SOUTH CAROLINA STATE REGISTER DISCLAIMER

SOUTH CAROLINA STATE REGISTER

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STEPHEN T. DRAFFIN, DIRECTOR
LYNN P. BARTLETT, EDITOR

P.O. BOX 11489
COLUMBIA, SC 29211
TELEPHONE (803) 734-2145

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This issue contains notices, proposed regulations, emergency regulations, final form regulations, and other documents filed in the Office of the Legislative Council, pursuant to Article 1, Chapter 23, Title 1, Code of Laws of South Carolina, 1976.

SOUTH CAROLINA STATE REGISTER

An official state publication, the *South Carolina State Register* is a temporary update to South Carolina's official compilation of agency regulations--the *South Carolina Code of Regulations*. Changes in regulations, whether by adoption, amendment, repeal or emergency action must be published in the *State Register* pursuant to the provisions of the Administrative Procedures Act. The *State Register* also publishes the Governor's Executive Orders, notices or public hearings and meetings, and other documents issued by state agencies considered to be in the public interest. All documents published in the *State Register* are drafted by state agencies and are published as submitted. Publication of any material in the *State Register* is the official notice of such information.

STYLE AND FORMAT

Documents are arranged within each issue of the *State Register* according to the type of document filed:

Notices are documents considered by the agency to have general public interest.
Notices of Drafting Regulations give interested persons the opportunity to comment during the initial drafting period before regulations are submitted as proposed.
Proposed Regulations are those regulations pending permanent adoption by an agency.
Pending Regulations Submitted to the General Assembly are regulations adopted by the agency pending approval by the General Assembly.
Final Regulations have been permanently adopted by the agency and approved by the General Assembly.
Emergency Regulations have been adopted on an emergency basis by the agency.
Executive Orders are actions issued and taken by the Governor.

2004 PUBLICATION SCHEDULE

Documents will be accepted for filing on any normal business day from 8:30 A.M. until 5:00 P.M. All documents must be submitted in the format prescribed in the *Standards Manual for Drafting and Filing Regulations.*

To be included for publication in the next issue of the *State Register*, documents will be accepted no later than 5:00 P.M. on any closing date. The modification or withdrawal of documents filed for publication must be made **by 5:00 P.M.** on the closing date for that issue.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Submission Deadline	1/9	2/13	3/12	4/9	5/14	6/11	7/9	8/13	9/10	10/8	11/12	12/10
Publishing Date	1/23	2/27	3/26	4/23	5/28	6/25	7/23	8/27	9/24	10/22	11/26	12/24

REPRODUCING OFFICIAL DOCUMENTS

Documents appearing in the *State Register* are prepared and printed at public expense. Media services are encouraged to give wide publicity to documents printed in the *State Register*.

PUBLIC INSPECTION OF DOCUMENTS

Documents filed with the Office of the State Register are available for public inspection during normal office hours, 8:30 A.M. to 5:00 P.M., Monday through Friday. The Office of the State Register is in the Legislative Council, Fourth Floor, Rembert C. Dennis Building, 1000 Assembly Street, in Columbia. Telephone inquiries concerning material in the *State Register* or the *South Carolina Code of Regulations* may be made by calling (803) 734-2145.

ADOPTION, AMENDMENT AND REPEAL OF REGULATIONS

To adopt, amend or repeal a regulation, an agency must publish in the *State Register* a Notice of Drafting; a Notice of the Proposed Regulation that contains an estimate of the proposed action's economic impact; and, a notice that gives the public an opportunity to comment on the proposal. If requested by twenty-five persons, a public hearing must be held at least thirty days after the date of publication of the notice in the *State Register*.

After the date of hearing, the regulation must be submitted to the General Assembly for approval. The General Assembly has one hundred twenty days to consider the regulation. If no legislation is introduced to disapprove or enacted to approve before the expiration of the one-hundred-twenty-day review period, the regulation is approved on the one hundred twentieth day and is effective upon publication in the *State Register*.

EMERGENCY REGULATIONS

An emergency regulation may be promulgated by an agency if the agency finds imminent peril to public health, safety or welfare. Emergency regulations are effective upon filing for a ninety-day period. If the original filing began and expired during the legislative interim, the regulation can be renewed once.

REGULATIONS PROMULGATED TO COMPLY WITH FEDERAL LAW

Regulations promulgated to comply with federal law are exempt from General Assembly review. Following the notice of proposed regulation and hearing, regulations are submitted to the *State Register* and are effective upon publication.

EFFECTIVE DATE OF REGULATIONS

Final Regulations take effect on the date of publication in the *State Register* unless otherwise noted within the text of the regulation.
Emergency Regulations take effect upon filing with the Legislative Council and remain effective for ninety days. If the original ninety-day period begins and expires during legislative interim, the regulation may be refiled for one additional ninety-day period.

SUBSCRIPTIONS

Subscriptions to the *South Carolina State Register* are available electronically through the South Carolina Legislature Online website at www.scstatehouse.net via an access code, or in a printed format. Subscriptions run concurrent with the State of South Carolina's fiscal year (July through June). The annual subscription fee for **either** format is $95.00. Payment must be made by check payable to the Legislative Council. To subscribe complete the form below and mail with payment. Access codes for electronic subscriptions will be e-mailed to the address submitted on this form.

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South Carolina General Assembly Home Page: www.scstatehouse.net

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DOC NO.	DATE	SUBJECT	AGENCY
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2 REGULATIONS SUBMITTED TO GENERAL ASSEMBLY

RESOLUTION INTRODUCED TO DISAPPROVE (120 DAY REVIEW PERIOD TOLLED)

DOC NO.	DATE	SUBJECT	AGENCY
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2801	2-19-03	Individual Sewage Treatment and Disposal Systems	Department of Health and Envir Control
2800	4-02-03	Environmental Protection Fees	Department of Health and Envir Control
2753	5-08-03	LIFE Scholarship Program	Commission on Higher Education
2871	**R.435 6/7/0**4*	Water Quality Certification	Department of Health and Envir Control

*** Pending Governor's Signature**

WITHDRAWN:

DOC NO.	DATE	SUBJECT	AGENCY
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2729	2-04-03	Fees	LLR: Board of Pharmacy
2882	5-25-04	Prescription Drug Discount Cards	Consumer Affairs

2004-12

WHEREAS, Emmett F. Brooks has resigned as Greenwood County Clerk of Court, effective June 1, 2004; and

WHEREAS, the undersigned is authorized to appoint a County Clerk of Court in the event of a vacancy pursuant to Sections 1-3-220(2), 4-11-20(1) and 14-17-30 of the South Carolina Code of Laws, as amended; and

WHEREAS, Ingram B. Moon residing at 103 Emili Lane, Greenwood, South Carolina 29646, is a fit and proper person to serve as the Greenwood County Clerk of Court.

NOW, THEREFORE, pursuant to the authority vested in me by the Constitution and Statutes of this State, I hereby appoint Ingram B. Moon as Clerk of Court of Greenwood County until the next general election for this office and until his successor shall qualify.

GIVEN UNDER MY HAND AND THE GREAT SEAL OF THE STATE OF SOUTH CAROLINA, THIS 3rd DAY OF JUNE, 2004.

MARK SANFORD
Governor

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

In accordance with Section 44-7-200(C), Code of Laws of South Carolina, the public is hereby notified that a Certificate of Need application has been accepted for filing and publication June 25, 2004, for the following project(s). After the application is deemed complete, affected persons will be notified that the review cycle has begun. For further information, please contact Mr. Albert N. Whiteside, Director, Division of Planning and Certification of Need, 2600 Bull St., Columbia, SC 29201 at (803) 545-4200.

Affecting Georgetown County

Renovation to establish a 10 bed comprehensive rehabilitation unit with the addition of five (5) new rehabilitation beds and the transfer of five (5) rehabilitation beds from Waccamaw Community Hospital to Georgetown Memorial Hospital for a total licensed capacity of 82 acute care beds and 24 comprehensive rehabilitation beds at Waccamaw Community Hospital and 131 acute care and 10 comprehensive rehabilitation beds at Georgetown Memorial Hospital.
Georgetown Memorial Hospital
Georgetown, South Carolina
Project Cost: $2,480,118

Affecting Greenville County

Construction for the addition of eleven (11) Psychiatric beds, for a total of sixty-four (64) Psychiatric beds and 13 Substance Abuse beds.
Carolina Center for Behavioral Health
Greer, South Carolina
Project Cost: $1,183,388

Affecting Laurens County

Establish an outpatient narcotic treatment program to be located at Lot 5 on Professional Park Road, Clinton, South Carolina 29325 (Methadone Treatment Center).
Laurens Treatment Associates
Clinton, South Carolina
Project Cost: $192,400

Affecting Richland County

Construction of a thirty-two (32) bed nursing home, which does not participate in the Medicaid (Title XIX) Program.
Wildewood Downs Nursing Center
Columbia, South Carolina
Project Cost: $1,723,500

In accordance with S.C. DHEC Regulation 61-15, the public and affected persons are hereby notified that the review cycle has begun for the following project(s) and a proposed decision will be made within 60 days beginning June 25, 2004. "Affected persons" have 30 days from the above date to submit comments or requests for a public hearing to Mr. Albert N. Whiteside, Director, Division of Planning and Certification of Need, 2600 Bull Street, Columbia, S.C. 29201. For further information call (803) 545-4200.

Affecting Cherokee County

Replace existing Single-Slice Computed Tomography (CT) scanner with a multi-slice CT scanner.
Upstate Carolina Medical Center

Gaffney, South Carolina
Project Cost: $809,817

Affecting Georgetown County

Renovation to establish a 10 bed comprehensive rehabilitation unit with the addition of five (5) new rehabilitation beds and the transfer of five (5) rehabilitation beds from Waccamaw Community Hospital to Georgetown Memorial Hospital for a total licensed capacity of 82 acute care beds and 24 comprehensive rehabilitation beds at Waccamaw Community Hospital and 131 acute care and 10 comprehensive rehabilitation beds at Georgetown Memorial Hospital.
Georgetown Memorial Hospital
Georgetown, South Carolina
Project Cost: $2,480,118

Affecting Lexington County

Development of an adult open-heart surgery program with one dedicated operation room (OR), one back-up OR and the addition of a second cardiac catheterization laboratory with the development of a therapeutic cardiac catheterization program.
Lexington Medical Center
West Columbia, South Carolina
Project Cost: $5,607,408

Upfit of shelled space for the relocation of the Radiology Department.
Lexington Medical Center
West Columbia, South Carolina
Project Cost: $11,855,109

PUBLIC NOTICE

The South Carolina State Health Planning Committee will hold public hearings on the Draft 2004 South Carolina Health Plan at the following times and locations:

Monday, July 26, 2004, 11:00 a.m. until 12:00 noon, City of North Charleston Council Chambers, 4900 LaCross Road, North Charleston, South Carolina;

Tuesday, July 27, 2004, 11:00 a.m. until 12:00 noon, Greenville County Council Chambers, 301 University Ridge, County Square, Greenville, South Carolina;

Wednesday, July 28, 2004, 11:00 a.m. until 12:00 noon, Florence Health Department Auditorium, 145 East Cheves Street, Florence, South Carolina;

Friday, July 30, 2004, 11:00 a.m. until 12:00 noon, Second Floor Conference Room of the Heritage Building, 1777 St. Julian Place, Columbia, South Carolina.

The State Health Planning Committee is soliciting comments on the Draft Plan and prefers to receive these comments in writing so all members of the State Health Planning Committee can review them.

Written comments will be received through July 30, 2004. The draft plan is available for public review at the South Carolina Department of Health and Environmental Control, 1777 St. Julian Place, Suite 201, Columbia, South Carolina. Copies are also available by mail for $25.00. To receive a copy, send a letter to Albert Whiteside, Division of Planning and Certification of Need, 2600 Bull Street, Columbia, SC 29201; or FAX at 803-545-4579; or e-mail to whitesan@dhec.sc.gov

The Plan will also be available for public review at the following additional location:
South Carolina State Library
1500 Senate Street
Columbia, SC 29211

Comments on the plan may be presented at the public hearings or submitted to the S.C. State Health Planning Committee, S.C. Department of Health and Environmental Control, Division of Planning and Certification of Need, 2600 Bull St., Columbia, SC 29201 through July 30, 2004. For additional information, call (803) 545-4200.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

PUBLIC NOTICE

Pursuant to S.C. Code Section 49-21-40 and R. 121-12.7, the South Carolina Department of Health and Environmental Control gives notice that International Paper Georgetown Mill has filed a Class I Interbasin Transfer Application to transfer water from the Pee Dee River basin to the Waccamaw River basin. The Interbasin Transfer Application is for renewal of an existing Interbasin Transfer Registration of 65 million gallons per day which expires November 15, 2005. Raw water is withdrawn from the Pee Dee River and transported through a canal to Georgetown where the water is treated and used by the International Paper Mill, the City of Georgetown, and Georgetown Steel. Wastewater from the International Paper Mill, the City of Georgetown, and Georgetown Steel is treated and discharged to the Sampit River in the Waccamaw River basin. The requested duration of the permit is for twenty (20) years to withdraw a daily average of 65 million gallons of water a day.

Any person may request a copy of the application by submitting a statement to the address below specifying how you will be affected. Any person may submit comments on the application; to be considered, comments must be received by the Department by the close of business on October 13, 2004. Any person wishing to receive notification of the permit decision should submit a request for such notification (which may be included with your comments) to the address below.

Comments should be directed to:

Tricia H. Kilgore
SCDHEC
2600 Bull Street
Columbia, SC 29201

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

PUBLIC NOTICE

Section IV of R.61-98, the State Underground Petroleum Environmental Response Bank (SUPERB) Site Rehabilitation and Fund Access Regulation, requires that the Department of Health and Environmental Control evaluate and certify site rehabilitation contractors to perform site rehabilitation of releases from underground storage tanks under the State Underground Petroleum Environmental Response Bank (SUPERB) Act. Pursuant to Section IV.B.1., the Department is required to place a list of those contractors requesting certification on public notice and accept comments from the public for a period of thirty (30) days. If you wish to provide comments regarding the companies and individuals listed below, please submit your comments in writing, no later than July 26, 2004 to:

Contractor Certification Program
South Carolina Department of Health and Environmental Control
Underground Storage Tank Program
Attn: Barbara Boyd
2600 Bull Street
Columbia, SC 29201

The following companies and individuals have applied for certification as Underground Storage Tank Site Rehabilitation Contractors:

Class I	Class II
Assessment Management Services	
Advanced Environmental Options, Inc.	

STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. § 59-5-60 (2004) and § 59-18-710 (2004

The State Board of Education will consider amendments to R 43-300, Accreditation Criteria, to include student academic performance in the criteria for accreditation.

Interested persons may submit written comments to Dr. Leonard McIntyre, Deputy Superintendent, Division of Professional Development and School Quality, 1429 Senate Street, Columbia, South Carolina 29201, or by e-mail to lmcintyr@SDE.State.SC.US. To be considered, all comments must be received no later than 5:00 p.m. on July 26, 2004, the close of the drafting comment period.

Synopsis:

The State Board of Education is considering promulgating amendments to Regulation 43-300, Accreditation Criteria. The amendments would include student academic performance in the criteria for accreditation.

This regulation will require General Assembly approval.

STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. Section 59-5-60(1), 59-33-10 et seq., 59-21-510 et seq. and 59-21-510 (2004 and Supp. 2003)

Notice of Drafting:

The South Carolina State Board of Education proposes to draft substantial revisions and additional regulations governing the education of students with disabilities. Interested persons may submit their comments in writing to Dr. Sandra Lindsay, Deputy Superintendent, Division of Curriculum Services and Assessment, 805 Rutledge Building, 1429 Senate Street, Columbia, South Carolina 29201. To be considered, all comments must be received no later than 5:00 p.m. on July 26, 2004, the close of the drafting comment period.

Synopsis:

The reauthorization of the Individuals with Disabilities Education Act creates the need for amending the state's requirements regarding the provision of a free and appropriate education to students with disabilities.

Legislative review of this proposal will not be required.

STATE BOARD OF EDUCATION

CHAPTER 43

Statutory Authority: S. C. Code Ann. §§ 59-5-60 (1,3, and 6) (2004), 59-30-10(f) (2004), and 59-39-100 (2004)

Notice of Drafting:

The State Board of Education will consider amendments to Regulation 43-259, Graduation Requirements. Interested persons may submit comments to Dr. Cherry Daniel, Office of Adult and Community Education, 1429 Senate Street, Columbia, South Carolina, 29201, or by email to cldaniel@sde.state.sc.us. To be considered, all comments must be received no later than 5:00 p.m. on July 26, 2004, the close of the drafting period.

Synopsis:

The State Board of Education is considering promulgating amendments to R 43-259, Graduation Requirements. The amendments will delete obsolete language and clarify the provisions for granting credit in adult education programs.

Legislative review of this regulation will be required.

STATE BOARD OF EDUCATION

CHAPTER 43

Statutory Authority: S. C. Code Ann. Sections(s) 59-5-60(1) (2004), 59-26-10, et seq. (2004), and No Child Left Behind Act of 2001, 20 USC 7912

Notice of Drafting:

The State Department of Education proposes to repeal and amend regulations governing Teacher Quality. Interested persons may submit their comments in writing to Dr. Janice Poda, Director, Division of Teacher Quality, 3700 Forest Drive, Suite 500, Columbia, South Carolina 29204. To be considered, all comments must be received no later than 5:00 p.m. on July 26, 2004.

Synopsis:

The enactment of the Elementary and Secondary Education Act of 2001, Public Law 107-110, also known as No Child Left Behind Act (NCLB), and the South Carolina Education Accountability Act (EAA), creates the need for restructuring the state system for training, certifying and evaluating teachers. Some areas that will be addressed are add-on certification, paraprofessionals, and the definition of highly qualified teachers.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

CHAPTER 61

Statutory Authority: S.C. Code Section 48-1-10 *et seq*.

Notice of Drafting:

The Department is proposing to amend R.61-62, *Air Pollution Control Regulations and Standards*, and the South Carolina State Implementation Plan (SIP). The purpose of this notice is to extend the drafting period previously established by the January 23, 2004, drafting notice published in Volume 28, Issue 1 of the *South Carolina State Register*. All previous comments, as well as any additional comments received after this publishing, will be considered. Interested persons are invited to present their views in writing to Thomas J. Flynn, III, Regulatory

Development Section, Bureau of Air Quality, 2600 Bull Street, Columbia, SC 29201. To be considered, comments must be received by July 26, 2004, the close of the drafting comment period.

Synopsis:

On December 31, 2002 (67 FR 80185) and October 27, 2003 (68 FR 61247), the United States Environmental Protection Agency (EPA) finalized revisions governing the New Source Review (NSR) program mandated by parts C and D of title I of the Clean Air Act (CAA). The major NSR program contained in parts C and D of title I of the CAA is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the CAA. In areas not meeting health-based National Ambient Air Quality Standards (NAAQS), the program is implemented under the requirements of part D of title I of the CAA. This is referred to as the nonattainment NSR program. In areas meeting the NAAQS (attainment areas), the NSR requirements under part C of title I apply. This is referred to as the Prevention of Significant Deterioration (PSD) program. Collectively, these programs are commonly referred to as the major NSR program.

In accordance with EPA's final rule revisions, state agency programs must adopt and submit revisions to their State Implementation Plans (SIPs) to include the minimum program elements outlined in the final rules. States may choose to adopt provisions that differ from the final rules, however, to be approvable under the SIP, the state must show that the regulation is at least as stringent as EPA's amendments. In accordance with these rules, states are required to adopt and submit revisions to their SIPs no later than three years from the date that the rules were published in the *Federal Register*.

The Department is proposing to amend R.61-62 and the SIP pursuant to the federal requirements. These proposed amendments will require legislative review.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
CHAPTER 61

Statutory Authority: 2002 SC Code Section 44-1-140; Sections 44-4-100 *et seq.* (Supp. 2003)
Related Authority: SC Code Section 25-1-440 (Supp. 2003)

Regulation 61-xx, Emergency Health Powers

Notice of Drafting:

The Department of Health and Environmental Control proposes to promulgate Regulation 61-xx, Emergency Health Powers, to implement the Emergency Health Powers Act, Code Sections 44-4-100 *et seq*. (Supp. 2003) and to provide for coordination with the Public Health Emergency Plan Committee created pursuant to SC Code Section 25-1-440(d) (Supp. 2003) (2002 Act No. 339, effective July 2, 2002). Interested persons are invited to present their views in writing to Dan Drociuk, Division of Acute Disease Epidemiology, SC Department of Health and Environmental Control, 1751 Calhoun Street, Columbia, SC 29201. To be considered, comments must be received by 5:00 p.m. on Monday, July 26, 2004.

Synopsis:

The General Assembly added Chapter 4 to Title 44 to: (1) authorize the collection of data and records, the control of property, the management of persons, and access to communications as may be strictly necessary to accomplish the purposes of this act; (2) facilitate the early detection of a qualifying health event or public health emergency, and allow for immediate investigation of such an emergency by granting access to individuals' health and other information under specified circumstances; (3) grant state officials the authority to use and appropriate property as necessary for the care, treatment, and housing of patients, and for the destruction or decontamination of contaminated materials; (4) grant state officials the authority to provide care and treatment to persons who are

ill or who have been exposed to infection, and to separate affected individuals from the population at large for the purpose of interrupting the transmission of infectious disease; (5) ensure that the needs of infected or exposed persons will be addressed to the fullest extent possible, given the primary goal of controlling serious health threats; (6) provide state officials with the ability to prevent, detect, manage, and contain emergency health threats without unduly interfering with civil rights and liberties; and (7) require the development of a comprehensive plan to provide for a coordinated, appropriate response in the event of a public health emergency. Code Section 25-1-440(d) authorizes the Governor to appoint a Public Health Emergency Plan Committee to advise him and make recommendations regarding public health emergency preparedness and public health emergency orders.

The Department intends to promulgate a new regulation to complement Regulation 61-20, Communicable Diseases, to implement the provisions of the Emergency Health Powers Act and to provide for coordination with the Public Health Emergency Plan Committee. Legislative review will be required.

DEPARTMENT OF LABOR, LICENSING, AND REGULATION
SOUTH CAROLINA BUILDING CODES COUNCIL

CHAPTER 9

Statutory Authority: 1976 Code Section 6-9-40

Notice of Drafting:

Notice is hereby given that, in accordance with Section 6-9-60(C) of the 1976 Code of Laws of South Carolina, as amended, the South Carolina Building Codes Council intends to update the International Fuel Gas Code, 2000 Edition, to the International Fuel Gas Code, 2003 Edition.

The Council also is considering modification to the following section of the International Fuel Gas Code, 2003 Edition:

Section G505.1.1

The Council specifically requests comments concerning sections of this edition which may be unsuitable for enforcement in South Carolina. Written comments may be submitted to Gary F. Wiggins, Board Administrator, at 110 Centerview Drive, 1st Floor, Columbia, South Carolina, 29211-1329, (803) 896-4620.

Synopsis:

The South Carolina Building Codes Council accepted comments and convened a study committee pursuant to 6-9-40 for consideration of the 2003 Edition of the International Building Code. After receipt of their report, the South Carolina Building Codes Council proposes to modify sections of the International Fuel Gas Code. All proposed modifications must provide a reasonable degree of public health, safety, and welfare. The study committee met December 17, 2003, January 28, 2004, and February 25, 2004. The Council approved the modifications February 25, 2004.

DEPARTMENT OF LABOR, LICENSING AND REGULATION
SOUTH CAROLINA BUILDING CODES COUNCIL
CHAPTER 9
Statutory Authority: 1976 Code Section 6-9-40

Notice of Drafting:

Notice is hereby given that, in accordance with Section 6-9-50 of the 1976 Code of Laws of South Carolina, as amended, the South Carolina Building Codes Council intends to update the International Residential Code, 2000 Edition, to the International Residential Code, 2003 Edition.

The Council also is considering modification to the following sections of the International Residential Code, 2003 Edition:
Section R202
Section R301.2(2)
Section R301.2.2
Section R301.2.2
Figure R307.2
Section R311.4.3
Section R311.5.3
Section R311.5.6.1
Table R402.2
Section R403.1.4.2
Section R403.1.6
Section R403.1.7
Table R502.5(1)
Section R502.11.4
Section R602.10.5
Section R802.10.1
Chapter 11
Section M1411.4

The Council specifically requests comments concerning sections of this edition which may be unsuitable for enforcement in South Carolina. Written comments may be submitted to Gary Wiggins, Board Administrator, at 110 Centerview Drive, 1st Floor, Columbia, South Carolina, 29211-1329, (803) 896-4620.

Synopsis:

The South Carolina Building Codes Council accepted comments and convened a study committee pursuant to 6-9-40 for consideration of the 2003 Edition of the International Residential Code. After receipt of their report, the South Carolina Building Codes Council proposes to modify sections of the International Residential Code. All proposed modifications must provide a reasonable degree of public health, safety, and welfare. The study committee met December 17, 2003, January 28, 2004, and February 25, 2004. The Council approved the modifications February 25, 2004.

Resubmitted: February 11, 2004

Document No. 2879
STATE BOARD OF EDUCATION
CHAPTER 43

Statutory Authority: S.C. Code Ann. §§ 59-5-60 (1990), 59-18-1300 (Supp. 2002), 59-18-1310 (to be codified in Supp. 2003), 59-18-1510 (Supp. 2002), 59-139-05 *et seq.* (Supp. 2002), and 59-20-60 (Supp. 2002), and the federal No Child Left Behind Act of 2001, 20 U.S.C. § 6301 *et seq.* (2002).

43-261, District and School Comprehensive Planning

Synopsis:

The State Department of Education recommends that the State Board of Education promulgate amendments to Regulation 43-261, District and School Comprehensive Planning, and change the title of the regulation to District and School Planning. The amendments, based on the work of an advisory committee of twenty-four district strategic planning coordinators, update the regulation to reflect the provisions of the Education Accountability Act of 1998, the federal No Child Left Behind Act of 2001, and amendments to the Early Childhood Development and Academic Assistance Act of 1993. Districts and schools are required to create new five-year district strategic plans and school renewal plans by April 30, 2005. The amendments provide guidance to districts and schools in the development of new plans that are clearly focused on accountability and the improvement of student academic performance, data-driven decision making, and continuous improvement.

The notice of drafting was published in the State Register on July 25, 2003.

Section-by-Section Discussion

The title of the regulation is changed to District and School Planning.

The former nine sections of the regulation are consolidated into three sections.

Section A: This section describes necessary components of district strategic plans and school renewal plans. The amendments consolidate information from other sections and shift the emphasis of planning from specific programs to an emphasis on accountability, data-driven decision-making, and continuous improvement.

Section A(3): Second sentence is to be amended as follows: "The district strategic plan and school renewal plans must establish priorities and prioritize efforts to focus on raising student achievement levels for all students, the prevention of academic problems, and reducing the achievement gaps identified on the annual report card."

Section B: This section is removed and its requirement for School Improvement Councils to actively participate in the development of the school renewal plans is contained in amended Section A.

Section C: The information from this section regarding the review of district and school plans is contained in amended Section B.

Section D: This section on evaluation is removed, and information on the evaluation of the strategies in the plans and the coordination of funding from various sources is contained in amended Section A. References to prior years are deleted.

Section E: This section on district reports is removed, since recently added Section 59-18-1310 of the Education Accountability Act changes the reporting date and allows for the consolidation of the report with the district annual update.

Section F: This section on targeted technical assistance is removed as no longer necessary, since Section 59-18-1500 *et seq.* of the Education Accountability Act delineates the intervention and assistance that will be provided to low-performing schools and districts.

Section G: This section on monitoring is removed and addressed in revised Section B.

Section H: This section is amended Section C.

Section I: This section on guidelines is deleted and is replaced by the model planning process that is referenced in amended Section A.

Instructions: Amend in its entirety R 43-261, District and School Comprehensive Planning, to Chapter 43 regulations. The title of the regulation is changed to District and School Planning.

Text:

43-261. District and School Planning

A. Development of District Strategic Plan and School Renewal Plans

1. Each school district must develop a five-year district strategic plan and each school must develop a five-year school renewal plan as required by the Early Childhood Development and Academic Assistance Act of 1993 and the Education Accountability Act of 1998. District and school plans shall coordinate and align improvement initiatives.

2. New five-year district and school plans shall be submitted to the State Department of Education by April 30, 2005, and every five years thereafter. Plans will become effective on July 1 of the same year. The annual update of the district strategic plan must be submitted to the State Department of Education by April 30 of each year.

3. The district strategic plan includes the accountability system that directs an annual needs assessment; prioritizes the performance goals; and reports how the district supports schools, students, and families. The district strategic plan and school renewal plans must establish priorities and prioritize efforts to focus on raising student achievement levels for all students, the prevention of academic problems, and reducing the achievement gaps identified on the annual report card. It is imperative that the planning processes demonstrate a commitment to continuous improvement and respond to accountability requirements in both state and federal legislation. The plans must be developed collaboratively by a broad-based group of stakeholders using a consensus process.

4. The district strategic plan, school renewal plans, and annual updates must be reviewed and approved by the local board of trustees and coordinate funding from local, state, federal, and private sources.

5. Districts and schools are urged to follow the model planning process developed by the State Department of Education, although no single planning format is required for district or school plans. Whatever process is used for developing a district strategic plan and school renewal plans must include each of the following components:

a. comprehensive needs assessment,
b. performance goals,
c. interim performance goals,

d. strategies and action plans,
e. evaluation of the strategies,
f. evidence of comprehensive consensus building, and
g. assurances.

6. Schools that use the Southern Association of Colleges and Schools (SACS) accreditation process may substitute the SACS plan for the school renewal plan provided that it includes the components (a) through (g) listed above and described below.

a. Comprehensive Needs Assessment

The annual needs assessment will provide focus for planning teams to set priorities for the plan. The comprehensive needs assessment must identify targeted areas of discrepancy between the desired performance levels and the current status as indicated by available data. Any discrepancies in the following areas identified by the school and district report cards must be included in the plan:

(1) achievement,
(2) achievement by subgroups,
(3) graduation rates,
(4) attendance,
(5) discipline,
(6) teacher/administrator quality and professional growth, and
(7) other priority areas.

b. Performance Goals

Measurable performance goals, written in five-year increments, shall be developed to address the major areas of discrepancy found in the needs assessment in key areas reported in the district and school report cards. Performance goals in the district strategic plan and school renewal plans must address

(1) student achievement,
(2) teacher/administrator quality,
(3) school climate (parent involvement, safe and healthy schools, and other locally identified areas), and
(4) other innovation initiatives or priorities as identified by districts and schools.

c. Interim Performance Goals

Interim performance goals will establish annual measurable targets for the five-year performance goals.

d. Strategies and Action Plans

Strategies shall be derived from scientifically-based education research and best practice and shall be designed to meet the performance and interim performance goals. Action plans, which may include innovative initiatives, will provide details (action/activity, person responsible, start and end dates for major action steps, professional development, necessary resources, and progress measures) regarding the implementation of each data-driven strategy to ensure continuous improvement. Staff development shall meet national professional development standards and must provide participants the knowledge and skills necessary to implement the strategies. Coordination of funding from local, state, federal, and private sources is imperative. Schools visited by an external review team (ERT) must incorporate appropriate recommendations into their annual update.

e. Evaluation of the Strategies

Ongoing evaluation (formative and summative) will assess the progress toward performance goals and annual interim performance goals. Measures of effectiveness must include outcome and process indicators of improvement. The methods of assessing the efficacy of the strategies must provide data regarding the impact of the strategies and whether they should be continued, modified, or terminated. After the initial year of the plan, the evaluation results from the annual update will become a key component of the ongoing needs assessment process.

f. Evidence of Comprehensive Consensus Building

Shared decision making is central to the formulation of a functional plan. Therefore, a collaborative consensus building process shall be used in the development of the district strategic plan and school renewal plans. Stakeholders, including teachers, administrators/principals, parents/guardians, and community representatives, must be actively involved in the district strategic planning and school renewal planning processes. The School Improvement Council must actively participate in the development of the school renewal plan.

g. Assurances

Assurances, signed by the district superintendent, attest that the district and schools comply with all applicable federal and state statutory and fiscal requirements.

B. Review of District Strategic Plan and School Renewal Plans

1. The district strategic plan, school renewal plans, and annual updates shall be submitted to the local board of trustees for review and approval. Five-year plans approved by the local board of trustees must be submitted to the State Department of Education for review and approval by peer review panels convened and trained by the Department.

2. The review panel will do one of the following: (1) approve the plan, (2) provisionally approve the plan pending suggested modifications, or (3) disapprove the plan. The Department shall provide technical assistance, directly or indirectly, to districts and schools with provisionally approved or disapproved plans to ensure that all plans are approved.

3. All district strategic plan updates will be reviewed by the State Department of Education on an annual basis.

C. Waivers

Upon request of a district board of trustees or its designee, the State Board of Education may waive any regulation that would impede the implementation of an approved district strategic plan or school renewal plan.

Fiscal Impact Statement: There will be no additional costs to the state or its political subdivisions.

Statement of Rationale: The proposed amendments reflect the work of an advisory committee of twenty-four district strategic planning coordinators and the review and recommendations of numerous State Department of Education personnel and the State Board of Education. The amendments provide alignment with the requirements of current state and federal law. The focus is on accountability and the improvement of student academic performance, data-driven decision making, and continuous improvement.

Document No. 2881
STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. §§ 59-18-1110 and 59-18-1120 (Supp. 2002)

R 43-303. Flexibility Through Deregulation Program

Synopsis:

The State Department of Education recommends that the State Board of Education promulgate amendments to R 43-303, Flexibility Through Deregulation Program, as indicated in the drafting notice of July 25, 2003. The amendments align the regulation with the Education Accountability Act, S.C. Code Ann. §§ 59-8-1110 and 59-18-1120 (Supp. 2002).

Section-by-Section Discussion

Section I Revises the authority of the State Board of Education to grant flexibility of receiving exemptions from certain regulations and statutes. Revises program guidelines developed by the State Board of Education in consultation with the Education Oversight Committee. Addresses termination of former flexibility status.

Section II Student performance eligibility criteria is moved to a new section. This section identifies the implementation date for the regulation and summarizes the categories of schools eligible to receive flexibility.

Section II (B)(1) Adds a section to address the student performance eligibility criteria for schools receiving flexibility.

Section II (B)(2) Adds a section to address eligibility criteria for unsatisfactory schools.

Section II (B)(3) Adds a section to address eligibility criteria for schools through school plans.

Section III Revises the impact of grade reorganization on flexibility status.

Section IV Revises State Board of Education notification of flexibility status to schools to include two new categories.

Section V Rewords option of local boards not to accept flexibility status.

Section VI(A) Revises the requirements for program continuation for schools receiving flexibility based on student performance.

Section VI(B) Adds a section to address the requirements for continued flexibility status for unsatisfactory schools.

Section VI(C) Adds a section to address the requirements for continued flexibility status for schools through school plans.

Section VII Revises application for extension of status for schools that do not re-qualify.

Section VIII Revises exception statements.

Section IX Rewords the resumption of regulatory and statutory requirements.

Instructions: Amend in its entirety R43-303, Flexibility Through Deregulation Program, to Chapter 43 regulations.

Text:

R 43-303. Flexibility Through Deregulation Program

I. Program Implementation

The Education Accountability Act, S.C. Code Ann. §§ 59-8-1110 and 59-18-1120 (2002), provide for the recognition of schools based on student performance. Schools that continually receive recognition are rewarded by exemptions from regulations and statutes (59-18-1110). Special provisions also allow exemptions from some regulations or statutes to other schools (59-18-1120).

The State Department of Education (SDE) will operate the program in accordance with program guidelines developed by the State Board of Education (SBE) in consultation with the Education Oversight Committee (EOC). The guidelines shall include eligibility criteria, operation procedures, related monitoring activities, reporting requirements, and state statutes and regulations exempted under the program. Approved program guidelines will be made available by the SDE upon request. The SBE may revise program guidelines on an annual basis in consultation with the EOC. Current guidelines will be posted on the SDE Web site.

Schools deregulated under former flexibility through deregulation statute, S.C. Code Ann. § 59-18-15 (repealed), and former State Board of Education Regulation 43-303 (amended) must re-qualify for flexibility status under these regulations.

II. Eligibility Criteria

A. Eligibility for flexibility begins in February 2005.

B. A school may be eligible in one of three ways. Special conditions apply to each type of eligibility.

1. Criteria for Deregulated Schools

Each of the following criteria must be met during the three-year period prior to the school year in which the school is given flexibility status.

a. The school has twice been a recipient of either a Palmetto Gold or Silver Award.

b. The school has met annual improvement standards for subgroups of students in reading and mathematics.

c. The school must have exhibited no recurring accreditation deficiencies.

2. Criteria for Unsatisfactory Schools

An unsatisfactory school may be given flexibility status when each of the following conditions are met:

a. The statutes or regulations exempted must deal with the core academic areas.

b. The External Review Team (ERT) recommends specific regulations and statutes for flexibility to the SBE in the ERT report.

c. If recommended by the ERT, the school plan must be amended to explain how the exemption will improve school and student performance.

3. Criteria for Schools through School Plans

Schools may receive flexibility status when each of the following conditions are met:

a. The school has met annual improvement standards for subgroups of students in reading and mathematics.

b. Amendments to the school renewal plan must explain why exemptions are expected to improve the academic performance of the students.

c. The plan meets the approval by the SBE.

