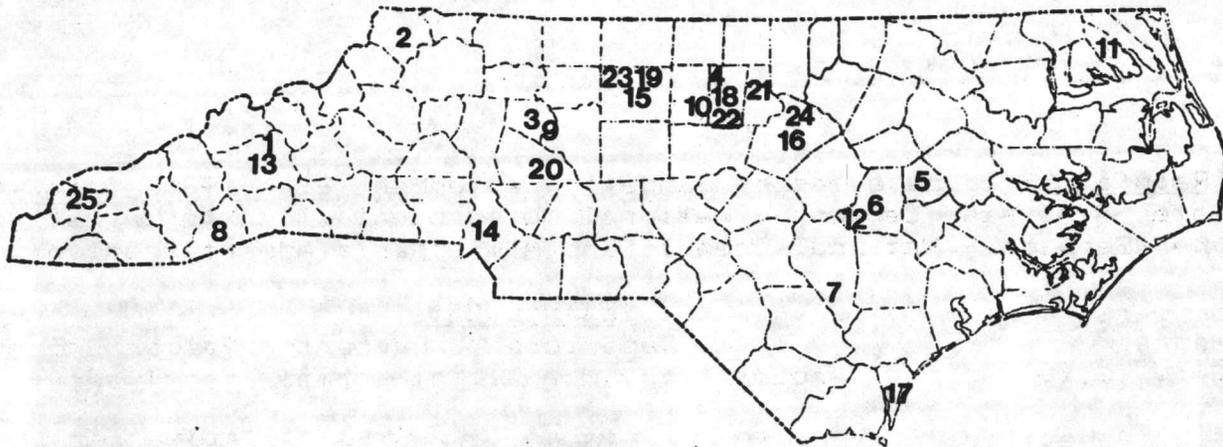
Location	Telephone Number
Asheville	(704) 253-3341
Fayetteville	(919) 486-1541
Mooreville	(704) 663-1699
Raleigh	(919) 733-2314
Washington	(919) 946-6481
Wilmington	(919) 256-4161
Winston-Salem	(919) 761-2351

General Remarks

The perceptions of drought from the viewpoints of meteorology, agriculture, and water system officials vary. The meteorologist views a drought as below normal precipitation in a region; the agriculturist, as a soil moisture deficit during the growing season; the water system official, as below normal streamflow, groundwater, or reservoir levels.

Meteorological droughts have great regional variability; soil moisture deficits associated with agricultural drought are a function of crop type as well as meteorological conditions. Streamflows which are considerably below normal for short periods (intense droughts of short duration) may be very significant in areas where water supply demand is a large percentage of the normal supply but of little significance where ample reservoir storage is present. On the other hand, long periods of slightly below average streamflows (long duration of low intensity) may be significant to users who primarily depend on storage.

Drought definition depends on the particular focus of the water use. The State is witnessing severe droughts in all of the categories noted above. The poor corn crop is a prime example of agricultural drought due to little or no precipitation during a critical period in the crop's life cycle. Below average streamflow for an extended period has caused significant declines in reservoir storage; hence the precautionary water conservation measures adopted by many communities.



Streamflows in cubic feet per second
from U.S Geological Survey

Map Ref.		Flow On				Percent of Average on September 29*
		9/8	9/15	9/22	9/29	
	BLUE RIDGE					
1	Fr. Broad River Asheville	800	573	723	458	30%
2	S. Fork New River Jefferson	268	173	150	138	41%
	PIEDMONT					
3	S. Yadkin River Mocksville	167	91	82	67	27%
4	Eno River Durham	-	-	-	-	-
	COASTAL PLAIN					
5	Contentnea Creek Hookerton	1620	-	170	70	13%
6	Neuse River Goldsboro	549	-	287	352	22%
7	South River Parkersburg	232	-	63	-	-

*flow of 9/29 divided by average September flows for the period of record

Groundwater levels in feet below surface
from U. S. Geological Survey

Map Ref.		9/2	9/29	Period of Record		Percent of change since 9/2
				September Average	Minimum	
	BLUE RIDGE					
8	Blantyre	-35.28	-35.77	-33.05	-38.86	-1.4%
	WEST PIEDMONT					
9	Mocksville	-20.10	-20.41	-20.52	-23.92	-1.5%
	EAST PIEDMONT					
10	Chapel Hill	-44.15	-44.25	-42.62	-46.74	-0.2%
	COASTAL PLAIN					
11	Elizabeth City	-	- 3.85	- 4.26	- 8.08	-
12	Grantham	- 2.81	- 5.56	- 5.32	- 8.40	-97.7%

Rainfall - to date, as of Sunday, September 28, 1986 from the Climate Analysis Center - National Meteorological Center - National Weather Service - National Oceanic and Atmospheric Administration.

Map Ref.	City	Amount	<u>Year to Date</u>		Palmer Drought Index
			Departure from Normal	Percent of Normal	
13	Asheville	20.90	-16.40	56	Extreme Drought
14	Charlotte	16.80	-17.10	50	Extreme drought
15	Greensboro	19.40	-13.60	59	Severe drought
16	Raleigh	29.80	- 2.90	91	Extreme drought
17	Wilmington	44.80	+ 1.50	103	Mild drought

Reservoir levels

Map Ref.		Percent of storage remaining	Feet of drawdown
18	Lake Orange (Orange Co.)	64%	3.5
19	Lake Townsend (Greensboro)	100%	-
20	Lake Wright (Landis)	-	11.5
21	Lake Michie (Durham)	82.5%	4.3
22	University Lake (OWASA)	67%	3.9
23	Oak Hollow (High Point)	-	1.6
24	Falls Lake (Raleigh)	68.5%	2.9
25	Fontana Lake (TVA)	50%	75.8

The reservoir levels indicated above list the percent of useable storage remaining and feet of drawdown from normal pool level. When remaining storage is below 80%, each system should review its existing rate of withdrawal, inflows, minimum releases, and other factors to determine the advisability of conservation measures. The percent of storage remaining is only a general guide and should be considered along with other relevant factors.

Updates on Selected Water Supply Systems

The majority of water supply systems that were on either voluntary or mandatory water conservation during the months of June, July and August have lifted their restrictions. However, the recent dry period in September is cause for concern in some areas.

Landis has mandatory conservation measures in effect. Industries there are operating at 20% reduction of their normal water use.

Mount Pleasant has required mandatory conservation measures as a result of the lack of rainfall.

Weaverville has gone back to the town's wells as their primary source due to low streamflow. The town may need to buy water from Asheville again.

An emergency waterline from Asheboro to Randleman was built. Asheboro has agreed to sell Randleman up to 200,000 gallons per day.

The following systems are on voluntary water conservation:

Gastonia	Hillsborough
Orange Water and Sewer Authority	Franklinton
Orange-Alamance	Durham
Woodfin Sanitary District	

Note: The Public Water Supply Branch in the Division of Health Services, N.C. Department of Human Resources is now contributing information to this bulletin, to the extent possible, concerning community water systems which have applied voluntary or mandatory conservation measures.

Notice

This drought advisory is based on the best available data at the time of issue. Because of the need to publish the information quickly, our normal data verification procedures cannot be followed and some errors or omissions may occur. Readers are requested to assist in providing accurate status reports by sending information to the Division of Water Resources on the effects of the drought on public water supply systems and on the actions taken in response. Please also notify us of any errors.

DWR 4-86

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North Carolina Department of Natural
Resources & Community Development
P.O. Box 27687 Raleigh, N.C. 27611-7687



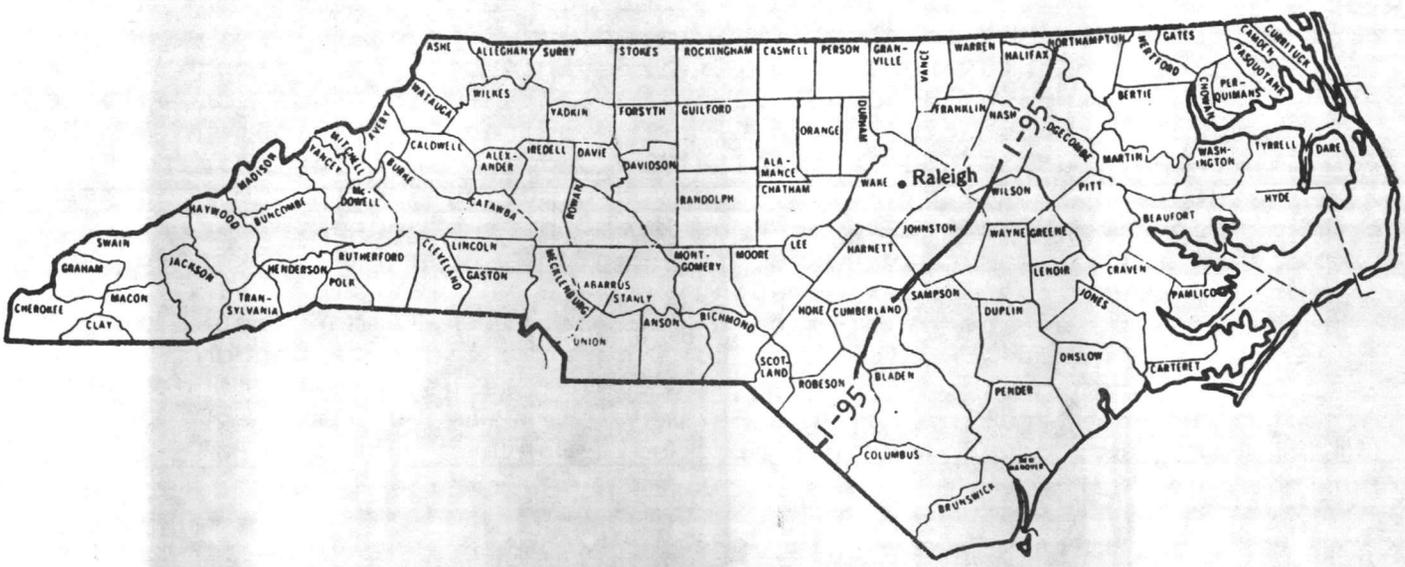
USMC Lejeune Hadnot Point
USMC Base
Camp Lejeune , NC 28542

203

Pete Black
Bet 2
File @ LAB



WATER SUPPLY DROUGHT ADVISORY BULLETIN



STATUS AS OF NOVEMBER 17, 1986

General Conditions

Evaporation has been reduced as the result of lower temperatures. Evapotranspiration has also lessened as vegetation lost its foliage. However, streamflows across the state remain below average flow conditions. Groundwater levels show slight improvements in the mountains, piedmont and coastal areas.

General Remarks

The Division of Water Resources received a question regarding the criteria for selection of the streamflow sites in the advisory bulletin. The main criteria were 1) the site is part of the stream gaging network maintained by the U. S. Geological Survey, 2) the streamflow data is accessible weekly, 3) the flow is unregulated by dams or diversions, and 4) the length of the available historical record.