III. Stability of School Grade Organization

Changes in grade structure that result in less than a majority of grades being maintained from the preceding school year will cause a school to be removed from flexibility status. The flexibility status is not transferable to another school if the school that has such status is closed or consolidated with another school.

IV. Notification of Schools and School Districts

The SDE will annually determine schools that are eligible to receive flexibility status based on meeting criteria as deregulated, meeting SBE criteria through a school plan, and meeting criteria for specific exemptions recommended by the ERT. The SBE must approve flexibility status for schools meeting SBE criteria through a school plan and for schools meeting criteria for specific exemptions recommended by the ERT. Flexibility status will be in effect immediately upon determination of deregulated schools or approval by the SBE of other schools. The local boards of trustees, district superintendents, and principals of the schools will be notified by the SDE of their flexibility status.

V. Nonacceptance of Flexibility Status

A. A local board of trustees may notify the SBE of its decision not to accept the flexibility status of an deregulated school within the district. Written notification by the local board of trustees will result in the school's immediate removal from flexibility status and the restoration of all statutory and regulatory requirements. Written notification for nonacceptance must be received within sixty days of the declaration of flexibility status.

B. Subsequent monitoring by the SDE in a school that is removed from flexibility status will not include a review of program records for the exempted period.

VI. Continuation of Flexibility Status

A. A deregulated school initially given flexibility status will be eligible to continue in that status provided that annually the following conditions are met:

1. The school exhibits improvement at or above the state average as computed in the Palmetto Gold and Silver Awards Program pursuant to S.C. Code Ann. § 59-18-1100 (2002).

2. The school must meet the gains required for subgroups of students in reading and mathematics.

3. The school must have exhibited no recurring accreditation deficiencies.

B. An unsatisfactory school initially given flexibility status through an approved ERT report will be eligible to continue in that status provided that annually the following conditions are met:

1. The ERT reviews the overall improvement as outlined in the amended plan and recommends continuation.

2. The school must meet the gains required for subgroups of students in reading and mathematics.

3. The school must have exhibited no recurring accreditation deficiencies.

C. A school initially given flexibility status through an amended school plan will be eligible to continue in that status provided that annually the following conditions are met:

1. The school must exhibit overall improvement as outlined in the amended plan.

2. The school must meet the gains required for subgroups of students in reading and mathematics.

3. The school must have exhibited no recurring accreditation deficiencies.

VII. Application for Extension of Flexibility Status

A school that does not re-qualify for flexibility status may apply to the SBE for an extension of the status for one year, provided extenuating circumstances exist that account for its inability to meet the requirements to maintain that status. The district superintendent and school principal must make the application for extension to the SBE within thirty (30) days of the receipt of notification of the school's removal from flexibility status.

A school no longer unsatisfactory may apply for a one-year extension of flexibility status for those exemptions approved in the ERT report provided the district superintendent and school principal make the application for extension to the State Board of Education within thirty days (30) of the receipt of notification of the school’s removal from unsatisfactory status.

VIII. Exemptions from Requirements

Schools receiving flexibility status are exempted from those regulatory and statutory provisions governing the defined program including, but not limited to, class scheduling, class structure, and staffing. Specific standards exempted appear in an appendix of the SBE–approved guidelines.

IX. Resumption of Statutory and Regulatory Requirements

A school removed from flexibility status will be subject to regulatory and statutory provisions exempted under this program at the beginning of the school year following notification of the change in status by the SDE. Nonacceptance of flexibility status requires compliance with all regulatory and statutory provisions immediately. Subsequent monitoring by the SDE in a school that is removed from flexibility status will not include a review of program records exempted under program guidelines for the period that the school was given flexibility status.

Statement of Rationale: The proposed amendments will align the regulation with the provisions of the Education Accountability Act, S.C. Code Ann. §§ 59-8-1110 and 59-18-1120 (Supp. 2002).

Fiscal Impact Statement: None.

Resubmitted May 12, 2004

Document No. 2878
STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. § 59-29-170 (Supp. 2002)

43-220. Gifted and Talented

Synopsis: The State Department of Education recommends that the State Board of Education promulgate amendments to R 43-220, Gifted and Talented, as indicated in the drafting notice that was published in the *State Register* on June 28, 2003. The amendments address changes in qualifying criteria, class size, reporting, removal of students, and teacher qualifications.

Section-by-Section

II. ACADEMICS

A. Program

1. This section of the regulation outlines the expectations for a "written" plan for program accountability and program assessment.

4. The teacher-pupil ratios for approved program models are being increased to reflect current practices and are in keeping with the requests made regularly by districts for waivers in class size.

B. Identification of Population to be Served

7.c. (1) The qualifying score for Dimension A (Reasoning Abilities) is being raised from 90th national age percentile to 93rd national age percentile. This is slightly under two standard deviations above the mean which accommodates our definition of gifted and talented students.

7.c. (3)(a) The use of grade point average in Dimension C as evidence of academic performance would be limited to grades seven through twelve and the qualifying standard would be increased from 3.5 to 3.75 on a 4.0 scale.

7.c. (3)(b) The assessment of academic performance in grades three through six (Dimension C) will be based on performance tasks for placement. The changes more accurately describe the standards that must be met to qualify in Dimension C.

8.c. While the responsibility for developing written procedures for removal of students from gifted programs will remain with the districts, the Department will develop guidelines and criteria for these policies.

C. Staff

1.b. (2) This change clarifies the exception for waiver of the training program.

2. This change clarifies that professional development in gifted education must be provided annually for teachers in gifted and talented classes.

D. Reporting

1. The Department will establish a format and a template that districts will use to submit a three-year plan for their local gifted and talented programs and update progress on the plan annually. Plans will be reviewed annually by the Department, and written feedback will be provided to districts.

2. Districts will summarize annually and report to the Department performance of gifted and talented students on the Palmetto Achievement Challenge Tests (PACT), Advanced Placement (AP), and International Baccalaureate (IB) examinations.

III. ARTISTIC

The artistic section of the gifted and talented regulation is amended to reflect changes in arts education and to present the artistic program in a manner that is congruent with the academic program. This section has been reworked completely.

Instructions: Amend in its entirety R 43-220, Gifted and Talented, to Chapter 43 regulations.

Text:

43-220. GIFTED AND TALENTED

Purpose: The State Board of Education recognizes the need to provide gifted education services to identified students in grades one through twelve. These regulations provide the framework for provision of these services. All regulations must be followed in order to qualify for state funding.

In order to comply with the South Carolina Education Improvement Act of 1984, school districts must provide programs for all gifted and talented students at the elementary and secondary levels. These programs shall develop the unique talents of students.

I. DEFINITIONS

A. Population

1. Gifted and talented students are those who are identified in grades one through twelve as demonstrating high performance ability or potential in academic and/or artistic areas and therefore require an educational program beyond that normally provided by the general school program in order to achieve their potential.

2. Gifted and talented abilities for these regulations include

(a) Academic and Intellectual Ability: Students who have the academic and/or intellectual potential to function at a high level in one or more academic areas.

(b) Visual and Performing Arts: Students who have the artistic potential to function at a high performance level in one or more of the fine arts.

B. Terms

1. Demonstrating: making evident or establishing by reasoning; proving

2. Academic areas: any or all of the academic disciplines and performance skills that cross the disciplines to include research, technology, and reasoning

3. High level: functional or performance level set by the identification dimensions in these regulations

4. Confluent: blending and moving forward together

5. Multi-: more than one

6. Multiage classroom: regular classroom where gifted and talented students are served through grade placement above chronological grade placement

7. Screening: considering all students on consistent measures (Screening involves census testing to guarantee each student consideration in the identification process.)

8. Referral: considering one or more students based on recommendation or nomination (Each student referred must be assessed and reassessed as indicated in these regulations.)

9. Assessment: evaluation and re-evaluation of student aptitudes, attributes, and behaviors according to specified dimensions

10. Placement: evaluation of student profiles for service indications

11. Special school: full-time gifted and talented magnet school: full-time gifted and talented school-within-a-school

12. Special class: self-contained gifted and talented class organized around one or more disciplines

13. Resource room/pull-out: self-contained gifted and talented class that meets away from the regular classroom to provide the services established in these regulations

14. Regular classroom cluster/itinerant teacher: an intra-classroom model in which students in grades 1–2 receive services from the trained classroom teacher or an itinerant teacher

15. Academic discipline/disciplines: English language arts, mathematics, science, social studies, and foreign language

II. ACADEMICS

A. Program

1. Districts will submit a local gifted and talented program plan every three years and delineate progress on this plan annually. The State Department of Education will review the plan annually and provide written feedback to the districts. The State Department of Education shall establish a format and template for the plan. The following academic program requirements will be addressed in a district plan:

(a) curriculum, instruction, and assessment that maximize the potential of the identified students;
(b) support services that facilitate student learning (e.g., technology, guidance, academic support, staff development, academic competition);

(c) program models that facilitate the delivery of curriculum and instruction;

(d) a teacher-pupil ratio that fosters positive results; and

(e) appropriate and sufficient time in instruction to assure that the goals and objectives of the program are met.

2. To provide curriculum, instruction, and assessment that maximize the potential of the identified students, educational programs for academically gifted and talented students must reflect the following characteristics:

(a) content, process, and product standards that exceed the state-adopted standards for all students;

(b) goals and indicators that require students to demonstrate depth and complexity of knowledge and skills;

(c) instructional strategies that accommodate the unique needs of gifted learners;

(d) a confluent approach that incorporates acceleration and enrichment;

(e) opportunities for worldwide communication/research; and

(f) evaluation of student performance and program effectiveness.

3. Districts should reference the *South Carolina Gifted and Talented Best Practices Manual* for program models and curriculum requirements.

4. The models and teacher-pupil ratios that are approved for program service at respective grade levels are

Grades	Approved Program Model Choices
1–2	Regular Classroom/Itinerant Teacher (1:10) Multiage Classroom (NA) Resource Room/Pull-out (1:15)
3–5	Special School (1:25) Special Class (1:25) Resource Room/Pull-out (1:20)
6–8	Special School (1:25) Special Class (1:25) Resource Room/Pull-out (1:20)
9–12	Special School (1:25) Special Class (1:25)

5. Extension Models, while encouraged to supplement service, may not be substituted for one of the Approved Program Model Choices. They include but are not limited to

Grades	Extension Model
1–2	After School/Summer Services Individual Educational Plan Grade/Subject Acceleration Independent Study Special Training/Services for Parents
3–5	Regular Classroom Cluster/Itinerant Model After School/Summer Services Independent Study
6–12	Mentorship/Internship Regular Classroom Cluster/Itinerant Model After School/Summer Services Independent Study Seminars Exploratory Courses

6. A school or district may elect to serve students in any of the above Approved Program Models through a consortium agreement with other school districts. Other models developed by the school district must receive written approval annually from the State Department of Education.

7. An appropriate teacher-pupil ratio fosters positive results. The teacher-pupil ratios are listed beside the models in the chart above. Teachers shall be provided two hundred and fifty minutes per week or the equivalent for planning.

8. The program must provide appropriate and sufficient time to assure that the goals and objectives of the program are met. The following time requirements must be met by resource room/pull-out and regular classroom/itinerant teacher program models at respective grade levels to assure funding:

Grades	Minimum Minutes Per Year
1–3	4500
4–8	7200

The special school model requires full-time (academic) service. The special class model time requirements are 8100 minutes per year.

B. Identification of Population to be Served

1. The purposes of identification are (1) to find students who display characteristics of the gifted and talented; (2) to assess the aptitudes, attributes, and behaviors of each student; and (3) to evaluate each student for the purposes of placement. Student aptitudes, attributes, and behaviors will be identified, assessed, and reviewed through a multistep, multimodal, and multidimensional identification system.

2. Gifted and talented students may be found within any racial, ethnic, or socioeconomic group; within any nationality; within both genders; and within populations with physical disabilities, learning disabilities, or behavioral problems.

3. Identification is a multistep process, which consists of screening and referral, assessment of eligibility, and placement.

4. Districts should reference the *South Carolina Gifted and Talented Best Practices Manual* for the identification process.

5. The following students are deemed eligible for services with the approval of the District Evaluation Placement Team:

(a) students who were served and qualified by state regulations prior to 1999,

(b) students who meet the criteria in two out of three dimensions that follow,

(c) students who meet the 96th national age percentile composite score or higher (placement grades three through twelve) or the 98th national age percentile composite score or higher (placement grades one through two) on an individual or group aptitude test, and

(d) students identified in one South Carolina school district are eligible for services in any South Carolina school district.

6. Screening/Referral Procedures

(a) Districts shall screen all students by reviewing census aptitude and achievement test scores. Referrals from administrators, parents, teachers, and students must be accepted. Initial screening does not in itself guarantee placement.

(b) Districts shall include the following procedures in the screening/referral process:

(1) provide all parents/guardians with effective, written notice of the gifted education program, screening/referral procedures, and eligibility requirements;

(2) implement processes for identifying the academically gifted from all student populations;

(3) provide training/guidance regarding the characteristics of academic giftedness for teachers and other district staff involved in the identification process;

(4) use screening criteria and procedures that are directly related to the purpose of the gifted program (i.e., identifying all students with demonstrated potential for high academic performance as well as those who have demonstrated high achievement).

(c) All students with the potential for eligibility after screening and all students with referrals must continue into the assessment for eligibility phase of the identification process. The State Department of Education will establish procedures for screening and referral criteria with options for districts. Districts must use one of these options or obtain State Department of Education approval of an alternative proposal.

7. Assessment for Eligibility

(a) Districts must ensure that all assessment instruments/measures are reviewed for bias and accurately assess the abilities/skills/potential intended to be measured; these abilities/skills/potentials are consistent with the

definition of population set forth in this regulation; and, to the extent that subjective assessment criteria are used, those individuals conducting the assessment are trained to ensure proper evaluation.

(b) No private testing will be accepted for eligibility, but those results may be considered for referral purposes.

(c) The following criteria organized by dimensions shall be used in the screening/referral/assessment processes of identification:

(1) Dimension A: Reasoning Abilities

These students demonstrate high aptitude (93rd national age percentile or above) in one or more of these areas: verbal/linguistic, quantitative/mathematical, nonverbal, and/or a composite of the three.

a) Individual aptitude test (full-scale or component score)

b) Group aptitude test (composite, verbal, or nonverbal scores)

(2) Dimension B: High Achievement in Reading and/or Mathematical Areas

These students demonstrate high achievement (94th national percentile and above or advanced status) in reading and/or mathematical areas as measured by nationally normed or South Carolina statewide assessment instruments. (See *South Carolina Gifted and Talented Best Practices Manual* for approved subtest areas.)

(3) Dimension C: Intellectual/Academic Performance

These students demonstrate a high degree of interest in and commitment to academic and/or intellectual pursuits or demonstrate intellectual characteristics such as curiosity/inquiry, reflection, persistence/tenacity in the face of challenge and creative productive thinking. Characteristics for this dimension are demonstrated through

a) Evidence of commitment in academic disciplines through grades for placement in grades seven through twelve; the standard is 3.75 points on a 4.0 scale (See the glossary of terms for a listing of the academic disciplines.);

or

b) Assessments of performance on Project STAR for placement in Grades three through six. . Instruments for these assessments will be maintained secure under S.C. Code Ann. §59–1–445 (1990), Section 59-1-445, Violations of mandatory test security; penalties; investigations. The performance standard for the primary level is sixteen on either the verbal or nonverbal assessments for placement into grade three and eighteen on either the verbal or nonverbal assessment for placement into grade four. The performance standard for the intermediate level is sixteen on the verbal or twenty-two on the nonverbal for placement into grade five and eighteen on the verbal or twenty-five on the nonverbal for placement into grade six. The qualifying standards for new forms of Project STAR will be equivalent to those of the base year.

(4) Districts will follow steps established by the Department of Education to guarantee no single criterion eliminates students from gifted program participation.

8. Placement

(a) The evaluation step in the identification process of gifted and talented students shall be the responsibility of an evaluation/placement team within the school or district. The team shall be composed of at least a teacher, an administrator, and a psychologist (if employed by the district) and may also include a guidance counselor and/or a community-related person whose training and expertise qualifies him or her to appraise the special competencies of students.

(b) The evaluation/placement team shall have the responsibility to interpret and evaluate student data in such a way that will insure appropriate placement. The evaluation/placement team may require additional assessment before determining student placement. Placement may involve a trial period for at least one semester but not more than one year. Criteria for trial placement shall be established in guidelines established by the State Department of Education. Students whose progress within the gifted and talented program at the end of trial placement is not deemed adequate by the evaluation/placement team may be withdrawn from the program.

(c) The evaluation/placement team will be responsible for developing appropriate written procedures for removing a student from the gifted program. The criteria for these procedures according to the program model shall be established by the State Department of Education by January 1, 2005. Removal from the program must be preceded by appropriate counseling with the student and conferences with the student's parents and teachers. Records of any assessment and evaluative measures and other student information must be maintained in a confidential manner.

(d) Students identified and served according to prior eligibility criteria will continue to be eligible for placement and funding provided their program service meets the requirements herein. Any student entering the program once these regulation amendments are effective shall be considered for placement based on the eligibility criteria herein.

C. Staff

1. Teacher Qualifications

(a) Teachers must hold valid teaching certificates appropriate to the grade level(s) or subject area(s) included in the program.

(b) Each teacher of a state-funded gifted and talented course or class shall have completed a training program approved by the State Department of Education.

(1) Exception 1: Newly assigned teachers will have one year to meet gifted and talented training requirements.

(2) Exception 2: Teachers who have a master’s degree or higher in gifted education may have this requirement waived upon approval of credentials by the State Department of Education.

2. Professional Development

Appropriate, ongoing staff development activities in gifted education shall be provided annually by the district.

D. Reporting

1. Districts will report to the State Department of Education information, which includes, but is not limited to, student eligibility, screening, and referrals. Districts will annually collect and maintain, district statistical data on (1) the number, by race, of students referred for evaluation for eligibility for gifted education

services; (2) the number, by race, of students determined eligible for services; (3) the number, by race, of students actually served during the school year; and (4) the number, by school, by grade, by race, by model, of students actually served during the school year.

2. Districts shall review annually the performance of gifted students on PACT, AP exams, IB exams, SAT, ACT, and similar college entrance tests. Districts shall summarize the performance of gifted students on these assessments and report trend data to the State Department of Education annually. These data will be disaggregated demographically and reported annually to the General Assembly.

3. Official enrollment reports to be used for funding purposes shall be submitted at the end of the 135-day enrollment period. The enrollment reports shall be submitted on forms to be furnished by the State Department of Education.

E. Funding

1. Allocation of Funds

The State Department of Education will annually calculate each district's allocation based on the number of gifted and talented students projected to be served in each district as it relates to the total of all such students in the state. Unobligated funds, which become available during the fiscal year (July 1–June 30) will be redistributed to serve additional eligible students.

2. Distribution of Funds

School districts will be authorized to expend allocated funds on students meeting the eligibility criteria of prior regulations and students meeting the eligibility criteria and being served in approved programs. Distribution of funds will be made periodically with a final adjustment occurring at the end of the 135-day attendance reporting period for regular academic programs.

3. Base Allocation for School Districts with Small Enrollments

School districts identifying and serving, according to the State Board of Education Regulations, forty students or less shall receive a minimum funding of $15,000 annually for academic programs.

F. Expenditures and Accounting Procedures

1. State funds provided for gifted and talented programs must impact directly on students served in accordance with provisions of the State Board of Education Regulations. Accounting procedures shall conform to those outlined in the Financial Accounting Handbook issued by the State Department of Education. The entire allocation must be used directly for gifted and talented related expenditures.

2. A supplemental schedule shall be required in the school district's annual audit under the single audit concept.

III. Artistic

A.Program

1. Districts shall develop a written plan to include the following artistic requirements:

(a) curriculum, instruction, and assessment that maximize the potential of the identified students;

(b) support services that facilitate student learning (e.g., technology, guidance, artistic support, staff development, artistic competition);

(c) program models that facilitate the delivery of instruction;

(d) a teacher-pupil ratio that fosters positive results; and

(e) appropriate and sufficient time in instruction to assure that the goals and objectives of the program are met.

2. To provide curriculum, instruction, and assessment that maximize the potential of the identified students, educational programs for the artistic gifted and talented students must reflect the following characteristics:

(a) content, process, and product standards that exceed the state-adopted arts standards for all students;

(b) goals and indicators that require students to demonstrate depth and complexity of knowledge and skills;

(c) instructional strategies that accommodate the unique needs of gifted learners;

(d) opportunities for worldwide communication/research; and

(e) evaluation of student performance and program effectiveness.

3. Program Models

(a) Visual and performing arts programs may be offered during the regular school year or during the summer for grades one through twelve. Visual and performing arts programs shall focus on creative expression in one or more of the following areas: dance, drama, music, and/or visual arts. A diversified arts program encompassing the disciplines of dance, drama, music, and visual arts may be offered in grades one through six. (A diversified program is one in which students take a variety of disciplines, typically in a summer program.) The program models are in-school programs, after-school programs, summer programs, Saturday programs, and consortium programs. Combinations of the approved program models are also acceptable.

(b) A school district may elect to serve students in any of the models through consortium agreement with other school districts.

4. Length of Time in Models

Academic School Year
(In-school, after-school, and Saturday Programs)

Grades	Minimum Minutes Per Year
1–3	4500
4–8	7200
9–12	8100

Summer Programs (30 days in length)
Saturday Programs (minimum 30 Saturdays)

Grades	Minimum Hours Per Day
1–3	2 ½ hours
4–8	4 hours
9–12	5 hours

5. Teacher-Pupil Ratios: an appropriate teacher-pupil ratio fosters positive results. Districts should reference the *South Carolina Gifted and Talented Best Practices Manual* for further information.

B. Identification of Population to be Served

1. The purposes of identification are (1) to find students who display talent beyond that of their peers in one or more artistic areas; (2) to assess the aptitudes, attributes, and behaviors of each student; and (3) to evaluate each student for the purposes of referral.

2. Gifted and talented students may be found within any racial, ethnic, or socioeconomic group; within any nationality; within both genders; and within populations with physical disabilities, learning disabilities, or behavioral problems.

C. Identification/Selection is a four-step process, which consists of referral, recommendation, demonstration, and placement.

1. Referral Procedures

(a) Students may be referred by a teacher, administrator, parent, self, or a peer using a State Department of Education–approved instrument appropriate to the visual and performing arts area, to include creativity and expressive qualities. The referral should be used to identify students who have an aptitude for the arts and may benefit from intense exploration and in-depth study in one or more of the arts. The initial referral does not itself guarantee placement.

(b) Districts shall include the following procedures in the referral process:

(1) provide all parents/guardians with effective, written notice of the gifted education program, referral procedures, and eligibility requirements;
(2) implement processes for identifying artistically gifted from all student populations;
(3) provide training/guidance regarding characteristics of the artistically gifted for teachers and other district staff involved in the identification process;
(4) use referral criteria and procedures that are directly related to the purpose of the artistically gifted program; and
(5) reference the *South Carolina Gifted and Talented Best Practices Manual* for appropriate forms for the referral process.

(c) Assessment for Eligibility

Districts shall establish a review team comprised of at least three individuals to include an arts teacher, an administrator, and a community person with experience in the arts. The team shall ensure that all assessment instruments/measures are reviewed for bias and accurately assess the abilities/skills/potentials intended to be measured and, to the extent that subjective assessment criteria are used, that those individuals conducting the assessment are trained to ensure proper evaluation.

2. Recommendation Form

(a) A recommendation form, which may be combined with the referral form, consisting of a checklist to assist with identifying the gifted artistic student will be completed by the dance teacher, the physical education teacher, the classroom teacher, the drama teacher (or the classroom teacher in the elementary school or middle school if the middle school does not have a drama teacher), the music teacher, or the visual arts teacher.

(b) A teacher should base responses to the checklist on student behaviors that were observed throughout the school year.

(c) Districts should refer to the *South Carolina Gifted and Talented Best Practices Manual* for recommendation forms and checklists.

3. Demonstration/Audition

(a) The demonstration/audition should enable the evaluation-placement team to determine a student's artistic potential to function at a high level in one or more of the arts.

(b) The demonstration/audition must also include either a student interview or questionnaire to assist the evaluation-placement team in determining suitability for placement.

(c) Students will be rank ordered using results from the demonstration/audition and the student interview or questionnaire.

(d) Parents of referred students may decide not to proceed with the demonstration/audition.

4. Placement

(a) The placement of gifted and talented students should be the responsibility of the evaluation-placement team comprised of one member of the arts faculty or district arts staff, an administrator, and an additional member from the community who has expertise in the arts area for which the student has been referred.

(b) The evaluation-placement team shall interpret and evaluate student data in such a way that will insure appropriate placement. The team may require additional assessment before determining student placement. Placement may involve a trial period for at least one semester but not more than one year. Students whose progress within the program are not deemed adequate by the team may be withdrawn from the program.

(c) The team will be responsible for developing appropriate written procedures for removing a student from the gifted program. Removal from the program must be preceded by appropriate counseling with the student and conferences with the student's parents and teachers. Records of any assessment and evaluative measures and other student information must be maintained in a confidential manner.

D. Staff

1. Teacher Qualifications for a Visual and Performing Arts Program: Teachers must hold a valid teaching certificate appropriate to the grade level(s) or subject area(s) included in the program. Professionals in the visual and performing arts may teach in the gifted and talented program if serving in the program under the supervision of the appropriate district personnel.

2. Professional Development: Appropriate, ongoing staff development activities related to serving gifted and talented students shall be provided by the district annually.

E. Reporting

1. Districts will report to the State Department of Education information that includes, but is not limited to, student eligibility and referrals. Districts will annually collect and maintain district statistical data on (1) the number, by race, of students referred for evaluation; (2) the number, by race, of students determined eligible for

services; and (3) the number, by race, by school, by grade, by arts area, of students actually served during the school year.

2. Official enrollment reports shall be submitted annually on appropriate State Department of Education forms.

3. Districts will submit a local gifted and talented program plan every three years and delineate progress on these plans annually. The State Department of Education will review the plans annually and provide written feedback to the districts. The State Department of Education will provide a format and template for the plans.

F. Funding

Distribution of Funds: School districts will be authorized to expend allocated funds on students meeting eligibility criteria and being served in approved programs. Programs initiated prior to June 30 will be funded from that fiscal year's allocation.

G. Expenditures and Accounting Procedures

1. State funds provided for gifted and talented programs must impact directly on students served in accordance with provisions of the State Board of Education Regulations. Accounting procedures shall conform to those outlined in the Financial Accounting Handbook issued by the State Department of Education. The entire allocation must be used directly for gifted and talented related expenditures.

2. A supplemental schedule shall be required in the school district's annual audit under the single audit concept.

Statement of Rationale: A copy of the detailed statement of rationale may be obtained by contacting Dr. Wayne Lord, Education Associate, Office of Curriculum and Standards, 1429 Senate Street, B-10-A, Rutledge Building, Columbia, South Carolina 29201. This rationale includes studies, reports, and statements of professional judgment.

Fiscal Impact Statement: None

Resubmitted: February 11, 2004

Document No. 2876
STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. §§ 59-5-60 (1990) and 59-25-110 (1990)

R 43-62. Requirements for Additional Areas of Certification

Synopsis:

The State Department of Education recommends that the State Board of Education promulgate amendments to R 43-62 (to be codified in Supp. 2003), Requirements for Additional Areas of Certification, as indicated in the drafting notice that was published in the *State Register* of June 27, 2003. The amendments clarify and strengthen certification requirements for individuals who are initially certified and desire to qualify for certification in additional areas.

Section-by-Section Discussion

1	Section II(C) and (D)	The effective date for requiring standards-based add-on certification via approved programs is extended until July 1, 2009.
2.	Section II	Areas of add-on certification [(A)–(R)] are listed, incorporating current usage or terminology, revising the format for consistency purposes, and other minor editorial changes.
3.	Section II (C) and (D)	Additional specialized preparation requirements are proposed for Early Childhood and Elementary Education, and provisions are included to assist qualified teachers in adding these areas in compliance with new certification grade spans.
4.	Section II(E), (J), and (O)	Endorsement requirements for teaching applied subjects in English, mathematics, and science are deleted. Requirements for teaching applied academic subjects are covered in State Department of Education document, Positions and Acceptable Areas of Certification.
5.	Section II (E), (G), (J), (L), and (O)	Endorsement requirements for the International Baccalaureate program are deleted. This program is optional to school districts and is not required by State Board regulation.
6.	Section II	Certification requirements for Fine Arts are deleted and moved to Section V.
7.	Section II	Certification in Guidance Counselor is deleted since it is an advanced certification area and is included in R 43 -64(B).
8.	Section II	Media Communication Specialist and Media Supervisor requirements are deleted. These requirements are no longer applicable. Requirements for Media Specialist are deleted here since this is an advanced certification area and is included in R 43-64(E).
9.	Section III	Areas of add-on certification are listed, incorporating current usage or terminology, revising the format of requirements for consistency purposes, and other minor editorial changes.
10.	Section III(C)(4)	"mental" disabilities changed to "learning" disabilities.
11.	Section III(G)	Speech-language Therapist is deleted here since it is an advanced certification area and is included in R 43-64(D).
12.	Section IV	Areas of add-on certification are listed, incorporating current usage or terminology, revising the format of requirements for consistency purposes, and other minor editorial changes.
13.	Section IV(B)	Change in content title to reflect current terminology.
14.	Section IV(E)	Certification in Health Science Technology deleted here since this certification does not require completion of a teacher education program. The area is included in R 43-63 under Computer-based Technology Education.
14.	Section V(A)	Requirements for the master's plus thirty credential classification are deleted since these are addressed in R 43-53 II(D). Requirement s for Fine Arts are transferred from Section II(G) and inserted here.

Instructions: Amend in its entirety R 43-62, Requirements for Additional Areas of Certification, to Chapter 43 regulations. Regulations 43-62.1, 43-62.2, 43-62.3, and 43-62.4 are being replaced with R 43-62.

Text:

R 43-62 REQUIREMENTS FOR ADDITIONAL AREAS OF CERTIFICATION

I. GENERAL INFORMATION

A. Effective July 1, 2009, individuals who desire to add areas of certification to an existing certificate must complete a State Board of Education approved program and present a passing score on the appropriate content-

area examination in the specific subject field. Until that time, the following add-on certification requirements are in effect.

B. In the event that the State Board of Education should eliminate, revise or adopt new certification areas, currently certified individuals who are affected may retain the areas of certification for which they previously qualified. However, the State Board of Education may require previously certified individuals to upgrade their certification by completing the new requirements within a specified period of time.

C. The following designations apply to the grade spans for teacher certification in South Carolina, effective September 1, 2005.

CERTIFICATION GRADE SPANS
early childhood = pre-Kindergarten–grade 3
elementary = grades 2–6
middle level = grades 5–8
secondary = grades 9–12

The areas of art, music, physical education, English for Speakers of Other Languages (ESOL), foreign languages, theater, and exceptional children education (all categories) have a pre-Kindergarten (pre-K)–12 grade span.

D. Instructional areas may not be added to certificates in guidance, media specialist, or school psychologist unless the applicant has completed a teacher education program designed and approved for initial certification purposes.

E. Certification is divided into four sections: regular program, exceptional children education, career and technology education, and other types of specialized certification.

II. REGULAR PROGRAM ADD-ON CERTIFICATION REQUIREMENTS

The following areas are included:

A. Art
B. Driver Education
C. Early Childhood Education
D. Elementary Education
E. English
F. English for Speakers of Other Languages (ESOL)
G. Foreign Languages
H. Gifted and Talented
I. Health Education
J. Mathematics
K. Middle Level Education
L. Music Education
M. Physical Education
N. Reading
O. Science
P. Social Studies
Q. Speech and Drama
R. Theater

A. ART

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Art History/Appreciation	6
Work devoted to the basic techniques of design and color	6
Work devoted to drawing and painting (the student should use as many different media as possible)	6
School art program	3
Crafts	3

B. DRIVER EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Evidence of at least three years of successful driving experience. Applicant must provide a copy of his or her driver 's record from the applicable state transportation department. An applicant whose driver's license has six or more points against it will not be accepted for add-on certification in driver education.

4. Valid driver's license issued by South Carolina or another state in which the teacher is a legal resident. (If a teacher holding certification in driver education has his or her driver's license revoked or suspended, the teacher must report this action to the Office of Teacher Certification upon which the certification in driver education will automatically be rescinded.)

5. Professional education

The following twelve (12) hours are required to add the area of driver education to an existing certificate.	Semester Hours
Basic instructor's course in driver education	3
Advanced instructor's course in driver education	3
Electives (from the list below)	6
Range and Simulation of Driver Education	
Emergency Maneuvers	
Multimedia Systems in Traffic Safety Education	
Research Methods in Traffic Safety Education	
General Safety	
Drugs in Relation to Highway Safety	
Motorcycle Safety Education	
Administration of Traffic Safety Education	

C. EARLY CHILDHOOD EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
The Behavior and Development of the Young Child*	3
Curriculum for Early Childhood Education	3
Methods and Materials for Early Childhood	3
Practicum in Early Childhood Education**	3
Teaching Reading at the Elementary Level	3
OR	
Emergent Literacy	
Content courses in math, science, and social studies (each must be represented)	9

* Credits earned in the area of child psychology are acceptable.

**The practicum requirement may be waived based on one year's successful experience teaching in pre-K to third grade.

Teachers who hold certification in elementary education and have taught first grade for at least three years of the past five years at the time of application for add-on certification may add the area of early childhood without meeting the above requirements, provided the application is received in the Office of Teacher Certification on or before July 1, 2006. After July 1, 2006, the applicant must satisfy all course and examination requirements for add-on certification.

D. ELEMENTARY EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate in early childhood, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Teaching of Reading in the Elementary School	6
Child Growth and Development	3
Mathematics for the Elementary School Teacher	3
Science for the Elementary Teacher	3
Social Studies for the Elementary Teacher	3
One of the following courses	3
Literature for Children	
Art for the Elementary School Teacher	

Music for the Elementary School Teacher
Health for the Elementary School Teacher

Teachers who hold certification in early childhood education and have taught fourth grade for at least three years of the past five years at the time of application for add-on certification may add the area of elementary education to their certification by passing the certification examination required for elementary education, without meeting the above requirements, provided the application is received in the Office of Teacher Certification on or before July 1, 2006. After July 1, 2006, the applicant must satisfy all course and examination requirements for add-on certification.

E. ENGLISH

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Language Structure and Skills	
Composition and Rhetoric	6
Advanced Composition and Rhetoric	3
Development of Modern English	3
Modern English Grammar	3
Teaching of Reading (Secondary)	3
Literature	
British Literature	3
American Literature	3
Adolescent Literature	3
Literary Criticism	3
Electives (Literature)	6

5. Endorsement in Advanced Placement English requires certification in English and the successful completion of the requisite Advanced Placement Institute.

F. ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL)

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the South Carolina content area examination(s) required by the State Board of Education

4. Specialized preparation — Semester Hours
Principles and Strategies for Teaching ESOL

to Elementary and Secondary Learners	3
Linguistics	3
Teaching Reading and Writing to Limited English Proficient (LEP) Learners	3
Two electives from the following courses	6
Practicum in the Instruction of ESOL to Elementary and Secondary Learners*	
Testing/Assessment for Language Minority Learners	
ESOL Curriculum Design and Materials Development	
Teaching English through the Content Areas	
Bilingual Special Education	
Second Language Acquisition for Teachers of Elementary and Secondary Learners	
English Grammar/Structure	
Cultural Diversity in Education	

*Practicum may be waived based on one year's successful experience teaching ESOL.

5. Second-language learning experiences documented by any one of the following:

(a) six semester hours in a single second language;

(b) completion of intensive language training by the Peace Corps, the Foreign Service Institute, or the Defense Language Institute;

(c) placement in a third-year-level course in the foreign language department at an accredited college or university; or

(d) demonstration of second-language proficiency in a language that is unavailable at accredited institutions through verification in writing from an official designated by the State Department of Education.

G. FOREIGN LANGUAGES

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level.

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation (one foreign-language field)*	Semester Hours
French	18
German	18
Latin	18
Spanish	18
Russian	18
Japanese	18

* The eighteen (18) semester hours must be above the six-hour introductory course.

5. Endorsement in an Advanced Placement foreign language requires certification in the particular foreign language and the successful completion of the requisite Advanced Placement Institute.

H. GIFTED AND TALENTED EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

Requirements for elementary level	Semester Hours
Nature and Needs of Gifted and Talented Students	3
Introduction to Curriculum and Instruction for Gifted and Talented Students	3
Advanced Curriculum Practices for Gifted and Talented Students	3
Identification, Current Trends, and Issues in Gifted and Talented Education	3
Special Topics in Gifted and Talented Education	3
Practicum in Gifted and Talented Education	3

Requirements for middle level	
Nature and Needs of Gifted and Talented Students	3
Introduction to Curriculum and Instruction for Gifted	3
Advanced Curriculum Practices for Gifted and Talented Students	3
Content-area courses at the graduate level*	9

*For middle school teachers, content-area courses at the graduate level must be applicable to curriculum and instruction at the middle school level.

Requirements for secondary level	
Nature and Needs of Gifted and Talented Students	3
Introduction to Curriculum and Instruction for Gifted and Talented Students	3
Advanced Curriculum Practices for Gifted and Talented Students	3
Content-area courses at the graduate level*	9

*For high school teachers, content-area courses at the graduate level must be applicable to curriculum and instruction at the high school level.