The Palmer Index

An indicator of the severity of drought or wetness used by the National Weather Service is the Palmer Index. The Palmer Index was developed on the basis of supply and demand of water. Water supply is determined by precipitation and stored soil moisture. Water demand is a combination of evapotranspiration, water needed to recharge soil moisture and runoff needed to keep streams, lakes and reservoirs at normal levels. The Palmer Index is useful in assessing agricultural droughts and in identifying early stages of drought. The Palmer Index treats drought severity as a function of accumulated weighted differences between actual and required precipitation. The normal temperatures and precipitation produce an index near zero in all seasons and in all climates. Extended periods of abnormal dryness produce an index of -2 to -6 regardless of the degree of aridity or wetness of the climatic averages of a region. Conversely extreme wet periods produce an index reading of +2 to +6. The Palmer Index requires a long period of climatological data. A Palmer Index of +2 to -2 is near normal, -2 to -3 is considered a moderate drought, -3 to -4 a severe drought, and -4 to -6 is classified as an extreme drought. A detailed explanation of the Palmer Index may be obtained from the U.S. Department of Commerce, National Weather Service at Silver Spring, MD 20910.

The Palmer Index is based largely on long term weather information. The Index is principally for agricultural purposes and does not address the probability of water shortage or the probable degree of shortage.

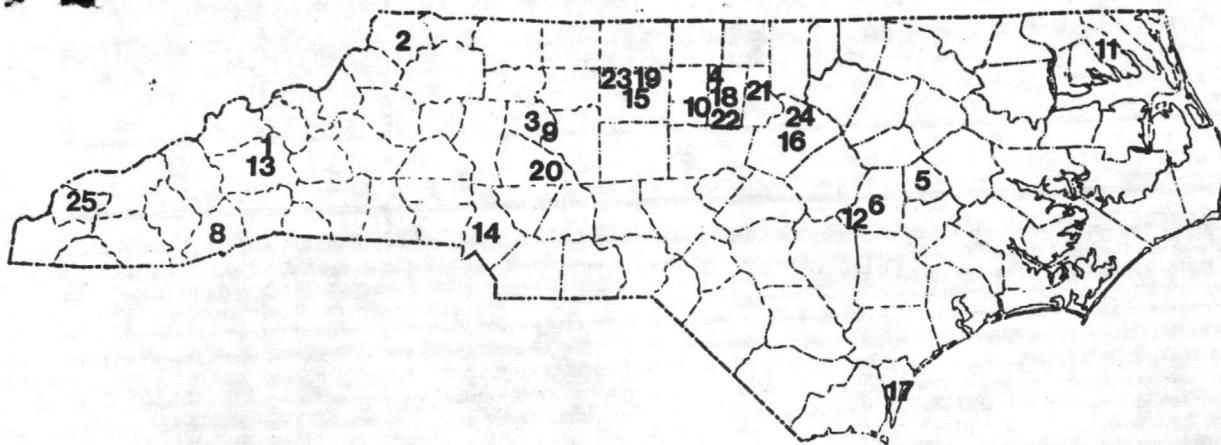
EDUCATIONAL MATERIALS AVAILABLE FROM THE DIVISION OF WATER RESOURCES

Conserving Water in Your Community is a brochure describing steps that can be taken at the local level to save water.

Preparing for Drought Conditions in North Carolina is a pamphlet discussing formulation of drought contingency plans and emergency water conservation measures.

Wasting Water is ... Money Down the Drain is a bill stuffer discussing conservation measures that can be used in the home to save water, energy and money.

Water Follies is a 7-minutes animated water conservation film available on loan.



Streamflows in cubic feet per second
from U.S Geological Survey

Map Ref.		Flow On			Percent of Average on November 17*
		11/3	11/10	11/17	
	BLUE RIDGE				
1	Fr. Broad River Asheville	1180	1530	1330	75%
2	S. Fork New River Jefferson	220	-	198	49%
	PIEDMONT				
3	S. Yadkin River Mocksville	213	174	167	64%
4	Eno River Durham	-	-	-	-
	COASTAL PLAIN				
5	Contentnea Creek Hookerton	62	56	58	13%
6	Neuse River Goldsboro	319	-	500	34%

*flow of 11/17 divided by average November flows for the period of record

Groundwater levels in feet below surface
from U. S. Geological Survey

Map Ref.		11/3		11/17		Period of Record November Average Minimum	Percent of change since 11/3
	BLUE RIDGE						
8	Blantyre	-35.61	-35.14	-34.07	-41.44		1.3%
	WEST PIEDMONT						
9	Mocksville	-20.60	-20.41	-20.87	-23.92		0.9%
	EAST PIEDMONT						
10	Chapel Hill	-45.23	-	-43.40	-46.74		-
	COASTAL PLAIN						
11	Elizabeth City	-	-4.57	- 4.25	- 8.08		-
12	Grantham	-	-	- 5.94	- 8.40		-

Rainfall - year to date, as of Sunday, November 17, 1986 from the Climate Analysis Center - National Meteorological Center - National Weather Service - National Oceanic and Atmospheric Administration.

Map Ref.	City	Amount	<u>Year to Date</u>		Palmer Drought Index
			Departure from Normal	Percent of Normal	
13	Asheville	26.70	-15.90	63	Extreme Drought
14	Charlotte	22.20	-16.10	58	Severe Drought
15	Greensboro	25.10	-12.70	66	Moderate Drought
16	Raleigh	33.20	- 3.90	89	Severe Drought
17	Wilmington	51.50	+ 3.20	107	Moderate Drought

Reservoir levels

Map Ref.		Percent of storage remaining	Feet of drawdown
18	Lake Orange (Orange Co.)	50.1%	5.3
19	Lake Townsend (Greensboro)	77.2%	4.2
20	Lake Wright (Landis)	-	11.8
21	Lake Michie (Durham)	61.5%	10.0
22	University Lake (DWASA)	63.2%	3.4
23	Oak Hollow (High Point)	-	1.5
24	Falls Lake (Raleigh)	57.4%	3.9
25	Fontana Lake (TVA)	47.8%	79.4

The reservoir levels indicated above list the percent of useable storage remaining and feet of drawdown from normal pool level. When remaining storage is below 80%, each system should review its existing rate of withdrawal, inflows, minimum releases, and other factors to determine the advisability of conservation measures. The percent of storage remaining is only a general guide and should be considered along with other relevant factors.

In lieu of special studies on specific water systems, we recommend, as a minimum, the following actions for reservoir based supplies: (1) Establish voluntary conservation by users when systems have less than 80% of storage remaining or are using more than 90% of total system capacity. (2) Require mandatory conservation by users when systems have less than 60% of storage remaining or when systems reach facility capacities.

All systems should prepare or update drought contingency plans. Utility conservation measures, such as reduction of unaccounted-for water, leak detection, metering, and water audits should be expanded during conservation periods.

Updates on Selected Water Supply Systems

Shallow wells in Davidson County are drying up due to the lack of rain. Local water systems are receiving an increased number of requested hookups outside their service area.

Well drillers in Jackson County have a 40-day back log of work due to the increase of wells drying up.

Water supply systems that are on mandatory water conservation include:

Landis	Mount Pleasant
Hillsborough	Concord
Orange Water and Sewer Authority	Orange-Alamance

The following systems are on voluntary water conservation:

Durham	Youngsville
Woodfin Sanitary District	Franklinton

Note: The Public Water Supply Branch in the Division of Health Services, N.C. Department of Human Resources is now contributing information to this bulletin, to the extent possible, concerning community water systems which have applied voluntary or mandatory conservation measures.

Notice

This drought advisory is based on the best available data at the time of issue. Because of the need to publish the information quickly, our normal data verification procedures cannot be followed and some errors or omissions may occur. Readers are requested to assist in providing accurate status reports by sending information to the Division of Water Resources on the effects of the drought on public water supply systems and on the actions taken in response. Please also notify us of any errors.

DWR 5-86

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North Carolina Department of Natural
Resources & Community Development
P.O. Box 27687 Raleigh, N.C. 27611-7687



USMC Lejeune Hadnot Point
USMC Base
Camp Lejeune , NC 28542

UNITED STATES MARINE CORPS
Marine Corps
Camp Lejeune, North Carolina

From: Commanding General, Marine Corps
North Carolina
To: Commander, Atlantic Division,
Engineering Command, Norfolk,
114, 04, and 04A)
Subj: NORTH CAROLINA COASTAL STORM
Encl: (1) Excerpts from North Carolina

Betsy,
I have read these
two papers.
What action, if any,
do I need to take?

Tom

1. We are forwarding the enclosure to keep you abreast of recently adopted regulations to control storm water. Key points of these rules are:

a. Untreated storm water discharges to shellfish waters (used for taking of shellfish for market purposes -- classified SA) is prohibited for storms greater than a two year, 24-hour event.

wrong should read < 2 year, 24 hour
frequency.
PDS

b. Domestic sewage discharge into shellfish waters is prohibited.

c. Construction projects within 575 feet of class SA waters are the primary target of these rules.

2. Projects being planned at Onslow Beach, Courthouse Bay, and Rifle Range areas should be developed in accordance with these policies. Additional guidance can be obtained by contacting Mr. Steve Benton, North Carolina Division of Coastal Management, (919) 733-2293, or by calling Mr. Robert Alexander, Environmental Engineer at Camp Lejeune, Autovon 484-3034.

B. W. ELSTON
By direction

Copy to:
CMC (LPL)

Blind copy to:
BMO
PWO
NREAD
EnvEngr

Betz: VIA ~~ADD~~ 2Dues Director NREAD

This is a hard subject
to get into. Recommend you
personally acquaint yourselves
with this matter. You ought
to set up an objective for the
next few months in this area
for both you and Tom.

D Shouse

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

628015
FAC
26 NOV 1988

Commanding General, Marine Corps Base, Camp Lejeune,
North Carolina
For Commander, Atlantic Division, Naval Facilities
Engineering Command, Norfolk, Virginia 23511-6287 (Code
MAY 88, and 04)

WATER CONTROL

1. The following are the Administrative Code

1. We are forwarding the enclosure to keep you advised of
recently adopted regulations for control of water. See notes
of these rules exist.

2. Discharge of water into the water supply system
shall be prohibited for a period of 30 days after the
date of the discharge. This is to ensure that the water
supply is safe.

3. Domestic sewage discharge into the water supply
is prohibited.

4. Construction projects within the base shall be
subject to the priority of these rules.

5. Projects being planned at Camp Lejeune, North Carolina 28542-5001
shall be subject to the priority of these rules. In accordance with these
rules, all construction projects shall be subject to the priority of these
rules. This is to ensure that the water supply is safe. For more information,
contact the Office of Naval Facilities Engineering Command, Norfolk, Virginia
(410) 688-1243, or by calling Mr. Robert Alexander, Division
Chief, Engineering Command, Camp Lejeune, North Carolina 28542-5001.