Gifted and Talented Endorsement (only)

In order to fulfill Regulation 43-220(II)(C), all teachers of a Gifted and Talented course or class must complete a training program that is approved by the State Department of Education. Completion of the training specified here fulfills this requirement and provides an endorsement in Gifted and Talented Education:

A professional certificate in the teaching area
AND

Six (6) hours in the following courses	Semester Hours
Nature and Needs of Gifted and Talented Students	3
Introduction to Curriculum and Instruction for Gifted and Talented Students	3

I. HEALTH EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the required content area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Required	
Human Anatomy and Physiology (in addition to the 12 semester hours of basic science requirements)	3–4
School Health Program	2–3
Emergency Preparedness and First Aid	2–3
Additional Courses (selected from a minimum of three additional areas for a total of twenty-four semester hours)	
Environmental Health	2–3
Foods and Nutrition Education	2–3
Contemporary Health Problems	2–3
Drug Education and Drug-Taking Behaviors	2–3
Family Living and Sex Education	2–3
Mental Health	2–3
Valuing and Decision Making in Health Education	2–3
Consumer Health Education	2–3
Community and Public Health Practices	2–3
Chronic and Communicable Disease	2–3

J. MATHEMATICS

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Algebra (abstract, matrix, and linear)	6
Modern Geometry	3
Analytic Geometry	3
Calculus	3
Three electives from the following subject areas	9
Probability and Statistics	
Applied Mathematics	
Number Theory	
Computer Science	
Analysis	
History of Mathematics	
Algebra or Geometry (advanced courses)	

5. Endorsement in Advanced Placement Mathematics requires the successful completion of the requisite Advanced Placement Institute.

K. MIDDLE LEVEL EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

Teachers who hold a professional certificate and who have three or more years of experience teaching in middle grades within the past five years on or before July 1, 2008, will be awarded middle level certification in each subject area in which he or she has three or more years of successful experience according to the guidelines for Middle Grades Teacher Education and Certification, adopted by the State Board of Education.

Prior to October 1, 2006, teachers who meet the experience requirement and are adding middle level certification will be exempt from the coursework, subject area exams and the Principles of Learning and Teaching (middle level test) required for add-on certification in specific middle level areas.

Between October 1, 2006, and July 1, 2008, teachers who meet the experience requirement and are adding middle level certification must pass the subject area exam(s) and the Principles of Teaching and Learning test required by the State Board of Education in order to add subject-specific middle level certification.

Teachers who have a teaching certificate but do not meet the three (3) year teaching requirement by July 1, 2008, must complete all coursework and examinations required for add-on certification in middle level areas.

All teachers who teach in the middle grades must qualify for middle level certification by July 1, 2008.

4. Early Childhood, Elementary, Middle, or Secondary Teachers Adding Middle Level Education

(a) Specialized preparation

	Semester Hours
Middle Level Curriculum and Organization	3
Early Adolescent Growth and Development and Learning Communities	3
Teaching Reading and Writing in the Content Area	3

(b) Content preparation

Required credits for certification in one middle school field as listed below. For coursework taken at a South Carolina institution of higher education, the appropriate South Carolina science, mathematics, social studies, and language arts standards must be reflected in the specialized preparation.

Middle Level Science	Semester Hours
Methods in Middle Level Science*	3
Biological or life science course and laboratory	8
Earth and space science course and laboratory	8
Physical science (equally divided between physics and chemistry)	8
Reading and Writing in the Content Area	3

*Three years of successful teaching experience in middle level science may be used in lieu of this requirement.

Middle Level Mathematics	Semester Hours
Algebra	3
Plane and Solid Geometry	3
Probability and Statistics (appropriate to middle level and secondary level curriculum)	3
Technology (utilization of appropriate technology)	3
Classroom Assessment in Mathematics	3
Methods of Teaching Middle Level Mathematics*	3
Three electives in the following subject areas	9

Theory of Arithmetic
Number Theory
Integrated Mathematics
Discrete Mathematics
Calculus
Mathematical applications in science and social studies
Immersion in Problem Solving

*Three years of successful teaching experience in middle level mathematics may be used in lieu of this requirement.

Middle Level Social Studies	Semester Hours
Methods of Teaching Social Studies*	3
World History or World Geography	3
South Carolina History	3
Government	3
Three electives in the following subject areas	9

Anthropology
Economics
Political Science/Civics
Geography
Sociology
U.S. History

*Three years of successful teaching experience in middle level social studies may be used in lieu of this requirement.

Middle Level Language Arts	Semester Hours
Methods of Teaching Middle Level Language Arts*	3
Adolescent Literature	3
World Literature, American Literature, and British Literature (two must be represented)	6
Teaching of Reading/Foundations or equivalent	3
Reading: Diagnosis and Remediation	3
Teaching of Writing or Advanced Writing	3
Grammar	3
Elective from the following subject areas African-American Literature Women's Literature Children's Literature Creative Writing	3

*Three years of successful teaching experience in middle level language arts may be used in lieu of this requirement.

L. MUSIC EDUCATION

1. CHORAL

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Specialized preparation	Semester Hours
Applied Music (divided equally between piano and voice)* (or three full years)	18
Theory (harmony, ear training, sight singing)	12
Conducting	4
History and/or Literature of Music**	6
Instruction in choral methods	3 (or two semesters)
Participation in ensembles (large or small)	three full years

* A minimum of two half-hour lessons or one one-hour

lesson per week for the full nine-month school year is accepted as one full year in any one area of Applied Music.

**The History and/or Literature of Music requirement may substitute for the Music Appreciation requirement in the General Education Program.

(e) Endorsement in Advanced Placement Music requires certification in music and the successful completion of the requisite Advanced Placement Institute.

2. INSTRUMENTAL

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Specialized preparation (band or orchestra)	Semester Hours
Applied music (divided equally among piano, one additional major instrument, and two additional instrument families)*	18 (or three full years)
Theory (harmony, ear training, sight singing)	12
Conducting	4
History and/or Literature of Music**	6
Instruction in wind, string and percussion instruments and in voice(or two semesters)	3
Participation in ensembles (large or small)	three full years

*A minimum of two half-hour lessons or one one-hour lesson per week for the full nine-month school year is accepted as one full year in any one area of Applied Music.

**The History and/or Literature of Music requirement may substitute for the Music Appreciation requirement in the General Education Program.

(e) Endorsement in Advanced Placement Music requires certification in music and the successful completion of the requisite Advanced Placement Institute.

3. PIANO, VOICE, VIOLIN

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Specialized preparation (band or orchestra)	Semester Hours
Applied music (piano, voice, violin, organ)*	18
Theory (harmony, ear training, sight singing)	12
Conducting	4
History and/or Literature of Music**	6
Instruction in wind, string and percussion instruments	3 (or two semesters)
Participation in ensembles (large or small)	three full years

* A minimum of two half-hour lessons or one one-hour lesson per week for the full nine-month school year is accepted as one full year in any one area of applied music.

**The History and/or Literature of Music requirement may substitute for the Music Appreciation requirement in the General Education Program.

M. PHYSICAL EDUCATION

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
History, Principles, or Philosophy of Physical Education	3
Organization and Administration, Curriculum, or Evaluation of Physical Education	3
Human Physiology and Anatomy (in addition to the twelve semester hours in basic science requirements)	3
Materials and applied techniques	21

(This area involves multiple courses that require an understanding and mastery of the techniques of the various activities and their presentation and adaptation to the various age levels and groups.)

Required courses
Games and Rhythms for the Elementary School–Aged Child
Individual and Dual Sports
Intramurals and Interscholastic Sports
Movement Education
Recreation and Outdoor Education
Team Sports

Elective courses
Adapted Physical Education (exceptional or atypical children)
Aquatics and Water Sports
Stunts, Tumbling, and Gymnastics
Rhythms
Safety, First Aid, and Athletic Injuries

Games and Activities of Low Organization

N. READING

1. READING TEACHER

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Two years of successful teaching experience

(e) Specialized preparation	Semester Hours
Fundamentals of Basic Reading Instruction	3
Diagnosis and Correction of Reading Difficulties	3
Practicum in Reading	3
Methods and Materials of Reading Instruction	3

2. READING CONSULTANT

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Five years of successful teaching experience

(e) Twelve (12) semester hours in courses required for Reading Teacher

(f) Specialized preparation (graduate credit)	Semester Hours
Organization and Supervision of Reading Programs	3
Testing and Measurements	3
Educational Psychology	3
Reading in the Secondary School	3

3. READING COORDINATOR OR DIRECTOR

(a) Bachelor's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Five years of successful teaching experience

(e) Twenty-four (24) semester hours in courses specified for Reading Teacher and Reading Consultant

(f) Specialized preparation (graduate credit)	Semester Hours
Administration and Supervision	3
Curriculum Development	3
Fundamentals of Guidance	
Research and Literature in Reading	3

4. READING CLINICIAN

(a) Master's degree

(b) Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

(c) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

(d) Two years of successful teaching experience

(e) Thirty-six (36) semester hours in courses specified for Reading Teacher, Reading Consultant, and Reading Coordinator or Director

(f) Specialized preparation (graduate credit)	Semester Hours
Advanced Clinical Testing, including individual intelligence testing	3
Exceptional Child	3
Personality and Abnormal Psychology	3
Psychology of Reading	3
Advanced Course in Remedial Reading	3
Advanced Practicum	3

O. SCIENCE

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation (for teaching all sciences in high school)*	Semester Hours
Biology	6–8
Chemistry	6–8
Physics	6–8
Marine Biology/Science	6–8

Electives in the following subject areas:	6–12
Biology	
Chemistry	
Physics	
Geology	
Geography	
Astronomy	
*At least eighteen (18) semester hours of the thirty (30) semester hours must be in courses with laboratory.	

Certification will be granted in any one of the specific sciences when at least eighteen (18) semester hours of credit are presented. Six or more semester hours must be in laboratory courses.

5. Endorsement in the Advanced Placement sciences requires certification in a science area and the successful completion of the requisite Advanced Placement Institute.

P. SOCIAL SCIENCES

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation (for teaching all social studies in high school)	Semester Hours
Social studies	
U.S. History	6
European History	6
Electives from economics, government, geography, and sociology (not more than 6 hours in any one field)	12
Electives from economics, geography, government, history, psychology, sociology, and the history of religion	6
History	
U.S. History	6
European History	6
Electives from history and/or government	6
One social studies field (Certification will be granted in any one of the specific subjects—economics, geography, government, psychology, and sociology—for which eighteen (18) semester hours are presented.)	18

5. Endorsement in the Advanced Placement social sciences requires certification in a social studies area and the successful completion of the requisite Advanced Placement Institute.

Q. SPEECH AND DRAMA

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Speech Fundamentals (voice and diction)	3
Public Speaking	3
Acting	3
Dramatic Production	3
Dramatic Literature or History of the Theater	3
Speech or drama elective	3

R. THEATER

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation*	Semester Hours
Acting	
Technical Theater (including stagecraft, lighting, costuming, makeup)	6
Directing	3
Dramatic Literature	6
History of the Theater	3
Creative Drama	3
Theater arts elective	3

*In meeting the above requirements, the applicant with training or experience in the professional theater may offer the following substitutions for the courses listed:

(a) At least three (3) months full-time or twelve (12) months part-time acting training in a non-degree-granting professional acting school (provided that the school employs at least three different teachers) may be substituted for the acting course.

(b) At least six (6) months of full-time employment in technical theater may be substituted for technical theater courses.

(c) Experience as director of at least five (5) full-length plays produced for a paying audience may be substituted for the directing course.

III. EXCEPTIONAL CHILDREN ADD-ON CERTIFICATION

The following areas are included:

A. Education of Deaf and Hard of Hearing
B. Emotional Disabilities
C. Learning Disabilities
D. Mental Disabilities
E. Multi-categorical Special Education
F. Severe Disabilities
G. Speech Language Therapist
H. Visual Impairment

A. EDUCATION OF DEAF AND HARD OF HEARING

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Teaching of Reading	3
Methods/Procedures for Teaching Speech Reading	3
Psychology of Hearing Impaired	3
Teaching of Language to Students with Hearing Impairment	3
Two electives from the following courses	6
Educational Assessment	
Anatomy of the Auditory and Speech Mechanism	
History of Education and Guidance for the Hearing Impaired	
Audiology, Hearing Aids, and Auditory Training	
Methods of Teaching Elementary School Subjects	
Principles of Speech Correction	
Physical Education and Recreation for the Exceptional Child	
Nature of Emotional Disabilities	
Nature of Learning Disabilities	
Remedial Reading	
Practicum in Instruction of the Exceptional Child	
Introduction to Rehabilitation and Community Services	
Educational Psychology	

B. EMOTIONAL DISABILITIES

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Characteristics of Emotional Disabilities	3
Methods/Procedures for Emotional Disabilities	3
Behavior Management	3
Teaching Reading in General and Special Education	3
Assessment of Exceptional Learners	3
Practicum in Instruction for Students with Emotional Disabilities*	3

*Practicum may be waived based on two years' successful experience teaching emotional disabilities

C. LEARNING DISABILITIES

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Characteristics of Learning Disabilities	3
Methods/Procedures for Learning Disabilities	3
Behavior Management	3
Teaching Reading in General and Special Education	3
Assessment of Exceptional Learners	3
Practicum in Instruction for Students with Learning Disabilities*	3

*Practicum may be waived based on two years' successful experience teaching learning disabilities.

D. MENTAL DISABILITIES

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Characteristics of Mental Disabilities	3
Methods/Procedures for Mental Disabilities	3

Behavior Management	3
Teaching Reading in General and Special Education	3
Assessment of Exceptional Learners	
Practicum in Instruction for Students with Mental Disabilities*	3

*Practicum may be waived based on two years' successful experience teaching mental disabilities.

E. MULTI-CATEGORICAL SPECIAL EDUCATION

This area allows teachers to serve learners with mild to moderate disabilities, which include autism, emotional disabilities, learning disabilities, mental disabilities, and traumatic brain injury.

1. Bachelor's degree

2. Temporary, initial, or professional certificate in either mental disabilities, emotional disabilities, or learning disabilities

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation

	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Characteristics of Learning Disabilities	3
Characteristics of Mental Disabilities	3
Characteristics of Emotional Disabilities	3
Methods/Procedures for Learning Disabilities	3
Methods/Procedures for Mental Disabilities	3
Methods/Procedures for Emotional Disabilities	3
Behavior Management	3
Assessment of Exceptional Learners	3
Practicum in Instruction for Students with Emotional Disabilities, and/or, Learning Disabilities, and/or, Mental Disabilities	6

OR

5. If certified in one area (mental disabilities, emotional disabilities, or learning disabilities) coursework is required in each of the two areas other than the teacher's certification area.

Characteristics	3
Methods in Procedures	3
Practicum*	3

OR

6. If certified in two areas (mental disabilities, emotional disabilities, or learning disabilities) coursework is required in the one remaining certification area.

Characteristics	3
Methods in Procedures	3
Practicum*	3

*Practicum (three semester hours) may be waived based on two years' successful experience teaching mental, emotional, or learning disabilities, as appropriate.

F. SEVERE DISABILITIES

This area allows teachers to serve learners with moderate to severe cognitive disabilities, which include mental disabilities, multiple disabilities, orthopedic impairment, autism, traumatic brain injury, and other health impairments.

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Introduction to Exceptional Learners/Special Education	3
Characteristics of Severe Disabilities	3
Methods/Procedures for Teaching Individuals with Moderate to Severe Disabilities	3
Behavior Management	3
Language/Communication Skills for Exceptional Children	3
Assessment of Exceptional Learners	3
Practicum in Instruction for Students with Severe Disabilities*	3

*Practicum may be waived based on two years' successful experience teaching severe disabilities.

G. SPEECH LANGUAGE THERAPIST

(Included in Regulation 43-64 under Requirements for Certification at the Advanced Level)

H. VISUAL IMPAIRMENT

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Human Growth and Development or the equivalent	3
Teaching of Reading	3
Nature of Visually Impaired	3
Educational Procedures for Visually Impaired	3
Introduction to Exceptional Children	3
Braille – Reading and Writing	3

Orientation and Mobility for the Classroom Teacher	3
Practicum in Instruction of the Visually Impaired Child*	3
Anatomy, Physiology, and Function of the Eye	3

Practicum may be waived based on two years' successful experience teaching visually impaired.

IV. CAREER AND TECHNOLOGY ADD-ON CERTIFICATION

The following areas are included:

A. Agriculture
B. Business and Marketing Technology
C. Computer Programming
D. Family and Consumer Science
E. Industrial Technology

A. AGRICULTURE

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
(a) Agriculture	
Plant sciences (including agronomy, horticulture, and/or forest)	15
Animal sciences (including dairy or poultry)	6
Agricultural engineering (mechanization)	6
Agricultural economics	6
Agricultural sciences electives	18
(b) One specific Agricultural Education field	
Agricultural mechanics	18
Animal science	18
Environmental science and natural resources	18
Forestry	18
Horticulture	18
Agriculture sciences electives (required for each of the five required Agricultural Education fields)	6

B. BUSINESS AND MARKETING TECHNOLOGY

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Accounting	6
Business Communications	3
Business Law	
Computer applications and technology (to include, but not be limited to, word processing, spreadsheets, database management, and Web publishing/multimedia)	9
Economics 3	
Entrepreneurship	3
Hospitality, Tourism or Hotel/Motel Management	3
International Business	3
Management	3
Marketing 3	
Instructional Methods for Teaching Business, Marketing, Computer Technology	3

C. COMPUTER PROGRAMMING (for Career and Technology Education programming courses)

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the secondary level in any subject area.

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Computer programming (any combination of currently relevant language(s) being used in business) Note: Programming courses completed at the post secondary level within the past five years may be counted toward this endorsement.	9

D. FAMILY AND CONSUMER SCIENCE

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Clothing for the Family	6
Food and Nutrition	9
Child Development and Family Relations	6

Housing, Home Furnishings and Equipment	3
Consumer Education	6
Electives from the following courses	6
Food Sciences	
Gerontology	
Food Management and Institutional Preparation	
Advanced Child Care and Family Relations	
Service Learning	
Human Development and Sexuality	

E. INDUSTRIAL TECHNOLOGY

1. Bachelor's degree

2. Temporary, initial, or professional certificate at the early childhood, elementary, middle, secondary, or pre-K–12 level.

3. Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education

4. Specialized preparation	Semester Hours
Transportation	6
Communication	6
Manufacturing	6
Construction	6
Computer Assisted Drafting (CAD)	3
New and emerging areas of technology such as bio-related technology, computer technology, and designing and problem solving	9

V. OTHER TYPES OF SPECIALIZED CERTIFICATION

FINE ARTS

1. Teachers for advanced fine arts programs who do not meet the requirements for certification in any existing area of certification will be issued an initial teaching certification if all of the following requirements are met:

(a) The school district has in operation an advanced program in the fine arts that has been approved by the State Department of Education.

(b) The school district superintendent requests certification for the prospective teacher in writing, describing the situation in which the teacher will work and the exact nature of the proposed duties of the teacher.

(c) The candidate has earned an undergraduate or graduate degree in fine arts from a nationally or regionally accredited institution of higher education or an institution that has programs approved for teacher education by the South Carolina State Board of Education in the area of the fine arts that the teacher is to teach.

(d) The candidate presents evidence of at least two years of successful professional experience in the area of the fine arts that he or she is expected to teach.

(e) The candidate presents an acceptable score(s) on the required teaching content-area examination(s).

2. The initial certificate in Fine Arts will be issued for three years. It can be renewed in accordance with Regulation 43-53.I.A. A total of twelve (12) semester hours of credit, which includes teaching methods and psychology of learning in graduate professional education, will be required for professional certification.

3. In addition to the graduate professional education requirement specified above, the initial certificate will be converted to the professional certificate upon successful completion of induction requirements, ADEPT, and the pedagogy examination required by the State Board of Education

Statement of Rationale: The proposed amendments will streamline and strengthen requirements for adding certification areas to existing certificates.

Fiscal Impact Statement: There will be no increased costs to the state or its political subdivisions.

Document No. 2877
STATE BOARD OF EDUCATION
CHAPTER 43
Statutory Authority: S.C. Code Ann. §§ 59-5-60 (1990) and 59-25-110 (1990)

R 43-64. Requirements for Initial Certification at the Advanced Level

Synopsis:

The State Department of Education recommends that the State Board of Education promulgate amendments to R 43-64, Requirements for Initial Certification at the Advanced Level, as indicated in the drafting notice that was published in the State Register on June 27, 2003. The amendments clarify certification requirements for individuals who desire to qualify for certification in instructional support areas at the Advanced Level, including school district superintendents.

Section-by-Section Discussion

Areas of add-on certification at the advanced level are listed, incorporating current usage or terminology, revising the format of requirements for consistency purposes, and other minor editorial revisions.

1. Section (A)(3) Administrator certification is deleted since this certification applies only to district-level positions not requiring a S.C. educator's certificate.
2. Section I(C) This section is amended to clarify that traditional superintendent certification requires completion of an approved preparation program.
3. Section I(D) This section is added to provide an alternative route for the certification of district superintendents.
4. Section I(E)(1) Change in title to reflect current usage.
   and (3)

Instructions: Amend in its entirety R 43-64, Requirements for Initial Certification at the Advanced Level, to Chapter 43 regulations.

Text:

R 43-64 REQUIREMENTS FOR CERTIFICATION AT THE ADVANCED LEVEL

I. ADMINISTRATION

A. Elementary School Principal and Supervisor

1. Master's degree

2. Valid South Carolina Educator's Professional Certificate at the elementary level

3. Minimum qualifying score(s) on the area examinations required by the State Board of Education

4. Verification of three years teaching experience, including at least one year of teaching in grades pre-K–8

5. Completion of an advanced program approved by the State Board of Education for the training of elementary principals and supervisors

B. Secondary School Principal and Supervisor

1. Master's degree

2. Valid South Carolina Professional Certificate at the secondary level

3. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

4. Verification of three years teaching experience, including at least one year of teaching in grades 7–12

5. Completion of an advanced program approved by the State Board of Education for the training of secondary principals and supervisors

C. District Superintendent

1. Master's degree

2. Valid South Carolina Professional Certificate at the elementary, middle, or secondary level

3. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

4. Verification of a total of three years experience as a pre-K–12 or postsecondary teacher and two years as a school or school district administrator, postsecondary administrator, or school business administrator

5. Completion of an advanced program approved by the State Board of Education for the training of school superintendents

D. District Superintendent (Alternative Route)

1 Master's degree

2. Verification of at least ten years of successful experience in a senior position(s) of leadership, such as Chief Executive Officer in a business, corporation or agency, military officer, or other position with responsibilities similar to those of a district superintendent.

3. Recommendation for certification by a local school board in a South Carolina public school district interested in employing the individual as a superintendent.

4. Submission of a plan of study by the local school board that the individual must complete within three years to include, at a minimum, the areas of curriculum and instruction, school finance, and school law. The candidate must also submit a passing score on area examination(s) required by the State Board of Education for district superintendents within the first year of employment as a superintendent.

5. Issuance of an initial certificate for one year. This certificate may be extended annually for two additional years at the request of the local school board based on verification of successful performance reviews.

6. Issuance of a professional certificate upon completion of the specified program of study, and minimum qualifying scores on the required certification examination(s), and the recommendation by the local school board after three years of successful service as superintendent.

E. Vocational/Technology/Career Center Director

1. Valid South Carolina secondary principal or supervisor certificate and certification in one of the following areas:

Agriculture
Family and Consumer Sciences
Health Occupations
Industrial Technology
Business and Marketing Technology
Career Technology Education

OR

2. Valid South Carolina secondary principal or supervisor certificate and three years of experience as a director or assistant director in a Vocational/Technology/Career Center

OR

3. Master's degree from a State Board of Education-approved teacher education program in vocational education, including fifteen semester hours in administration and certification in one of the following areas:

Agriculture
Family and Consumer Sciences
Health Occupations
Industrial Technology
Business and Marketing Technology
Career and Technology Education

The fifteen semester hours in administration required above are to be selected from the areas listed below:

General School Administration
School Personnel Administration
Techniques of Supervision
School Law
School Finance
Human Growth and Development
Curriculum Development

AND

4. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

5. Verification of five years experience as a preK–12 or postsecondary teacher, school or school district administrator, postsecondary administrator, or business administrator

II. OTHER INSTRUCTIONAL SUPPORT AREAS

A. ELEMENTARY AND SECONDARY GUIDANCE

1. Master's degree

2. Completion of an advanced program approved by the State Board of Education for the preparation of school counselors

3. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

B. SCHOOL PSYCHOLOGIST

1. SCHOOL PSYCHOLOGIST I

(a) Master's degree

(b) Completion of an advanced program approved by the State Board of Education for the preparation of school psychologists

(c) Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

2. SCHOOL PSYCHOLOGIST II

(a) Specialist degree

(b) Completion of an advanced program approved by the State Board of Education for the preparation of school psychologists

(c) Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

3. SCHOOL PSYCHOLOGIST III

(a) Doctorate degree

(b) Completion of an advanced program approved by the State Board of Education for the preparation of school psychologists

(c) Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

C. SPEECH-LANGUAGE THERAPIST

1. Master's degree

2. Completion of an advanced program approved by the State Board of Education for the preparation of speech-language therapists

3. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

D. MEDIA SPECIALIST

1. Master's degree

2. Completion of an advanced program approved by the State Board of Education for the preparation of media specialists or school library media specialists

3. Minimum qualifying score(s) on the area examination(s) required by the State Board of Education

Statement of Rationale: The proposed amendments will clarify certification requirements for certain district-level employees as well as for school superintendents.

Fiscal Impact Statement: There will be no increased costs to the state or its political subdivisions.

Resubmitted March 31, 2004

Document No. 2872
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
CHAPTER 61
Statutory Authority: S.C. Code Section 48-1-10 et seq.

R.61-62, *Air Pollution Control Regulations and Standards*

Synopsis:

On July 18, 1997, the United States Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard for ground-level ozone from 0.12 parts per million (ppm) 1-hour "peak" standard to 0.08 ppm 8-hour "average" standard. The National Ambient Air Quality Standards are health -based standards established at levels intended to protect public health. This "new" ozone standard is commonly referred to as the 8-hour ozone standard. Currently, all areas of South Carolina meet or "attain" all national ambient air quality standards, including the 1-hour ozone standard. However, when implemented, the 8-hour ozone standard could result in numerous areas of the state being determined not to meet the 8-hour standard and being designated as "non-attainment" for ground-level ozone. In South Carolina, 18 of 23 ozone monitors, particularly those in the more populated urban areas, regularly exceed the 8-hour standard. When air quality standards are revised, the state must recommend to EPA the boundaries of the areas that are not in compliance with the standard and must submit a plan to EPA that demonstrates how the state will bring those areas designated as non-attainment for the standard back into attainment. EPA will make the 8-hour ozone non-attainment designations by April 15, 2004, with input from the Department.

When EPA designates areas as non-attainment, these areas automatically become subject to additional permitting requirements referred to as non-attainment new source review and complex transportation planning requirements referred to as transportation conformity. In an effort to be proactive and bring cleaner air sooner to the citizens of South Carolina, the Department, with EPA support, has begun the process with state and local governments, industry, environmental groups, and other interested parties to consider possible ozone reduction strategies. The Department has been working with these stakeholder groups over the last year to develop strategies sooner than would be required by the current federal timeframes to reduce the pollution that creates ground-level ozone.

This strategy of bringing cleaner air to the state sooner than would be required under the current federal timeframes is referred to as the Early Action Compact or EAC. In accordance with the EAC, EPA has laid out specific milestones that the state must meet to reduce ozone precursors so that our ozone monitors will be attaining the 8-hour standard by 2007 and beyond. Aside from the public health benefits realized by meeting the new standard sooner than required, another reason for embarking on this approach is that if we are successful, EPA will defer the effective date of the non-attainment designations.

The purpose of the regulations is to reduce or regulate the growth of ozone precursors so that the ozone monitors in the state are attaining the ozone standard in 2007 and to ensure that the Department is meeting the milestones specified by EPA for the EAC process. As part of the EAC process, the Department has promulgated a new regulation, R.61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NO_x)*. In addition, the Department has revised R.61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds,* and R.61-62.2, *Prohibition of Open Burning.*

Discussion of Revisions:

SECTION CITATION: EXPLANATION OF CHANGE

R.61-62.5, STANDARD 5.2, CONTROL OF OXIDES OF NITROGEN (NOX)

A new regulation has been added.

R.61-62.5, STANDARD 5.1, LOWEST ACHIEVABLE EMISSION RATE (LAER) APPLICABLE TO VOLATILE ORGANIC COMPOUNDS

Regulation title	The title of the regulation has been changed to *Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds*.
Section I (A)(3)	The definition of "actual emissions" has been revised.
Section I (C)	A new definition has been added for "Best Available Control Technology (BACT)."
Section II (A)	The paragraph has been revised to indicate that new construction permits issued after the effective date of this regulation shall apply BACT.
Section II (B)	A new paragraph has been added to specify that, if the Department determines that the application of BACT/LAER controls would result in the emission of pollutants which might cause or significantly contribute to an exceedance of an ambient air quality standard, a lesser degree of control may be allowed.

R.61-62.2, PROHIBITION OF OPEN BURNING

Section I (C)	The paragraph has been revised to clarify that only clean wood products shall be used for fires set for human warmth.
Section I (D)	The paragraph has been revised for clarity.
Section I (E)	The paragraph has been deleted
Section I (F)	The paragraph has been deleted.
Section I (G)	The paragraph has been renumbered as Section I(E) and revised to stipulate that material to be burned must be generated onsite.
Section I (H)	The paragraph has been renumbered as Section I(F) and revised to specify that only permanent fire-fighter training facilities are exempt and that non-permanent locations must receive Department approval prior to any burning activity.
Section I (I)	The paragraph allowing the burning of household trash on the premises of and originating from private residences has been deleted.

Section I (J)	The paragraph has been renumbered as Section I(G) and revised to allow only residential construction waste to be burned in accordance with the provisions specified in the regulations.
Section I (K)	The paragraph has been renumbered as Section I(H) and revised for clarity and renumbered.

Instructions:

Add to R.61-62 new R.61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NOx).*
Replace in entirety existing R.61-62.5, Standard 5.1,*Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds,* with this amendment.
Replace in entirety existing R.61-62.2, *Prohibition of Open Burning,* with this amendment.

Add R.61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NOx)* to read:

SOUTH CAROLINA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

AIR POLLUTION CONTROL REGULATIONS AND STANDARDS

REGULATION 61-62. 5
AIR POLLUTION CONTROL STANDARDS

STANDARD NO. 5.2
CONTROL OF OXIDES OF NITROGEN (NOx)

SECTION I - APPLICABILITY

(a) Except as provided in paragraph (b) of this part, the provisions of this regulation shall apply to any stationary source that emits or has the potential to emit oxides of nitrogen (NOx) generated from fuel combustion that has not undergone a Best Available Control Technology (BACT) analysis for NOx in accordance with SC Regulation 61-62.5, Standard No. 7 and that meets one or more of the criteria specified in paragraphs (a)(1), (a)(2), and (a)(3) of this part:

(1) Any new source that is permitted to construct after the effective date of this regulation;

(2) Any existing source where a burner assembly is replaced with another burner assembly after the effective date of this regulation, regardless of size or age of the burner assembly to be replaced. The replacement of individual components such as burner heads, nozzles, or windboxes does not trigger the applicability of this regulation; or

(3) Any existing source that is removed from its presently permitted facility and moved to another permitted facility after the effective date of this regulation except process equipment and commercial or industrial boilers that are transferred between facilities within the state under common ownership. Such transfers will be considered as existing sources under (a)(2) above.

(b) Exemptions:

The following sources are exempt from all requirements of this regulation unless otherwise specified:

(1) Any source less than 10 x 10^6 BTU/HR rated input capacity that burns a fuel.

(2) Emergency power generators of less than 150 KW rated capacity, or those that operate 250 hours per year or less and have a method to record the actual hours of use such as an hour meter.

(3) Any internal combustion engine with a mechanical power output of less than 200 bHP.

(4) Any device functioning solely as a combustion control device.

(5) Any equipment that has NOx controls pursuant to the requirements 40 CFR Parts 60, 61, or 63 where such controls are equivalent to, or more stringent than, the requirements of this regulation.

(6) Any source that has NOx controls pursuant to the requirements of SC Regulation 61-62.96, where such controls are equivalent to, or more stringent than, the requirements of this regulation.

(7) Any source that has NOx controls pursuant to the requirements of SC Regulation 61-62.99.

(8) Flares

(9) Air Curtain Incinerators

(10) Fuel Cell Sources

(11) Engines test cells/stands

(12) Portable and temporary IC engines such as those associated with generators, air compressors, or other applications provided that they fall in the categories listed in 40 CFR 89, *Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines*.

(13) Combustion sources that operate at a capacity of less than 10% per year.

(14) Special use burners, such as start-up/shut-down burners, that are operated less than 500 hours a year.

(15) Liquor guns on a recovery boiler are only exempt from the standard requirements in Section IV.

(16) Portable sources such as asphalt plants or concrete batch plants are only exempt from the standard requirements in Section III.

(17) The Department reserves the right to consider any other exemptions from this regulation on a case-by-case basis as appropriate.

SECTION II - DEFINITIONS

For the purposes of this regulation, the following definitions shall apply:

Burner Assembly: Means any complete, pre-engineered device that combines air (or oxygen) and fuel in a controlled manner and admits this mixture into a combustion chamber in such a way as to ensure safe and efficient combustion. A self-contained chamber such as is found on a combustion turbine is not a burner assembly for the purposes of this regulation.

Case-by-Case NOx Control: Means an emissions limitation based on the maximum degree of reduction for NOx which would be emitted from any new source which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source through application of production processes or available methods, systems, and techniques. In no event shall application of NOx control result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard. If the Department determines that technological or economic limitations on the application of measurement methodology to a particular source would make the impositions of an emission standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of NOx control. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means, which achieve equivalent results.

Combustion Control Device: Means, but is not limited to, any equipment that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere, excluding boilers, process heaters, dryers, furnaces, digesters, ovens, combustors, and similar combustion devices. Such equipment includes, but is not limited to, thermal oxidizers, catalytic oxidizers, and flares.

Constructed: Means the on-site fabrication, erection, or installation of the NOx emitting source.

Fuel: Means the following or any combination of the following: virgin fuel, fossil fuel, waste, waste fuel, biomass fuel, biofuel, methanol, ethanol, biodiesel, landfill gas, digester gas, process liquid or gas, or any combustible material the Department determines to be a fuel.

Source: Means an individual NOx emission unit.

Tune-up: Means adjustments made to the combustion process to optimize combustion efficiency of the source in accordance with procedures provided by the manufacturer or in accordance with good engineering practices.

SECTION III – STANDARD REQUIREMENTS FOR NEW SOURCES

(a) Those sources as defined in Section I (a)(1) and (a)(3) shall apply NOx controls capable of achieving the limitations provided in Table 1 of this section. Unless otherwise noted, all emission limits identified in Table 1 are based on monthly averages.

(b) A source may request an alternate control limitation by submitting a demonstration that the alternate limitation is a Case-by-Case NOx Control as defined in Section II.

(c) The Department reserves the right to request that the owner or operator submit additional information for those sources that request alternate control limitation in accordance with Section III (b) above.

(d) Sources required to install post combustion technology for the control of NOx, shall be required to use post combustion for the control of NOx during the ozone season (April 1 through October 31).

Table 1 - NOx Control Standards

Source Type	Control Technology and/or Emission Limit
Boilers and Water Heaters	
Natural Gas Fired Boilers	
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 30ppmv @ 3% O2 Dry (0.036 lb/mmBTU)
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 30 ppmv @ 3% O2 Dry (0.036 lb/mmBTU)
Distillate Oil Fired Boilers	
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.15 lb/mmBTU
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 0.14 lb/mmBTU
Residual Oil Fired Boilers	
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.3 lb/mmBTU
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 0.3 lb/mmBTU
Multiple Fuel Boilers	The emission limits for boilers burning multiple fuels are calculated in accordance with the formulas below. Additional fuels shall be addressed on a case-by-case basis.

≥10mmBTU/hr and < 100mmBTU/hr	E_n = [(0.036 lb/mmBTU H_{ng}) + (0.15 lb/mmBTU H_{do}) + (0.3 lb/mmBTU H_{ro}) + (0.35 lb/mmBTU H_c) + (0.2 lb/mmBTU H_w)]/(H_{ng} + H_{do}+ H_{ro} + H_c + H_w) where: E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu) H_{ng} is the heat input from combustion of natural gas, H_{do} is the heat input from combustion of distillate oil H_{ro} is the heat input from combustion of residual oil, H_c is the heat input from combustion of coal, H_w is the heat input from combustion of wood residue.
≥100mmBTU/hr	E_n = [(0.036 lb/mmBTU H_{ng}) + (0.14 lb/mmBTU H_{do}) + (0.3 lb/mmBTU H_{ro}) + (0.25 lb/mmBTU H_c) + (0.2 lb/mmBTU H_w)]/(H_{ng} + H_{do}+ H_{ro} + H_c + H_w) where: E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu) H_{ng} is the heat input from combustion of natural gas, H_{do} is the heat input from combustion of distillate oil H_{ro} is the heat input from combustion of residual oil, H_c is the heat input from combustion of coal. H_w is the heat input from combustion of wood residue.
Wood Residue Boilers	
All types	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.20 lb/mmBTU
Coal Fired Stoker Fed Boilers	
< 250 mmBTU/hr	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.35 lb/mmBTU
≥ 250 mmBTU/hr	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.25 lb/mmBTU
Pulverized Coal Fired Boilers	
< 250 mmBTU/hr	Low NOx Burners + Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.35 lb/mmBTU

≥ 250 mmBTU/hr	Low NOx Burners + Combustion controls to minimize NOx emissions + SCR or equivalent technology capable of achieving 0.14 lb/mmBTU
Municipal refuse fired boilers	
< 250 mmBTU/hr	Combustion modifications to minimize NOx emissions + Flue Gas Recirculation or equivalent technology capable of achieving 200 ppmv @12% CO_2 (0.35 lb/mmBTU)
≥ 250 mmBTU/hr	Staged Combustion and Automatic Combustion Air Control + SCR or equivalent technology capable of achieving 0.18 lb/mmBTU
Internal Combustion Engines	
Compression Ignition	Timing Retard ≤ 4^o + Turbocharger w/ Intercooler or equivalent technology capable of achieving 490 ppmv @ 15% O_2 (7.64 gm/bhp-hr)
Spark Ignition	Lean Burn Technology or equivalent technology capable of Achieving 1.0 gm/bhp-hr
Landfill or Digester Gas Fired	Lean Burn Technology or equivalent technology capable of Achieving 1.25 gm/bhp-hr
Gas Turbines	
Simple Cycle – Natural Gas	
< 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 25 ppmv @ 15% O_2 Dry (0.054 lb/mmBTU)
≥ 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 9.0 ppmv @ 15% O_2 Dry (0.033 lb/mmBTU)
Combined Cycle – Natural Gas	
< 50 Megawatts	Dry Low-NOx Combustors or equivalent technology capable of achieving 9.0 ppmv @ 15% O_2 Dry (0.033 lb/mmBTU)
≥ 50 Megawatts	Dry Low-NOx Combustors + SCR or equivalent technology Capable of achieving 3.0 ppmv @ 15% O_2 Dry (0.011lb/mmBTU)
Simple Cycle – Distallate Oil Combustion	

< 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O_2 Dry Basis (0.16 lb/mmBTU)
≥ 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O_2 Dry Basis (0.16 lb/mmBTU)
Combined Cycle - Distillate oil combustion	
< 50 Megawatts	Dry Low-NOx Combustors with water injection, or equivalent technology capable of achieving 42 ppmv @ 15% O_2 Dry Basis (0.16 lb/mmBTU)
≥ 50 Megawatts	Dry Low-NOx Combustors, water injection, and SCR or Equivalent technology capable of achieving 10 ppmv @ 15% O_2 Dry Basis (0.038 lb/mmBTU)
Landfill Gas Fired	Water or steam injection or low NOx turbine design or equivalent technology capable of achieving 25 ppmv @ 15% O_2 (0.097 lb/mmBTU)
Cement Kilns Low NOx burners or equivalent technology capable of achieving 30% reduction from uncontrolled levels.	
Fluidized Bed Combustion (FBC) Boiler:	
Coal Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 51.8 ppm @ 3% oxygen (0.07 lbs/mmBTU)
Wood Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 51.8 ppm @ 3% oxygen (0.07 lbs/mmBTU)
Recovery Furnaces 4th level or air to recovery furnace/good combustion practices or equivalent technology capable of achieving 100 ppm @8% oxygen	
Lime Kilns Combustion controls or equivalent technology capable of achieving 175 ppm @ 10% oxygen	

Fuel Combustion Sources Not Otherwise Specified: (Examples include but are not limited to process heaters, dryers, furnaces, ovens, duct burners, incinerators, and smelters) Low NOx burners or equivalent technology capable of achieving 30% reduction from uncontrolled levels.

SECTION IV - STANDARD REQUIREMENTS FOR EXISTING SOURCES

(a) For those sources subject to the requirements of this regulation as defined in Section I (a)(2) above where an existing burner assembly is replaced after the effective date of this regulation, the burner assembly shall be replaced with a low NOx burner assembly or equivalent technology capable of achieving a 30 percent reduction from uncontrolled NOx emission levels based upon manufacturer's specifications. An exemption from this requirement shall be granted when a single burner assembly is being replaced in a source with multiple burners due to non-routine maintenance.

(b) For those sources defined in Section I (a)(2) above where an existing burner assembly is replaced after the effective date of this regulation, the owner or operator shall notify and register the replacement with the Department in accordance with Section V below.

(c) A facility may request an alternative control methodology to the one specified in paragraph (a) of this section provided that they can demonstrate to the Department why the NOx control limits specified are not economically or technically feasible for this specific circumstance. The Department reserves the right to request that the owner or operator submit additional information as necessary for the alternative control methodology determination. Alternative control methodologies granted under this part are not effective until notification is submitted to and approved by the Department.

SECTION V – NOTIFICATION REQUIREMENTS

(a) Except for those sources that wish to request an alternative control methodology as specified in Section IV(c), the notification requirements specified in this section shall apply only to existing sources as defined in Section I(a)(2) above where an existing burner assembly is replaced after the effective date of this regulation.

(b) Within 7 days of replacing an existing burner assembly, the owner or operator shall submit written notification to register the replacement unit with the Department.

(c) Notification shall satisfy the permitting requirements consistent with SC Regulation 61-62.1, Section II (a).

(d) Notification shall contain replacement unit information as requested in the format provided by the Department. Replacement unit information shall include, at a minimum, all affected units at the source and the date the replacement unit(s) will commence operation.

(e) Those sources that wish to receive an emission reduction credit for the control device will be required to submit a permit application.

SECTION VI – TUNE-UP REQUIREMENTS

(a) Owners or operators of a combustion source shall perform tune-ups every two years in accordance with manufacturer's specifications or with good engineering practices.

(b) All tune-up records are required to be maintained on site and available for inspection by the Department for a period of five years from the date generated.

(c) The facility shall develop and retain a tune-up plan on file.

Replace Regulation 61-62.5, Standard 5.1 in entirety, to read as follows:

SOUTH CAROLINA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

AIR POLLUTION CONTROL REGULATIONS AND STANDARDS

REGULATION 61-62.5
AIR POLLUTION CONTROL STANDARDS

STANDARD NO. 5.1

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)/
LOWEST ACHIEVABLE EMISSION RATE ("LAER")
APPLICABLE TO VOLATILE ORGANIC COMPOUNDS

SECTION I - DEFINITIONS

A. "Net VOC Emissions Increase" means the amount by which the sum of the following exceeds zero:

1. Any actual increase in the emissions of VOCs from a particular physical change or change in method of operation at a plant; and

2. Any other increases and decreases in the actual VOC emissions at the plant that occurred at the plant since July 1, 1979, and are otherwise creditable. An increase or decrease is creditable only if the Department has not relied on it in issuing a permit for the plant under this Standard, which permit is in effect when the increase from the particular change occurs.

3. "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with paragraphs (a) through (c) below.

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which preceded the particular date and which is representative of normal source operation. The Department may allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(c) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

B. Lowest Achievable Emission Rate (LAER) means that rate of emissions based on the following, whichever is more stringent:

1. The most stringent emission limitation which is contained in the State Implementation Plan of any state for such class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or

2. The most stringent emission limitation which has been achieved in practice by such class or category of source.

In no event shall the application of LAER permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under New Source Performance Standards if applicable.

C. Best Available Control Technology (BACT) means an emissions limitation based on the maximum degree of reduction for VOC which would be emitted from any proposed physical change or change in method of operation which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Department determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the impositions of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means, which achieve equivalent results.

SECTION II - GENERAL APPLICABILITY

A. This standard shall apply to all new, modified, or altered sources that would increase emissions of Volatile Organic Compounds (VOC). Lowest Achievable Emission Rate shall be applied to construction or modifications permitted before (effective date published in *State Register*) when the net VOC emissions increase exceeds 100 tons per year. Best Available Control Technology shall be applied to any new construction permit issued on or after (effective date published in the *State Register*) when the net VOC emissions increase exceeds 100 tons per year.

B. The Department may allow a lesser degree of control, provided that such a determination does not supersede any other State or Federal requirements, if the Department determines that the application of BACT/LAER controls would result in the emission of pollutants which might cause or significantly contribute to an exceedance of an ambient air quality standard.

SECTION III - VOLATILE ORGANIC COMPOUND COMPLIANCE TESTING

The owner or operator of any volatile organic compound source required to comply with this Standard shall, at his own expense, conduct source tests in accordance with the provisions of R.61-62.1, Section IV, Source Tests, to demonstrate compliance unless the Department determines that the compliance status of the source can be monitored as described in Section IV, below.

If tests are required, the following conditions shall apply:

A. Test frequencies for VOC abatement equipment will be as follows:

1. every four (4) years for sources utilizing solvent recovery emission control devices (e.g. carbon adsorption, refrigeration). However, if fouling of the carbon bed is suspected in the case of carbon adsorption, more frequent test schedules can be required.

2. every two (2) years for sources utilizing catalytic incineration/destruction.

3. every four (4) years for sources utilizing flame incineration provided the source operates, calibrates, and maintains a recorder for each incinerator which continuously records the combustion zone temperature and such temperature is maintained at a value no less than that recorded during the last source test during which compliance was verified.

B. Testing of VOC capture systems will be performed annually. However, only an initial test will be required provided:

1. capture system flow rate indicators (e.g. magnehelic gauges, manometers) are operated, calibrated, and maintained, and

2. the indicated values are maintained at a level no less than that recorded during the last source test during which compliance was verified, and

3. the type and location of the flow rate indicators are approved by this Department, and

4. no process, capture system, or VOC abatement equipment modifications have been made.

C. Other sources will be placed on a two (2) year test cycle.

SECTION IV - RECORDKEEPING, REPORTING, MONITORING

A. The owner or operator of any VOC emission source or control equipment shall maintain, as a minimum: records of all compliance testing conducted under Section III above, and records of all monitoring conducted under paragraphs C.1. and C.2. below.

B. The owner or operator of any applicable VOC emission source or control equipment shall, on request, make available to the Department, or U.S. EPA, reports detailing the nature, specific sources, and total quantities of all VOC emissions for any specified period. Records must be kept which are consistent with the compliance time frames for each source subject to this standard.

C. The owner or operator of any VOC emission source or control equipment shall:

1. install, operate, calibrate and maintain process and/or control equipment, monitoring instruments, or procedures as required to comply with paragraphs A. and B. above; and,

2. maintain, in writing, data and/or reports relating to monitoring instruments or procedures which shall, upon review, document the compliance status of the VOC emission source or control equipment to the satisfaction of the Department.

D. Copies of all records and reports under paragraphs A., B., and C. above, shall be retained by the owner or operator for two years after the date on which the record was made or the reports submitted.

E. Copies of all records and reports required under this Section shall be available for inspection during normal working hours and furthermore, copies of the required records and reports shall be furnished within ten working days after receipt of a written request from the Department.

Replace Regulation 61-62.2 in its entirety to read as follows:

SOUTH CAROLINA
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

AIR POLLUTION CONTROL REGULATIONS AND STANDARDS

REGULATION 61-62.2
PROHIBITION OF OPEN BURNING

OPEN BURNING IS PROHIBITED EXCEPT AS PROVIDED BELOW:

SECTION I - Exceptions

A. Open burning of leaves, tree branches or yard trimmings originating on the premises of private residences and burned on those premises.

B. Open burning in connection with the preparation of food for immediate consumption.

C. Campfires and fires used solely for recreational purposes, ceremonial occasions, or human warmth. Fires set for the purpose of human warmth must use only clean wood products (woody vegetation, leaves, or wood which is not coated with stain, paint, glue or other coating material, and not treated lumber).

D. Fires purposely set in accordance with *Smoke Management Guidelines for Vegetative Debris Burning Operations in South Carolina*, administered by the South Carolina Forestry Commission and acceptable to the Department to include the following:

1. Prescribed burning of forest lands for specific management practices; and

2. Fires purposely set for agricultural control of diseases, weeds, pests, and for other specific agricultural purposes.

3. Open burning of trees, brush, grass and other vegetable matter for game management purposes.

E. Open burning in areas other than predominantly residential for the purpose of land clearing or right-of-way maintenance. This will be exempt only if the following minimum conditions are followed:

1. The location of the burning must be a sufficient distance but not less than 1000 feet, from public roadways and all residential, commercial, and industrial sites not a part of the contiguous property on which the burning is conducted.

2. Winds during the time of the burning must be away from any area in which the ambient air may be significantly affected by smoke from the burning if that area contains a public roadway or a residential, commercial, or industrial site.

3. The material to be burned must have been generated onsite and not moved to the site from another location;

4. The amount of dirt on the material being burned must be minimized;

5. No heavy oils, asphaltic materials, items containing natural or synthetic rubber, or any materials other than plant growth may be burned;

6. The initial burning must be started only between the hours of 9:00 a.m. and 3:00 p.m.; no combustible material may be added to the fire between 3:00 p.m. of one day and 9:00 a.m. the following day;

7. No more than two piles 30' x 30' or equivalent may be burned within a six-acre area at one time; and

8. In the case of land clearing, all salvageable timber and pulpwood must be removed.

F. Fires set for the purposes of training fire-fighting personnel and conducted at permanent fire-fighter training facilities. Prior Department approval is required in order to obtain the exemption as a permanently established training site. Fires set for the purpose of fire-fighter training at non-permanent locations must receive Department approval prior to the initiation of any burning activity. Materials used for fire-fighter training cannot contain asbestos, heavy oils, asphaltic material, plastic or rubber without express written consent from the Department.

G. Open burning on the property where it occurs of residential construction waste from building and construction operations will be exempt only if the following conditions are met:

1. The material being burned is residential construction waste associated with the building and construction of one and two family dwellings only;

2. The location of the burning is at least five hundred (500) feet from any occupied structure other than a dwelling or structure located on the property on which the burning is conducted;

3. Heavy oils, treated wood products, asphaltic materials, items containing natural or synthetic rubber, or any other trade wastes which produce smoke in excess of forty (40) percent opacity are not burned;

4. The burning does not occur during the ozone season (April 1 through October 30); and

5. The burning is conducted only between the hours of 9:00 a.m. and 3:00 p.m.;

H. Open burning, in remote or specified areas:

1. For non-recurring unusual circumstances.

2. For experimental burning for purposes of data gathering and research.

However, prior approval for these types of burning (in subparagraph H above) must be obtained from the Department.

SECTION II - General

A. A written report or warning to a person of a violation at one site shall be considered adequate notice of the Regulation and subsequent observed violations at the same or different site will result in appropriate legal action.

B. Open burning may be conducted in certain situations if no undesirable levels are or will be created. The authority to conduct open burning under this Regulation does not exempt or excuse the person responsible for the burning from the consequences of or the damages or injuries resulting from the burning and does not exempt or excuse anyone from complying with other applicable laws and with ordinances, regulations, and orders of governmental entities having jurisdiction, even though the burning is otherwise conducted in compliance with this Regulation.

C. The Department reserves the right to impose other or different restrictions and exemptions on open burning in addition to those enumerated above, whenever in the judgment of the Department such is necessary to realize the purpose of this Regulation.

Fiscal Impact Statement:

The Department estimates no additional cost will be incurred by the state or its political subdivisions as a result of the promulgation, approval, and implementation of this amendment.

Statement of Need and Reasonableness:

This statement of need and reasonableness was determined by staff analysis pursuant to S.C. Code Section 1-23-115(C)(1)-(3) and (9)-(11).

DESCRIPTION OF REGULATION:

Purpose: On July 18, 1997, the United States Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard for ground-level ozone from 0.12 parts per million (ppm) 1-hour "peak" standard to 0.08 ppm 8-hour "average" standard. The National Ambient Air Quality Standards are health-based standards established at levels intended to protect public health. This "new" ozone standard is commonly referred to as the 8-hour ozone standard. Currently, all areas of South Carolina meet or "attain" all national ambient air quality standards, including the 1-hour ozone standard. However, when implemented, the 8-hour ozone standard could result in numerous areas of the state being determined not to meet the 8-hour standard and being designated as "non-attainment" for ground-level ozone. In South Carolina, 18 of 23 ozone monitors, particularly those in the more populated urban areas, regularly exceed the 8-hour standard. When air quality standards are revised, the state must recommend to EPA the boundaries of the areas that are not in compliance with the standard and must submit a plan to EPA that demonstrates how the state will bring those areas designated as non-attainment for the standard back into attainment. EPA will make the 8-hour ozone non-attainment designations by April 15, 2004, with input from the Department.

When EPA designates areas as non-attainment, these areas automatically become subject to additional permitting requirements referred to as non-attainment new source review and complex transportation planning requirements referred to as transportation conformity. In an effort to be proactive and bring cleaner air sooner to the citizens of South Carolina, the Department, with EPA support, has begun the process with state and local governments, industry, environmental groups, and other interested parties to consider possible ozone reduction strategies. The Department has been working with these stakeholder groups over the last year to develop strategies sooner than would be required by the current federal timeframes to reduce the pollution that creates ground-level ozone.

This strategy of bringing cleaner air to the state sooner than would be required under the current federal timeframes is referred to as the Early Action Compact or EAC. In accordance with the EAC, EPA has laid out specific milestones that the state must meet to reduce ozone precursors so that our ozone monitors will be attaining the 8-hour standard by 2007 and beyond. Aside from the public health benefits realized by meeting the new standard sooner than required, another reason for embarking on this approach is that if we are successful, EPA will defer the effective date of the non-attainment designations.

The purpose of the proposed regulations is to reduce or regulate the growth of ozone precursors so that the ozone monitors in the state are attaining the ozone standard in 2007 and to ensure that the Department is meeting the milestones specified by EPA for the EAC process. As part of the EAC process, the Department is proposing to promulgate a new regulation, R.61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NO_x)*. In addition, the Department proposes to revise regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds,* and regulation 61-62.2, *Prohibition of Open Burning.* Finally, the South Carolina State Implementation Plan (SIP) will be amended.

Legal Authority: The legal authority for regulation 61-62 is Sections 48-1-10 et seq., S.C. Code of Laws.

Plan for Implementation: The proposed amendments will take effect upon approval by the General Assembly and publication in the *State Register*. The proposed amendments will be implemented by providing the regulated community with copies of the regulation.

DETERMINATION OF NEED AND REASONABLENESS OF THE PROPOSED REGULATION BASED ON ALL FACTORS HEREIN AND EXPECTED BENEFITS:

As the national air quality standards are health-based standards, it is important that efforts are made to improve air quality to meet these standards as soon as possible. Further, when non-attainment designations occur, areas automatically become subject to new additional permitting requirements and complex transportation planning requirements. These prescriptive federal requirements represent a one-size-fits-all approach to reducing ozone pollution. They are an economic burden for areas with a non-attainment designation and may not be the best strategy for reducing ozone pollution in South Carolina. Furthermore, this approach encourages sprawl by penalizing sources that locate in non-attainment areas. The EAC approach ensures that we bring cleaner air sooner to the state by meeting the new ozone standard sooner than required under the current federal timeframes. In addition to the public health benefits, under the EAC process, EPA will defer of the effective date of the non-attainment designations and thereby allow us the opportunity to develop strategies better suited to South Carolina's needs.

DETERMINATION OF COSTS AND BENEFITS:

The economic impacts associated with non-attainment are significant. When an area is designated as non-attainment, new sources, or existing facilities in need of major modifications, must install the Lowest Achievable Emission Rate (LAER) technology. LAER does not allow economic costs to be considered when determining what pollution controls are to be installed. Thus, if the controls are technically feasible, they must be installed regardless of the costs. Furthermore, pollution offsets are required in non-attainment areas and this is an additional cost to be considered.

As a result of the expenses involved, new facilities will choose not to locate in non-attainment areas and will choose instead to locate outside the non-attainment boundary. This approach encourages sprawl by providing incentives for sources to locate outside of non-attainment areas. It also puts certain areas of the state at a significant economic disadvantage. This inequity is further compounded by the fact that air pollution knows no boundaries and thus, facilities can locate outside of the non-attainment area and still have emissions that negatively impact the non-attainment area's air quality.

The EAC approach requires that our monitors attain the 8-hour standard sooner than the current federal timeframes. This translates into cleaner air sooner for our citizens. There are obvious public health benefits to be derived from this approach that are hard to quantify. In addition, the EAC approach allows us to design our own strategy for attaining the 8-hour standard. The primary focus of the regulations the Department is proposing is to control the growth of emission of oxides of nitrogen (NOx). Proposed Regulation 61-62.5, Standard 5.2, *Control*

of Oxides of Nitrogen (NOx), requires reasonable NOx controls on fuel combustion sources. This regulation will ensure uniform controls across the state rather than the current federal system that requires stringent controls in select areas. Thus, in terms of a cost/benefit analysis for this regulation, we need to compare the stringent LAER and offsets that would occur in select areas of the state under a non-attainment designation with the more reasonable controls that would apply statewide as a result of these regulations. As an example of the cost differential, a new 125mmBTU/hr boiler under this regulation would be required to install low NOx burners capable of achieving 30 ppmv corrected to 3% O_2. According to vendor information and other sources, this technology would cost about $700 per ton of NOx reduced. If this same unit were installed in a non-attainment area, LAER for this unit would most likely be Selective Catalytic Reduction (SCR). A recent NESCAUM (The Northeast States for Coordinated Air Use Management) report estimates that the SCR on gas fired boilers is estimated to provide reductions for $2,000/ton for boilers of about 350mmBTU/hr that operate at high capacity factors. This number jumps to around $3,500/ton of NOx reduced for smaller, gas-fired boilers of a 100mmBTU/hr and this does not include the cost of offsets. Thus, it is evident that for non-attainment areas, the cost of controls under this regulation is significantly less than the costs would be if the area had a non-attainment designation.

Another regulation that the Department is revising in an effort to reduce NOx emissions statewide as part of the EAC process is Regulation 61-62.2, *Prohibition of Open Burning*. The most significant revisions to this regulation are as follows: deleting the exception for the burning of household trash, deleting the exception for the burning of construction waste, and revising the exception for fires set for the purpose of firefighter training. The burning of household trash and construction waste presents health and environmental concerns for many communities. The smoke generated from these activities is a nuisance to some and a health threat to others with asthma or other respiratory problems. Furthermore, the Department spends a lot of staff time and resources responding to complaints relating to these activities. The Department believes that deleting the exception for the burning of household trash will not result in any significant cost or hardship because other disposal options are readily available. With respect to the exception for the burning of construction waste, the Department is revising this provision to allow only residential construction waste to be burned and this will only be allowed if it meets the provisions of the regulation. Again, this is not expected to result in any significant cost or hardship because many other practical disposal options are available and most construction sites currently use other means of waste disposal. The Department is also proposing to revise the exceptions for the purposes of firefighter training to ensure consistency and to ensure that minimum health, environmental and safety concerns are addressed. The Department will do a review of permanent firefighter training facilities and will evaluate non-permanent sites and require Department approval prior to a burn. The Department does not anticipate that this will result in any significant costs because existing firefighter training facilities will not be adversely impacted and non-permanent sites will still be allowed, but held to consistent standards. This revision allows the Department to collect information and to grant prior approval for firefighter training sites.

Finally, the Department is proposing to revise Regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds*. This regulation is being revised to require Best Available Control Technology (BACT) to be applied to any new construction permit issued after effective date of this revision when the net VOC emissions increase exceeds 100 tons per year. As stated above, LAER requires very stringent pollution controls regardless of costs. This revision will require BACT controls on new construction that results in a net VOC emissions increase of greater than 100 tons per year. This is consistent with the Department's proposed regulation for controlling NOx emissions which requires reasonable NOx controls on fuel combustion sources. The Department believes that less costly VOC controls that will result from this revision will further offset the costs to the regulated community of the NOx controls that the Department is proposing with Regulation 61-62.5, Standard 5.2, while still being protective of the environment and public health.

UNCERTAINTIES OF ESTIMATES:

Proposed Regulation 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NOx)*, requires reasonable NOx controls on new, as well as some existing, fuel combustion sources. The cost of NOx controls will vary from source to source depending on size, fuel, and other factors. While the cost of this regulation will depend on the source in question, what is certain is that for sources locating in non-attainment areas, the costs will be far greater than the cost of the controls required by this regulation.

EFFECT ON ENVIRONMENT AND PUBLIC HEALTH:

The combination of these three regulations will have a positive impact on the environment and public health by reducing ozone pollution sooner than would be required under the federal timelines.

DETRIMENTAL EFFECT ON THE ENVIRONMENT AND PUBLIC HEALTH IF THE REGULATIONS ARE NOT IMPLEMENTED:
Ozone can irritate lung airways and cause inflammation much like a sunburn. Other symptoms include wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people that are active outdoors can be affected when ozone levels are elevated. Repeated exposure to ozone pollution for several months may cause permanent lung damage. These regulations are designed to reduce ozone pollution sooner than would be required under the federal timelines. If these regulations are not implemented, the public health benefits will not be realized. Furthermore, if these regulations are not implemented, the state will fail to meet the EAC milestone and EPA will not defer the effective date of the non-attainment designations. This will encourage sprawl by providing incentives for sources to locate outside of non-attainment areas.

Statement of Rationale:

I. PURPOSE

S.C. Code of Laws Section 1-23-110(A)(3)(h) requires state agencies to prepare a detailed Statement of Rationale for all new regulations and significant amendments to existing regulations. This statement shall provide the basis for the regulation, including the scientific or technical basis, if any, and shall identify any studies, reports, policies, or statements of professional judgment or administrative need relied upon in developing the regulation. Accordingly, the SC Department of Health and Environmental Control (Department) has prepared the following Statement of Rationale for proposed amendments to Regulation 61-62, *Air Pollution Control Regulations and Standards*, to promulgate a new regulation, 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen* (NO_x), and to revise regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds*, and regulation 61-62.2, *Prohibition of Open Burning.*

II. INTRODUCTION

On July 18, 1997, the United States Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard for ground-level ozone from 0.12 parts per million (ppm) 1-hour "peak" standard to 0.08 ppm 8-hour "average" standard. This "new" ozone standard is commonly referred to as the 8-hour ozone standard. Currently, all areas of South Carolina meet or "attain" all national ambient air quality standards, including the 1-hour ozone standard. However, when implemented, the 8-hour ozone standard could result in numerous areas of the state being determined not to meet the 8-hour standard and being designated as "non-attainment" for ground-level ozone. In South Carolina, 18 of 23 ozone monitors, particularly those in the more populated urban areas, regularly exceed the 8-hour standard. When air quality standards are revised, the state must recommend to EPA the boundaries of the areas that are not in compliance with the standard and must submit a plan to EPA that

demonstrates how the state will bring those areas designated as non-attainment for the standard back into attainment. EPA will make the 8-hour ozone non-attainment designations by April 15, 2004, with input from the Department.

When EPA designates areas as non-attainment, these areas automatically become subject to additional permitting requirements referred to as non-attainment new source review and complex transportation planning requirements referred to as transportation conformity. These prescriptive federal requirements represent a one-size-fits-all approach to reducing ozone pollution. They are an economic burden for areas with a non-attainment designation and may not be the best strategy for reducing ozone pollution in South Carolina.

EPA has recently outlined an alternative to the prescriptive federal requirements discussed above. This alternative process is referred to as the Early Action Compacts or EAC. The EAC approach represents a proactive approach to develop strategies sooner than would be required by the current federal timeframes to reduce the pollution that creates ground-level ozone. In accordance with the EAC, EPA has laid out specific milestones that the state must meet to reduce ozone precursors so that our ozone monitors will be attaining the 8-hour standard by 2007 and beyond. Aside from the public health benefits realized by meeting the new standard sooner than required, another reason for embarking on this approach is that if we are successful, EPA will defer the effective date of the non-attainment designations.

The purpose of the amendments that the Department is proposing is to reduce or regulate the growth of ozone precursors so that the ozone monitors in the state are attaining the ozone standard in 2007 and to ensure that the we are meeting the milestones specified by EPA for the EAC process. As part of the EAC process, the Department is proposing to promulgate a new regulation, R.61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NO_x)*. In addition, the Department proposes to revise regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds,* and regulation 61-62.2, *Prohibition of Open Burning.* Finally, the South Carolina State Implementation Plan (SIP) will be amended.

This Statement of Rationale has been prepared to provide the basis for these regulations to include all reports and other studies that the Department has relied on in their development. As stated above, the Department is proposing to promulgate a new regulation and revise two existing regulations as part of the EAC process. Each regulation will be addressed separately below.

III. R.61-62.5, STANDARD 5.2, *CONTROL OF OXIDES OF NITROGEN (NO_X)*

The economic impacts associated with non-attainment are significant. When an area is designated as non-attainment, new sources, or existing facilities in need of major modifications, must install the Lowest Achievable Emission Rate (LAER) technology. LAER does not allow economic costs to be considered when determining what pollution controls are to be installed. Thus, if the controls are technically feasible, they must be installed regardless of the costs. Furthermore, pollution offsets are required in non-attainment areas and this is an additional cost to be considered.

The EAC approach requires that our monitors attain the 8-hour standard sooner than the current federal timeframes. This translates into cleaner air sooner for our citizens. There are obvious public health benefits to be derived from this approach that are hard to quantify. In addition, the EAC approach allows us to design our own strategy for attaining the 8-hour standard.

The primary focus of the Proposed Regulation 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NOx)*, is to control the growth of emission of oxides of nitrogen (NOx). The regulation requires reasonable NOx controls on fuel combustion sources. This regulation will ensure uniform controls across the state rather than the current federal system that requires stringent controls in select areas. Accordingly, the Department is proposing controls on fuel combustion sources consistent with BACT determinations found in EPA's RACT/BACT/LAER

Clearinghouse. The controls for specific equipment are provided below with a brief description on the reports or other documents that the Department has relied on to determine the costs of these controls.

1. Natural Gas Fired Boilers

Regulation 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NO_x)* establishes a limit of 30 ppmv @ 3% O_2 Dry or 0.036 lb/mmbtu for natural gas fired boilers with heat inputs greater than or equal to 10mmbtu/hr. Low NO_x Burners (LNB) and Flue Gas Recirculation (FGR) as the presumptive controls for these boilers.

LNB reduce NO_x by accomplishing the combustion process in stages. Staging partially delays the combustion process, resulting in a cooler flame which suppresses thermal NO_x formation. The two most common types of LNB being applied to natural gas-fired boilers are staged air burners and staged fuel burners. NO_x emission reductions of 40 to 85 percent (relative to uncontrolled emission levels) have been observed with LNB.

The Western Regional Air Partnership (WRAP)[1] cites cost effectiveness of $200 – 1,000/ton at a 30 – 60% reduction of NO_x. In general, the capital costs for burners range from $10,000 to 50,000 per burner plus installation. The lower end of this range applies when existing burners are modified instead of replaced to achieve lower NO_x. Operating costs are negligible unless increased unburned carbon results in lost revenues from ash sales.

Complete Combustion Resources (CCR)[2] recently submitted a proposal for a 50 mmbtu gas/no.2 oil burner to meet 30ppm NO_x and <100ppm CO @ 3% O_2 for [an] industrial plant. This included removal of existing burner and controls, modifications to boiler, mounting, piping and wiring new burner, startup using Manufacturers Standard Performance and Emission testing. All freight and material cost[s] are included. Any additional stack testing that may be required by the state or EPA is not included. The price was $205,000.00. Existing burner was operating at approximately 160 – 180 ppm and operating at about 5% O_2. CCR[3] also states that a typical replacement burner on a boiler requiring 5 mmbtu input to fire natural gas costs about $12,000. Typical installation would be about $10,000. For Low NO_x burner to meet 30 ppm, the burner cost would be about $15,000 and the installation would be about $12,000. This typically includes all new burner, operating controls, burner management controls, fuel trains, boiler refractory and mounting plate modifications, minor electrical and startup.

According to Advanced Combustion Technology, Inc.[4] (ACT), typically all the burners on a boiler are replaced at the same time. Replacing just one (1) of several burners with a low NO_x type could lead to unbalanced combustion. In addition the overall NO_x impact of replacing one of the burners on a multi burner boiler would be slight. LNB[5] can achieve NO_x levels of 0.15 – 0.30 lb/mmbtu at a cost effectiveness of $300 - $500 per ton.

In a FGR system, a portion of the flue gas is recycled from the stack to the burner windbox. Upon entering the windbox, the recirculated gas is mixed with combustion air prior to being fed to the burner. The recycled flue gas consists of combustion products which act as inerts during combustion of the fuel/air mixture. The FGR system reduces NO_x formation by lowering the oxygen concentration in the primary flame zone. The amount of recirculated flue gas is a key operating parameter influencing NO_x emission rates for these systems. An FGR system is normally used in combination with specially designed LNB capable of sustaining a stable flame with the increased inert gas flow resulting from the use of FGR. When LNB and FGR are used in combination, these techniques are capable of reducing NO_x emissions by 60 to 90 percent.

[1] WRAP "Appendix C: NO_x Control Technology Summaries".
[2] E-mail from Neal Brooks, CCR to Heather Preston, SCDHEC dated September 2, 2003.
[3] E-mail from Neal Brooks, CCR to Heather Preston, SCDHEC dated June 6, 2003.
[4] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 3, 2003.
[5] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 9, 2003.

According to ACT, Single burner gas boilers can achieve 30ppm with upgraded LNB and FGR. The cost of this technology ranges from $700 per ton for boiler sizes of 100 mmbtu/hr to $1,500 per ton for the 5 mmbtu/hr case.[6] ACT[7] states that LNB and FGR can achieve NO_x levels of 0.04 – 0.08 lb/mmbtu at a cost effectiveness of $400 - $600 per ton. The Western Regional Air Partnership (WRAP) [8] cites cost effectiveness for flue gas recirculation (FGR) at $500 – 3,000/ton at a 40 - 80% reduction of NO_x. The main cost from FGR on gas-fired sources involve the retrofit of the FGR fan(s) and required ductwork to route the flue gas to the burner front. Costs in the range of $10 - $20/kW are expected for power generation sources.

Distillate and Residual Oil Fired Boilers

One control technique for criteria pollutants from fuel oil combustion is combustion modification which includes any physical or operational change in the furnace or boiler and is applied primarily for NO_x control purposes, although for small units, some reduction in PM emissions may be available through improved combustion practice.

In boilers fired on crude oil or residual oil, the control of fuel NO_x is very important in achieving the desired degree of NO_x reduction since fuel NO_x typically accounts for 60 to 80 percent of the total NO_x formed. Fuel nitrogen conversion to NO_x is highly dependent on the fuel-to-air ratio in the combustion zone and, in contrast to thermal NO_x formation, is relatively insensitive to small changes in combustion zone temperature. In general, increased mixing of fuel and air increases nitrogen conversion which, in turn, increases fuel NO_x. Thus, to reduce fuel NO_x formation, the most common combustion modification technique is to suppress combustion air levels below the theoretical amount required for complete combustion. The lack of oxygen creates reducing conditions that, given sufficient time at high temperatures, cause volatile fuel nitrogen to convert to N_2 rather than NO.

Combustion controls reduce NO_x by suppressing NO_x formation during the combustion process. Combustion controls are the most widely used method of controlling NO_x formation in all types of boilers and include low-NO_x burners and flue gas recirculation.

Low NO_x Burners

Low NO_x burners are applicable to tangential and wall-fired boilers of various sizes. They have been used as a retrofit NO_x control for existing boilers and can achieve approximately 35 to 55 percent reduction from uncontrolled levels. They are also used in new boilers to meet NSPS limits. Low NO_x burners can be combined with overfire air to achieve even greater NOx reduction (40 to 60 percent reduction from uncontrolled levels).

WRAP[9] cites cost effectiveness of $200 – 1,000/ton at a 30 – 60% reduction of NO_x. In general, the capital costs for burners range from $10,000 to 50,000 per burner plus installation. The lower end of this range applies when existing burners are modified instead of replaced to achieve lower NO_x. Operating costs are negligible unless increased unburned carbon results in lost revenues from ash sales. ACT[10] states that LNB can achieve NO_x levels of 0.25 – 0.30 lb/mmbtu at a cost effectiveness of $300 - $500 per ton. CCR [11] states that a typical replacement burner on a boiler requiring 5 mmbtu input to fire number 2 fuel oil costs about $12,000. Typical installation

[6] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 3, 2003.
[7] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 9, 2003.
[8] WRAP "Appendix C: NO_x Control Technology Summaries".
www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc
[9] WRAP "Appendix C: NO_x Control Technology Summaries".
www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc
[10] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 9, 2003.
[11] E-mail from Neal Brooks, CCR to Heather Preston, SCDHEC dated June 6, 2003.

would be about $10,000. For Low NO_x burner to meet 30 ppm, the burner cost would be about $15,000 and the installation would be about $12,000. This typically includes all new burner, operating controls, burner management controls, fuel trains, boiler refractory and mounting plate modifications, minor electrical and startup.

Flue Gas Recirculation

Flue gas recirculation involves extracting a portion of the flue gas from the economizer section or air heater outlet and readmitting it to the furnace through the furnace hopper, the burner windbox, or both. This method reduces the concentration of oxygen in the combustion zone and may reduce NO_x by as much as 40 to 50 percent in some boilers. Overfire air is a technique in which a percentage of the total combustion air is diverted from the burners and injected through ports above the top burner level. Overfire air limits NO_x by (1) suppressing thermal NO_x by partially delaying and extending the combustion process resulting in less intense combustion and cooler flame temperatures; (2) a reduced flame temperature that limits thermal NO_x formation, and/or (3) a reduced residence time at peak temperature which also limits thermal NO_x formation.

STAPPA/ALAPCO[12] cites cost effectiveness of FGR on a 50mmbtu/hr burner on a residual oil-fired boiler to be between $3530 and $7060 per mmbtu/hr. The same sized burner on a distillate oil-fired boiler has a cost effectiveness between $9780 and $19,600 per mmbtu/hr.