W. J. [Name]
[Title]

Copy to:
[Name]

Blind copy for
SNO
TWO
READ
EVENING

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

6280/5
FAC
26 NOV 1986

From: Commanding General, Marine Corps Base, Camp Lejeune,
North Carolina
To: Commander, Atlantic Division, Naval Facilities
Engineering Command, Norfolk, Virginia 23511-6287 (Codes
114, 04, and 04A)

Subj: NORTH CAROLINA COASTAL STORM WATER CONTROLS

Encl: (1) Excerpts from North Carolina Administrative Code

1. We are forwarding the enclosure to keep you abreast of recently adopted regulations to control storm water. Key points of these rules are:

a. Untreated storm water discharges to shellfish waters (used for taking of shellfish for market purposes -- classified SA) is prohibited for storms greater than a two year, 24-hour event.

*wrong should read < 2 year, 24 hour frequency.
PDS*

b. Domestic sewage discharge into shellfish waters is prohibited.

c. Construction projects within 575 feet of class SA waters are the primary target of these rules.

2. Projects being planned at Onslow Beach, Courthouse Bay, and Rifle Range areas should be developed in accordance with these policies. Additional guidance can be obtained by contacting Mr. Steve Benton, North Carolina Division of Coastal Management, (919) 733-2293, or by calling Mr. Robert Alexander, Environmental Engineer at Camp Lejeune, Autovon 484-3034.

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EnvEngr

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

2 NOV 1988
FAC
28542

From: Commanding General, Marine Corps Base, Camp Lejeune,
North Carolina
To: Commander, Atlantic Division, Naval Facilities
Engineering Command, Norfolk, Virginia 23511-5287 (Code
114 54, and 54)

Subject: NORTH CAROLINA COASTAL STORM WATER CONTROL

Re: (1) Report from North Carolina Administrative Code

1. We are forwarding the enclosure to you for review of
recently enacted legislation to control storm water. Key points
of these rules are:

a. Discharge into water bodies is prohibited unless
the discharge is for a permitted use. Discharge
is prohibited for storm water from a two-year, 24-hour
event.

b. Domestic sewage discharge into existing water is
prohibited.

c. Governmental practices within 50 feet of a water
body are prohibited.

2. Specific rules are contained in the enclosure. Comments
should be submitted to the Division of Coastal Management
at Camp Lejeune, North Carolina 28542-5001, by
15 November 1988. If you have any questions, contact
the Division of Coastal Management at Camp Lejeune,
North Carolina 28542-5001.

W. J. CLARK
Major General, USMC

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WX 1111

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Enclure

ADOPTED REGULATIONS TO IMPLEMENT
COASTAL STORMWATER CONTROLS
September 11, 1986

W. W. WICK
Copies to: All WFD
All GW
All DCM
All DLR
Bob Jamieson

15 NCAC 2B .0200 - CLASSIFICATIONS AND WATER QUALITY STANDARDS
APPLICABLE TO SURFACE WATERS OF NORTH
CAROLINA

.0217 STORMWATER CONTROL CRITERIA TO PROTECT WATER QUALITY
STANDARDS

(a) In implementing the existing water quality standards to protect waters for their classified "best usage," it may be necessary to require controls of stormwater and associated waste constituents to fully achieve the uses specified by the stream classification. The purpose of this rule is to set appropriate performance criteria for stormwater treatment and disposal systems which may require a permit according to rules 2H .0125 and for the design of stormwater controls to protect water quality standards and "best usage."

(b) Criteria for implementing and protecting water quality standards and classified uses from stormwater depend on stream classification as follows:

(1) Class SA waters:

(A) Stormwater must not be discharged to Class SA waters from precipitation events less severe than the 2-year, 24-hour event, including a 2-year, 1-hour intensity; this requirement applies to discharges directly to Class SA waters, and to discharges to waters in close proximity to Class SA waters that water quality standards and uses of Class SA waters may be threatened.

(B) As an alternative, disposal for land areas which complies with rule 2H .0408 of this Subchapter is considered to comply with requirement (A) of this subparagraph;

(2) Other waters: Appropriate performance criteria for the design of stormwater controls for other waters of the State shall be determined on a case-by-case basis by the Commission so as to provide adequate protection of water quality standards and classified uses in receiving waters.

15 NCAC 2B .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

.0301 CLASSIFICATIONS: GENERAL

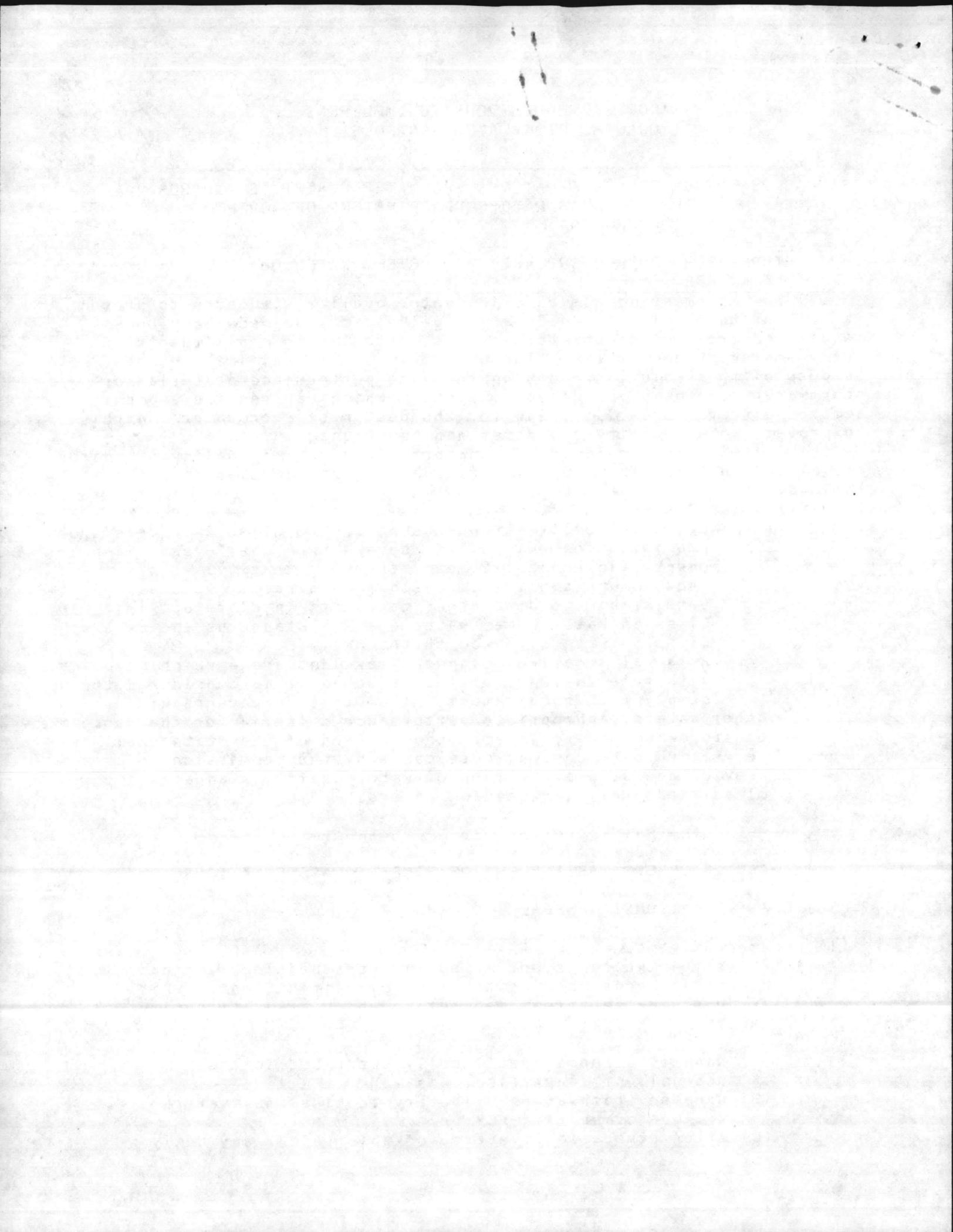
...
(i) Unnamed Streams.

(1) Any stream which is not named in the schedule of stream classifications carries the same classification as that assigned to the stream segment to which it is tributary except:

(A) unnamed streams specifically described in the schedule of classifications; or

(B) unnamed freshwaters tributary to tidal saltwaters will be classified "C"; or

(C) after [the effective date of this rule], any newly



created areas of tidal saltwater which are connected to Class SA waters by approved dredging projects will be classified "SC" unless case-by-case reclassification proceedings are conducted.

- (2) The following river basins have different policies for unnamed streams entering other states or for specific areas of the basin:

...
[List of River basins is not changed from existing rule.]

15 NCAC 2H .0100 - WASTEWATER DISCHARGES TO SURFACE WATERS

.0125 STORMWATER TREATMENT AND DISPOSAL SYSTEMS

Permits for stormwater treatment and disposal systems which discharge to surface waters shall be issued in accordance with United States Environmental Protection Agency regulations 40 CFR 122.21 and 122.26 which are adopted by reference as amended through August 29, 1985.

15 NCAC 2H .0400 - Coastal Waste Treatment Disposal

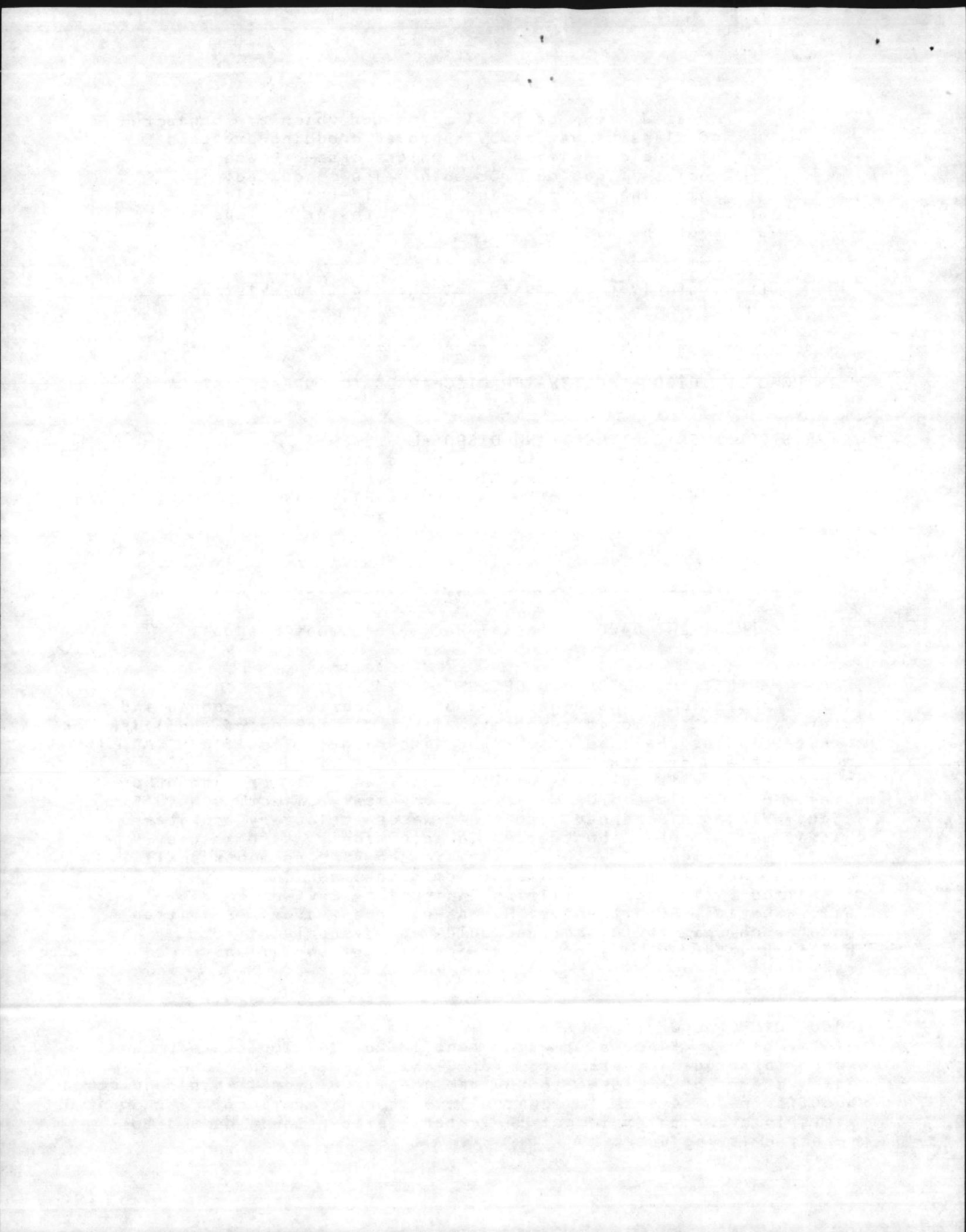
.0404 FACILITY LOCATION AND DESIGN

(a) No domestic sewage regardless of the treatment proposed and no other wastes which could adversely affect the taking of shellfish for market purposes shall be discharged into waters classified "SA", into unnamed waters tributary to "SA" waters classified "C" or "SC" in accordance with Rule 2B .0301(1)(1)(B) and (C), or into other waters in such close proximity as to adversely affect such "SA" waters. Wastes discharged into other waters tributary to waters classified "SA" shall be treated in such manner as to assure that no impairment of water quality in the "SA" segments shall occur. No permits shall be issued for discharges into waters classified "SA" unless Shellfish Sanitation, Environmental Health Section, Department of Human Resources, provides written concurrence that the discharge would not adversely affect shellfish water quality or the propagation of shellfish.

...

.0408 DISPOSAL OF STORMWATER

(a) Policy. Since stormwater runoff from developed areas can exceed water quality standards for Class SA waters and potentially cause waters to be closed to the taking of shellfish, this regulation specifies requirements for controlling stormwater runoff near coastal waters in order to implement the water quality standards and to protect existing uses.



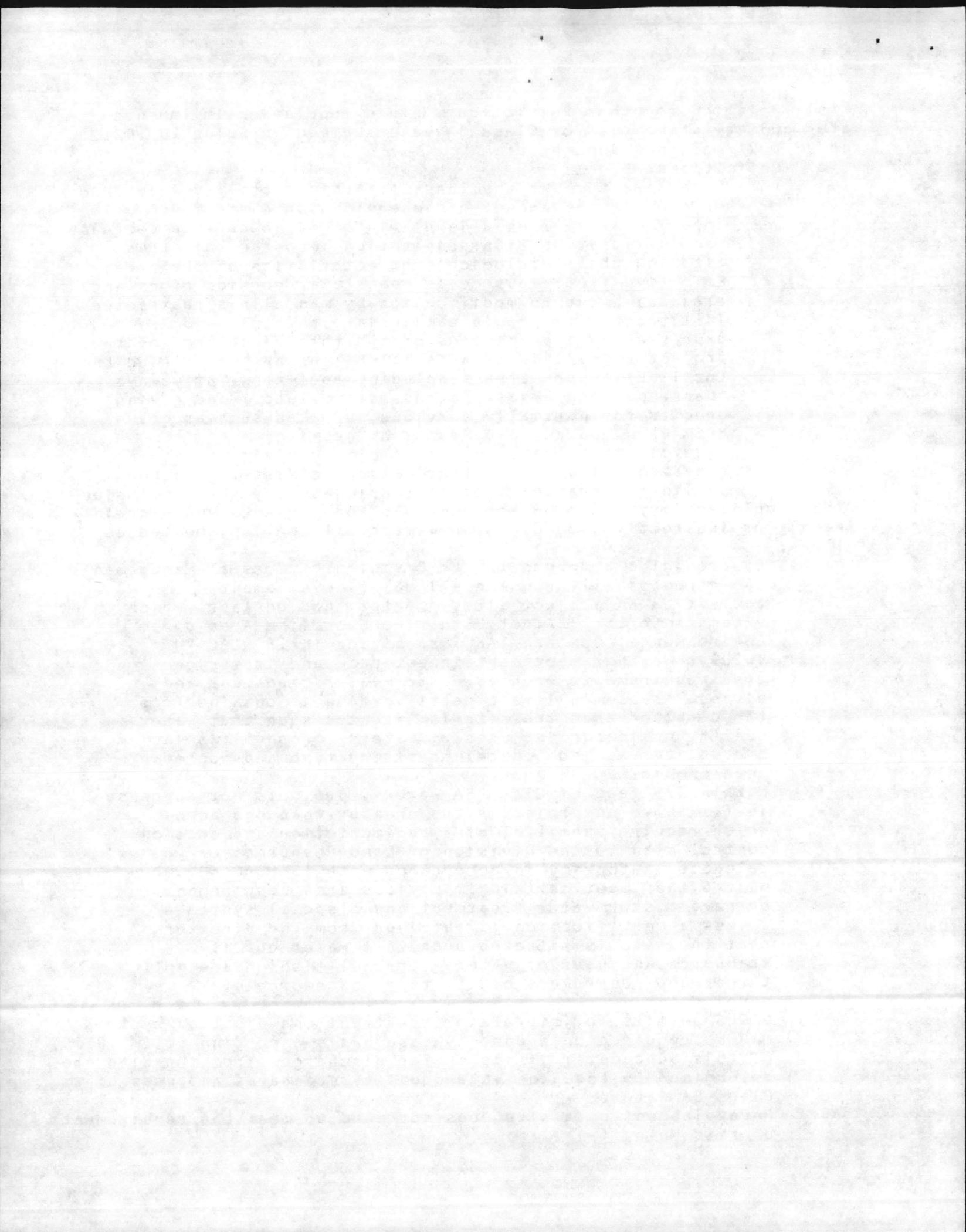
(b) Relation to other regulations. This regulation implements water quality standards for Class SA waters given in Rules 2B .0212 and 2B .0217 of this Subchapter.

(c) Definitions.

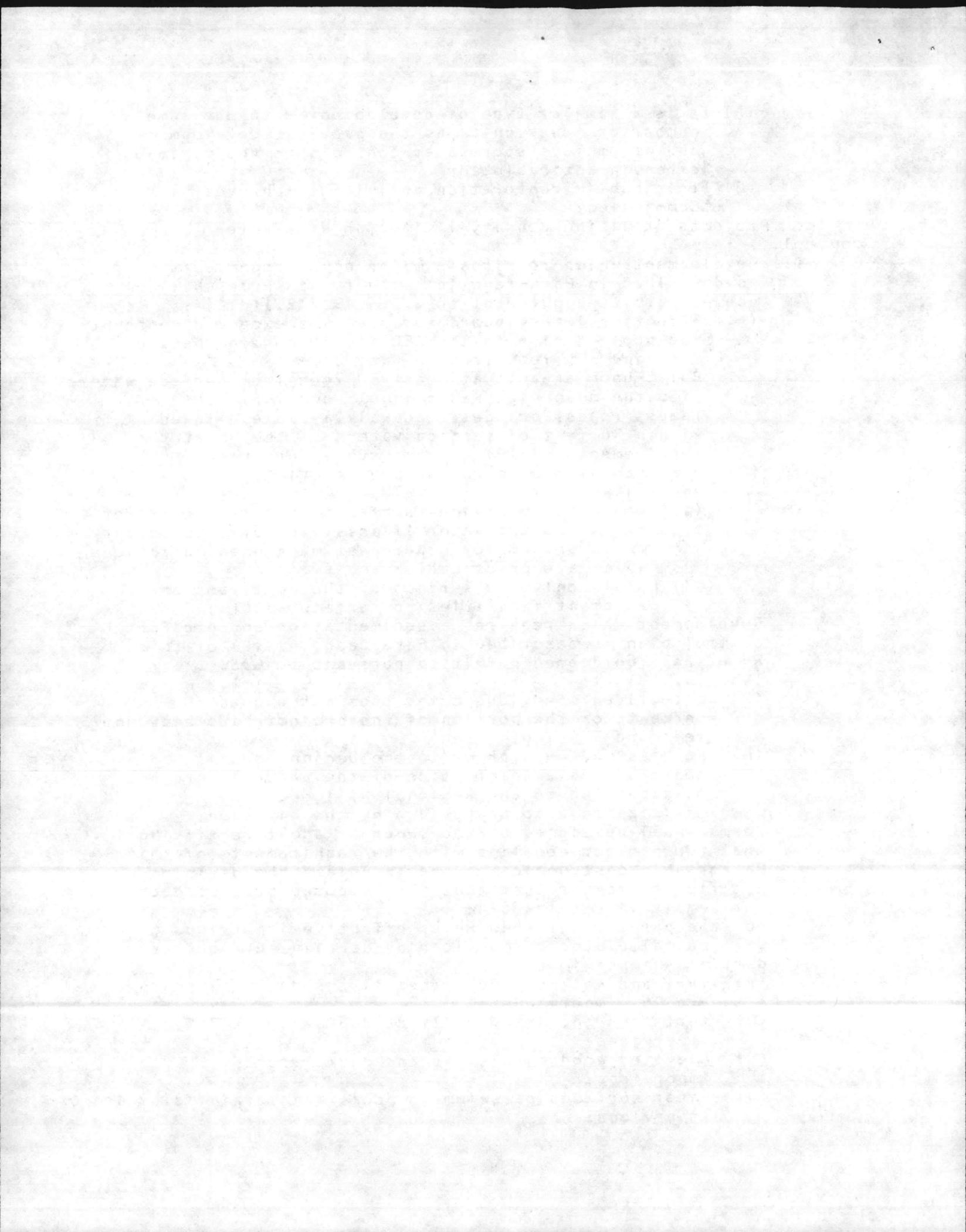
- (1) Development means any land disturbing activity which adds or changes the amount of impervious or partially impervious cover on a land area or may otherwise decrease the infiltration of precipitation into the soil thus altering the hydrological characteristics of the area;
- (2) Effective impervious cover means that portion of a land area which due to modification by man allows restricted infiltration of precipitation into the soil and is expressed as a percentage of the total land area of the project site; this area is calculated by considering the total built-upon area (including roof-tops, driveways, roads, parking areas, patios, decks, etc.) and giving credits for partially pervious surfaces such as gravel driveways, porous pavements, or decking;
- (3) Redevelopment means any rebuilding activity following fires, hurricanes or other natural disaster or other public restoration projects designated by the Commission.