Bituminous and Subbituminous Coal Combustion

Combustion Controls

Combustion controls reduce NO_x by suppressing NO_x formation during the combustion process, while postcombustion controls reduce NO_x emission after their formation.

Low NO_x Burners

LNBs limit NO_x formation by controlling the stoichiometric and temperature profiles of the combustion process in each burner zone. The unique design of features of an LNB may create (1) a reduced oxygen level in the combustion zone to limit fuel NO_x formation, (2) a reduced flame temperature that limits thermal NO_x formation, and/or (3) a reduced residence time at peak temperature which also limits thermal NO_x formation.

LNBs are applicable to tangential and wall-fired boilers of various sizes but are not applicable to other boiler types such as cyclone furnaces or stokers. They have been used as a retrofit NO_x control for existing boilers and can achieve approximately 35 to 55 percent reduction from uncontrolled levels. They are also used in new boilers to meet New Source Performance Standards (NSPS) limits. LNBs can be combined with OFA to achieve even greater NO_x reduction (40 to 60 percent reduction from uncontrolled levels).

ACT[13] states that LNB and OFA can achieve NO_x levels of 0.28 – 0.35 lb/ mmbtu at a cost effectiveness of $400 - $700 per ton. ACT states that LNB can achieve NO_x levels of 0.40 – 0.45 lb/mmbtu at a cost effectiveness of $300 - $500 per ton. WRAP[14] cites cost effectiveness of $200 – 1,000/ton at a 30 – 60% reduction of NO_x. In general, the capital costs for burners range from $10,000 to 50,000 per burner plus installation. The lower end of this range applies when existing burners are modified instead of replaced to achieve lower NO_x. Operating costs are negligible unless increased unburned carbon results in lost revenues from ash sales.

[12] Controlling Nitrogen Oxides Under the Clean Air Act: A Menu of Options. July 1994.
[13] E-mail from Roger Marx, ACT to Heather Preston, SCDHEC dated June 9, 2003.
[14] WRAP "Appendix C: NO_x Control Technology Summaries".
www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc

Internal Combustion (IC) Engines

Control measures to date are primarily directed at limiting NO_x and CO emissions since they are the primary pollutants from these engines. From a NO_x control viewpoint, the most important distinction between different engine models and types of reciprocating engines is whether they are rich-burn or lean-burn. Rich-burn engines have an air-to-fuel ratio operating range that is near stoichiometric or fuel-rich of stoichiometric and as a result the exhaust gas has little or no excess oxygen. A lean-burn engine has an air-to-fuel operating range that is fuel-lean of stoichiometric; therefore, the exhaust from these engines is characterized by medium to high levels of O_2. The most common NO_x control technique for diesel and dual-fuel engines focuses on modifying the combustion process. However, selective catalytic reduction (SCR) and nonselective catalytic reduction (NSCR) which are post-combustion techniques are becoming available.

Combustion Controls

Combustion modifications include injection timing retard (ITR), preignition chamber combustion (PCC), air-to-fuel adjustments, and derating. Injection of fuel into the cylinder of a CI engine initiates the combustion process. Retarding the timing of the diesel fuel injection causes the combustion process to occur later in the power stroke when the piston is in the downward motion and combustion chamber volume is increasing. By increasing the volume, the combustion temperature and pressure are lowered, thereby lowering NO_x formation. ITR reduces NO_x from all diesel engines; however, the effectiveness is specific to each engine model. The amount of NO_x reduction with ITR diminishes with increasing levels of retard.

The air-to-fuel ratio for each cylinder can be adjusted by controlling the amount of fuel that enters each cylinder. At air-to-fuel ratios less than stoichiometric (fuel-rich), combustion occurs under conditions of insufficient oxygen which causes NO_x to decrease because of lower oxygen and lower temperatures. Derating involves restricting the engine operation to lower than normal levels of power production for the given application. Derating reduces cylinder pressures and temperatures, thereby lowering NO_x formation rates.

In-cylinder controls

NESCAUM[15] states that some in-cylinder methods offer low to moderate NO_x reductions at costs well below $1,000/ton. These include injection timing retard, ignition timing retard, and air/fuel ratio adjustment (with or without high-energy ignition).

Low-Emission Combustion

NESCAUM[16] states that spark-ignited engines that can be retrofitted with Low-Emission Combustion (LEC) technology can potentially achieve significant NO_x reductions (80-90%). LEC technology can be expensive to retrofit on some engines, and it may not be available from all engine manufacturers. For large, low-speed engines, LEC is estimated to provide annual NO_x reductions of about 80% at under $1,000/ton under most conditions. LEC technology is estimated to be more cost effective on smaller, medium speed engines (under $500/ton for annual control under most conditions). It is estimated to be somewhat more expensive for dual-fuel engines (annual control at a capacity factor of 65% is estimated to cost under $1,000/ton).

[15] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.
[16] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

The Western Regional Air Partnership (WRAP) [17] cites cost effectiveness for LEC at $190 – 700/ton at a 80 - 90% reduction of NO_x. The capital cost of retrofitting these engines depends on the engine BHP. For engines firing a single fuel, retrofits have been implemented costing $340/hp for 3,400hp engines. A lower capital cost is expected for smaller, medium-speed engines, about $200/hp. Dual-fuel engines have much greater capital costs. For these engines (larger than 1,000hp) the capital cost can be estimated by:

Capital Cost = $405,000 + ($450 x hp).

Stationary Gas Turbines

There are three generic types of emission controls in use for gas turbines, wet controls using steam or water injection to reduce combustion temperatures for NO_x control, dry controls using advanced combustor design to suppress NO_x formation and/or promote CO burnout, and post-combustion catalytic control to selectively reduce NO_x and/or oxidize CO emission from the turbine. Other recently developed technologies promise significantly lower levels of NO_x and CO emissions from diffusion combustion type gas turbines. These technologies are currently being demonstrated in several installations.

Wet Controls

Water or steam injection is a technology that has been demonstrated to effectively suppress NO_x emissions from gas turbines. The effect of steam and water injection is to increase the thermal mass by dilution and thereby reduce peak temperatures in the flame zone. With water injection, there is an additional benefit of absorbing the latent heat of vaporization from the flame zone. Water or steam is typically injected at a water-to-fuel weight ratio of less than one.

			1993		1999	
NO_x Control Technology[18]	Turbine Output (MW)	Emission Reduction (ppm)	$/ton	Cents/kWh	$/ton	Cents/kWh
Water/steam	4-5	Unc. → 42	1,750 – 2,100	0.47 – 0.50	1,500 – 1,900	0.39 – 0.43
Water/steam	20 – 25	Unc.→42	980 – 1,100	0.24 – 0.27	980	0.24
Water/Steam	160	Unc.→42	480	0.15	480[47]	0.15[19]

GE LM2500 Water Injection and DLN Cost Estimate

GE Industrial and Marine indicated that the incremental capital cost of water injection for the LM2500 (23 MW) is $100,000.

The incremental capital cost of a DLN combustor for the LM2500 is $800,000. The incremental O&M cost for a LM2500 was estimated at $10-20/fired-hour that includes the cost of periodic major overhaul of the DLN combustor. Combustor overhaul is more complex in the LM2500 than in an industrial turbine equipped with can-

[17] WRAP "Appendix C: NO_x Control Technology Summaries". www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc

[18] From "Cost Analysis of NO_x Control Alternatives for Stationary Gas Turbines" Prepared by ONSITE SYCOM for USEPA 11/5/1999.

[19] The one baseload Frame 7F installed in 1990 is the only baseload 7F turbine that is equipped with steam injection. All subsequent 7F and 7FA baseload machines have been equipped with DLN. For this reason, the 1993 figures are assumed to be unchanged for steam injection.

annular combustors, such as the General Electric Frame 7FA, since the individual combustor "cans" are modular and can be removed and replaced quickly.

NESCAUM[20] estimates water injection installed on peaking units that operate 200 hours to 400 hours in the summer would reduce NO_x at a cost of about $2,500/ton to about $7,000/ton, depending upon the number of operating hours and the fuel used (gas or distillate oil).

Dry Controls

Two stage rich/lean combustors are essentially air-staged, premixed combustors in which the primary zone is operated fuel rich and the secondary zone is operated fuel lean. The rich mixture produces lower temperatures (compared to stoichiometric) and higher concentrations of CO and H_2, because of generation. Before entering the secondary zone, the exhaust of the primary zone is quenched (to extinguish the flame) by large amounts of air and a lean mixture is created. The lean mixture is pre-ignited and the combustion in a fuel lean, lower temperature environment.

			1993		1999	
NO_x Control Technology[21]	Turbine Output (MW)	Emission Reduction (ppm)	$/ton	Cents/kWh	$/ton	Cents/kWh
DLN	4-5	Unc. → 42	820 – 1,050	0.16 – 0.19	NA[22]	NA
DLN	4-5	Unc. →25	NA[50]	NA	270 – 300	0.06 – 0.09
DLN	20 – 25	Unc.→25	530 – 1,050	0.16 – 0.19	210	0.12
DLN	170	Unc.→25	NA	NA	124	0.05
DLN	170	Unc.→9	NA	NA	120	0.55

GE Frame 7FA DLN Cost Estimate

GE Power Systems indicated that the cost to replace an existing steam-injected Frame 7FA combustor with a DLN combustor is $4,500,000 (installed). A definitive O&M cost for the Frame 7FA equipped with DLN has not been determined by GE Power Systems. GE Power Systems indicated that large baseload units such as the Frame 7FA are provided with spare combustors that are typically rotated every 8,000 to 12,000 hours. Combustor rotation eliminates the need for a separate 30,000 to 40,000 hour major combustor overall as is typical with smaller industrial units equipped with annular combustors.

[20] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

[21] From "Cost Analysis of NO_x Control Alternatives for Stationary Gas Turbines" Prepared by ONSITE SYCOM for USEPA 11/5/1999.

[22] "NA" means technology that was not available in 1993, or technology that is obsolete in 1999.

The cost of DLN combustors can vary dramatically for the same size turbine offered by different manufacturers. As an example, the incremental cost of a DLN combustor for a new Solar Taurus 60 turbine (5.2 MW) is approximately $180,000. The incremental cost of a DLN combustor for a Rolls-Royce Allison 501-KB7 turbine (5.1 MW) is $20,000. The cost discrepancy is related to performance capabilities, design complexity and reliability/maintenance factors.

Solar Turbines Water Injection and DLN Cost Estimate

Turbine Model[23]	Size (MW)	Fuel	Price Range ($million)	Incremental Cost for Water Injection	Incremental Cost for DLN
Centaur 50	4.3	Natural gas	1.5 – 3.4	$45,000 - $96,000	$145,000 - $190,000
Taurus 60	5.2	Natural gas	1.7 – 3.6	$45,000 - $96,000	$165,000 - $190,000

NESCAUM[24] states "…retrofit of Dry Low NO_x on industrial turbines (about 3 to 10 MW) originally equipped with conventional combustion control is estimated to provide NO_x reductions under $2,000/ton for annual controls with high capacity factors and at a higher cost for seasonal controls. For larger turbines (~75 MW), cost was estimated to be well below $1,000/ton for nearly all conditions, and only a few hundred dollars per ton of NO_x reduced when the turbine was operated at a high capacity factor (~0.85)."

The Western Regional Air Partnership (WRAP) [25] cites cost effectiveness for DLN (fuel-lean combustion) at $1,000 – 2,000/ton at 70% reduction of NO_x. The cost of NO_x reduction by DLN is very sensitive to the capacity factor of the turbine. There is also substantial variation in capital cost measured in terms of dollars/horsepower ($/hp) due to different turbine types and variations in turbine design. Reported costs in case studies show capital costs ranging from $750 – 1,950K (4,700 hp at $160/hp and 13,000hp at $150/hp). These are total project costs that owners attributed to the project, which may include project management or other charges associated with the project beyond the equipment and installation.

Postcombustion Controls

Selective catalytic reduction (SCR) systems selectively reduce NO_x emissions by injecting ammonium (NH_3) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form N_2 and H_2O. The exhaust gas must contain a minimum amount of O_2 and be within a particular temperature range (typically 450°F to 850°F) in order for the SCR system to operate properly.

The temperature range is dictated by the catalyst material which is typically made from noble metals, including base metal oxides such as vanadium and titanium, or zeolite-based material. The removal efficiency of an SCR system in good working order is typically from 65 to 90 percent. Exhaust gas temperatures greater than the upper

[23] From "Cost Analysis of NO_x Control Alternatives for Stationary Gas Turbines" Prepared by ONSITE SYCOM for USEPA 11/5/1999.

[24] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

[25] WRAP "Appendix C: NO_x Control Technology Summaries". www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc

limit (850°F) cause NO_x and NH_3 to pass through the catalyst unreacted. Ammonia emissions, called NH_3 slip, may be a consideration when specifying an SCR system.

Ammonia, either in the form of liquid anhydrous ammonia, or aqueous ammonia hydroxide is stored on site and injected into the exhaust stream upstream of the catalyst. Although an SCR system can operate alone, it is typically used in conjunction with water-steam injection systems or lean-premix system to reduce NO_x emissions to their lowest levels (less than 10ppm at 15 percent oxygen for SCR and wet injection systems). The SCR system for landfill or digester gas-fired turbines requires a substantial fuel gas pretreatment to remove trace contaminants that can poison the catalyst. Therefore, SCR and other catalytic treatments may be inappropriate control technologies for landfill or digester gas-fired turbines.

The catalyst and catalyst housing used in SCR systems tend to be very large and dense (in terms of surface area to volume ratio) because of the high exhaust flow rates and long residence times required for NO_x, O_2, and NH_3, to react on the catalyst. Most catalysts are configured in a parallel-plate, "honeycomb" design to maximize the surface area-to-volume ratio of the catalyst. Some SCR installations incorporate CO catalytic oxidation modules along with the NO_x reduction catalyst for simultaneous CO/NO_x control.

			1993		1999	
NO_x Control Technology[26]	Turbine Output (MW)	Emission Reduction (ppm)	$/ton	Cents/kWh	$/ton	Cents/kWh
Conventional SCR	170	42→9	3,600	0.23	1,940	0.12
High temp. SCR	170	42→9	3,600	0.23	2,400	0.13

MHIA Conventional SCR Cost Estimate

Mitsubishi Heavy Industries America (MHIA) is the principal supplier of conventional SCR to the gas turbine market in the U.S. According to MHIA, advances in SCR technology in the past two years have resulted in a 20 percent reduction in the amount of catalyst required to achieve a given NO_x target level. In addition, experience gained in the design and installation of SCR units has lowered engineering costs. These two factors have substantially reduced the cost of SCR systems since the 1993 NO_x ACT document. Operating costs have been reduced through innovations such as using hot flue gas to pre-heat ammonia injection air which lowers the power requirements of the ammonia injection system. Manufacturer's data uses water/steam injection as an upstream treatment (42 ppm of NO_x inlet to SCR).

Conventional SCR must be placed between sections of the HRSG so that the catalyst operates at the correct temperature. Obviously, this requirement is more cost effective when the HRSG is fitted in the shop rather than in a field retrofit. The cost estimate presented in Appendix A does not include any additional costs associated with modifying the HRSG to accept the SCR. The cost of this modification is dependent on the particular design and in many cases is not a significant cost adder.

Catalyst life is estimated at seven (7) years based on industry operating experience and is not a guaranteed life offered by SCR manufacturers.

Tecnip Low Temperature SCR Cost Estimate

[26] From "Cost Analysis of NOx Control Alternatives for Stationary Gas Turbines" Prepared by ONSITE SYCOM for USEPA 11/5/1999.

Tecnip (formerly Kinetics Technology International) manufactures a low temperature SCR that is designed for retrofit installations with single digit NO_x emission targets. Low temperature SCR systems are installed downstream of an existing HRSG and avoid modification of the HRSG that would be required to accommodate a conventional SCR system. Manufacturer's data uses no pre-treatment for NOx.

Engelhard High Temperature SCR Cost Estimate

The high temperature SCR provided by Engelhard uses a zeolite catalyst to permit continuous operation at temperatures up to 1,100°F. The high temperature resistance of the zeolite catalyst allows for SCR installations on base-loaded simple cycle gas turbines (no heat recovery.) Simple cycle gas turbines generally have exhaust temperatures ranging from 950 to 1,050°F at rated load. At part loads, exhaust temperatures can be 100°F higher than rated conditions and can cause performance to decline. Prolonged exposure over 1,100ºF can cause slightly lower performance due to thermal aging. To prevent damage at sustained part load operation where temperatures will be above 1,100ºF, a tempering air system may be included to moderate exhaust temperatures. Manufacturer's data uses water/steam injection as an upstream treatment (42 ppm of NO_x inlet to SCR).

NESCAUM[27] also states that the cost of NO_x reduction with SCR varies considerable according to application, turbine size, and the type of SCR technology that is appropriate for the application. Conventional SCR on a large (~75 MW) combined-cycle turbine with high capacity factors was estimated to cost about $440/ton for annual controls and $870/ton for seasonal controls, for turbines equipped with conventional combustion technology (baseline NO_x emissions of 154ppm). For turbines with lower baseline NO_x emissions (such as those equipped with DLN combustors having baseline NO_x emissions of 15ppm), the cost per ton of additional NO_x removal was estimated to be greater, ranging from about $3,700/ton (annual control, high capacity factor) to over $13,000/ton (seasonal controls, low capacity factor). On smaller turbines (~5 MW), the cost of conventional SCR is estimated to be as low as $1,300/ton (with annual control and conventional combustion technology having baseline NO_x emissions of 142 ppm). Seasonal controls for smaller turbines are estimated at over $15,000/ton of NO_x removed at a low capacity factor (45%) with baseline NO_x emissions of 42 ppm.

For high and low temperature SCR applications, NESCAUM[28] found that a 75MW turbine at a high capacity factor and equipped with conventional combustion technology (baseline NO_x emissions of 154ppm) can be controlled annually with high- or low-temperature SCR for about $550/ton and for about $1,200/ton seasonally. The estimated cost of NO_x reduction for a 75MW turbine with baseline NO_x of 15ppm ranges from $5,170/ton (annual controls, high capacity factor of 85%) to as high as $20,000/ton (seasonal controls, low capacity factor of 45%). On smaller turbines (~5MW), the cost for high- or low-temperature SCR is estimated to be as low as $2,000/ton with annual control and conventional combustion technology (baseline NO_x emissions of 142 ppm). Cost is estimated to range from $6,750/ton (annual controls, high capacity factor of 85%) to about $27,000/ton (seasonal controls, low capacity factor of 45%) with baseline NO_x emissions of 42ppm.

[27] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

[28] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

WRAP[29] cites selective catalytic reduction costs to be $500 – $10,000/ton at an approximate 90% reduction of NO_x. Capital costs for retrofit SCR systems to power generation sources are mostly with the range of $60/kW to about $140/kW. The lower end of this range applies to retrofits with nominal difficulty. The high end of the range would typically be associated with retrofits having significantly impeded construction access, extensive relocations, and difficult ductwork transitions. Operating costs are mainly driven by cost of reagent, energy penalty (pressure loss, ammonia vaporization), catalyst replacement and dedicated O&M costs.

Cement Kilns

Low NO_x Burners

NESCAUM [30] states that Low-NO_x Burners have been successfully used in the primary burn zone and especially in the precalciner kilns. Combustion techniques were estimated to provide NO_x reduction at a cost-effectiveness of under $1,000/ton (annual control, high capacity factor).

[29] WRAP "Appendix C: NO_x Control Technology Summaries". www.wrapair.org/forums/mtf/documents/nox_pm/Section_VI_Appendices.doc

[30] NESCAUM. "Executive Summary: Status Report on NO_x Controls for: Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines. Technologies & Cost Effectiveness." December 2000.

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

				Average Cost per Ton of NO_x Reduced in $1990		
Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Small Unit*	Medium Unit*	Large Unit*
ICI Boilers-Natural Gas	A	LNB	50	2,242	804	804
	A	LNB + FGR	60	4,365	1,609	1,609
	A	OT + WI	65	823	471	471
	A	SCR – New	80	2,584	1,395	1,395
	S	SCR – New	80	6,039	3,201	3,201
	A	SNCR – New	50	4,470	1,778	1,778
	S	SNCR – New	50	9,774	3,353	3,353
ICI Boilers – Distillate Oil	A	LNB	50	1,814	757	757
	A	LNB + FGR	60	3,189	1,347	1,347
	A	SCR – New	80	3,231	1,744	1,744
	S	SCR – New	80	7,548	4,001	4,001
	A	SNCR – New	50	5,364	2,134	2,134
	S	SNCR – New	50	11,728	4,024	4,024
ICI Boilers – Residual Oil	A	LNB	50	952	400	400
	A	LNB + FGR	60	1,885	914	914
	A	SCR – New	80	1,723	1,616	1,616
	S	SCR – New	80	5,551	3,660	3,660
	A	SNCR – New	50	2,980	1,186	1,186
	S	SNCR – New	50	6,935	2,656	2,656
ICI Boilers – Wood/Bark/FBC	A	SNCR – Ammonia	55	1,576	1,576	1,314
ICI Boilers – Wood/Bark/Stoker	A	SNCR – Urea	55	2,351	1,647	1,376
ICI Boilers – Coal/Cyclone	A	SNCR – New	35	902	902	722
	S	SNCR – New	35	1,640	1,640	1,209
	A	Coal Reburn	50	1,821	566	341
	A	SCR – New	80	861	861	724
	S	SCR – New	80	1,988	1,988	1,663
	A	NGR	55	1,821	566	347
ICI Boilers – Coal/FBC	A	SNCR – Urea	75	995	995	876

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

				Average Cost per Ton of NO_x Reduced in $1990		
Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Small Unit*	Medium Unit*	Large Unit*
ICI Boilers – Coal/Stoker	A	SNCR – New	40	1,762	1,762	1,410
	S	SNCR – New	40	3,201	3,201	2,360
ICI Boilers – Coal/Wall	A	SNCR – New	45	1,175	1,175	940
ICI Boilers – Coal/Wall	S	SNCR – New	45	2,134	2,134	1,574
	A	LNB	50	1,476	1,476	1,195
	A	SCR – New	80	1,436	1,436	1,208
	S	SCR – New	80	3,316	3,316	2,774
ICI Boilers – Coke	A	SNCR – New	40	1,180	1,180	940
	S	SNCR – New	40	2,130	2,130	1,570
	A	LNB	50	1,305	1,305	1,305
	S	LNB	50	3,113	3,113	3,113
	A	SCR – New	70	1,440	1,440	1,210
	S	SCR – New	70	3,320	3,320	2,770
Internal Combustion Engines – Gas	A	IR	20	756	514	514
	A	AF Ratio	20	2,002	399	399
	A	AF + IR	30	1,950	476	476
	A	L-E (Medium Speed)	87	423	NA	NA
	A	L-E (Low Speed)	87	2,068	666	666
	A	NSCR	90	3,431	264	264
IC Engines – Gas, Diesel, LPG	A	IR	25	518	518	518
	S	IR	25	1,236	1,236	1,236
	A	SCR	80	1,540	1,540	1,540
	S	SCR	80	3,674	3,674	3,674
IC Engines – Oil	A	IR	25	1,588	366	366
	A	SCR	80	9,367	651	651
Gas Turbines – Jet Fuel	A	Water Injection	68	1,213	1,213	1,213
	S	Water Injection	68	2,894	2,894	2,894
	A	SCR + Water Injection	90	5,400	5,400	5,400
	S	SCR + Water Injection	90	12,882	12,882	12,882

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

				Average Cost per Ton of NO_x Reduced in $1990		
Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Small Unit*	Medium Unit*	Large Unit*
Gas Turbines – Natural Gas	A	Water Injection	76	1,507	747	542
	A	Steam Injection	80	1,693	823	566
	A	LNB	84	632	290	157
	A	SCR + LNB	94	20,450	13,000	7,300
	A	SCR + Steam Injection	95	9,500	7,120	3,530
Gas Turbines – Natural Gas	A	SCR + Water Injection	95	10,150	4,500	5,230
Gas Turbines – Oil	A	Water Injection	68	1,094	604	476
	A	SCR + Water Injection	90	8,340	2,690	2,430
Cement Manufacturing – Dry	A	Mid-Kiln Firing	25	540	540	540
	S	Mid-Kiln Firing	25	1,288	1,288	1,288
	A	LNB	25	670	670	670
	S	LNB	25	1,598	1,598	1,598
	A	SNCR – Urea Based	50	850	850	850
	S	SNCR – Urea Based	50	2,028	2,028	2,028
	A	SNCR – NH_3 Based	50	960	960	960
	S	SNCR – NH_3 Based	50	2,290	2,290	2,290
	A	SCR	80	4,040	4,040	4,040
	S	SCR	80	9,638	9,638	9,638
Cement Manufacturing – Wet	A	Mid-Kiln Firing	25	490	490	490
	S	Mid-Kiln Firing	25	1,169	1,169	1,169
	A	LNB	25	640	640	640
	S	LNB	25	1,527	1,527	1,527
	A	SCR	80	3,370	3,370	3,370
	S	SCR	80	8,040	8,040	8,040
Lime Kilns	A	Mid-Kiln Firing	25	540	540	540
	S	Mid-Kiln Firing	25	1,288	1,288	1,288
	A	LNB	25	670	670	670
	S	LNB	25	1,598	1,598	1,598

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Average Cost per Ton of NO_x Reduced in $1990		
				Small Unit*	Medium Unit*	Large Unit*
	A	SNCR – Urea Based	50	850	850	850
	S	SNCR – Urea Based	50	2,028	2,028	2,028
	A	SNCR – NH_3 Based	50	960	960	960
	S	SNCR – NH_3 Based	50	2,290	2,290	2,290
	A	SCR	80	4,040	4,040	4,040
	S	SCR	80	9,638	9,638	9,638
Municipal Waste Combustors	A	SNCR	45	2,670	2,670	2,670
	S	SNCR	45	6,370	6,370	6,370
Process Heaters – Distillate Oil	A	LNB	45	4,085	1,142	1,142
	A	LNB + FGR	48	4,976	1,946	1,946
	A	SNCR	60	3,659	1,936	1,936
	S	SNCR	60	6,352	3,361	3,361
	A	ULNB	74	2,517	711	711
	A	SCR	75	10,648	7,047	7,047
	S	SCR	75	21,871	14,475	14,475
	A	LNB + SNCR	78	4,201	2,159	2,159
	S	LNB + SNCR	78	7,743	3,978	3,978
	A	LNB + SCR	92	10,551	6,137	6,137
	S	LNB + SCR	92	21,704	12,624	12,624
Process Heaters – Natural Gas	A	LNB	50	2,464	2,696	2,110
	A	LNB + FGR	55	3,891	3,635	2,865
	A	SNCR	60	3,814	2,744	2,226
	S	SNCR	60	6,934	4,989	4,048
	A	ULNB	75	1,704	1,641	1,413
	A	SCR	75	16,214	11,664	9,419
	S	SCR	75	30,839	22,186	17,914
	A	LNB + SNCR	80	4,400	3,746	2,981
	S	LNB + SNCR	80	8,381	7,136	5,680
	A	LNB + SCR	88	15,294	11,519	9,273

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

				Average Cost per Ton of NO_x Reduced in $1990		
Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Small Unit*	Medium Unit*	Large Unit*
	S	LNB + SCR	88	30,359	22,866	18,408
Process Heaters – Other Fuels	A	LNB + FGR	34	1,650	1,650	1,650
	S	LNB + FGR	34	3,936	3,936	3,936
	A	LNB	37	858	858	858
	S	LNB	37	2,047	2,047	2,047
	A	SNCR	60	1,280	1,280	1,280
	S	SNCR	60	3,054	3,054	3,054
	A	ULNB	73	442	442	442
	S	ULNB	73	1,054	1,054	1,054
	A	LNB + SNCR	75	1,450	1,450	1,450
Process Heaters – Other Fuels	S	LNB + SNCR	75	3,459	3,459	3,459
	A	SCR	75	4,330	4,330	4,330
	S	SCR	75	10,330	10,330	10,330
	A	LNB + SCR	91	3,820	3,820	3,820
	S	LNB + SCR	91	9,113	9,113	9,113
Process Heaters – Process Gas	A	LNB	50	788	788	788
	S	LNB	50	1,880	1,880	1,880
	A	LNB + FGR	55	1,136	1,136	1,136
	S	LNB + FGR	55	2,710	2,710	2,710
	A	SNCR	60	981	981	981
	S	SNCR	60	2,340	2,340	2,340
	A	ULNB	75	532	532	532
	S	ULNB	75	1,269	1,269	1,269
	A	SCR	75	4,023	4,023	4,023
	S	SCR	75	9,597	9,597	9,597
	A	LNB + SNCR	80	1,229	1,229	1,229
	S	LNB + SNCR	80	2,932	2,932	2,932
	A	LNB + SCR	88	3,905	3,905	3,905

Source: Supplemental Ozone Transport Rulemaking Regulatory Analysis Office of Air and Radiation; United States Environmental Protection Agency; April 7, 1998

				Average Cost per Ton of NO_x Reduced in $1990		
Source Type	Annual/ Seasonal	Control Technology	Percent Reduction	Small Unit*	Medium Unit*	Large Unit*
	S	LNB + SCR	88	9,316	9,316	9,316
Process Heaters – Residual Oil	A	LNB + FGR	34	4,085	1,597	1,597
	A	LNB	37	2,962	831	831
	A	SNCR	60	2,207	1,239	1,239
	S	SNCR	60	3,679	2,065	2,065
	A	ULNB	73	1,510	428	428
	A	LNB + SNCR	75	2,652	1,404	1,404
	S	LNB + SNCR	75	4,732	2,504	2,504
	A	SCR	75	6,195	4,191	4,191
	S	SCR	75	12,688	8,584	8,584
	A	LNB + SCR	91	6,273	3,698	3,698
	S	LNB + SCR	91	12,871	7,588	7,588

Emission Size Ranges for Other Stationary Sources

Source Type	Small Unit	Medium Unit	Large Unit
ICI Boilers	<100 mmBtu/hr	≥100 mmBtu/hr & <250 mmBtu/hr	≥250 mmBtu/hr
Reciprocating IC Engines	<4,000 horsepower (hp)	≥ 4,000 hp & < 8,000 hp	≥ 8,000 hp
Gas Turbines	<10,000 hp	≥10,000 hp & <20,000 hp	≥20,000 hp
Any Other Source	<1 tpd	≥ 1 tpd & <2 tpd	≥ 2 tpd

Abbreviations and Acronyms

AF	air-fuel ratio	NSCR	non-selective catalytic reduction
FGR	flue gas recirculation	OT	oxygen trim
hp	Horsepower	SCR	selective catalytic reduction
IR	ignition retard	SNCR	selective non-catalytic reduction
LE	low emission	ULNB	ultra low NO_x burners
LNB	low NO_x burners	WI	water injection
NGR	natural gas recirculation		

Regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds*

The Department is proposing to revise Regulation 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds,* to require Best Available Control Technology (BACT) instead of LAER controls to be applied to any new construction permit issued after the effective date of this revision when the net VOC emissions increase exceeds 100 tons per year. LAER controls represent the most stringent pollution controls available and sources subject to LAER controls are not allowed to consider economic costs when determining what pollution controls are to be installed. This revision will require more reasonable BACT controls on new construction that results in a net VOC emissions increase of greater than 100 tons per year. This is consistent with the Department's proposed regulation (61-62.5, Standard 5.2) for controlling NOx emissions which requires reasonable NOx controls on fuel combustion sources. The Department believes that the less costly VOC controls that will result from this revision will further offset the costs to the regulated community of the NOx controls that the Department is proposing with Regulation 61-62.5, Standard 5.2, while still being protective of the environment and public health.

Regulation 61-62.2, *Prohibition of Open Burning*

Another regulation that the Department is revising in an effort to reduce NOx emissions statewide as part of the EAC process is Regulation 61-62.2, *Prohibition of Open Burning*. The most significant revisions to this regulation are as follows: deleting the exception for the burning of household trash, deleting the exception for the burning of construction waste, and revising the exception for fires set for the purpose of firefighter training. The burning of household trash and construction waste presents health and environmental concerns for many communities. The smoke generated from these activities is a nuisance to some and a health threat to others with asthma or other respiratory problems. Furthermore, the Department spends a lot of staff time and resources responding to complaints relating to these activities. The Department believes that deleting the exception for the burning of household trash will not result in any significant cost or hardship because other disposal options are readily available. With respect to the exception for the burning of construction waste, the Department is revising this provision to allow only residential construction waste to be burned and this will only be allowed if it meets the provisions of the regulation. Again, this is not expected to result in any significant cost or hardship because many other practical disposal options are available and most construction sites currently use other means of waste disposal. The Department is also proposing to revise the exceptions for the purposes of firefighter training to ensure consistency and to ensure that minimum health, environmental and safety concerns are addressed. The Department will do a review of permanent firefighter training facilities and will evaluate non-permanent sites and require Department approval prior to a burn. The Department does not anticipate that this will result in any significant costs because existing firefighter training facilities will not be adversely impacted and non-permanent sites will still be allowed, but held to consistent standards. This revision allows the Department to collect information and to grant prior approval for firefighter training sites.

Document 2902
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
CHAPTER 61
STATUTORY AUTHORITY: 1976 Code Ann. Section 44-56-30

R. 61-79 Hazardous Waste Management Regulations

Synopsis:

The Department has amended Regulation 61-79 to adopt federal amendments through June 30, 2003. Adoption of federal amendments will ensure federal compliance.

The United States Environmental Protection Agency (USEPA) promulgates amendments to 40 CFR 124, 260 through 266, 268, 270, and 273 throughout each calendar year. Recent amendments affect: zinc fertilizer made from recycled hazardous secondary materials, treatment standards for some hazardous and radioactive batteries, and technical corrections to combustor standards.

These rules have been published in the Federal Register between July 1, 2002, and June 30, 2003 at: 67 FR 48393, 67 FR 62618, and 67 FR 77687.

In addition, the Department Has made minor clarifications and corrections to R.61-79 to more closely reflect the federal regulations.

The Department initiated the administrative process for amendment of R. 61-79 by publishing a Notice of Drafting in the State Register on October 24, 2003, as well as a Notice of Proposed Regulation on February 27, 2004. Notices of the Department's intent to promulgate this amendment were also published on the Department's Internet website http://www.scdhec.gov/lwm/html/public.html. No comments were received. No preliminary assessment report, fiscal impact statement, nor legislative review of this amendment is required.

Discussion of Revisions

260.10	Add 6 State Acts and Regulations referred to in R.61-79
260.21(a) and (c)	Add reference to Regional Administrator regarding petitions
260.22(a)(1) and (2)	Add reference to Regional Administrator regarding petitions
260.22(b)	Add reference to Regional Administrator regarding exclusions
260.22(c)(2)	Add reference to Regional Administrator regarding determinations
260.22(d), (e), (j), (l)	Add 5 references to Regional Administrator regarding determinations
261.4(a)(10)	Add clarification regarding tar "recovery"
261.4(a)(20), (21)	Add exemption for certain materials used to make zinc fertilizers
261.4(a)(22), (23), (24)	Withdraw and reserve
261.6(a)(3)	Add reference to SC notification requirements.
262.34(a)(1)	Make last sentence into a new (v)
264.151 Appendix E	Remove second paragraph of text, which mimics the current third paragraph regarding furnishing policies
264.1035(c)(4)(i), (ii)	Remove period and insert comma; insert comma
265.56(b)	Change "a real" to "area"
265.140(c)	Move former (d) to (c)
265.276(a)	Correct citation in comment
266.20(b)	Remove last two sentences which refer to "Commercial fertilizers..."
266.20(d), (1), (2)	Add new provision for certain fertilizers
268.7(d)	Change reference to 261.3(e) to (f)
268.40(i)	Remove reference to zinc fertilizers and reserve

268.40 table	Add new D006, D009 and D011 wastes for cadmium containing batteries
270.19(e)	Insert additional references to 40 CFR part 63
270.20(b)	Insert clarification regarding 264 subpart M
270.22	Move "(a) Trial burns" to follow leadin, and add additional references to 40 CFR part 63
270.32(c)(d)(e)	Add new requirements for permit conditions
270.42(e)(4)(ii)	Change reference to paragraph from (b) to (c)
270.42(j)(1)	Edit verbs and insert reference to 40 CFR 63, change reference to 40 CFR 63.121 to 63.1210
270.62	Add 3 references to 40 CFR 63 in leadin
270.66	Add 2 references to 40 CFR 63 in leadin

Instructions: Amend R. 61-79 as provided with the text as follows:

Text of Amendments:

The following sections are added, deleted, or amended. All other sections remain.

R. 61-79 Hazardous Waste Management

Add six 260.10 definitions

South Carolina Underground Injection Control R.61-87
South Carolina Water Classification and Standards, R.61-68
South Carolina Water Pollution Control Act 48-1-10 et seq.
South Carolina Water Pollution Control Permits R.61-9
State Primary Drinking Water R.61-58
State Safe Drinking Water Act 44-55-10 et seq.

Specify EPA role in 260.21 Petitions for equivalent testing or analytical methods

(a) Any person seeking to add a testing or analytical method to part 261, 264, 265 or 266 may petition for a regulatory amendment under this section and 260.20. To be successful, the person must demonstrate to the satisfaction of the Department and the Regional Administrator of EPA that the proposed method is equal to or superior to the corresponding method prescribed in 261, 264 and 265, in terms of its sensitivity, accuracy, and precision (i.e., reproducibility) (12/92). ***

(c) After receiving a petition for an equivalent method, the Department and the Regional Administrator may request any additional information on the proposed method which he may reasonably require to evaluate the method.