(d) Applicability. Stormwater controls for projects which drain directly or indirectly into Class SA waters will be implemented as follows:

- (1) By providing comments to the Division of Coastal Management, the director will require all major development activities on project sites greater than one acre which extend into the 75 foot Estuarine Shoreline Area of Environmental Concern (AEC) specified in 15 NCAC 7H .0209 to either meet certain set-back and impervious area requirements or have a stormwater treatment and disposal system unless a certification is obtained from the director that the site is situated such that water quality standards and uses of waters for shellfishing are not threatened regardless of the type and degree of development;
- (2) Within 575 feet of Class SA waters, projects not addressed in (1) above on project sites greater than one acre which require submittal of a sedimentation and erosion control plan to the Division of Land Resources or delegated authority in accordance with 15 NCAC 4B .0005 must either meet certain impervious area requirements or have a stormwater treatment and disposal system unless a certification is obtained from the director that the site is situated such that water quality standards and uses of waters for shellfishing are not threatened regardless of the type and degree of development;
- (3) NPDES permits for stormwater treatment and disposal systems may be required on a case-by-case basis according to 2H .0125 of this Subchapter if stormwater discharges from the site are determined to threaten water quality standards and uses of Class SA waters;
- (4) Redevelopment of a site does not need to meet the requirements of this Rule if:



- (A) It is a similar type of development with the same number or fewer units as the previous development and it employs stormwater controls to the maximum extent practicable; or
 - (B) It is public restoration activities approved by the Commission;
- (e) Projects utilizing density limits for stormwater control.
- (1) Development which requires a major development permit as described in Paragraph (d) (1) of this Rule shall be deemed permitted pursuant to G.S. 143.215.1(d) if:
 - (A) Effective impervious cover does not exceed 20 percent of the project site in the AEC and 30 percent between 75 feet and 575 feet from SA waters;
 - (B) Built-upon area is at least 30 feet from surface waters (i.e. the mean high water line); however, boat ramps, roads, bridges, and walkways are allowed within 30 feet of surface waters if they meet the requirements of (C) of this subparagraph;
 - (C) Boat ramps, public roads, public bridges, and walkways:
 - (i) minimize impervious surfaces, divert stormwater away from the water if possible, utilize buffer areas and employ other best management practices which are practicable; and
 - (ii) drain only the surface of the boat ramp and not adjacent facilities to surface waters;
 - (2) Development which requires a sedimentation and erosion control plan as described in Paragraph (d) (2) of this Rule shall be deemed permitted pursuant to G.S. 143.215.1(d) if:
 - (A) effective impervious cover does not exceed 30 percent for the portion of the project site between 75 feet and 575 feet ; and
 - (B) at least 60 days prior to the beginning of construction a description of the proposed project is submitted to the Regional Office of the division on a form provided by the division;Forms shall be signed by the owner or agent certifying that the project complies with the requirements of this Paragraph; Construction may begin unless the division notifies the owner that that the proposed project does not comply with this Rule;
 - (3) For the purposes of this Rule, effective impervious cover will be calculated by considering certain surfaces as partially impervious:
 - (A) marl and well-packed or heavily used gravel roads are 90% impervious;
 - (B) turfstone and not heavily used gravel are 70% impervious;
 - (C) elevated wooden walkways and decks are 10% impervious;
 - (D) water surfaces of swimming pools, and drainfields are 0% impervious;

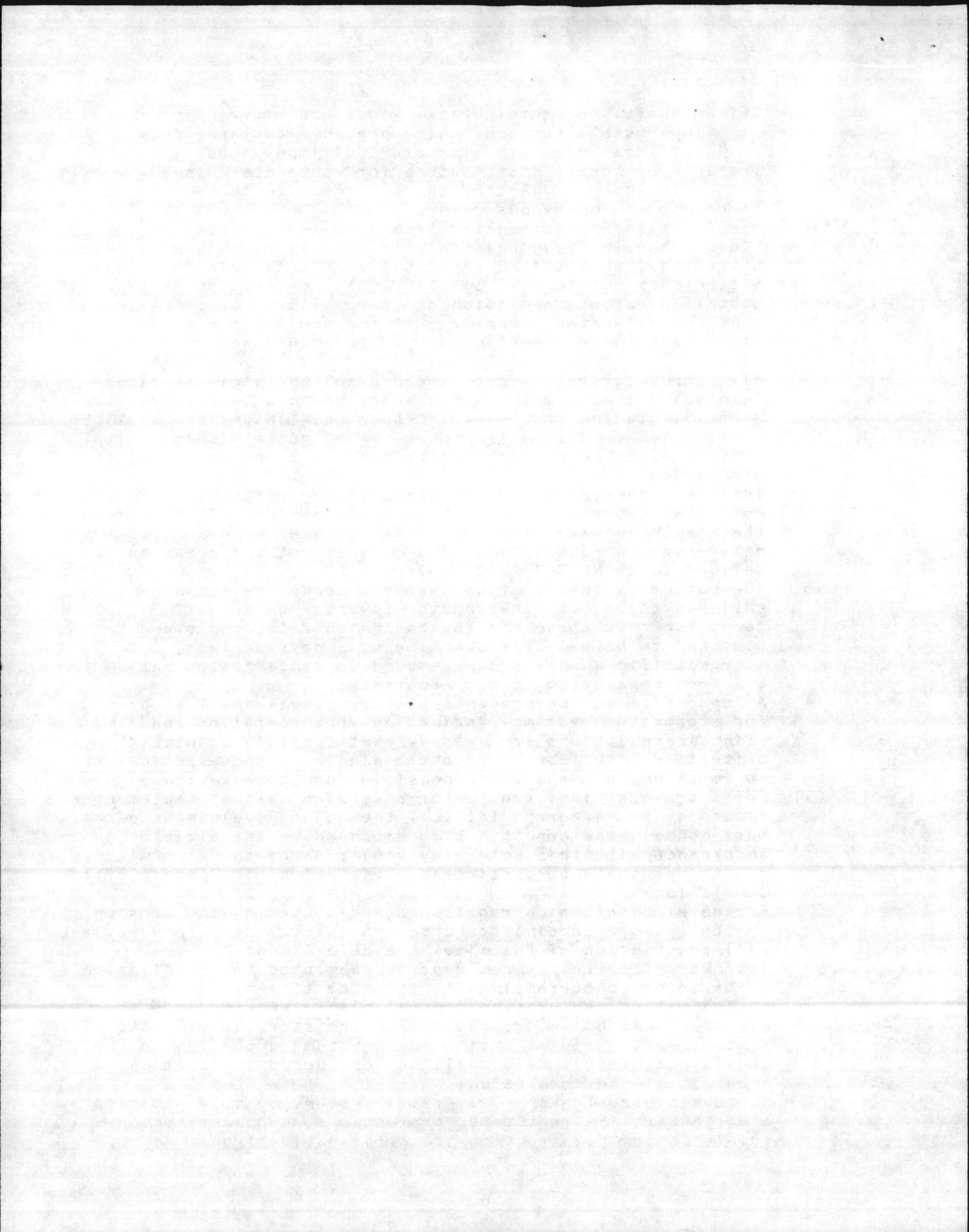


(E) Asphalt, concrete, brick, wood, and other impermeable surfaces which prevent land area from infiltrating stormwater are 100% impervious;

The area of rotary distributors for wastewater disposal shall not be included as part of the project site in calculations of effective impervious cover.

(f) Projects utilizing stormwater treatment and disposal systems. Development described in Paragraphs (d) (1) and (2) of this Rule which do not meet the requirements in Paragraph (e) of this Rule shall be deemed permitted pursuant to G.S. 143.215.1(d) upon receipt of a permit from the Coastal Resources Commission or approval from the Division of Land Resources (or delegated authority) if the project has a stormwater infiltration or diversion system in accordance with the following:

- (1) All stormwater runoff from areas with impervious surfaces (excluding boat ramps) from a storm up to a 2-year, 24-hour storm, including the 2-year, 1-hour peak intensity, shall be infiltrated on-site, diverted to an adequate disposal site, or treated to comply with water quality standards prior to discharge;
- (2) Infiltration systems or permeable storage lagoons for collected stormwater shall be located at least 75 feet from the mean high water line of Class SA waters and 50 feet from other surface waters including coastal wetland areas as defined in 15 NCAC 7H .0205.
- (3) The bottom of infiltration systems, ponds or lagoons designed to be dry between storm events must be at least two feet above the seasonal high water table and designed to have a drawdown time of 5 days or less; site specific analyses can be used to demonstrate that a 2 foot separation is not necessary;
- (4) An operation and maintenance plan or manual shall be provided for stormwater systems, indicating what operation and maintenance actions are needed, what specific quantitative criteria will be used for determining when those actions are to be taken, and who is responsible for those actions;
- (5) For stormwater infiltration or diversion systems implemented according to Paragraph (d) (1), the major development permit must contain the conditions recommended by the division in accordance with this Rule; Any violation of these permit conditions shall be considered a violation of a permit of the commission;
- (6) For development which requires a sedimentation and erosion control plan according to Paragraph (d) (2) of this Rule, a full description of the site, the development and the stormwater control system must be submitted to the division prior to or concurrently with the submittal of the sedimentation and erosion control plan; Comments from the division must be incorporated into the stormwater control system; Failure to maintain these systems according to the provisions of this Rule shall be considered a violation of a permit of the commission;
- (7) Stormwater treatment or diversion systems must be designed by a North Carolina registered professional engineer; Upon completion of construction, a certification from a



professional engineer must be submitted to the division certifying that the system was constructed in accordance with the plans and specifications reviewed by the division and that the system complies with the requirements of this Rule;

(8) Innovative measures for controlling stormwater pollution or methods for designing stormwater systems which are not well established through actual experience may be individually permitted on a demonstration basis under the following criteria:

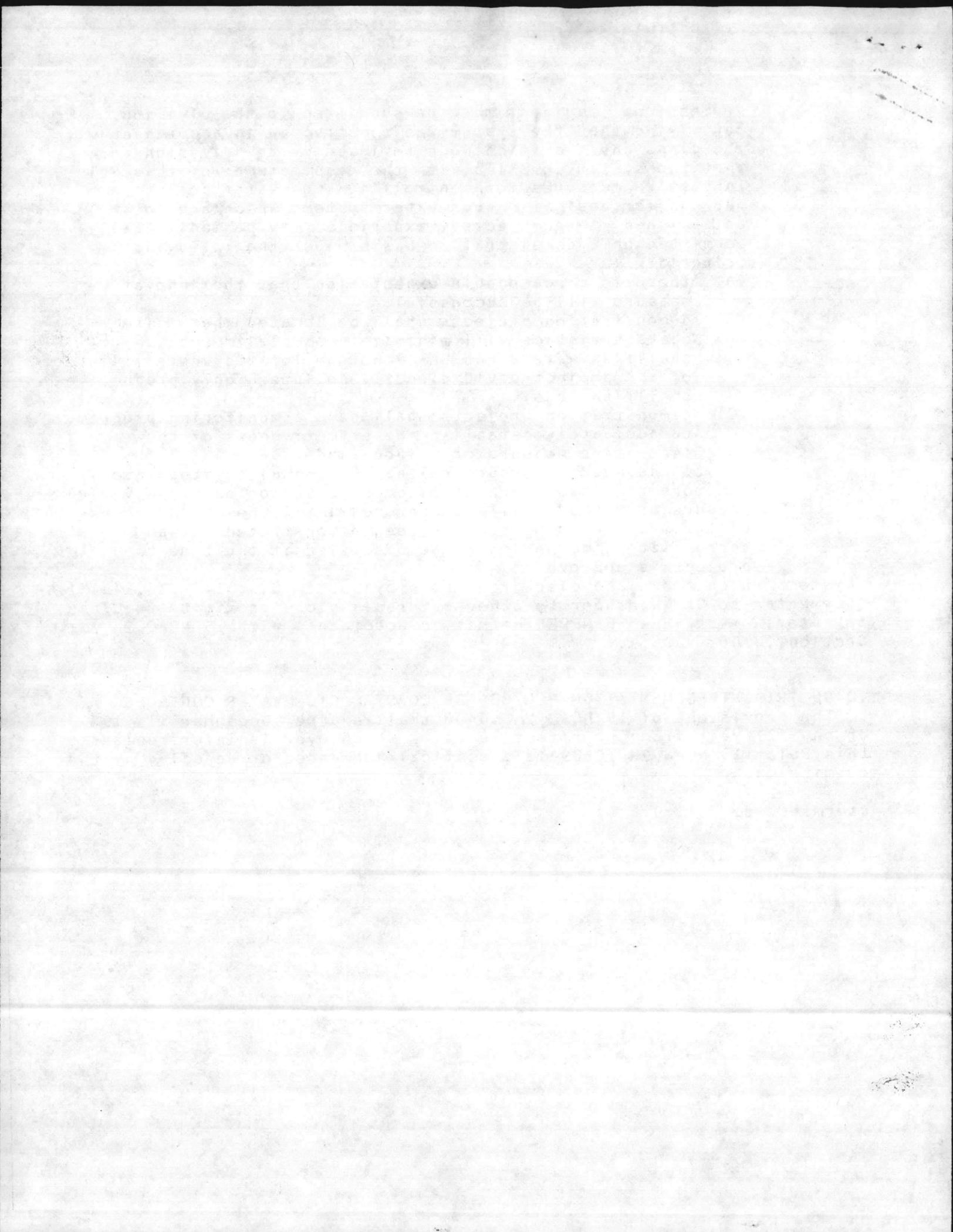
- (A) there is a reasonable expectation that the innovative measure will be successful;
- (B) demonstration projects shall be located where site characteristics will minimize possible impacts on shellfish waters and shall not be located where failure of the project could directly pollute highly productive shellfish beds;
- (C) demonstration projects shall have a monitoring program to adequately establish the effectiveness of the innovative measure or method; and

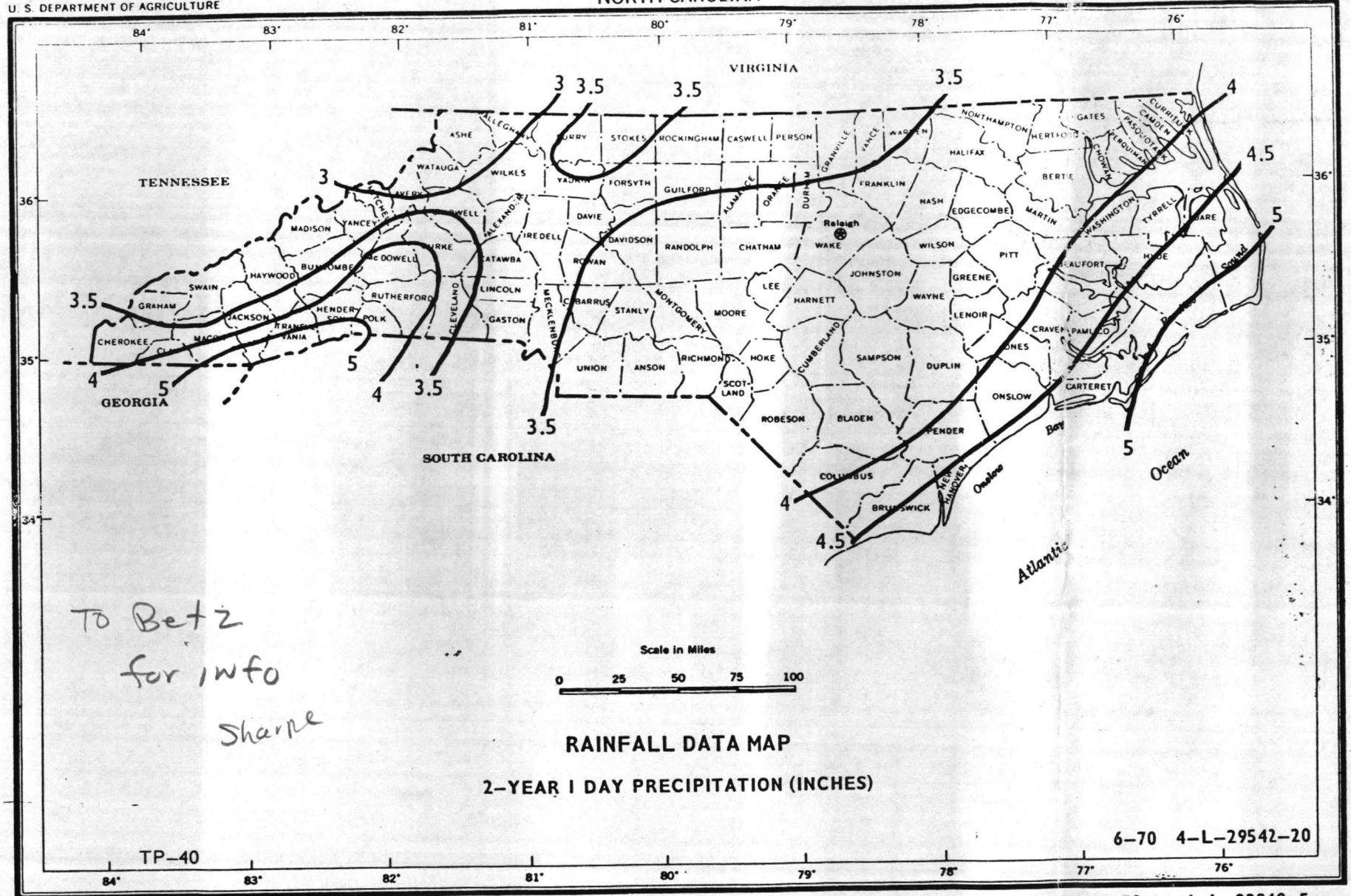
Due to the need to assure reliable disposal of stormwater, not more than two demonstration projects for each innovative measure or method shall be approved until the effectiveness of the measure or method has been demonstrated for an appropriate time period to be specified at the time the project is approved.

Systems which treat and discharge (as provided in G.S. 143-215.1(a)(1)) stormwater to SA waters or to other waters in close proximity to Class SA waters must have an NPDES permit in accordance with 15 NCAC 2H Section .0100;

.0409 TRIAL IMPLEMENTATION PERIOD FOR COASTAL STORMWATER CONTROLS

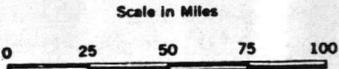
The provisions of 15 NCAC 2H .0408 shall expire December 31, 1987 or one (1) year from the effective date, which ever is later, unless this Rule (15 NCAN 2H .0409) is specifically amended or repealed by the commission.





B-12

To Betz
for info
Sharpe



RAINFALL DATA MAP
2-YEAR 1 DAY PRECIPITATION (INCHES)

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The following information was obtained from the records of the Department of Health and Human Services, Office of the Assistant Secretary for Health Policy and Statistics, regarding the proposed rulemaking for the regulation of...

The proposed rulemaking is intended to address the concerns of the public and the industry regarding the regulation of...

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Information Concerning Stormwater Regulations

During the Fall of 1987, the Environmental Management Commission (EMC) adopted new stormwater regulations which will affect much of the development taking place in the 20 coastal counties. The counties that are affected in southeastern North Carolina are Brunswick, New Hanover, Pender, Onslow and Carteret. Any development project located in a coastal county that is required to submit a Sedimentation and Erosion Control Plan to a State, County or City review agency, must comply with the new Stormwater Regulations.

Receipt of a Sedimentation and Erosion Control Plan Approval will not exempt you from the requirements of Stormwater Regulation. In brief the regulations offer 3 major compliance alternative, which are as follows:

1. The use of low density development. This option requires documentation of compliance with the density provisions of the regulation documentation should include but not limited to:
 - a. Computations determining the percent built upon (see attached form titled "Submittal Form for Projects Using Density Limits for Stormwater Control").
 - b. Submittal of deed restrictions and protective covenants that will ensure that current and future development will be consistent with density criteria set forth in the Stormwater Regulation. The restrictions and covenants must include the State of North Carolina as a beneficiary of the restrictions.
2. The use of an engineered Stormwater Management System. This option requires a plan designed by an appropriate registered professional which complies with the Stormwater Regulation.
3. Request for certification from the Director of the Division of Environmental Management certifying that strict adherence to the Stormwater Regulations is not required to protect water quality standards. The request for certification must be accompanied by adequate computations showing that the proposed development will have negligible impact(s) on the receiving waters.

The State is required to review and approve (or deny) Stormwater Management Plans within 90 days of receipt of a complete proposal.

If you have any questions concerning the Stormwater Regulations, please write or call the Wilmington Regional Office, 7225 Wrightville Avenue, Wilmington, NC 28403; telephone number (919) 256-4161.



The following information was received from the Division of Environmental Management regarding the proposed project. The project is located in the 10th District, and the project area is shown on the attached map. The project area is located in the 10th District, and the project area is shown on the attached map.