Specify EPA role in 260.22 Petitions to amend part 261 to exclude a waste produced at a particular facility

(a) Any person seeking to exclude a waste at a particular generating facility from the lists in 261 subpart D may petition for a regulatory amendment under this section and section 260.20 to be successful:

(1) The petitioner must demonstrate to the satisfaction of the Department and to the Regional Administrator of EPA that the waste produced by a particular generating facility does not meet any of the criteria under which the waste was listed as a hazardous or an acutely hazardous waste; and

(2) Based on a complete application, the Department and the Regional Administrator must determine, where it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste. A waste which is so excluded, however, still may be a hazardous waste by operation of subpart C of 261.

(b) The procedures in this Section and 260.20 may also be used to petition the Department and the Regional Administrator for a regulatory amendment to exclude from 261.3(a)(2)(ii) or (c), a waste which is described in these Sections and is either a waste listed in subpart D, or is derived from a waste listed in subpart D. This

exclusion may only be issued for a particular generating, storage, treatment, or disposal facility. The petitioner must make the same demonstration as required by paragraph (a) of this section. Where the waste is a mixture of solid waste and one or more listed hazardous wastes or is derived from one or more hazardous wastes, his demonstration must be made with respect to the waste mixture as a whole; analyses must be conducted for not only those constituents for which the listed waste contained in the mixture was listed as hazardous, but also for factors (including additional constituents) that could cause the waste mixture to be a hazardous waste. A waste which is so excluded may still be a hazardous waste by operation of subpart C of part 261. (11/90; 12/92)

(c) If the waste is listed with codes "I," "C," "R," or "E" in 261 subpart D (moved 11/90),

(2) Based on a complete application, the Department and the Regional Administrator must determine, where it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste. A waste which is so excluded, however, still may be a hazardous waste by operation of subpart C of 261.

(d) If the waste is listed with code "T" in 261 subpart D, (11/90)

(1) The petitioner must demonstrate that the waste:

(ii) Although containing one or more of the hazardous constituents (as defined in appendix VII of 261) that caused the Department and the EPA to list the waste, does not meet the criterion of 261.11 (a)(3) when considering the factors used by the Department and the EPA in 261.11(a)(3)(i) through (xi) under which the waste was listed as hazardous; and

(2) Based on a complete application, the Department and the Regional Administrator must determine, where it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste; and, (11/90; 12/92)

(e) If the waste is listed with the code "H" in subpart D (12/92; 12/93):

(2) Based on a complete application, the Department and the Regional Administrator must determine, where it has a reasonable basis to believe that additional factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste; and

(j) After receiving a petition for an exclusion, the Department and the Regional Administrator may request any additional information which it may reasonably require to evaluate the petition.

(l) The Department and the Regional Administrator may exclude only part of the waste for which the demonstration is submitted where he has reason to believe that variability of the waste justifies a partial exclusion.

Clarify 261.4 Exclusions.

(a) Materials which are not solid wastes. The following materials are not solid wastes for the purpose of this part:

(10) EPA Hazardous Waste Nos. K060, K087, K141, K142, K143, K144, K145, K147, and K148, and any wastes from the coke byproducts processes that are hazardous only because they exhibit the Toxicity Characteristic (TC) specified in section 261.24 of this part when, subsequent to generation, these materials are recycled to coke ovens, to the tar recovery process as a feedstock to produce coal tar, or are mixed with coal tar prior to the tar's sale or refining. This exclusion is conditioned on there being no land disposal of the wastes from the point they are generated to the point they are recycled to coke ovens or the tar recovery or refining processes, or mixed with coal tar.

(20) Hazardous secondary materials used to make zinc fertilizers, provided that the following conditions specified are satisfied:

(i) Hazardous secondary materials used to make zinc micronutrient fertilizers must not be accumulated speculatively, as defined in 261.1(c)(8).

(ii) Generators and intermediate handlers of zinc-bearing hazardous secondary materials that are to be incorporated into zinc fertilizers must:

(A) Submit a one-time notice to the Department which contains the name, address and EPA ID number of the generator or intermediate handler facility, provides a brief description of the secondary material

that will be subject to the exclusion, and identifies when the manufacturer intends to begin managing excluded, zinc-bearing hazardous secondary materials under the conditions specified in this paragraph (a)(20).

(B) Store the excluded secondary material in tanks, containers, or buildings that are constructed and maintained in a way that prevents releases of the secondary materials into the environment. At a minimum, any building used for this purpose must be an engineered structure made of non-earthen materials that provide structural support, and must have a floor, walls and a roof that prevent wind dispersal and contact with rainwater. Tanks used for this purpose must be structurally sound and, if outdoors, must have roofs or covers that prevent contact with wind and rain. Containers used for this purpose must be kept closed except when it is necessary to add or remove material, and must be in sound condition. Containers that are stored outdoors must be managed within storage areas that:

(1) have containment structures or systems sufficiently impervious to contain leaks, spills and accumulated precipitation; and

(2) provide for effective drainage and removal of leaks, spills and accumulated precipitation; and

(3) prevent run-on into the containment system.

(C) With each off-site shipment of excluded hazardous secondary materials, provide written notice to the receiving facility that the material is subject to the conditions of this paragraph (a)(20).

(D) Maintain at the generator's or intermediate handler's facility for no less than three years records of all shipments of excluded hazardous secondary materials. For each shipment these records must at a minimum contain the following information:

(1) Name of the transporter and date of the shipment;

(2) Name and address of the facility that received the excluded material, and documentation confirming receipt of the shipment; and

(3) Type and quantity of excluded secondary material in each shipment.

(iii) Manufacturers of zinc fertilizers or zinc fertilizer ingredients made from excluded hazardous secondary materials must:

(A) Store excluded hazardous secondary materials in accordance with the storage requirements for generators and intermediate handlers, as specified in paragraph (a)(20)(ii)(B) of this section.

(B) Submit a one-time notification to the Department that, at a minimum, specifies the name, address and EPA ID number of the manufacturing facility, and identifies when the manufacturer intends to begin managing excluded, zinc-bearing hazardous secondary materials under the conditions specified in this paragraph (a)(20).

(C) Maintain for a minimum of three years records of all shipments of excluded hazardous secondary materials received by the manufacturer, which must at a minimum identify for each shipment the name and address of the generating facility, name of transporter and date the materials were received, the quantity received, and a brief description of the industrial process that generated the material.

(D) Submit to the Department an annual report that identifies the total quantities of all excluded hazardous secondary materials that were used to manufacture zinc fertilizers or zinc fertilizer ingredients in the previous year, the name and address of each generating facility, and the industrial process(s) from which they were generated.

(iv) Nothing in this section preempts, overrides or otherwise negates the provision in 262.11 of this chapter, which requires any person who generates a solid waste to determine if that waste is a hazardous waste.

(v) Interim status and permitted storage units that have been used to store only zinc-bearing hazardous wastes prior to the submission of the one-time notice described in paragraph (a)(20)(ii)(A), and that afterward will be used only to store hazardous secondary materials excluded under this paragraph, are not subject to the closure requirements of 264 and 265.

(21) Zinc fertilizers made from hazardous wastes, or hazardous secondary materials that are excluded under paragraph (a)(20) of this section, provided that:

(i) The fertilizers meet the following contaminant limits:

(A) For metal contaminants:

Constituent	Maximum Allowable Total Concentration in Fertilizer, per Unit (1%) of Zinc (ppm)
Arsenic	0.3
Cadmium	1.4
Chromium	0.6
Lead	2.8
Mercury	0.3

(B) For dioxin contaminants the fertilizer must contain no more than eight (8) parts per trillion of dioxin, measured as toxic equivalent (TEQ).

(ii) The manufacturer performs sampling and analysis of the fertilizer product to determine compliance with the contaminant limits for metals no less than every six months, and for dioxins no less than every twelve months. Testing must also be performed whenever changes occur to manufacturing processes or ingredients that could significantly affect the amounts of contaminants in the fertilizer product. The manufacturer may use any reliable analytical method to demonstrate that no constituent of concern is present in the product at concentrations above the applicable limits. It is the responsibility of the manufacturer to ensure that the sampling and analysis are unbiased, precise, and representative of the product(s) introduced into commerce.

(iii) The manufacturer maintains for no less than three years records of all sampling and analyses performed for purposes of determining compliance with the requirements of paragraph (a)(21)(ii) of this section. Such records must at a minimum include:

(A) The dates and times product samples were taken, and the dates the samples were analyzed;

(B) The names and qualifications of the person(s) taking the samples;

(C) A description of the methods and equipment used to take the samples;

(D) The name and address of the laboratory facility at which analyses of the samples were performed;

(E) A description of the analytical methods used, including any cleanup and sample preparation methods; and

(F) All laboratory analytical results used to determine compliance with the contaminant limits specified in this paragraph (a)(21).

(22) [Reserved]

(23) [Reserved and Withdrawn]

(24) [Withdrawn]

Clarify 261.6 Requirements for recyclable materials

(a) (1) Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of paragraphs (b) and (c) of this section, except for the materials listed in paragraphs (a)(2) and (a)(3) of this section. Hazardous wastes that are recycled will be known as "recyclable materials."

(3) The following recyclable materials are not subject to regulation under 262 through 266, or 268, 270 or 124 and are not subject to the notification requirements of the South Carolina Hazardous Waste Management Act 44-56-120 and section 3010 RCRA.

Add indicator (v) to current language in 262.34 Accumulation time

(a) (1) (v) In addition, such a generator is exempt from all the requirements in subparts G and H of R.61-79.265, except for 265.111 and 265.114.

Remove repetitive language in second paragraph of 264.151 Appendix E

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT

Insurance Covering Cost of Closure and/or Postclosure Care

CERTIFICATE OF INSURANCE FOR CLOSURE OR POSTCLOSURE CARE

Name and Address of Insurer (herein called the "Insurer"): _____
Name and Address of Insured (herein called the "Insured"): _____
Facilities Covered:
[List for each facility:
EPA ID# _____
NAME _____
ADDRESS _____
AMOUNT OF INSURANCE FOR CLOSURE AND/OR THE AMOUNT FOR POSTCLOSURE CARE _____
(These amounts for all facilities covered must total the face amount below.)]
Face Amount: _____
Policy Number: _____
Effective Date: _____

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for _____ [insert "closure" or "closure and postclosure care" or "postclosure care"] for the facilities identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of the Department including R.61-79.264.143(e), 264.145(e), 265.143(d), and 265.145(d), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

The insurer agrees to furnish to the Department a duplicate original of the policy listed above, including all endorsements thereon. In addition, the Insurer shall provide a copy of the insurance policy, application, and any agreements which may affect the policy

I hereby certify that the wording of this certificate is identical to the wording specified in R.61-79.264.151(e) as such regulations were constituted on the date shown immediately below.

[Authorized signature for Insurer] _____
[Name of person signing] _____
[Title of person signing] _____
Signature of witness or notary: _____
[Date] _____

Clarify temperatures in 264.1035 Recordkeeping requirements

(c) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of this part shall be recorded and kept up-to-date in the facility operating record. The information shall include:

(4) Date, time, and duration of each period that occurs while the control device is operating when any monitored parameter exceeds the value established in the control device design analysis as specified below:

(i) For a thermal vapor incinerator designed to operate with a minimum residence time of 0.50 second at a minimum temperature of 760^{o}C, period when the combustion temperature is below 760^{o}C.

(ii) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of 95 weight percent or greater, period when the combustion zone temperature is more than 28^{o}C below the design average combustion zone temperature established as a requirement of paragraph (b)(4)(iii)(A) of this section.

Clarify extent in 265.56 Emergency procedures

(b) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and area extent of any released materials and notify the Department per section 265.56(d)(2). He may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis. (11/90)

Move (d) to (c) at 265.140 Applicability

(a) The requirements of sections 265.142, 265.143 and 265.147 through 265.150 apply to owners or operators of all hazardous waste facilities, except as provided otherwise in this section or in section 265.1.

(b) The requirements of sections 265.144 and 265.146 apply only to owners and operators of: (12/93)

(1) Disposal facilities;

(2) Tank systems that are required under section 265.197 to meet the requirements for landfills; and (12/93)

(3) Containment buildings that are required under 265.1102 to meet the requirements for landfills. (12/93)

(c) State and the Federal government are exempt from the requirements of this subpart.

Update reference in 265.276 Food chain crops

(a) An owner or operator of a hazardous waste land treatment facility on which food chain crops are being grown, or have been grown and will be grown in the future, must notify the Department.

[Comment: The growth of food chain crops at a facility which has never before been used for this purpose is a significant change in process under 270.72(a)(3).

Remove last two sentences in 266.20 (b)

Products produced for the general public's use that are used in a manner that constitutes disposal and that contain recyclable materials are not presently subject to regulation if the recyclable materials have undergone a chemical reaction in the course of producing the products so as to become inseparable by physical means and if such products meet the applicable treatment standards in subpart D of part 268 or applicable prohibition levels in 268.32 or RCRA section 3004(d), where no treatment standards have been established for each recyclable material (i.e., hazardous waste) that they contain.

Add conditions to 266.20 at (d)

(d) Fertilizers that contain recyclable materials are not subject to regulation provided that:

(1) They are zinc fertilizers excluded from the definition of solid waste according to 261.4(a)(21);

(2) They meet the applicable treatment standards in subpart D of Part 268 for each hazardous waste that they contain.

Correct citation at 268.7(d) Testing, tracking, and recordkeeping requirements for generators, treaters, and disposal facilities

(d) Generators or treaters who first claim that hazardous debris is excluded from the definition of hazardous waste under 261.3 (f) (i.e., debris treated by an extraction or destruction technology provided by Table 1, 268.45, and debris that the Department has determined does not contain hazardous waste) are subject to the following notification and certification requirements:

Remove and reserve 268.40 (i)

(i) [Reserved]

Add new D006, D009 and D011 wastes for cadmium containing batteries at 268.40 table

WASTE CODE	Waste Description And Treatment/Regulatory Subcategory[1] NOTE: NA means not applicable; fb means followed by (11/99, 8/00)	REGULATED HAZARDOUS CONSTITUENT		WASTE WATERS	NON WASTE WATERS
		Common Name	CAS[2] Number	Concentra-tion in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as mg/l TCLP or Technology Code[4]
D006 [9]	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for cadmium based on the toxicity characteristic leaching procedure (TCLP) in SW846.	Cadmium	7440-43-9	0.69 and meet 268.48 standards[8]	0.11 mg/l TCLP and meet 268.48 standards[8]
	Cadmium Containing Batteries Subcategory.	Cadmium	7440-43-9	NA	RTHRM

	(Note: This subcategory consists of nonwastewaters only.)				
	Radioactively contaminated cadmium containing batteries. (Note: This subcategory consists of nonwastewaters only)	Cadmium	7440-43-9	NA	Macroencap-sulation in accordance with 268.45
D009 [9]	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain greater than or equal to 260 mg/kg total mercury that also contain organics and are not incinerator residues. (High Mercury-Organic Subcategory)	Mercury	7439-97-6	NA	IMERC; OR RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain greater than or equal to 260 mg/kg total mercury that are inorganic, including incinerator residues and residues from RMERC. (High Mercury-Inorganic Subcategory)	Mercury	7439-97-6	NA	RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain less than 260 mg/kg total mercury and that are residues from RMERC only. (Low Mercury Subcategory)	Mercury	7439-97-6	NA	0.20 mg/l TCLP and meet 268.48 standards[8]

	All other nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain less than 260 mg/kg total mercury and that are not residues from RMERC. (Low Mercury Subcategory)	Mercury	7439-97-6	NA	0.025 mg/l TCLP and meet 268.48 standards[8]
	All D009 wastewaters.	Mercury	7439-97-6	0.15 and meet 268.48 standards[8]	NA
	Elemental mercury contaminated with radioactive materials. (Note: This subcategory consists of nonwastewaters only.)	Mercury	7439-97-6	NA	AMLGM
	Hydraulic oil contaminated with Mercury Radioactive Materials Subcategory. (Note: This subcategory consists of nonwastewaters only.)	Mercury	7439-97-6	NA	IMERC
	Radioactively contaminated mercury containing batteries. (Note: This subcategory consists of nonwastewaters only)	Mercury	7439-97-6	NA	Macroencapsulation in accordance with 268.45
D011 [9]	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for silver based on the toxicity characteristic leaching procedure (TCLP) in SW846.	Silver	7440-22-4	0.43 and meet 268.48 standards[8]	0.14 mg/l TCLP and meet 268.48 standards[8]
	Radioactively contaminated silver containing batteries. (Note: This subcategory consists of nonwastewaters only)	Silver	7440-22-4	NA	Macroencapsulation in accordance with 268.45

Clarify air emission requirements at 270.19 Specific Part B information requirements for incinerators.

(e) When an owner or operator demonstrates compliance with the air emission standards and limitations in 40 CFR part 63, Subpart EEE, (i.e., by conducting a comprehensive performance test and submitting a Notification of Compliance) under 63.1207(j) and 63.1210(b) documenting compliance with all applicable requirements of part 63, subpart EEE, the requirements do not apply, except those provisions the Department determines are necessary to ensure compliance with 264.345(a) and 264.345(c) if you elect to comply with 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Department may apply the provisions on a case-by-case basis, for purposes of information collection in accordance with 270.10(k) and 270.32(b)(2).

Clarify the Subpart at 270.20(b) Specific Part B information requirements for land treatment facilities

Except as otherwise provided in 264.1, owners and operators of facilities that use land treatment to dispose of hazardous waste must provide the following additional information:

(b) A description of a land treatment program, as required under 264 Subpart M. This information must be submitted with the plans for the treatment demonstration, and updated following the treatment demonstration. The land treatment program must address the following items:

Clarify air emission requirements at 270.22 Specific Part B information requirements for boilers and industrial furnaces burning hazardous waste by moving (a)

When an owner or operator of a cement or lightweight aggregate kiln demonstrates compliance with the air emission standards and limitations in 40 CFR part 63, Subpart EEE, (i.e., by conducting a comprehensive performance test and submitting a Notification of Compliance under 63.1207(j) and 63.1210(b) documenting compliance with all applicable requirements of part 63, subpart EEE), the requirements of this section do not apply, except those provisions the Department determines are necessary to ensure compliance with 266.102(e)(1) and 266.102(e)(2)(iii) if you elect to comply with 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Department may apply the provisions, on a case-by-case basis, for purposes of information collection in accordance with 270.10(k) and 270.32(b)(2).

(a) Trial burns.

Add (c), (d), and (e) at 270.32 Establishing permit conditions.

(c) For a State issued permit, an applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit. For a permit issued by EPA, an applicable requirement is a statutory or regulatory requirement (including any interim final regulation) which takes effect prior to the issuance of the permit. Section 124.14 (reopening of comment period) provides a means for reopening permit proceedings at the discretion of the Region or Department where new requirements become effective during the permitting process and are of sufficient magnitude to make additional proceedings desirable. For State and EPA administered programs, an applicable requirement is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed in 270.41.

(d) New or reissued permits, and to the extent allowed under 270.41, modified or revoked and reissued permits, shall incorporate each of the applicable requirements referenced in this section and in 270.31.

(e) Incorporation. All permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements must be given in the permit.

Correct cross reference within 270.42 (e)(4)(ii) Permit modification at the request of the permittee

(e) Temporary authorizations.

(4) A temporary authorization may be reissued for one additional term of up to 180 days provided that the permittee has requested a Class 2 or 3 permit modification for the activity covered in the temporary authorization, (12/94, 6/97) and:

(i) The reissued temporary authorization constitutes the Department's decision on a Class 2 permit modification in accordance with paragraph (b)(6)(i)(D) or (ii)(D) of this section, or

(ii) The Department determines that the reissued temporary authorization involving a Class 3 permit modification request is warranted to allow the authorized activities to continue while the modification procedures of paragraph (c) of this section are conducted.

Correct cross reference within 270.42(j)

(j) (1) Facility owners or operators must have complied with the Notification of Intent to Comply (NIC) requirements of 40 CFR 63.1210 that was in effect prior to Oct 11, 2000 (See 40 CFR 63 Revised as of July 1, 2000) in order to request a permit modification under this section.

Update air emission requirements at 270.62 Hazardous waste incinerator permits leadin

When an owner or operator demonstrates compliance with the air emission standards and limitations in 40 CFR part 63, Subpart EEE, (i.e., by conducting a comprehensive performance test and submitting a Notification of Compliance) under 63.1207(j) and 63.1210(b) documenting compliance with all applicable requirements of part 63, subpart EEE, the requirements do not apply, except those provisions the Department determines are necessary to ensure compliance with 264.345(a) and 264.345(c) if you elect to comply with 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Department may apply the provisions, on a case-by-case basis, for purposes of information collection in accordance with 270.10(k) and 270.32(b)(2).

Update air emission requirements at 270.66 Permits for boilers and industrial furnaces burning hazardous waste leadin

When an owner or operator of a cement or lightweight aggregate kiln demonstrates compliance with the air emission standards and limitations in 40 CFR part 63, Subpart EEE, (i.e., by conducting a comprehensive performance test and submitting a Notification of Compliance) under 63.1207(j) and 63.1210(b) documenting compliance with all applicable requirements of part 63, subpart EEE), the requirements do not apply, except those provisions the Department determines are necessary to ensure compliance with 266.102(e)(1) and 266.102(e)(2)(iii) if you elect to comply with 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Department may apply the provisions, on a case-by-case basis, for purposes of information collection in accordance with 270.10(k) and 270.32(b)(2).

Statement Of Need And Reasonableness

This Statement of Need and Reasonableness complies with S. C. Code Ann. Section 1-23-115(C)(1)-(3) and (9)-(11).

DESCRIPTION OF REGULATION: Amendment of R.61-79 Hazardous Waste Management Regulations.

Purpose: The purpose of this amendment is to meet compliance requirements of the United States Environmental Protection Agency (EPA), which promulgates amendments to 40 CFR 124, 260 through 266, 268, 270, and 273 throughout each calendar year by publication in the Federal Register.

Recent federal amendments include: zinc fertilizer made from recycled hazardous secondary materials, treatment standards for some hazardous and radioactive batteries, and technical corrections to Combustor standards. These rules have been published in the Federal Register between July 1, 2002, and June 30, 2003. These amendments appeared at: 67 FR 48393, 67 FR 62618, and 67 FR 77687.

Legal Authority: S. C. Code Ann. Section 44-56-30, the Hazardous Waste Management Act, to facilitate the Resource Conservation and Recovery Act of 1976 as amended.

Plan for Implementation: Upon final approval by the Board of Health and Environmental Control and publication in the State Register as a final regulation, amended regulations will be provided to the regulated community in a choice of either a hard copy or electronic versions on CD at cost through the Department's Freedom of Information Office. They will also be available through the Bureau web site at http://www.scdhec.gov/lwm/html/wm_rcraregs.htm.

DETERMINATION OF NEED AND REASONABLENESS OF THE REGULATION BASED ON ALL FACTORS HEREIN AND EXPECTED BENEFITS: Adoption of the amendments and corrections to R.61-79 will enable compliance with recent federal amendments. See Purpose above.

DETERMINATION OF COSTS AND BENEFITS: This regulatory amendment is exempt from the requirements of a Preliminary Fiscal Impact Statement or a Preliminary Assessment Report because the changes are necessary to maintain compliance with federal regulations. EPA-estimated costs and benefits of the various amendments are summarized below. The summaries are taken from the cited Federal Register notices. A significant regulatory action is defined as one that (5/26/98 in 63 FR 28630) "is likely to result in a rule that may: (1) have an annual effect on the economy of $100 million or more or adversely affect, in a material way, the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements...; or (4) raise novel legal or policy issues arising out of legal mandates..."

The rules either have very minor impact or relax existing regulation; therefore, the rules have little if any negative economic impact on the Department or the regulated community.

UNCERTAINTIES OF ESTIMATES: No known uncertainties.

EFFECT ON ENVIRONMENT AND PUBLIC HEALTH: The over-all effects of these rules are expected to be beneficial to the public health and environment and also reflect federal provisions in State law.

DETRIMENTAL EFFECT ON THE ENVIRONMENT AND PUBLIC HEALTH IF THE REGULATION IS NOT IMPLEMENTED: The State's authority to implement federal requirements, which are believed to be beneficial to the public health and environment, would be compromised if these amendments were not adopted in South Carolina.

Resubmitted May 5, 2004

Document No. 2855
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
CHAPTER 61
Statutory Authority: 1976 Code Section 48-1-10 *et seq*.

R.61-68. Water Classifications and Standards

Synopsis:

This amendment of R.61-68 of R.61-68 will strengthen and improve the existing regulation and make appropriate revisions of the State's water quality standards in accordance with Section 303(c)(2)(B) of the Federal Clean Water Act (CWA). Section 303(c)(2)(B) requires that South Carolina=s water quality standards be reviewed and revised, where necessary, at least every three years for the purposes of considering the Environmental Protection Agency=s (EPA) most recently published numeric and narrative criteria and to comply with recent Federal regulatory revisions and recommendations. The Department has also included two revisions that will improve the regulation. R.61-68 also includes revisions due to recodification of additional language from the proposed text changes so that every section, subsection, item, and subitem could be cited correctly. In response to comments submitted , the DHEC Board has also added language in Section E. that provides for an alternative species (*Daphnia ambigua)* for toxicity testing. See also the Statement of Need and Reasonableness herein.

Changes made pursuant to Legislative Review requested by House Agricultural, Natural Resources, and Environmental Affairs Committee

SECTION	REVISION
R.61-68.E.14.c.8. (existing code section R.61-68.E.12.c.8.)	Retained the word “calculating” in two places.
R.61-68.E.14.c.9. (existing code section R.61-68.E.12.c.9.)	Retained the word “calculating” in two places.

Discussion of Revisions as Proposed by the Department:

(1): Adoption of federal toxics criteria to reflect the most current final published criteria according to Sections 304(a) and 307(a) of the Clean Water Act.

SECTION	REVISION
Appendix	These revisions reflect EPA’s most recently published criteria. This included several human health values being revised to adjust for a higher fish tissue consumption rate and several pollutant values that no longer use a bioconcentration factor, but now use a bioaccumulation factor. EPA’s revised criteria also included the footnotes as well as several of the Federal Register citations. The Department has removed the proposed methylmercury criterion for human health and replaced it with the current state water quality criterion and amended the footnotes to reflect the change. The Department also corrected an error in the table based on commenter’s note.

(2): Review and revision of the bacterial indicator for protection of recreational uses.

SECTION	REVISION
R.61-68.E.14.c.9.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State. The Department has also added language that clarifies that the enterococci indicator will only be used for compliance with NPDES permit limits when an effluent analysis is conducted using an EPA-approved methodology that has been finalized through 40 CFR 136.
R.61-68.E.14.d.5.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.
R.61-68.G.4.a.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.
R.61-68.G.6.a.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.
R.61-68.G.11.e.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.
R.61-68.G.12.e.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.
R.61-68.G.13.e.	Added language to reflect the addition of enterococci as a bacterial indicator for saltwaters of the State.

(3): Inclusion of an allowance for a variance from water quality standards.

SECTION	REVISION
R.61-68.B.59.	Added a definition for variance.
R.61-68.E.7.a.-f.	Added language restating the factors that must be demonstrated prior to the granting of a variance.
R.61-68.E.8.a.-f.	Added a variance provision to the water quality standards setting forth the conditions and circumstances under which a variance may be granted by the Department.
R.61-68.E.9.	Added language to include the variance provision.

(4): Stylistic changes which may include corrections for: readability, grammar, punctuation, typography, codification, references, and language style.

The regulation also includes revisions due to recodification of additional language from the proposed text changes so that every section, subsection, item, and subitem could be cited correctly.

SECTION	REVISION
R.61-68.E.12.c.	Typographical correction.

R.61-68.E.14.c.8. (existing code section R.61-68.E.12.c.8.)	Removed language for clarity.
R.61-68.E.14.c.9. (existing code section R.61-68.E.12.c.9.)	Removed language for clarity.

(5): Language added by the DHEC Board in response to comments received.

SECTION	REVISION
R.61-68.E.14.c.10.	Added language to provide *D. ambigua* as an alternative species for toxicity testing.
R.61-68.E.17.d.	Added language to provide *D. ambigua* as an alternative species for toxicity testing.

Instructions: Amend R.61-68 pursuant to each individual instruction below:

Text of Proposed Amendment:

At R.61-68.B., add in alpha-numeric order, new definition for Variance to read; renumber remaining sections.

Variance means a short-term exemption from meeting certain otherwise applicable water quality standards.

At R.61-68.E.2., revise to read.

The classes and standards described in Section G and H of this regulation implement the above State policy by protecting the waters of South Carolina. Consistent with the above policy, the Department adopts the following general standards in items 3-17 for all waters of South Carolina.

At R.61-68.E.7. and 8., add new subsections to read.

7. Before the Department may grant a variance for any water of the State, there must be a demonstration that one of the following factors for reclassifying uses has been satisfied:

   a. Natural conditions prevent the attainment of the use; or

   b. Natural, ephemeral, intermittent, low flow conditions, or water levels prevent the attainment of the use; or

   c. Human caused conditions or sources prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

   d. Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or

   e. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, preclude attainment of aquatic life protection uses; or

   f. Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in adverse social and economic impact, disproportionate to the benefits to the public health, safety or welfare as a result of maintaining the standard.

8. If the demonstration necessary under Section E.7 above has been satisfied, the Department may then grant a variance provided the following apply:

a. The variance is granted to an individual discharger for a specific pollutant(s) or parameter(s) and does not otherwise modify water quality standards; and

b. The variance identifies and justifies the criterion that shall apply during the existence of the variance; and

c. The variance is established as close to the underlying criterion as is possible and upon expiration of the variance, the underlying criterion shall become the effective water quality standard for the waterbody; and

d. The variance is reviewed every three years, at a minimum, and extended only where the conditions for granting the variance still apply; and

e. The variance does not exempt the discharger from compliance with any applicable technology or other water quality-based permit effluent limitations; and

f. The variance does not affect permit effluent limitations for other dischargers.

At R.61-68.E.9., revise to read; renumber remaining subsections.

Prior to removing any uses or granting a variance, notice and an opportunity for a public hearing shall be provided.

At renumbered R.61-68.E.12.c. (existing code section R.61-68.E.10.c.), revise to read.

The weekly average water temperature of all Freshwaters which are lakes shall not be increased more than 5^{o}F (2.8^{o}C) above natural conditions and shall not exceed 90^{o}F (32.2^{o}C) as a result of the discharge of heated liquids unless a different site-specific temperature standard as provided for in C.12. has been established, a mixing zone as provided in C.10. has been established, or a Section 316(a) determination under the Federal Clean Water Act has been completed.

At renumbered R.61-68.E.14.c.8. (existing code section R.61-68.E.12.c.8), revise to read.

In order to protect for the consumption use of shellfish, for SFH waters and other waters with approved shellfish harvesting uses, the stated value of 14/100 ml for fecal coliform shall be used as a monthly average number for calculating permit effluent limitations and the stated value of 43/100ml for fecal coliform shall be used as a daily maximum number for calculating permit effluent limitations.

At renumbered R.61-68.E.14.c.9. (existing code section R.61-68.E.12.c.9.), revise to read.

In order to protect recreational uses for all waters of the State, the stated value of 200/100 ml for fecal coliform shall be used as a monthly average number for calculating permit effluent limitations and the stated value of 400/100ml for fecal coliform shall be used as daily maximum number for calculating permit effluent limitations. In order to protect recreational uses in Class SB saltwaters of the State, the stated value of 35/100 ml for enterococci shall be used as a monthly average number for permit effluent limitations and the stated value of 501/100 ml for enterococci shall be used as a daily maximum number for permit effluent limitations. In order to protect recreational uses in all other saltwaters of the State, the stated value of 35/100 ml for enterococci shall be used as a monthly average number for permit effluent limitations and the stated value of 104/100 ml for enterococci shall be used as a daily maximum number for permit effluent limitations. Implementation of the enterococci standards in NPDES permit effluent limitations shall be subsequent to EPA publishing the applicable test methods in 40 CFR 136.

At renumbered R.61-68.E.14.c.10. (existing code section R.61-68.E.12.c.10), revise to read.

All effluent permit limitations which include WET will require that the WET tests be conducted using *Ceriodaphnia dubia* (*C. dubia*), except as stated. If the salinity of a discharge to a saline waterbody is high enough to be toxic to *C. dubia*, *Mysidopsis bahia* (*M. bahia*) will be used. Low salinity discharges to saltwater may be tested using either *C. dubia* or *M. bahia* with salinity adjustment, as determined by the Department. If the hardness of a waterbody is low enough to be toxic to *C. dubia,* then *Daphnia ambigua (D. ambigua)* may be used. The Department may consider an alternative species if it can be demonstrated that the proposed species meets the requirements of 40 CFR.136.4 and 5. EPA test methods (40 CFR Part 136) for acute and chronic toxicity testing with freshwater organisms or marine and estuarine organisms must be followed. Any modifications to species selection or the methodology used shall be approved by the EPA.

At renumbered R.61-68.E.14.d.5. (new section added after existing code section R.61-68.E.12.d.4.), add new subsection to read.

The assessment of enterococci for purposes of issuing swimming advisories for ocean beaches for recreational use will be based on the single sample maximum of 104/100 ml.

At renumbered R.61-68.E.17.d. (existing code section R.61-68.E.15.d.), revise to read.

Ambient toxicity tests used for screening purposes shall be conducted using *Ceriodaphnia dubia* (*C. dubia*), except as stated. If salinity of a waterbody is high enough to be toxic to *C. dubia*, *Mysidopsis bahia* (*M. bahia*) will be used. If the hardness of a waterbody is low enough to be toxic to *C. dubia,* then *Daphnia ambigua (D. ambigua)* may be used. The Department may consider an alternative species if it can be demonstrated that the proposed species meets the requirements of 40 CFR.136.4 and 5. EPA test methods (40 CFR Part 136) for acute and chronic toxicity testing with freshwater organisms or marine and estuarine organisms must be followed. Any modifications to species selection or the methodology used shall be approved by the EPA.

At R.61-68.G.3., revise to read.

For items not listed in each class, criteria published pursuant to Sections 304(a) and 307(a) of the Federal Clean Water Act or other documents shall be used as guides to determine conditions which protect water uses. Many of these criteria are listed in the appendix to this regulation. For consideration of natural conditions, refer to Sections: C.9., D.4., E.12., E.14.c.(2), E.14.c.(3), F.4.d., G.4., G.6., and G.9. For the following numeric criteria for turbidity (with the exception of Outstanding National Resource Waters, Outstanding Resource Waters, Trout waters, and Shellfish Harvesting Waters), compliance with these turbidity criteria may be considered to be met as long as the waterbody supports a balanced indigenous aquatic community when land management activities employ Best Management Practices (BMPs). For consideration, BMPs must be in full compliance with all specifications governing the proper design, installation, operation and maintenance of such BMPs and all applicable permit conditions and requirements must be met.

At R.61-68.G.4.a., revise to read.

Quality Standards for
Outstanding National Resource Waters

ITEMS	STANDARDS
a. Color, dissolved oxygen, fecal coliform, enterococci, pH, temperature, turbidity, or other parameters.	Water quality conditions shall be maintained and protected to the extent of the Department's statutory authority. Numeric and narrative criteria for Class ONRW shall be those applicable to the classification

	of the waterbody immediately prior to reclassification to Class ONRW, including consideration of natural conditions.

At R.61-68.G.6.a., revise to read.

Quality Standards for Outstanding Resource Waters

ITEMS	STANDARDS
a. Color, dissolved oxygen, fecal coliform, enterococci, pH, temperature, turbidity, or other parameters.	Water quality conditions shall be maintained and protected to the extent of the Department's statutory authority. Numeric and narrative criteria for Class ORW shall be those applicable to the classification of the waterbody immediately prior to reclassification to Class ORW, including consideration of natural conditions.

At R.61-68.G.10.g., revise to read.

Quality Standards for Freshwaters

ITEMS	STANDARDS
g. Temperature.	As prescribed in E.12.of this regulation.

At R.61-68.G.11.f., add subsection to read; renumber remaining subsections.

Quality Standards for Shellfish Harvesting Waters

ITEMS	STANDARDS
f. Enterococci.	Not to exceed a geometric mean of 35/100 ml based on at least four samples collected from a given sampling site over a 30 day period; nor shall samples exceed a single sample maximum of 104/100 ml.

At R.61-68.G.11.h., revise to read.

h. Temperature.	As prescribed in E.12.of this regulation.

At R.61-68.G.12.f., add subsection to read; renumber remaining subsections.

Quality Standards for
Class SA Waters

ITEMS	STANDARDS
f. Enterococci.	Not to exceed a geometric mean of 35/100 ml based on at least four samples collected from a given sampling site over a 30 day period; nor shall samples exceed a single sample maximum of 104/100 ml.

At R.61-68.G.12.h., revise to read.

h. Temperature.	As prescribed in E.12.of this regulation.

At R.61-68.G.13.f., add subsection to read; renumber remaining subsections.

Quality Standards for
Class SB Waters

ITEMS	STANDARDS
f. Enterococci.	Not to exceed a geometric mean of 35/100 ml based on at least four samples collected from a given sampling site over a 30 day period; nor shall samples exceed a single sample maximum of 501/100 ml.

At R.61-68.G.13.h., revise to read.

h. Temperature.	As prescribed in E.12.of this regulation.

At R.61-68.Appendix, replace in its entirety as follows to read.

APPENDIX: WATER QUALITY NUMERIC CRITERIA FOR THE PROTECTION OF AQUATIC LIFE AND HUMAN HEALTH

This appendix contains three charts (priority pollutants, nonpriority pollutants, and organoleptic effects) of numeric criteria for the protection of human health and aquatic life. The appendix also contains three attachments which address hardness conversions and application of ammonia criteria. Footnotes specific to each chart follow the chart. General footnotes pertaining to all are at the end of the charts prior to the attachments. Please refer to the text of the regulation for other general information and specifications in applying these numeric criteria.

PRIORITY TOXIC POLLUTANTS

	Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
1	Antimony	7440360					5.6 B, ee	640 B, ee	6 ee	65FR66443 SDWA
2	Arsenic	7440382	340 A, D, K	150 A, D, K	69 A, D, Y	36 A, D, Y	0.018 C, R, ff	0.14 C, R, ff	10 C	65FR31682 57FR60848 SDWA
3	Beryllium	7440417					J, ee	J, ee	4 ee	65FR31682 SDWA
4	Cadmium	7440439	0.53 D, E, K	0.10 D, E, K	43 D, Y	9.3 D, Y	J, ee	J, ee	5 ee	65FR31682 SDWA
5a	Chromium III	16065831	580 D, E, K	28 D, E, K			J, ee	J, ee	100 Total ee	EPA820/B-96-001 65FR31682 SDWA
5b	Chromium VI	18540299	16 D, K	11 D, K	1,100 D, Y	50 D, Y	J, ee	J, ee	100 Total ee	65FR31682 SDWA
6	Copper	7440508	3.8 D, E, K, Z	2.9 D, E, K, Z	5.8 D, Z, Y, cc	3.7 D, Z, Y, cc	1,300 T, ee			65FR31682
7	Lead	7439921	14 D, E, Y	0.54 D, E, Y	220 D, Y	8.5 D, Y				65FR31682

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
8a	Mercury	7439976	1.6 D, K, dd	0.91 D, K, dd	2.1 D, bb, dd	1.1 D, bb, dd	0.050 B, ee	0.051 B, ee	2 ee	65FR31682
9	Nickel	7440020	150 D, E, K	16 D, E, K	75 D, Y	8.3 D, Y	610 B, ee	4, 600 B, ee		65FR31682
10	Selenium	7782492	L, Q, S	5.0 S	290 D, aa	71 D, aa	170 Z, ee	4,200 ee	50 ee	65FR31682 65FR66443 SDWA
11	Silver	7440224	0.37 D, E, G		2.3 D, G					65FR31682
12	Thallium	7440280					1.7 B, ee	6.3 B, ee	2 ee	65FR31682 SDWA
13	Zinc	7440666	37 D, E, K	37 D, E, K	95 D, Y	86 D, Y	7,400 T, ee	26,000 T, ee		65FR31682 65FR66443
14	Cyanide	57125	22 K, P	5.2 K, P	1 P, Y	1 P, Y	700 B, ee	220,000 B, H, ee	200 ee	EPA820/B-96-001 57FR60848 SDWA
15	Asbestos	1332214							7 million fibers/L I, ee	57FR60848
16	2, 3, 7, 8-TCDD (Dioxin)	1746016						0.046 ppq C, O	30 ppq C, O	State Standard SDWA
17	Acrolein	107028					190 ee	290 ee		65FR66443
18	Acrylonitrile	107131					0.051 B, C	0.25 B, C		65FR66443
19	Benzene	71432					2.2 B, C	51 B, C	5 C	IRIS 01/19/00 65FR66443 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
20	Bromoform	75252					4.3 B, C	140 B, C	100 Total THMs C	65FR66443 SDWA
21	Carbon Tetrachloride	56235					0.23 B, C	1.6 B, C	5 C	65FR66443 SDWA
22	Chlorobenzene	108907					680 B, T, ee	21,000 B, H, T, ee	100 T, ee	65FR31682 SDWA
23	Chlorodibromomethane	124481					0.40 B, C	13 B, C	100 Total THMs C	65FR66443 SDWA
24	Chloroform	67663					5.7 B, C, hh	470 B, C, hh	100 Total THMs C	62FR42160 SDWA
25	Dichlorobromomethane	75274					0.55 B, C	17 B, C	100 Total THMs C	65FR66443 SDWA
26	1, 2-Dichloroethane	107062					0.38 B, C	37 B, C	5 C	65FR66443 SDWA
27	1, 1-Dichloroethylene	75354					0.057 B, C	3.2 B, C	7 C	65FR66443 SDWA
28	1, 2-Dichloropropane	78875					0.50 B, C	15 B, C	5 C	65FR66443 SDWA
29	1, 3-Dichloropropene	542756					10 B, ee	1,700 B, ee		57FR60848
30	Ethylbenzene	100414					3,100 B, ee	29,000 B, ee	700 ee	65FR31682 SDWA
31	Methyl Bromide	74839					47 B, ee	1,500 B, ee		65FR66443
32	Methylene Chloride	75092					4.6 B, C	590 B, C	5 C	65FR66443 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
33	1, 1, 2, 2-Tetrachloroethane	79345					0.17 B, C	4.0 B, C		65FR66443
34	Tetrachloroethylene	127184					0.69 C	3.3 C	5 C	65FR66443 SDWA
35	Toluene	108883					6,800 B, ee	200,000 B, ee	1000 ee	65FR31682 SDWA
36	1, 2-Trans-Dichloroethylene	156605					700 B, ee	140,000 B, ee	100 ee	65FR31682 SDWA
37	1, 1, 1-Trichloroethane	71556					J, ee	J, ee	200 ee	65FR31682 SDWA
38	1, 1, 2-Trichloroethane	79005					0.59 B, C	16 B, C	5 C	65FR66443 SDWA
39	Trichloroethylene	79016					2.5 C	30 C	5 C	65FR66443 SDWA
40	Vinyl Chloride	75014					2.0 C	530 C	2 C	65FR66443 SDWA
41	2-Chlorophenol	95578					81 B, T, ee	150 B, T, ee		65FR66443
42	2, 4-Dichlorophenol	120832					77 B, T, ee	290 B, T, ee		65FR66443
43	2, 4-Dimethylphenol	105679					380 B, T, ee	850 B, T, ee		65FR66443
44	2-Methyl- 4, 6-Dinitrophenol	534521					13 ee	280 ee		65FR66443
45	2, 4-Dinitrophenol	51285					69 B, ee	5,300 B, ee		65FR66443

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
46	Pentachlorophenol	87865	19 F, K	15 F, K	13 Y	7.9 Y	0.27 B, C	3.0 B, C, H	1 C	65FR31682 65FR66443 SDWA
47	Phenol	108952					21,000 B, T, ee	1,700,000 B, H, T, ee		65FR66443
48	2, 4, 6-Trichlorophenol	88062					1.4 B, C, T	2.4 B, C		65FR66443
49	Acenaphthene	83329					670 B, T, ee	990 B, T, ee		65FR66443
50	Anthracene	120127					8,300 B, ee	40,000 B, ee		65FR66443
51	Benzidine	92875					0.000086 B, C	0.00020 B, C		65FR66443
52	Benzo (a) Anthracene	56553					0.0038 B, C	0.018 B, C		65FR66443
53	Benzo (a) Pyrene	50328					0.0038 B, C	0.018 B, C	0.2 C	65FR66443 SDWA
54	Benzo (b) Fluoranthene	205992					0.0038 B, C	0.018 B, C		65FR66443
55	Benzo (k) Fluoranthene	207089					0.0038 B, C	0.018 B, C		65FR66443
56	Bis 2-Chloroethyl Ether	111444					0.030 B, C	0.53 B, C		65FR66443
57	Bis 2-Chloroisopropyl Ether	108601					1,400 B, ee	65,000 B, ee		65FR66443
58	Bis 2-Ethylhexyl Phthalate (DEHP)	117817	V	V	V	V	1.2 B, C	2.2 B, C	6 C	65FR66443 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
59	Butylbenzyl Phthalate	85687	ii	ii	ii	ii	1,500 B, ee	1,900 B, ee		65FR66443
60	2-Chloronaphthalene	91587					1,000 B, ee	1,600 B, ee		65FR66443
61	Chrysene	218019					0.0038 B, C	0.018 B, C		65FR66443
62	Dibenzo (a, h) Anthracene	53703					0.0038 B, C	0.018 B, C		65FR66443
63	1, 2-Dichlorobenzene	95501					2,700 B, ee	17,000 B, ee	600 ee	65FR31682 SDWA
64	1, 3-Dichlorobenzene	541731					320 ee	960 ee		65FR66443
65	1, 4-Dichlorobenzene	106467					400 ee	2,600 ee	75 ee	65FR31682 SDWA
66	3, 3’-Dichlorobenzidine	91941					0.021 B, C	0.028 B, C		65FR66443
67	Diethyl Phthalate	84662	ii	ii	ii	ii	17,000 B, ee	44,000 B, ee		65FR66443
68	Dimethyl Phthalate	131113	ii	ii	ii	ii	270,000 B, ee	1,100,000 B, ee		65FR66443
69	Di-n-butyl Phthalate	84742	ii	ii	ii	ii	2,000 B, ee	4,500 B, ee		65FR66443
70	2, 4-Dinitrotoluene	121142					0.11 C	3.4 C		65FR66443
71	1, 2-Diphenylhydrazine	122667					0.036 B, C	0.20 B, C		65FR66443

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
72	Fluoranthene	206440					130 B, ee	140 B, ee		65FR66443
73	Fluorene	86737					1,100 B, ee	5,300 B, ee		65FR66443
74	Hexachlorobenzene	118741					0.00028 B, C	0.00029 B, C	1 C	65FR66443 SDWA
75	Hexachlorobutadiene	87683					0.44 B, C	18 B, C		65FR66443
76	Hexachlorocyclo-pentadiene	77474					240 B, T, ee	17,000 B, H, T, ee	50 ee	57FR60848 SDWA
77	Hexachloroethane	67721					1.4 B, C	3.3 B, C		65FR66443
78	Indeno 1, 2, 3 – (cd) Pyrene	193395					0.0038 B, C	0.018 B, C		65FR66443
79	Isophorone	78591					35 B, C	960 B, C		65FR66443
80	Nitrobenzene	98953					17 B, ee	690 B, H, T, ee		65FR66443
81	N-Nitrosodimethylamine	62759					0.00069 B, C	3.0 B, C		65FR66443
82	N-Nitrosodi-n-Propylamine	621647					0.0050 B, C	0.51 B, C		65FR66443
83	N-Nitrosodiphenylamine	86306					3.3 B, C	6.0 B, C		65FR66443
84	Pyrene	129000					830 B, ee	4,000 B, ee		65FR66443

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
85	1, 2, 4-Trichlorobenzene	120821					260 ee	940 ee	70 ee	IRIS 11/01/96 SDWA
86	Aldrin	309002	3.0 G, X		1.3 G, X		0.000049 B, C	0.000050 B, C		65FR31682 65FR66443
87	alpha-BHC	319846					0.0026 B, C	0.0049 B, C		65FR66443
88	beta-BHC	319857					0.0091 B, C	0.017 B, C		65FR66443
89	gamma-BHC (Lindane)	58899	0.95 K		0.16 G		0.019 C	0.063 C	0.2 C	65FR31682 65FR66443 SDWA
90	Chlordane	57749	2.4 G	0.0043 G, X	0.09 G	0.004 G, X	0.00080 B, C	0.00081 B, C	2 C	65FR31682 65FR66443 SDWA
91	4, 4'-DDT	50293	1.1 G, gg	0.001 G, X, gg	0.13 G, gg	0.001 G, X, gg	0.00022 B, C	0.00022 B, C		65FR31682 65FR66443
92	4, 4'-DDE	72559					0.00022 B, C	0.00022 B, C		65FR66443
93	4, 4'-DDD	72548					0.00031 B, C	0.00031 B, C		65FR66443
94	Dieldrin	60571	0.24 K	0.056 K, N	0.71 G	0.0019 G, X	0.000052 B, C	0.000054 B, C		65FR31682 65FR66443
95	alpha-Endosulfan	959988	0.22 G, W	0.056 G, W	0.034 G, W	0.0087 G, W	62 B, ee	89 B, ee		65FR31682 65FR66443

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
96	beta-Endosulfan	33213659	0.22 G, W	0.056 G, W	0.034 G, W	0.0087 G, W	62 B, ee	89 B, ee		65FR31682 65FR66443
97	Endosulfan Sulfate	1031078					62 B, ee	89 B, ee		65FR31682 65FR66443
98	Endrin	72208	0.086 K	0.036 K, N	0.037 G	0.0023 G, X	0.76 B, ee	0.81 B, H, ee	2 ee	65FR31682 SDWA
99	Endrin Aldehyde	7421934					0.29 B, ee	0.30 B, H, ee		65FR66443
100	Heptachlor	76448	0.52 G	0.0038 G, X	0.053 G	0.0036 G, X	0.000079 B, C	0.000079 B, C	0.4 C	65FR31682 65FR66443 SDWA
101	Heptachlor Epoxide	1024573	0.52 G, U	0.0038 G, U, X	0.053 G, U	0.0036 G, U, X	0.000039 B, C	0.000039 B, C	0.2 C	65FR31682 65FR66443 SDWA
102	Polychlorinated Biphenyls PCBs	--		0.014 M, X		0.03 M, X	0.000064 B, C, M	0.000064 B, C, M	0.5 C	65FR31682 65FR66443 SDWA
103	Toxaphene	8001352	0.73	0.0002 X	0.21	0.0002 X	0.00028 B, C	0.00028 B, C	3 C	65FR31682 65FR66443 SDWA

Footnotes:

A This water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.

B This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

C This criterion is based on carcinogenicity of 10^{-6} risk. As prescribed in Section E of this regulation, application of this criterion for permit effluent limitations requires the use annual average flow or comparable tidal condition as determined by the Department.

D Freshwater and saltwater criteria for metals are expressed in terms of total recoverable metals. As allowed in Section E of this regulation, these criteria may be expressed as dissolved metal for the purposes of deriving permit effluent limitations. The dissolved metal water quality criteria value may be calculated by using these 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria", October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR§131.36(b)(1). Conversion Factors can be found in Attachment 1 – Conversion Factors for Dissolved Metals.

E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 25 mg/L as expressed as $CaCO_3$. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF) and the parameters specified in Attachment 2 – Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent. As noted in footnote D above, the values in this appendix are expressed as total recoverable, the criterion may be calculated from the following: CMC (total) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$, or CCC (total) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$.

F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.

G This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

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

I This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulation (NPDWR).

J EPA has not calculated a 304(a) human health criterion for this contaminant. The criterion is the Maximum Contaminant Level developed under the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulation (NPDWR).

K This criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

L The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 Φg /l and 12.82 Φg /l, respectively.

M This criterion applies to total PCBs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

N The derivation of the CCC for this pollutant did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

O This state criterion is also based on a total fish consumption rate of 0.0175 kg/day.

P This water quality criterion is expressed as Φg free cyanide (as CN)/L.

Q This value was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303 I aquatic life criterion

R This water quality criterion for arsenic refers to the inorganic form only.

S This water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996 – CMC or 0.922 – CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.

T The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

U This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

V There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.

W This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

X This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated Biphenyls (EPA 440/5- 80-068), Toxaphene (EPA 440/5-86-006). This CCC is based on the Final Residue value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

Y This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA 440/5-84-032), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).

Z When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

aa The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 Φg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

bb This water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

cc This water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim Final National Toxics Rule (60FR22228-222237, May 4, 1995).

dd This water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

ee This criterion is a noncarcinogen. As prescribed in Section E of this regulation, application of this criterion for determining permit effluent limitations requires the use of 7Q10 or comparable tidal condition as determined by the Department.

ff EPA is currently reassessing the criteria for arsenic.

gg This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

hh Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.

ii Although EPA has not published a completed criteria document for phthalate, it is EPA's understanding that sufficient data exist to allow calculation of aquatic life criteria.

NONPRIORITY POLLUTANTS

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
							For Consumption of:			
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
1	Alachlor								2 M	SDWA
2	Ammonia	7664417	CRITERIA ARE pH AND TEMPERATURE DEPENDENT - SEE DOCUMENT FOR DETAILS C							EPA822-R99-014 EPA440/5-88-004
3	Aesthetic Qualities		NARRATIVE STATEMENT AND NUMERIC CRITERIA – SEE TEXT							Gold Book
4	Atrazine								3 M	SDWA
5	Bacteria		FOR PRIMARY CONTACT RECREATION AND SHELLFISH USES – SEE TEXT							Gold Book
6	Barium	7440393					1,000 A, L		2,000 L	Gold Book
7	Carbofuran	1563662							40 L	SDWA
8	Chlorine	7782505	19	11	13	7.5			G	Gold Book SDWA
9	Chlorophenoxy Herbicide 2, 4, 5, -TP	93721					10 A, L		50 L	Gold Book SDWA
10	Chlorophenoxy Herbicide 2, 4-D	94757					100 A, L		70 L	Gold Book SDWA
11	Chlorophyll *a*		NARRATIVE STATEMENT AND NUMERIC CRITERIA – SEE TEXT							State Standard

Non Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	For Consumption of: Organism Only (Φg/L)	MCL (Φg/L)	
12	Chloropyrifos	2921882	0.083 F	0.041 F	0.011 F	0.0056 F				Gold Book
13	Color		NARRATIVE STATEMENT – SEE TEXT							State Standard
14	Dalapon	75990							200 L	SDWA
15	Demeton	8065483		0.1 E		0.1 E				Gold Book
16	1, 2-Dibromo-3-chloropropane (DBCP)	96128							0.2 M	SDWA
17	Di(2-ethylhexyl) adipate	103231							400 L	SDWA
18	Dinoseb	88857							7 L	SDWA
19	Dinitrophenols	25550587					69 L	5,300 L		65FR66443
20	Diquat	85007							20 L	SDWA
21	Endothall	145733							100 L	SDWA
22	Ether, Bis Chloromethyl	542881					0.00010 D, M	0.00029 D, M		65FR66443
23	Cis-1, 2-dichloroethylene	156592							70 L	SDWA
24	Ethylene dibromide								0.05 M	SDWA
25	Fluoride	7681494							4000 L	SDWA

Non Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	For Consumption of: Organism Only (Φg/L)	MCL (Φg/L)	
26	Glyphosate	1071836							700 L	SDWA
27	Guthion	86500		0.01 E		0.01 E				Gold Book
28	Hexachlorocyclo-hexane-Technical	319868					0.0123 L	0.0414 L		Gold Book
29	Iron	7439896		1,000 E			300 A, L			Gold Book
30	Malathion	121755		0.1 E		0.1 E				Gold Book
31	Manganese	7439965					50 A, L, N	100 A, L		Gold Book
32	Methoxychlor	72435		0.03 E		0.03 E	100 A, L		40 L	Gold Book SDWA
33	Mirex	2385855		0.001 E		0.001 E				Gold Book
34	Nitrates	14797558					10, 000 L		10, 000 L	SDWA Gold Book
35	Nitrites	14797650							1,000 L	SDWA
36	Nitrogen, Total		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							State Standard
37	Nitrosamines						0.0008 L	1.24 L		Gold Book

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	For Consumption of: Water & Organism (Φg/L)	For Consumption of: Organism Only (Φg/L)	MCL (Φg/L)	
38	Nitrosodibutylamine, N	924163					0.0063 A, M	0.22 A, M		65FR66443
39	Nitrosodiethylamine, N	55185					0.0008 A, M	1.24 A, M		Gold Book
40	Nitrosopyrrolidine, N	930552					0.016 M	34 M		65FR66443
41	Oil and Grease		NARRATIVE STATEMENT – SEE TEXT							Gold Book
42	Oxamyl	23135220							200 L	SDWA
43	Oxygen, Dissolved	7782447	WARMWATER, COLDWATER, AND EXCEPTIONS FOR NATURAL CONDITIONS - SEE TEXT K							Gold Book State Standard
44	Parathion	56382	0.065 H	0.013 H						Gold Book
45	Pentachlorobenzene	608935					1.4 E	1.5 E		65FR66443
46	pH		SEE TEXT I							Gold Book State Standard
47	Phosphorus, Total		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							State Standard
48	Picloram	1918021							500 L	SDWA
49	Salinity		NARRATIVE STATEMENT - SEE TEXT							Gold Book
50	Simazine	122349							4 L	SDWA

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
							For Consumption of:			
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
51	Solids Suspended and Turbidity		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							Gold Book State Standard
52	Styrene	100425							100 L	SDWA
53	Sulfide-Hydrogen Sulfide	7783064		2.0 E		2.0 E				Gold Book
54	Tainting Substances		NARRATIVE STATEMENT - SEE TEXT							Gold Book
55	Temperature		SPECIES DEPENDENT CRITERIA - SEE TEXT J							Red Book
56	1, 2, 4, 5-Tetrachlorobenzene	95943					0.97 D	1.1 D		65FR66443
57	Tributyltin (TBT)	688733	0.46	0.063	0.37	0.010				EPA 822-F-00-008
58	2, 4, 5-Trichlorophenol	95954					1,800 B, D	3,600 B, D		65FR66443
59	Xylenes, Total								10, 000 L	SDWA
60	Uranium								30	SDWA
61	Beta particles and photon emitters								4 Millirems/ yr	SDWA
62	Gross alpha particle activity								15 picocuries per liter (pCi/l)	SDWA

Non Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
							For Consumption of:			
			CMC (Φg/L)	CCC (Φg/L)	CMC (Φg/L)	CCC (Φg/L)	Water & Organism (Φg/L)	Organism Only (Φg/L)	MCL (Φg/L)	
63	Radium 226 and Radium 228 (combined)								5 pCi/l	SDWA

Footnotes:

A This human health criterion is the same as originally published in the Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the Gold Book.

B The organoleptic effect criterion is more stringent than the value presented in the nonpriority pollutants table.

C According to the procedures described in the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, except possibly where a very sensitive species is important at a site, freshwater aquatic life should be protected if both conditions specified in Attachment 3 - Calculation of Freshwater Ammonia Criterion are satisfied.

D This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of April 8, 1998. The fish tissue bioconcentration factor (BCF) used to derive the original criterion was retained in each case.

E The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).

F This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in the following criteria document: Chloropyrifos (EPA 440/5-86-005).

G A more stringent Maximum Residual Disinfection Level (MRDL) has been issued by EPA under the Safe Drinking Water Act. Refer to S.C. Regulation 61-58, *State Primary Drinking Water Regulations*.

H This value is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

I South Carolina has established some site-specific standards for pH. These site-specific standards are listed in S.C. Regulation 61-69, *Classified Waters*.

J U.S. EPA, 1976, Quality Criteria for Water 1976.

K South Carolina has established numeric criteria in Section G for waters of the State based on the protection of warmwater and coldwater species. For the exception to be used for waters of the State that do not meet the numeric criteria established for the waterbody due to natural conditions, South Carolina has specified the allowable deficit in Section D.4. and used the following document as a source. U.S. EPA, 1986, Ambient Water Quality Criteria for Dissolved Oxygen, EPA 440/5-86-003, National Technical Information Service, Springfield, VA. South Carolina has established some site-specific standards for DO. These site-specific standards are listed in S.C. Regulation 61-69*, Classified Waters*.

L This criterion is a noncarcinogen. As prescribed in Section E of this regulation, application of this criterion for determining permit effluent limitations requires the use of 7Q10 or comparable tidal condition as determined by the Department

M This criterion is based on an added carcinogenicity risk. As prescribed in Section E of this regulation, application of this criterion for permit effluent limitations requires the use annual average flow or comparable tidal condition as determined by the Department.

N This criterion for manganese is not based on toxic effects, but rather is intended to minimize objectionable qualities such as laundry stains and objectionable tastes in beverages.

ORGANOLEPTIC EFFECTS

Pollutant		CAS Number	Organoleptic Effect Criteria (Φg/L)	FR Cite/Source
1	Acenaphthene	83329	20	Gold Book
2	Chlorobenzene	108907	20	Gold Book
3	3-Chlorophenol		0.1	Gold Book
4	4-Chlorophenol	106489	0.1	Gold Book
5	2, 3-Dichlorophenol		0.04	Gold Book
6	2, 5-Dichlorophenol		0.5	Gold Book
7	2, 6-Dichlorophenol		0.2	Gold Book
8	3, 4-Dichlorophenol		0.3	Gold Book
9	2, 4, 5-Trichlorophenol	95954	1	Gold Book
10	2, 4, 6-Trichlorophenol	88062	2	Gold Book
11	2, 3, 4, 6-Tetrachlorophenol		1	Gold Book
12	2-Methyl-4-Chlorophenol		1,800	Gold Book
13	3-Methyl-4-Chlorophenol	59507	3,000	Gold Book
14	3-Methyl-6-Chlorophenol		20	Gold Book
15	2-Chlorophenol	95578	0.1	Gold Book
16	Copper	7440508	1,000	Gold Book
17	2, 4-Dichlorophenol	120832	0.3	Gold Book
18	2, 4-Dimethylphenol	105679	400	Gold Book
19	Hexachlorocyclopentadiene	77474	1	Gold Book

Pollutant		CAS Number	Organoleptic Effect Criteria (Φg/L)	FR Cite/Source
20	Nitrobenzene	98953	30	Gold Book
21	Pentachlorophenol	87865	30	Gold Book
22	Phenol	108952	300	Gold Book
23	Zinc	7440666	5,000	45FR79341

Footnote:

1. These criteria are based on organoleptic (taste and odor) effects. Because of variations in chemical nomenclature systems, this listing of pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. Also listed are the Chemical Abstracts Service (CAS) registry numbers, which provide a unique identification for each chemical.

WATER QUALITY CRITERIA ADDITIONAL NOTES

1. **Criteria Maximum Concentration and Criterion Continuous Concentration**
   The Criteria Maximum Concentration (CMC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The Criterion Continuous Concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two of the six parts of a aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedence, and chronic frequency of allowed exceedence.

2. **Criteria for Priority Pollutants, Non Priority Pollutants and Organoleptic Effects**
   This appendix lists all priority toxic pollutants and some nonpriority toxic pollutants, and both human health effect and organoleptic effect criteria issued pursuant to CWA §304(a), the SDWA, and the NPDWR. Blank spaces indicate that EPA has no CWA §304(a) criteria recommendations. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A of 40CFR Part 423.

3. **Human Health Risk**
   The human health criteria for the priority and nonpriority pollutants are based on carcinogenicity of 10^{-6} risk.

4. **Water Quality Criteria published pursuant to Section 304(a) or Section 303(c) of the CWA**
   Many of the values in the appendix were published in the California Toxics Rule. Although such values were published pursuant to Section 303(c) of the CWA, they represent the EPA's most recent calculation of water quality criteria.

5. **Calculation of Dissolved Metals Criteria**
   The 304(a) criteria for metals are shown as total recoverable metals. As allowed in Section E of this regulation, these criteria may be expressed as dissolved metals. Dissolved metals criteria may be calculated in one of two ways (please refer to Attachments). For freshwater metals criteria that are hardness-dependent, the dissolved metal criteria may be calculated using a hardness of 25 mg/l as expressed as $CaCO_3$. Saltwater and freshwater metals' criteria that are not hardness-dependent are calculated by multiplying the total recoverable criteria before rounding by the appropriate conversion factors. The final metals' criteria in the table are rounded to two significant figures. Information regarding the calculation of hardness dependent conversion factors are included in the footnotes.

6. **Chemical Abstract Services Number**
   The Chemical Abstract Services number (CAS) for each pollutant is provided (where available).

7. **Gold Book Reference**
   The Gold Book reference listed in the appendix refers to the May 1, 1986 EPA publication EPA 440/5-86-001.

8. **Federal Register Reference**
   The FR listed in the appendix refers to the appropriate *Federal Register* listing. and source refers to the origin of the value. Many of the numeric values contained in this appendix have been modified, revised, or altered and therefore, the source as listed may not be the same as it appears in this table. Also, South Carolina may have selected to use a different value or may have promulgated a different value in its previous iterations of this regulation, so differences from these sources should be expected.

9. **Maximum Contaminant Levels**
   The appendix includes Maximum Contaminant Levels (MCLs) developed under the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulation (NPDWR).

10. **Organoleptic Effects**
    The appendix contains 304(a) criteria for pollutants with toxicity-based criteria as well as non-toxicity based criteria. The basis for the non-toxicity based criteria are organoleptic effects (e.g., taste and odor) which would make water and edible aquatic life unpalatable but not toxic to humans. The table includes criteria for organoleptic effects for 23 pollutants. Pollutants with organoleptic effect criteria more stringent than the criteria based on toxicity (e.g., included in both the priority and non-priority pollutant tables) are footnoted as such.

11. Category Criteria

In the 1980 criteria documents, certain water quality criteria were published for categories of pollutants rather than for individual pollutants within that category. Subsequently, in a series of separate actions, the EPA derived criteria for specific pollutants within a category. Therefore, in this appendix South Carolina is replacing criteria representing categories with individual pollutant criteria (e.g., 1, 3-dichlorobenzene, 1, 4-dichlorobenzene and 1, 2-dichlorobenzene).

12. Specific Chemical Calculations

A. Selenium

(1) Human Health

In the 1980 Selenium document, a criterion for the protection of human health from consumption of water and organisms was calculated based on a BCF of 6.0 l/kg and a maximum water-related contribution of 35 Φg Se/day. Subsequently, the EPA Office of Health and Environmental Assessment issued an errata notice (February 23, 1982), revising the BCF for selenium to 4.8 L/kg. In 1988, EPA issued an addendum (ECAO-CIN-668) revising the human health criteria for selenium. Later in the final National Toxic Rule (NTR, 57 FR 60848), EPA withdrew previously published selenium human health criteria, pending EPA review of new epidemiological data.

This appendix includes human health criteria for selenium, calculated using a BCF of 4.8 L/kg along with the current IRIS RfD of 0.005 mg/kg/day. South Carolina included these water quality criteria in the appendix because the data necessary for calculating a criteria in accordance with EPA's 1980 human health methodology are available.

(2) Aquatic Life

This appendix contains aquatic life criteria for selenium that are the same as those published in the CTR. In the CTR, EPA proposed an acute criterion for selenium based on the criterion proposed for selenium in the Water Quality Guidance for the Great Lakes System (61FR584440. The GLI and CTR proposals take into account data showing that selenium's two prevalent oxidation state in water, selenite and selenate, present differing potentials for aquatic toxicity, as well as new data indication that various forms of selenium are additive. The new approach produces a different selenium acute criterion concentration, or CMC, depending upon the relative proportions of selenite, selenate, and other forms of selenium that are present. EPA is currently undertaking a reassessment of selenium, and expects the 304(a) criterion for selenium will be revised based on the final reassessment (63FR26186). However, until such time as revised water quality criteria for selenium are published by the EPA, the water quality criteria in this appendix are EPA's current 304(a) criteria.

B. Chromium (III)

The aquatic life water quality criteria for chromium (III) included in the appendix are based on the values presented in the document titled: *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*.

C. PCBs

In this appendix, South Carolina is publishing aquatic life and human health criteria based on total PCBs rather than individual arochlors.

Attachment 1 - Conversion Factors for Dissolved Metals

Metal	Conversion Factor freshwater CMC	Conversion Factor freshwater CCC	Conversion Factor saltwater CMC	Conversion Factor saltwater CCC
Arsenic	1.000	1.000	1.000	1.000
Cadmium	1.136672-[(ln hardness)(0.041838)]	1.101672-[(ln hardness)(0.041838)]	0.994	0.994
Chromium III	0.316	0.860	--	--
Chromium VI	0.982	0.962	0.993	0.993
Copper	0.960	0.960	0.83	0.83
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]	0.951	0.951
Mercury	0.85	0.85	0.85	0.85
Nickel	0.998	0.997	0.990	0.990
Selenium	--	--	0.998	0.998
Silver	0.85	--	0.85	--
Zinc	0.978	0.986	0.946	0.946

Attachment 2 - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent

Chemical	m_A	b_A	m_C	b_C	Freshwater Conversion Factors (CF)	
					Acute	Chronic
Cadmium	1.0166	-3.924	0.7409	-4.719	1.136672-[ln (hardness)(0.041838)]	1.101672-[ln (hardness)(0.041838)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	1.46203-[ln (hardness)(0.145712)]	1.46203-[ln (hardness)(0.145712)]
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.52	--	--	0.85	--
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals criteria may be calculated from the following:
CMC (total) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$, or CCC (total) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$
CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF).

Attachment 3 - Calculation of Freshwater Ammonia Criterion

1. The one-hour average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CMC calculated using the following equation:

$$\text{CMC} = \frac{0.275}{1+10^{7.204-\text{pH}}} + \frac{39.0}{1+10^{\text{pH}-7.204}}$$

   In situations where salmonids are absent, the CMC may be calculated using the following equation:

$$\text{CMC} = \frac{0.411}{1+10^{7.204-\text{pH}}} + \frac{58.4}{1+10^{\text{pH}-7.204}}$$

2. The thirty-day average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CCC calculated using the following equations:

   When fish early life stages (ELS) are present:

$$\text{CCC} = \left(\frac{0.0577}{1+10^{7.688-\text{pH}}} + \frac{2.487}{1+10^{\text{pH}-7.688}}\right) \times \min\left(2.85, 1.45\times 10^{0.028\times(25-\text{T})}\right)$$

   When fish early life stages are absent:

$$\text{CCC} = \left(\frac{0.0577}{1+10^{7.688-\text{pH}}} + \frac{2.487}{1+10^{\text{pH}-7.688}}\right) \times 1.45\times 10^{0.028\times(25-\max(\text{T},7))}$$

   and the highest four-day average within the 30-day period does not exceed 2.5 times the CCC.

In the absence of information substantiating that ELS are absent, the ELS present equation will be used.

Fiscal Impact Statement:

No costs to the State or significant cost to its political subdivisions as a whole should be incurred by these amendments. See Statement of Need and Reasonableness below.

Statement of Need and Reasonableness:

The statement of need and reasonableness was determined by staff analysis pursuant to S.C. Code Section 1-23-115(C)(1)-(3) and (9)-(11):

DESCRIPTION OF REGULATION: Amendment of Regulation 61-68, Water Classifications and Standards.

Purpose: Proposed amendment of R.61-68 will clarify, strengthen, and improve the overall quality of the existing regulation and make appropriate revisions of the State's water quality standards in accordance with Section 303(c)(2)(B) of the Federal Clean Water Act (CWA).

Legal Authority: S.C. Code Sections 48-1-40, 48-1-60, and 48-1-80, implementing the CWA.

Plan for Implementation: The proposed amendment would be incorporated within R.61-68 upon approval of the General Assembly and publication in the State Register. The proposed amendment will be implemented in the same manner in which the present regulation is implemented.

DETERMINATION OF NEED AND REASONABLENESS OF THE PROPOSED REGULATION BASED ON ALL FACTORS HEREIN AND EXPECTED BENEFIT: This amendment is required to comply with Federal requirements of Section 303(c)(2)(B) of the CWA.

- **The adoption of federal toxics criteria to reflect the most current final published criteria according to Sections 304(a) and 307(a) of the CWA.**

  The proposed changes to R.61-68 relating to human health and aquatic life criteria are reasonable because the stated criteria in the amendment are based on sound scientific principles and are required in order to comply with the goals of Section 101(a)(2) and 303(c) of the CWA for protection and maintenance of the uses of the waters of the State. These changes include using a larger fish tissue consumption rate that better reflects true consumption patterns and provides a more protective risk level for bioaccumulative pollutants.

- **Review and revision of the bacterial indicator for protection of recreational uses.**

  The proposed changes reflect EPA=s requirement under the CWA amendments, also known as the Beaches Environmental Assessment and Coastal Health Act (BEACH Act amendments) that South Carolina adopt either *E.coli* or enterococci as its bacterial indicator organism for its coastal recreational waters by April of 2004. The Department is proposing the use of enterococci for all of its saltwaters in order to comply with EPA’s requirements.

- **Inclusion of an allowance for a variance from water quality standards.**

  South Carolina’s current water quality standards do not include a provision for a variance from those standards. The Department has recently reviewed the applicability of variances where under certain situations the use attainment may not be currently achieved but may be achieved at a future date. The Department believes that a variance provision would be a beneficial and necessary inclusion for our state’s water quality standards. We have included language that specifies when and how a variance may be granted by the Department.

- **Stylistic changes which may include corrections for: readability, grammar, punctuation, typography, codification, references, and language style**.

DETERMINATION OF COSTS AND BENEFITS: Existing staff and resources will be utilized to implement this amendment to the regulation. No additional cost will be incurred by the State if the revisions are implemented and therefore, no additional State funding is being requested.

In reviewing the potential for significant economic impact of the proposed amendment, the Department specifically evaluated situations in which costs would most likely be incurred by the regulated community. These estimates addressed the specific revisions by issue after determining those of greatest potential impact. The Department found that the overall impact to the State=s political subdivisions or the regulated community as a whole was not likely to be significant in that the existing narrative standards would have incurred similar cost or the fact that the design standards required under the amendment will be substantially consistent with the current guidelines and review guidelines utilized by the Department. Further, much of the proposed amendment, for which an estimated cost may be incurred by the regulated community at the time of permit issuance, are essential and necessary to protect and maintain the existing uses supported by the water quality standards and are, therefore, beyond the scope of cost analysis in that they provide the minimum level of protection for aquatic life and human health as required by the CWA.