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CONTROLLED USE OF DENSITY LIMITS

FOR STORMWATER CONTROL

In order to comply with density limits as described in 15NCAC 2H.408(e) the applicant, , is required to restrict the effective impervious cover on a per lot basis. In order to get approval of the use of density limits for stormwater control the applicant must record a declaration of restrictive covenants, and plot plan indicating the limit of impervious cover of each lot affected, , at the Registrar of Deeds. The limit of impervious area and the lots affected is to be as listed on the attached sheet.

15 NCAC 2H .1001 -.1003; have been adopted as published in the NCR, Volume 2, Issue 4, pages 250-253, with changes, as follows:

SECTION .1000 - STORMWATER RUNOFF DISPOSAL

.1001 STORMWATER DISPOSAL POLICY

(a) The increase in stormwater runoff associated with land development activities can substantially increase inputs of waste constituents present in stormwater to waters of the State over that which occurs in natural, undeveloped watersheds. The increased pollutant loading from stormwater runoff may degrade ambient water quality, adversely impact best usage or otherwise violate water quality standards. For these reasons, it is the goal of the Commission to minimize any water quality impacts of development activities to ensure that existing and designated uses are maintained and protected in accordance with the provisions of this Section. In establishing this goal, the Commission recognizes that the U.S. Environmental Protection Agency will be establishing permit requirements and best management practices for stormwater point sources pursuant to the Federal Water Pollution Control Act as amended.

(b) The rules in this section to control pollutants associated with stormwater runoff apply to development of land for residential, commercial, industrial, or institutional use but do not apply to land management activities associated with agriculture or silviculture.

History Note: Statutory Authority G.S. 143-214.1;
143-215.3(a)(1);
Eff. January 1, 1988.

.1002 DEFINITIONS

The definition of any word or phrase in this Section shall be the same as given in Article 21, Chapter 143 of the General Statutes of North Carolina, as amended. Other words and phrases used in this Section are defined as follows:

- (1) Development means any land disturbing activity which adds to or changes the amount of impervious or partially impervious cover on a land area or which otherwise decreases the infiltration of precipitation into the soil thus altering the hydrological characteristics of the area.
- (2) Drainage area or watershed means that area contributing runoff to a single point measured in a horizontal plane which is enclosed by a ridge line.
- (3) Infiltration systems mean stormwater treatment systems designed to allow runoff to pass or move (infiltrate) into the soil surface.
- (4) On-site stormwater systems mean the systems necessary to control stormwater within an individual development project.
- (5) Off-site stormwater systems mean the systems necessary to control stormwater from more than one development which is owned and operated as a duly licensed utility or by a local government.

- (6) Built-upon area means that portion of an individual development project that is covered by impervious or partially impervious cover including buildings, pavement, recreation facilities, etc. but not including decking.
- (7) Redevelopment means any rebuilding activity following fires, hurricanes or other natural disaster, or other public restoration projects designated by the Commission;
- (8) Wet detention pond means a structure that provides for the storage and treatment of runoff and includes a permanent pool of water.
- (9) Coastal Counties include Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.
- (10) Sedimentation/erosion control plan means any plan submitted to the Division of Land Resources or delegated authority in accordance with 15 NCAC 4B .0005.
- (11) CAMA major development permits mean those permits required by the Coastal Resources Commission according to 15 NCAC 7J Sections .0100 and .0200.
- (12) Vegetative filter means an area of natural or planted vegetation through which stormwater runoff flows in a diffuse manner so that runoff does not become channelized and which provides for infiltration of runoff and filtering of pollutants. The direction of stormwater flow defines the width of the filter.
- (13) Stormwater collection system means any pipe, channel, curb or gutter for the primary purpose of transporting (not treating) runoff but does not include grassed swales, or pipes used to carry drainage underneath built-upon surfaces that are associated with development controlled by the provisions of Rule .1003(a)(2) and (3) in this Section.

History Note: Statutory Authority G.S. 143-214.1;
 143-215.3(a)(1);
 Eff. January 1, 1988.

.1003 COASTAL STORMWATER DISPOSAL

(a) Applicability. The intent of the Commission is to achieve the water quality protection which low density development near productive coastal waters would provide. To that end, the director by applying the standards in this Rule will cause development to comply with the antidegradation requirements specified in 15 NCAC 2B .0201 by protecting high quality waters and highly productive aquatic resources from the adverse impacts of uncontrolled high density development or the potential failure of stormwater control measures. Stormwater control measures as described in Paragraphs (c) through (1) of this Rule are required for any development activities in the coastal counties which require a CAMA major development permit or a

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sedimentation/erosion control plan after January 1, 1988 unless the development:

- (1) is one acre or less;
- (2) drains to SA waters or unnamed tributaries to SA waters; has a built-upon area of 25% or less, or proposes development of single-family residences on lots with one-third of an acre or greater with a built-upon area of 25% or less; has no stormwater collection system; and built-upon area is at least 30 feet from surface waters;
- (3) drains to waters other than SA; has a built-upon area of 30% or less, or proposes development of single-family residences on lots with one-third of an acre or greater with a built-upon area of 30% or less; has no stormwater collection system; and built-upon area is at least 30 feet from surface waters;
- (4) controls runoff through an off-site stormwater system meeting provisions of this Rule and permitted in accordance with G.S. 143-215.1(d);
- (5) is redevelopment which meets the requirements of this Rule to the maximum extent practicable;
- (6) otherwise meets the provisions of this Rule and has boat ramps, public roads and public bridges which minimize impervious surfaces, divert stormwater away from surface waters as much as possible and employ other best management practices to minimize water quality impacts; or
- (7) is certified by the Director that the site is situated such that water quality standards and uses are not threatened and the developer demonstrates that the development meets the following criteria:
 - (A) the plans and specifications indicate stormwater control measures which will be installed in lieu of the requirements of this Rule, or
 - (B) the development is located such a distance from surface waters that impacts from pollutants present in stormwater from the site will be effectively mitigated;

Development designed to meet the low density requirements in subparagraphs (2) and (3) of this Paragraph must demonstrate that no areas within the project site are of such high density that stormwater threatens water quality. Deed restrictions and protective covenants used to ensure that subdivisions maintain the development consistent with the plans and specifications approved by the division will include the State as a beneficiary of the restrictions.

(b) Projects with stormwater control measures in accordance with the provisions of this Rule shall be deemed permitted pursuant to G.S. 143-215.1(d) upon receipt of a permit from the Division of Coastal Management or plan approval from the Division of Land Resources (or delegated authority). In addition, NPDES permits for stormwater point sources may be required according to the provisions of 15 NCAC 2H .0126.

1. The purpose of this plan is to provide for the development of a...

2. The plan shall be subject to the approval of the Board of Directors...

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9. The plan shall be subject to the approval of the Board of Directors...

(c) Stormwater Control Options. Stormwater control measures which can be approved pursuant to this Rule and which will not be considered innovative include:

- (1) Stormwater infiltration systems including infiltration basins/ponds, swales, and vegetative filters; and
- (2) Wet detention ponds.

(d) Innovative Systems. Innovative measures for controlling stormwater which are not well established through actual experience may be approved on a demonstration basis under the following conditions:

- (1) There is a reasonable expectation that the control measures will be successful;
- (2) The projects are not located near high quality waters;
- (3) Monitoring requirements are included to verify the performance of the control measures; and
- (4) Alternatives are available if the control measures fail and will be required when the director determines that the system has failed;

No more than five projects utilizing the same innovative control measure will be approved until the technology is proven over a time frame to be determined on a case-by-case basis. These five projects will include projects approved since November 1, 1986 according to the provisions of 15 NCAC 2H .0408.

(e) Design Criteria for Development Draining to Outstanding Resource Waters. Stormwater control requirements to protect coastal waters classified as Outstanding Resource Waters (ORW) pursuant to 15 NCAC 2B .0216 shall be determined in the process to reclassify the waters as ORW. After the Commission has received a request to classify Class SA waters as ORW and given permission to the director to schedule a public hearing to consider reclassification and until such time as specific stormwater design criteria become effective, only development which meets the requirements of Paragraph (a) (2), (5) or (6) will be approved within 575 feet of mean high water of these waters.

(f) Design Criteria for Development draining directly to Class SA waters.

- (1) Direct outlet channels or pipes to SA waters are prohibited unless permitted in accordance with 15 NCAC 2H .0126.
- (2) Infiltration control systems must be designed to control the runoff from all impervious surfaces generated by one and one-half inches of rainfall. The size of the system must take into account the runoff from any pervious surfaces draining to the system.
- (3) Runoff in excess of the design volume must flow overland through a vegetative filter with a minimum width of 50 feet measured from mean high water of SA waters;

(g) Design Criteria For Development Not Draining to SA Waters.

- (1) Infiltration control systems must be designed to control the runoff from all impervious surfaces generated by one inch of rainfall. The size of the system must take into account the runoff from any pervious surfaces draining to the system;

- (2) Wet detention ponds must be designed according to methods approved by the director for 85 percent removal of total suspended solids in the permanent pool and storage of runoff from a one inch rainfall from the site above the permanent pool;
- (3) Vegetative filters are required for the overflow and discharge of all stormwater from wet detention ponds; these filters shall be at least 30 feet in length;
- (4) Additional control measures may be required on a case-by-case basis to protect high quality waters or specific water uses.

(h) Infiltration System Requirements. Infiltration systems may be designed to provide infiltration of the entire design rainfall volume required for a site or a series of successive systems may be utilized. Infiltration may also be used to pretreat runoff prior to disposal in a wet detention ponds. The following are requirements:

- (1) Infiltration systems shall be a minimum of 30 feet from surface waters and 50 feet from Class SA waters;
- (2) Infiltration systems shall be a minimum distance of 100 feet from water supply wells;
- (3) The bottom of infiltration systems shall be a minimum of 2 feet above the seasonal high water table;
- (4) Infiltration systems must be designed such that runoff in excess of the design volume by-passes the system and does not flush pollutants through the system;
- (5) Infiltration systems must be designed to completely draw down to pre-storm levels within 5 days and a hydrogeologic evaluation may be required to determine whether the system can draw down in 5 days;
- (6) Soils must have a minimum hydraulic conductivity of 0.52 inches per hour to be suitable for infiltration;
- (7) Infiltration systems must not be sited on or in fill material;
- (8) Infiltration systems must have an observation well to provide ready inspection of the system;
- (9) If runoff is directed to infiltration systems during construction of the project, the system must be restored to design specifications after the project is complete and the entire drainage area is stabilized.

(i) Wet Detention Pond Requirements. These practices can be used as a primary treatment device or as a secondary device following an infiltration system. Wet detention ponds shall be designed for a specific pollutant removal according to modeling techniques approved by the director. Specific requirements for these systems are as follows:

- (1) The design storage volume shall be above the permanent pool;
- (2) The discharge rate from these systems following the one inch rainfall design storm shall be such that the runoff does not draw down to the permanent pool level in less than 2 days and that the pond is drawn down to the permanent pool level within at least 5 days;
- (3) The mean depth shall be a minimum of 3 feet;

(4) The inlet structure must be designed to minimize turbulence using baffles or other appropriate design features;

(5) Pretreatment of the runoff by the use of infiltration swales is encouraged to minimize sedimentation and eutrophication of the detention pond.

(j) Vegetative Filter Requirements. Vegetative filters shall be used as a non-structural method for providing additional infiltration, filtering of pollutants and minimizing stormwater impacts. Requirements for these filters are as follows:

(1) A distribution device such as a swale shall be used to provide even distribution of runoff over the length of the vegetative filter;

(2) The slope and width of the vegetative filter shall be determined so as to provide a non-erosive velocity of flow-through the filter for a 10-year, 24-hour storm with a 10-year, 1-hour intensity and the portion of the filter representing the minimum filter width specified in Paragraphs (f) and (g) of this Rule shall have a slope of 5% or less;

(3) Vegetation in the filter may be natural vegetation, grasses or artificially planted wetland vegetation appropriate for the site characteristics;

(k) Operation and maintenance plans. An operation and maintenance plan or manual shall be provided by the developer for stormwater systems, indicating what operation and maintenance actions are needed, what specific quantitative criteria will be used for determining when those actions are to be taken, and who is responsible for those actions prior to approval of the development by the division. The plan must clearly indicate the steps that will be taken and who will be responsible for restoring a stormwater system to design specifications if a failure occurs and will include an acknowledgement by the responsible party. Development must be maintained consistent with the requirements in these plans and modifications to these plans must be approved by the Division.

(l) System Design. Stormwater systems must be designed by a North Carolina registered professional with qualifications appropriate for the type of system required; these registered professionals are defined as:

(1) professional engineers;

(2) landscape architects, to the extent that the General Statutes, Chapter 89A, allow; and

(3) registered land surveyors, to the extent that the design represents incidental drainage within a subdivision, as provided in General Statute 89C-3(7).

Upon completion of construction, a registered professional appropriate for the type of stormwater system designed must certify that the system was inspected during construction and was constructed in substantial conformity with plans and specifications reviewed by the division and complies with the requirements of this Rule.

The following information was obtained from the records of the Department of the Interior, Bureau of Reclamation, regarding the project described herein.

The project is a water control project for the purpose of controlling the flow of water in the Colorado River. The project is located in the State of Colorado and is known as the [Project Name].

The project is designed to control the flow of water in the Colorado River and to provide for the storage of water for use during periods of low flow. The project consists of a dam, a reservoir, and a water control structure.

The dam is a concrete gravity dam and is designed to withstand a maximum water head of [Height]. The reservoir is a natural lake and is designed to store water for use during periods of low flow. The water control structure is a spillway and is designed to control the flow of water from the reservoir.

The project is owned and operated by the [Agency Name]. The project is designed to provide for the control of water flow in the Colorado River and to provide for the storage of water for use during periods of low flow.

The project is a water control project for the purpose of controlling the flow of water in the Colorado River. The project is located in the State of Colorado and is known as the [Project Name].

The project is designed to control the flow of water in the Colorado River and to provide for the storage of water for use during periods of low flow. The project consists of a dam, a reservoir, and a water control structure.

The dam is a concrete gravity dam and is designed to withstand a maximum water head of [Height]. The reservoir is a natural lake and is designed to store water for use during periods of low flow. The water control structure is a spillway and is designed to control the flow of water from the reservoir.

The project is owned and operated by the [Agency Name]. The project is designed to provide for the control of water flow in the Colorado River and to provide for the storage of water for use during periods of low flow.

History Note: Statutory Authority G.S. 143-214.1;
143-215.1(d); 143-215.3(a)(1);
Eff. January 1, 1988.

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15 NCAC 2H .1004; has been adopted as published in the NCR, Volume 2, Issue 4, page 253, as follows:

.1004 STATEWIDE STORMWATER GUIDELINES

The division will periodically develop guidelines for the control of stormwater pollution from various development practices and to protect specific water uses; these guidelines will be provided to requesting individuals, institutions, local governments, or state/federal agencies on request for use in developing control strategies for mitigating stormwater pollution.

History Note: Statutory Authority G.S. 143-214.1;
143-215.3(a)(1); 143-215.8A;
Eff. January 1, 1988.

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DIVISION OF ENVIRONMENTAL MANAGEMENT

Submittal Form for Projects Using Density Limits for Stormwater Control

PROJECT DATA

Name of Project: _____
Location (County, Township/Municipality, Address): _____

Applicant Name: _____
Mailing Address: _____

Phone No.: _____
Submittal Date: _____

Brief Description (include map and appropriate drawings):

Water Body Receiving Stormwater Runoff: _____
Name of Water Body: _____
Classification of Water Body: _____

Total Area of Proposed Project (acres): _____

State/Federal Permits and Approvals Required:
(Check Appropriate Blanks)

CAMA Major _____ Sedimentation and Erosion Control _____
404 Permit _____ DEM/DHS Sewage Disposal _____
Other (specify): _____

CALCULATION OF BUILT-UPON AREA

(Built-upon area means that portion of an individual development that is covered by impervious or partially pervious cover including buildings, pavement, recreation facilities, etc. but not including decking.)

- a) Built-upon area: _____
- b) Total project area: _____

% built-upon = built-upon / total project area * 100

% built-upon area = _____%

If the water body receiving stormwater runoff is classified as SA, is the % built-upon area \leq 25%? Yes _____ No _____

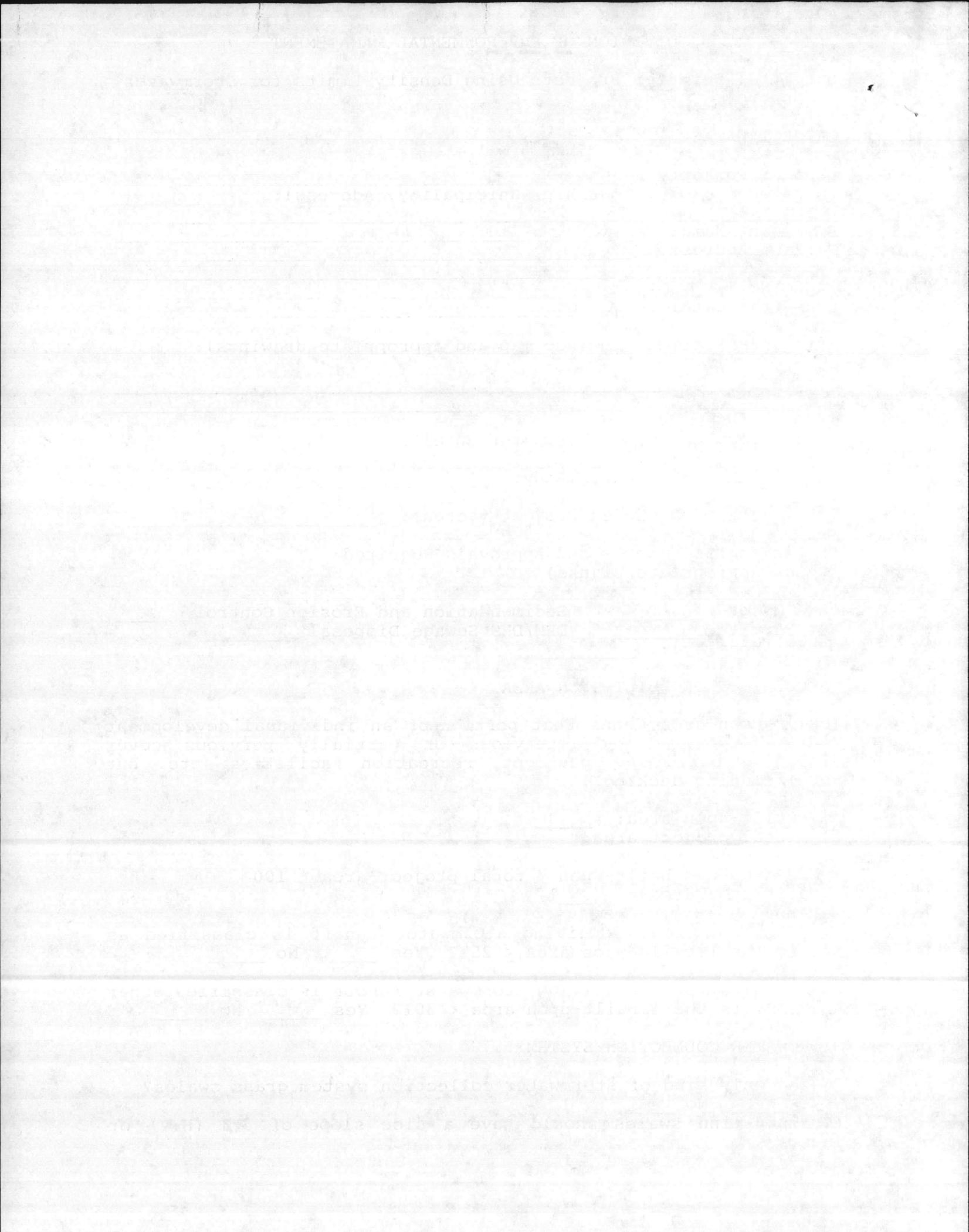
If the water body receiving stormwater runoff is classified other than SA, is the % built-upon area \leq 30%? Yes _____ No _____

STORMWATER COLLECTION SYSTEM

Is the only kind of stormwater collection system grass swales?

Yes _____ No _____

(Grassed-line swales should have a side slope of 3:1 (H:V) or less.)



Section 101 - General

The purpose of this Act is to provide for the development and maintenance of a national system of parks and monuments.

Section 102 - Definitions

As used in this Act, the following definitions shall apply: (a) "Secretary" means the Secretary of the Interior.

(b) "National Park System" means the system of parks and monuments administered by the Secretary.

(c) "Antiquities Act" means the Act of October 3, 1906, and any amendments thereto.

(d) "Federal Land" means any land owned or controlled by the United States.

(e) "State" means any of the States of the United States.

(f) "Indian Tribe" means any tribe, band, or group of Indians.

Send Form To:

Washington Region

Water Quality Supervisor
Div. of Envir. Mgmt.
1505 North Market Street
Washington, N.C. 27889
(919) 946-6481

For the Following Counties:

Beaufort, Bertie, Camden, Chowan,
Craven, Currituck, Dare, Gates
Hertford, Hyde, Pamlico, Pasquotank,
Perquimans, Tyrrell, Washington

Wilmington Region

Water Quality Supervisor
Division of Envir. Mgmt.
7225 Wrightsville Ave.
Wilmington, N.C. 28403
(919) 256-4161

For the Following Counties

Carteret, Brunswick, New Hanover
Hanover, Onslow, Pender