UNCERTAINTIES OF ESTIMATES: Minimal to moderate.

EFFECT ON ENVIRONMENT AND PUBLIC HEALTH: Implementation of this amendment will not compromise the protection of the environment or the health and safety of the citizenry of the State. The amendment will promote and protect aquatic life and human health by the regulation of pollutants into waters of the State.

DETRIMENTAL EFFECT ON THE ENVIRONMENT AND PUBLIC HEALTH IF THE REGULATION IS NOT IMPLEMENTED: Failure by the Department to incorporate appropriately protective water quality standards in the regulation that are the basis for issuance of National Pollutant Discharge Elimination System (NPDES) permits, stormwater permits, wasteload and load allocations, groundwater remediation plans, and multiple other program areas will lead to contamination of the waters of the State with detrimental effects on the health of flora and fauna in the State as well as the citizens of South Carolina.

Statement of Rationale:

The statement of rationale was determined by staff analysis pursuant to S.C. Code Section 1-23-110(A)(3)(h).

The first two issues contained in the proposed amendment of R.61-68 are requirements of the CWA and are necessary for compliance with EPA’s recommendations for the triennial review of the water quality standards to ensure consistency with the CWA. The two remaining issues are Department initiated and are necessary and essential to the water quality standards program in South Carolina and to the quality of the regulation itself. The water quality standards variance provision will ensure that water quality use standards may be maintained while providing for reasonable expectations for dischargers when all applicable classified uses cannot be attained at this time to the level of achieving a numeric criteria set for that classified use. This will ensure a reasonable expectation of eventual achievement of the use and that meaningful progress towards that achievement will be reevaluated at least every three years at the time of the triennial review of the water quality standards in compliance with Section 303(c)(2)(B) of the CWA. The remaining issue is one of revisions based entirely on corrections or clarity of the language in the regulation in order to maintain a regulation that is efficient, readable, and accurate.

Document No. 2839
DEPARTMENT OF HEALTH AND HUMAN SERVICES
CHAPTER 126
Statutory Authority: 1976 Code Section 44-6-90

126-158. Hearing Procedure.

Synopsis:

These regulations amend 126-158 Hearing Procedures of the Department's regulations by adding another paragraph. The proposed change is made primarily for the purpose of allowing for lay representations of businesses and other organizations, which regularly appear in contested cases before the Department's Appeals Division. The South Carolina Supreme Court's Order in In Re Unauthorized Practice of Law Rules Proposed By the South Carolina Bar. 309 S.C. 304, 422 S.E. 2d 123 (1992) sets forth the general parameters of such a practice. The proposed regulations are not intended to affect the rights of applicants and beneficiaries of the federal programs administered by the Department.

Instructions:

The existing paragraph, under 126-158 shall be redesignated as paragraph "A" and the new language shall be inserted as paragraph "B."

Text:

Hearing Procedures.

A. All parties to an appeal shall have the right to be represented by counsel, call witnesses, submit documentary evidence, cross-examine the witnesses of an adverse party, and make opening and closing statements.

B. Representation in Proceedings. A business entity, an agency, or an organization may elect to be represented by a non-attorney in an administrative hearing with the approval of the presiding hearing officer; non-lawyer persons including Certified Public Accountants, an officer of a corporation, or an owner of an interest in the business entity must present proof of unanimous consent of the owners or officers of the business entity before being allowed to proceed as representatives. Attorneys licensed in other jurisdictions must obtain a Limited Certificate of Admission, or such other leave as required by the South Carolina Supreme Court, before being allowed to proceed as representatives. This regulation in no way limits a person's right to self-representation, or to be represented by an attorney, or to be represented by a non-attorney of his or her own choosing, when such non-attorney representation is allowed by law.

Fiscal Impact Statement:

The Department of Health and Human Services estimates that no additional costs will be incurred as a result of the promulgation of these regulations, and no additional state funding is requested.

Statement of Rationale:

For Information contact Mr. Richard Hepfer, Department of Health and Human Services, P. O. Box 8206, Columbia, South Carolina 29202-8206.

Summary of Assessment Report:

Not Applicable.

Resubmitted April 13, 2004

Document No. 2844
COMMISSION ON HIGHER EDUCATION
CHAPTER 62
Statutory Authority: 1976 Code Sections 59-112-10 through 59-112-100

62-600. DETERMINATION OF RATES OF TUITION AND FEES

Synopsis:

The Commission on Higher Education proposes to amend and replace in its entirety R.62-600 of the Determination of Rates of Tuition and Fees Regulation. The proposed amendment will clarify the following:

(1) The proposed amendment will acknowledge the role that residency plays in the eligibility criteria of the State's tuition assistance/scholarship programs;
(2) The proposed amendment will address the residency implications of the non-traditional family;
(3) The proposed amendment will replace time-line references that were open to interpretation with activity-based criteria; and
(4) The proposed amendment will clarify other criteria to add more specificity.

The following definitions were added or modified to address areas questioned by students and parents.

62-602.E "Family's Domicile in this State is Terminated" has been defined as a work-related transfer rather than a voluntary relocation. Also included is a relocation of the person upon whom the student is dependent who is laid off through no fault of their own, e.g., plant closure, downsizing, etc., who accepts employment in another state prior to relocating.

62-602.F "Full-Time Employment" has been modified to allow for compliance when a person meets the eligibility requirements of the Americans with Disabilities Act and cannot work the requisite thirty-seven and one-half hours per week.

62-602.G "Guardian" was redefined to agree with current tax law that provides for eligibility of dependency of the minor child if 5 dependency tests can be passed. This definition provides an opportunity for students raised by grandparents, brother, sisters, uncles, aunts, etc. to meet the dependency criteria of the regulation and to have their residency established based on the person(s) upon whom they are truly dependent.

62-602.H "Immediately prior" (to enrollment) has been defined as "the period of time between the offer of admission and the first day of class of the term for which the offer was made, not to exceed one calendar year." This definition provides a finite point in time from which to measure the action and no longer calls on the judgment of the residency officer to determine what "immediately" means on his/her campus.

62-602.I Specified that a "loan" used to support a claim of financial independence had to be a "commercial loan" rather than a personal loan that may have come from a family member.

62-602.L "Parent" has been amended to include "Stepfather" and "Stepmother".

62-602.O "Spouse" has been defined as the husband or wife of a married person in accordance with the South Carolina Code of Laws.

62-602.R "United States Armed Forces" has been amended to include the Coast Guard**.**

62-603.C Acknowledged the establishment of "joint custody" for divorced parents.

Other modifications included:

62-603.C Inserted the language from 59-112-10(G)(2) to recognize the eligibility of a student if there were court ordered payments of the "cost of (the student's) college education" by an independent person qualifying as a resident of this state and defined the "cost of his education" to be at least the cost of (the student's) tuition and fees.

62-604.A Revised the regulation relative to a dependent non-resident alien to be consistent with the remainder of the regulation in that the residency of the dependent is based upon the residency of the person upon whom they are dependent. This revision addresses the potential post 9/11 delays in the processing of permanent resident status and the potential for the parents receiving their "green card" prior to the student.

62-604.A Specified that non-citizens who may be eligible for the payment of in-state tuition and fees as a result of the holding of certain visa classifications were not and could not become eligible for state sponsored tuition assistance and scholarships.

62-604.C4 Acknowledged state guidelines in the timelines required to possess a state drivers license and vehicle registration as evidence of the intent to establish state residency. And,

62-607.A Acknowledged that transfer between the state's colleges and universities of a student seeking a certificate, diploma, associate, baccalaureate, or graduate level degree did not constitute a break in enrollment and, as such, would not cause the student to be considered a resident at one school and not at the school to which the student transferred or progressed.

Instructions: Add new R.62-600, Determination of Rates of Tuition and Fees, to Chapter 62 regulations.

Text:

Table of Contents:

62-600. Rates of Tuition and Fees.

A. Resident classification is an essential part of tuition and fee determination, admission regulations, scholarship eligibility, and other relevant policies of the state. It is important that institutions have fair and equitable regulations that can be administered consistently and are sensitive to the interests of both students and the state. The Commission on Higher Education hereby establishes regulations for the Statute Governing Residency for Tuition and Fee Purposes to be applied consistently by all South Carolina institutions of higher education. These

regulations do not address residency matters relating to in county categories used within the State's technical colleges.

B. Institutions of higher education are required by the Statute to determine the residence classification of applicants. The initial determination of one's resident status is made at the time of admission. The determination made at that time, and any determination made thereafter, prevails for each subsequent semester until information becomes available that would impact the existing residency status and the determination is successfully challenged. The burden of proof rests with the students to show evidence as deemed necessary to establish and maintain their residency status.

62-601. Code of Laws Governing Residence.

A. Rules regarding the establishment of legal residence for tuition and fee purposes for institutions of higher education are governed by Title 59, Chapter 112 of the 1976 South Carolina Code of Laws, as amended.

62-602. Definitions.

A. "Academic Session" is defined as a term or semester of enrollment. (62-607.B)

B. "Continue to be Enrolled" is defined as continuous enrollment without an interruption that would require the student to pursue a formal process of readmission to that institution. Formal petitions or applications for change of degree level shall be considered readmissions. (62-607.A)

C. "Dependent Person" is defined as one whose predominant source of income or support is from payments from a parent, spouse, or guardian and who qualifies as a dependent or exemption on the federal income tax return of the parent, spouse, or guardian. A dependent person is also one for whom payments are made, under court order, for child support and the cost of the dependent person's college education. A dependent person's residency is based upon the residency of the person upon whom they are dependent. (62-602.G) (62-602.N) (62-603.B) (62-605.C) (62-607.A)

D. "Domicile" is defined as the true, fixed, principal residence and place of habitation. It shall indicate the place where a person intends to remain, or to where one expects to return upon leaving without establishing a new domicile in another state. For purposes of this section, one may have only one legal domicile. One is presumed to abandon automatically an old domicile upon establishing a new one. Housing provided on an academic session basis for student at institutions shall be presumed not to be a place of principal residence, as residency in such housing is by its nature temporary. (62-602.E) (62-602.K) (62-602.M) (62-602.N) (62-603.A) (62.603.B) (62-605.B) (62-605.C) (62-607.A) (62-607.B) (62-608.A) (62-608.C) (62-608.D) (62-609.A.3) (62-609.A.4)

E. "Family's Domicile in this State is Terminated" is defined as an employer directed transfer of the person upon whom the student is dependent and is not construed to mean a voluntary change in domicile. Also included is a relocation of the person upon whom the student is dependent who is laid off through no fault of their own, e.g., plant closure, downsizing, etc., who accepts employment in another state prior to relocating. (62-607.A)

F. "Full time employment" is defined as employment that consists of at least thirty seven and one half hours a week on a single job in a full time status. However, a person who works less than thirty seven and one half hours a week but receives or is entitled to receive full time employee benefits shall be considered to be employed full time if such status is verified by the employer. A person who meets the eligibility requirements of the Americans with Disabilities Act must present acceptable evidence that they satisfy their prescribed employment specifications in order to qualify as having full time employment. (62-605.C.1) (62-609.A.2) (62-609.A.3)

G. "Guardian" is defined as one legally responsible for the care and management of the person or property of a minor child or one qualified to claim a dependent person based upon the five tests for dependency prescribed by the Internal Revenue Service; provided, however, that where circumstances indicate that such guardianship or

custodianship was created primarily for the purpose of conferring South Carolina domicile for tuition and fee purposes on such child or dependent person, it shall not be given such effect. (62-602.C) (62-602.E) (62-602.I) (62-602.M) (62-603.B) (62-605.C)

H. "Immediately Prior" is defined as the period of time between the offer of admission and the first day of class of the term for which the offer was made, not to exceed one calendar year. (62-607.A)

I. "Independent Person" is defined as one in his/her majority (eighteen years of age or older) or an emancipated minor, whose predominant source of income is his/her own earnings or income from employment, investments, or payments from trusts, grants, scholarships, commercial loans, or payments made in accordance with court order. An independent person must provide more than half of his or her support during the twelve months immediately prior to the date that classes begin for the semester for which resident status is requested. An independent person cannot be claimed as a dependent or exemption on the federal tax return of his or her parent, spouse, or guardian for the year in which resident status is requested. (62-602.N) (62-603.A) (62-605.C) (62-607.B) (62-608.B)

J. "Minor" is defined as a person who has not attained the age of eighteen years. An "emancipated minor" shall mean a minor whose parents have entirely surrendered the right to the care, custody and earnings of such minor and are no longer under any legal obligation to support or maintain such minor. (62-602.G)

K. "Non resident Alien" is defined as a person who is not a citizen or permanent resident of the United States. By virtue of their non resident status "non resident aliens" generally do not have the capacity to establish domicile in South Carolina. (62-602.M) (62-604.A)

L. "Parent" is defined as the father, mother, stepfather, stepmother, foster parent or parent of a legally adopted child. (62-602.C) (62-602.E) (62-602.I) (62-602.J) (62-602.M) (62-603.B) (62-603.C) (62-605.C)

M. "Reside" is defined as continuous and permanent physical presence within the State, provided that absences for short periods of time shall not affect the establishment of residence. Excluded are absences associated with requirements to complete a degree, absences for military training service, and like absences, provided South Carolina domicile is maintained. (62-603.A) (62-606.B) (62-609.A) (62-609.A.3) (62-609.A.4) (62-609.B)

N. "Resident" for tuition and fee purposes is defined as an independent person who has abandoned all prior domiciles and has been domiciled in South Carolina continuously for at least twelve months immediately preceding the first day of class of the term for which resident classification is sought and for whom there is an absence of domiciliary evidence in other states or countries, not withstanding other provisions of the Statute. (62-600.A) (62-600.B) (62-602.I) (62-602.K) (62-602.M) (62-603.A) (62-603.B) (62-603.C) (62-604.A) (62-605.A) (62-605.C) (62-605.C.7) (62-606.A) (62-606.A.5) (62-606.B) (62-607.A) (62-608.B) (62-609.A.3) (62-610.A) (62-610.B) (62-611.A) (62-611.B)

O. "Spouse" is defined as the husband or wife of a married person in accordance with Title 20, Chapter 1 of the 1976 South Carolina Code of Laws, as amended. (62-602.C) (62-602.E) (62-602.I) (62-602.M) (62-603.B) (62-605.C)

P. "Temporary Absence" is defined as a break in enrollment during a fall or spring semester (or its equivalent) during which a student is not registered for class. (62-606.A)

Q. "Terminal Leave" is defined as a transition period following active employment and immediately preceding retirement (with a pension or annuity), during which the individual may use accumulated leave. (62-609.A.4)

R. "United States Armed Forces" is defined as the United States Air Force, Army, Marine Corps, Navy, and Coast Guard. (62-606.B) (62-609.A(1))

62-603. Citizens and Permanent Residents.

A. Independent persons who have physically resided and been domiciled in South Carolina for twelve continuous months immediately preceding the date the classes begin for the semester for which resident status is claimed may qualify to pay in state tuition and fees. The twelve month residency period starts when the independent person establishes the intent to become a South Carolina resident per Section 62-605 entitled "Establishing the Requisite Intent to Become a South Carolina Domiciliary." Absences from the State during the twelve month period may affect the establishment of permanent residence for tuition and fee purposes.

B. The resident status of a dependent person is based on the resident status of the person who provides more than half of the dependent person's support and claims or qualifies to claim the dependent person as a dependent for federal income tax purposes. Thus, the residence and domicile of a dependent person shall be presumed to be that of their parent, spouse, or guardian.

C. In the case of divorced or separated parents, the resident status of the dependent person may be based on the resident status of the parent who claims the dependent person as a dependent for tax purposes; or based on the resident status of the parent who has legal custody or legal joint custody of the dependent person; or based on the resident status of the person who makes payments under a court order for child support and at least the cost of his/her college tuition and fees.

62-604. Non Resident Aliens, Non Citizens, and Non Permanent Residents.

A. Except as otherwise specified in this section or as provided in Section 62-609 (1) & (2), independent non citizens and non permanent residents of the United States will be assessed tuition and fees at the non resident, out of state rate. Independent non resident aliens, including refugees, asylees, and parolees may be entitled to resident, in state classification once they have been awarded permanent resident status by the U.S. Department of Justice and meet all the statutory residency requirements provided that all other domiciliary requirements are met. Time spent living in South Carolina immediately prior to the awarding of permanent resident status does not count toward the twelve month residency period. Certain non resident aliens present in the United States in specified visa classifications are eligible to receive in state residency status for tuition and fee purposes as prescribed by the Commission on Higher Education. They are not, however, eligible to receive state sponsored tuition assistance/scholarships.

B. Title 8 of the Code of Federal Regulations (CFR) serves as the primary resource for defining visa categories.

62-605. Establishing the Requisite Intent to Become a South Carolina Domiciliary.

A. Resident status may not be acquired by an applicant or student while residing in South Carolina for the sole purpose of enrollment in an institution or for access to state supported programs designed to serve South Carolina residents.

B. If a person asserts that his/her domicile has been established in this State, the individual has the burden of proof. Such persons should provide to the designated residency official of the institution to which they are applying any and all evidence the person believes satisfies the burden of proof. The residency official will consider any and all evidence provided concerning such claim of domicile, but will not necessarily regard any single item of evidence as conclusive evidence that domicile has been established.

C. For independent persons or the parent, spouse, or guardian of dependent persons, examples of intent to become a South Carolina resident may include, although any single indicator may not be conclusive, the following indicia:

1. Statement of full time employment;
2. Possession of a valid South Carolina voter registration card;
3. Designating South Carolina as state of legal residence on military record;

4. Possession of a valid South Carolina driver's license, or if a non driver, a South Carolina identification card. Failure to obtain this within 90 days of the establishment of the intent to become a South Carolina resident will delay the beginning date of residency eligibility;
5. Possession of a valid South Carolina vehicle registration card. Failure to obtain this within 45 days of the establishment of the intent to become a South Carolina resident will delay the beginning date of residency eligibility;
6. Maintenance of domicile in South Carolina;
7. Paying South Carolina income taxes as a resident during the past tax year, including income earned outside of South Carolina from the date South Carolina domicile was claimed;
8. Ownership of principal residence in South Carolina; and
9. Licensing for professional practice (if applicable) in South Carolina.

D. The absence of indicia in other states or countries is required before the student is eligible to pay in state rates.

62-606. Maintaining Residence.

A. A person's temporary absence from the State does not necessarily constitute loss of South Carolina residence unless the person has acted inconsistently with the claim of continued South Carolina residence during the person's absence from the State. The burden is on the person to show retention of South Carolina residence during the person's absence from the State. Steps a person should take to retain South Carolina resident status for tuition and fee purposes include:
1. Continuing to use a South Carolina permanent address on all records;
2. Retaining South Carolina voter's status;
3. Maintaining South Carolina driver's license;
4. Maintaining South Carolina vehicle registration;
5. Satisfying South Carolina resident income tax obligation. Individuals claiming permanent residence in South Carolina are liable for payment of income taxes on their total income from the date that they established South Carolina residence. This includes income earned in another state or country.

B. Active duty members of the United States Armed Forces and their dependents are eligible to pay in state tuition and fees as long as they continuously claim South Carolina as their state of legal residence during their military service. Documentation will be required in all cases to support this claim. South Carolina residents who change their state of legal residence while in the military lose their South Carolina resident status for tuition and fee purposes.

62-607. Effect of Change of Residency.

A. Notwithstanding other provisions of this section, any dependent person of a legal resident of this state who has been domiciled with his/her family in South Carolina for a period of not less than three years and whose family's domicile in this state is terminated immediately prior to his/her enrollment may enroll at the in state rate. A student must continue to be enrolled and registered for classes (excluding summers) in order to maintain eligibility to pay in state rates in subsequent semesters. Transfers within or between South Carolina colleges and universities of a student seeking a certificate, diploma, associate, baccalaureate, or graduate level degree does not constitute a break in enrollment.

B. If a dependent or independent person has been domiciled in South Carolina for less than three years, eligibility for in state rates shall end on the last day of the academic session during which domicile is lost. Application of this provision shall be at the discretion of the institution involved. However, a student must continue to be enrolled and registered for classes (excluding summers) in order to maintain eligibility to pay in state rates in subsequent semesters.

62-608. Effect of Marriage.

A. In ascertaining domicile of a married person, irrespective of gender, such a review shall be determined just as for an unmarried person by reference to all relevant evidence of domiciliary intent.

B. If a non resident marries a South Carolina resident, the non resident does not automatically acquire South Carolina resident status. The non resident may acquire South Carolina resident status if the South Carolina resident is an independent person and the non resident is a dependent of the South Carolina resident.

C. Marriage to a person domiciled outside South Carolina shall not be solely the reason for precluding a person from establishing or maintaining domicile in South Carolina and subsequently becoming eligible or continuing to be eligible for residency.

D. No person shall be deemed solely by reason of marriage to a person domiciled in South Carolina to have established or maintained domicile in South Carolina and consequently to be eligible for or to retain eligibility for South Carolina residency.

62-609. Exceptions.

A. Persons in the following categories qualify to pay in state tuition and fees without having to establish a permanent home in the state for twelve months. Persons who qualify under any of these categories must meet the conditions of the specific category on or before the first day of class of the term for which payment of in state tuition and fees is requested.

1. "Military Personnel and their Dependents": Members of the United States Armed Forces who are permanently assigned in South Carolina on active duty and their dependents are eligible to pay in state tuition and fees. When such personnel are transferred from the State, their dependents may continue to pay in state tuition and fees for an additional twelve months. Such persons (and their dependents) may also be eligible to pay in state tuition and fees for a period of twelve months after their discharge from the military, provided they have demonstrated an intent to establish a permanent home in South Carolina and they have resided in South Carolina for a period of at least twelve months immediately preceding their discharge. Military personnel who are not stationed in South Carolina and/or former military personnel who intend to establish South Carolina residency must fulfill the twelve month "physical presence" requirement for them or their dependents to qualify to pay in state tuition and fees.

2. "Faculty and Administrative Employees with Full Time Employment and their Dependents": Full time faculty and administrative employees of South Carolina state supported colleges and universities and their dependents are eligible to pay in state tuition and fees.

3. "Residents with Full Time Employment and their Dependents:" Persons who reside, are domiciled, and are full time employed in the State and who continue to work full time until they meet the twelve month requirement and their dependents are eligible to pay in state tuition and fees, provided that they have taken steps to establish a permanent home in the State. Steps an independent person must take to establish residency in South Carolina are listed in Section 62-605 entitled ("Establishing the Requisite Intent to Become a South Carolina Domiciliary").

4. "Retired Persons and their Dependents:" Retired persons who are receiving a pension or annuity who reside in South Carolina and have been domiciled in South Carolina as prescribed in the Statute for less than a year may be eligible for in state rates if they maintain residence and domicile in this State. Persons on terminal leave who have established residency in South Carolina may be eligible for in state rates even if domiciled in the State for less than one year if they present documentary evidence from their employer showing they are on terminal leave. The evidence should show beginning and ending dates for the terminal leave period and that the person will receive a pension or annuity when he/she retires.

B. South Carolina residents who wish to participate in the Contract for Services program sponsored by the Southern Regional Education Board must have continuously resided in the State for other than educational purposes for at least two years immediately preceding application for consideration and must meet all other residency requirements during this two year period.

62-610. Application for Change of Resident Status.

A. Persons applying for a change of resident classification must complete a residency application/petition and provide supporting documentation prior to a reclassification deadline as established by the institution.

B. The burden of proof rests with those persons applying for a change of resident classification who must show required evidence to document the change in resident status.

62-611. Incorrect classification.

A. Persons incorrectly classified as residents are subject to reclassification and to payment of all non resident tuition and fees not paid. If incorrect classification results from false or concealed facts, such persons may be charged tuition and fees past due and unpaid at the out of state rate. The violator may also be subject to administrative, civil, and financial penalties. Until these charges are paid, such persons will not be allowed to receive transcripts or graduate from a South Carolina institution.

B. Residents whose resident status changes are responsible for notifying the Residency Official of the institution attended of such changes.

62-612. Inquiries and Appeals.

A. Inquiries regarding residency requirements and determinations should be directed to the institutional residency official.

B. Each institution will develop an appeals process to accommodate persons wishing to appeal residency determinations made by the institution's residency official. Neither the primary residency official nor appellate official(s) may waive the provisions of the Statute or regulation governing residency for tuition and fee purposes.

Fiscal Impact Statement:

There will be no additional cost to the State or to the public or private colleges and universities of South Carolina associated with administering this revised regulation.

Statement of Rationale:

This regulation is being promulgated to provide procedures for the institutions in determining who meets the eligibility criteria to pay in-state tuition and fees and eligibility for state-supported tuition assistance or scholarship programs.

Document No. 2904
COMMISSION ON HIGHER EDUCATION
CHAPTER 62
Statutory Authority: 1976 Code Section 2-77-20
Article VIII

62-900. Higher Education Excellence Enhancement Program

Synopsis:

The regulation establishes criteria for disbursing the second half of the appropriated funds based on merit.

Instruction:

Add new R.62-900, Higher Education Excellence Enhancement Program, to Chapter 62 regulations.

62-901. Purpose of the Higher Education Excellence Enhancement Program

62-902. Applications of Eligible Institutions

62-903. Allocation of Appropriations

62-904. Funds to be awarded based on Merit

Text:

62-901. Purpose of the Higher Education Excellence Enhancement Program

The purpose of the Higher Education Excellence Enhancement Program is to enhance the educational opportunities of low-income and educationally disadvantaged students attending four-year colleges/universities where no less than sixty percent of the students enrolled receive PELL grants.

62-902. Applications of Eligible Institutions

Eligible Institutions are outlined in Section 2-77-15, South Carolina Code of Laws, 1976, as amended. Institutions that meet eligibility criteria shall notify the South Carolina Commission on Higher Education of their eligibility prior to the beginning of each fiscal year. The South Carolina Commission on Higher Education will certify the eligibility of each institution annually.

62-903. Allocation of Appropriations

Appropriations are to be allocated among eligible Institutions in accordance with Section 2-77-20(c), South Carolina Code of Laws, 1976, as amended.

62-904. Funds to be awarded based on Merit

Institutions may submit proposals for the funding of activities included in Section 2-77-30(a). Proposals must be submitted prior to a deadline to be established by the South Carolina Commission on Higher Education. Proposals shall be evaluated by a panel of Higher Education personnel selected by the South Carolina Commission on Higher Education with experience in Administration, Academics, Finance, Capital Construction or Maintenance, Proposal Evaluation or other such areas deemed appropriate for the review of Institutional proposals. The South Carolina Commission on Higher Education will make the final awards after consideration of the panel's recommendations and priority requirements as outlined in Section 2-77-30(a) South Carolina Code of Laws,

1976, as amended. Awards may be made for the amount of the entire proposal or a portion of the proposal, as deemed appropriate by the Commission. Institutions selected for awards, per section 62-903, shall enter into a contract with the South Carolina Commission on Higher Education for completion of the proposed activities. Participating Institutions must comply with Section 2-77-30(b) South Carolina Code of Laws, 1976, as amended. Upon successful completion of the contract, the participating Institution must comply with section 2-77-40 South Carolina Code of Laws, 1976, as amended.

Fiscal Impact Statement:

No increase cost

Statement of Rationale:

No report or studies were relied upon in drafting these regulations. The basis used in developing these regulations was the findings language included in Act 24 of 2003 and the Commission's professional judgment with respect to administration of merit based award programs.

Resubmitted April 8, 2004

Document No. 2874
COMMISSION FOR MINORITY AFFAIRS
CHAPTER 139
Statutory Authority: S.C. Code Section 1-31-40 (A)(7)(10)
Article I
State Recognition of Native American Indian Entities

139-100. Purpose.
139-101. Scope.
139-102. Definitions.
139-103. Notification of Recognition Status.
139-104. Limitations.
139-105. Criteria for State Recognition.
139-106. Purpose of Native American Indian Advisory Committee.
139-107. Membership Requirements for the Native American Advisory Committee.
139-108. Membership, Terms and Voting Power of State Recognition Committee.
139-109. Duties of State Recognition Committee.
139-110. Verification of Authenticity of Documents.

Article II
Advisory Committees

139-200. Purpose.
139-201. Scope.
139-202. Duties of Advisory Committees.
139-203. Membership, Terms, Size, and Administration of the Advisory Committees.

Synopsis:

Article I: This new regulation governs the process for State Recognition of Native American Indian entities in the State of South Carolina.

Article II: This new regulation governs the creation of Advisory Committees representative of minority groups, in addition to other specific regulations set forth under separate Articles.

Section-by-Section Discussion

Article I

139-100. Purpose.
Text defines purpose of proposed regulations as stated in the enabling legislation.

139-101. Scope.
Text identifies categories under which Native American entities may seek State Recognition.

139-102. Definitions.
Text defines terms used throughout proposed regulations.

139-103. Notification of Recognition Status.
Text defines what body will recognize and how recognition will be acknowledged.

139-104. Limitations.
Text identifies matters exempt from and not covered by the proposed regulations. The text spells out the limitations of the proposed regulations.

139-105. Criteria for State Recognition.
Text identifies the requirements that must be met to obtain one of three possible recognition levels.

139-106. Purpose of the Native American Advisory Committee.
Text defines the purpose of the committee and identifies the nature of its work.

139-107. Membership Requirements for the Native American Advisory Committee.
Text identifies membership, term of service, schedule of meetings, and other matters related to the operation of the committee.

139-108. Membership, Terms, and Voting Power of the State Recognition Committee.
Text defines who will sit to review all information regarding State Recognition, when, the length of service, number of votes needed to obtain favorable recommendation, and how replacement of members will be made.

139-109. Duties of the State Recognition Committee.
Text spells out the provisions used to determine State Recognition, when applications are due, length of deliberations, notification of action to CMA Board and how often entities may apply for State Recognition.

139-110. Verification of Authenticity of Documents.
Text identifies the nature of the documents to be considered by the State Recognition Committee, how such documents will be determined to be authentic and valid for consideration, and the extent to which Committee members can go to verify authenticity of documents.

Article II

139-200. Purpose.
Text defines purpose of proposed regulations as stated in the enabling legislation.

139-201. Scope.
Text identifies scope of regulations and groups affected.

139-202. Duties of Advisory Committees.
Text denotes responsibilities of Advisory Committees.

139-203. Membership, Terms, Size and Administration of the Advisory Committees.
Text defines selection process, length of terms, size of committees, and other administrative matters pertaining to the operation of the committees.

Instructions:

Add new Articles I and II to Chapter 139

Text:

Article I

139-100. Purpose.
139-101. Scope.
139-102. Definitions.
139-103. Notification of Recognition Status.
139-104. Limitations.
139-105. Criteria for State Recognition.
139-106. Purpose of the Native American Indian Advisory Committee.
139-107. Membership Requirements for the Native American Advisory Committee.
139-108. Membership, Terms, and Voting Power of the State Recognition Committee.
139-109. Duties of the State Recognition Committee.
139-110. Verification of Authenticity of Documents.

139-100. Purpose.
Section 1-31-40(A)(10), South Carolina Code of Laws provides that "The Commission shall promulgate regulations as may be necessary regarding State Recognition of Native American Indian entities in the State of South Carolina."

139-101. Scope.
These rules and regulations shall be applicable to all entities seeking Native American Indian State Recognition as a:

A. Native American Indian Tribe.
B. Native American Indian Group.
C. Native American Special Interest Organization.

139-102. Definitions.
As used in this article, unless the context clearly requires otherwise:

A."State" means the State of South Carolina.
B. "Commission" means the South Carolina Commission for Minority Affairs.
C. "Board" means a quorum or more of the oversight body of the Commission.
D."Tribe" means an assembly of Indian people comprising numerous families, clans, or generations together with their descendents, who have a common character, interest, and behavior denoting a separate ethnic and cultural heritage, and who have existed as a separate community, on a substantially continuous basis throughout the past 100 years. In general, core members of the tribe are related to each other by blood. A tribal council and governmental authority unique to Native American Indians govern them.
E. "Group" means a number of individuals assembled together, which have different characteristics, interests and behaviors that do not denote a separate ethnic and cultural heritage today, as they once did. The group is composed of both Native American Indians and other ethnic races. They are not all related to one another by blood. A tribal council and governmental authority unique to Native American Indians govern them.

F. "Special Interest Organization" means an assembly of people who have united for the common purpose of promoting Native American culture and addressing socio-economic deprivation among people of Indian origin. The organization is made up of Native American Indians and other ethnic races. A tribal council or other form of governing body provides oversight and management. Membership is not required. They may be organized as a private nonprofit corporation under the laws of South Carolina.

G. "Official Record" means a record created, received, sanctioned by, or proceeding from an officer acting in an official capacity.

H. "Lineage" means direct descent from a particular ancestor or the descendents of a common ancestor considered the founder of the line.

139-103. Notification of Recognition Status.

Formal acknowledgement of the decision of the Board of the Commission regarding the status of an application for State Recognition shall be in writing, and may be further acknowledged in other forms (certificate, plaque, and/or culturally appropriate ceremony) as determined appropriate by the Commission.

139-104. Limitations.

A. The Native American Indian entities recognized by this act, their members, lands, natural resources, or other property owned by such entities or their members, are subject to the civil, criminal, and regulatory jurisdiction and laws of the State of South Carolina, its agencies, and political subdivisions, and the civil and criminal jurisdiction of the courts of the State of South Carolina, to the same extent as any other person, citizen or land in South Carolina.

B. Notwithstanding their state certification, Native American Indian entities have no power or authority to take any action that would establish, advance or promote any form of gambling in the State of South Carolina; nor does this provision of law confer power or authority to take any action which could establish, advance or promote any form of gambling in the State.

C. Nothing in this act recognizes, creates, extends, or forms the basis of any right or claim of interest in land or real estate in this State for any Native American Indian entity recognized by the State.

D. Federally recognized tribes retain all federally recognized sovereignty of rights under this provision of law.

E. State recognized tribes that subsequently obtain federal recognition are not bound by the limitations of this provision and therefore, gain and retain all federally recognized sovereignty of rights under this provision of law.

139-105. Criteria for State Recognition.

A. Native American Indian Tribe - requirements 1 through 9 must be satisfactorily met to achieve State Recognition. Requirements 10 and 11 are optional.

(1) The tribe is headquartered in the State of South Carolina and indigenous to this State.

(2) Historical presence in the State for past 100 years and entity meets all of the characteristics of a "tribe" as defined in R.139-102 (D).

(3) Organized for the purpose of preserving, documenting and promoting the Native American Indian culture and history, and have such reflected in its by-laws.

(4) Exist to meet one or more of the following needs of Native American Indian people - spiritual, social, economic, or cultural needs through a continuous series of educational programs and activities that preserve, document, and promote the Native American Indian culture and history.

(5) Claims must be supported by official records such as birth certificates, church records, school records, U.S. Bureau of the Census records, and other pertinent documents.

(6) Documented kinship relationships with other Indian tribes in and outside the State.

(7) Anthropological or historical accounts tied to the group's Indian ancestry.

(8) A minimum of 100 living descendents whose Indian lineage can be documented by a lineal genealogy chart, and whose names, and current addresses appear on the Tribal Roll.

(9) Documented traditions, customs, legends, etc., that signify the group's Indian heritage.

(10) Letters, statements, and documents from state or federal authorities, that document a history of tribal related business and activities that specifically address Native American Indian culture, preservation, and affairs.

(11) Letters, statements, and documents from tribes in and outside of South Carolina which attest to the Indian heritage of the group.

B. Native American Indian Group - requirements 1 through 5 must be satisfactorily met to achieve State Recognition. Requirement 6 is optional.

(1) The group headquartered in South Carolina and indigenous to this State.

(2) Assembled as a "Group" for a minimum of three years, and entity meets all the characteristics of a "Group" as defined in R.139-102 (E).

(3) Organized for the purpose of preserving, documenting and promoting the Native American Indian culture and history, and have such reflected in its by-laws.

(4) Exist to meet one or more of the following needs of Native American Indian people - spiritual, social, economic, or cultural needs through a continuous series of educational programs and activities that preserve, document, and promote the Native American Indian culture and history.

(5) Claims must be supported by official records such as birth certificates, church records, school records, U.S. Bureau of the Census records, or other pertinent documents.

(6) Letters, statements, and documents from state or federal authorities, that document a history of tribal related business and activities that specifically address Native American Indian culture, preservation and affairs.

C. Native American Special Interest Organization - requirements 1 through 4 must be satisfactorily met to achieve State recognition. Requirement 5 is optional.

(1) The organization must represent the interest of Native American Indian people residing in South Carolina.

(2) The organization is recognized as a private nonprofit corporation under the laws of the State.

(3) Letters, statements, and documents from tribes attesting to the work of the organization as it promotes Native American culture and addresses socio-economic deprivation among people of Indian origin.

(4) Formed and operating for a minimum of two years.

(5) Letters, statements, and documents from state and federal authorities that document a history of tribal related business and activities that specifically address Native American Indian culture, preservation, and affairs.

139-106. Purpose of the Native American Indian Advisory Committee.

It shall be the purpose of the Native American Indian Advisory Committee to preserve the true aboriginal culture of the Americas in the State of South Carolina and to advance the Native American Indian culture by:

(A) Advising the Commission regarding Native American Indian Affairs.

(B) Identifying the needs and concerns of the Native American Indian people of South Carolina by bringing such needs and concerns to the attention of the Commission.

(C) Making recommendations to the Commission to address the needs and concerns of Native American Indian people.

(D) Inviting individuals recognized as specialists in Native American Indian Affairs and representatives of the state and federal agencies to present information to members of the Advisory Committee.

139-107. Membership Requirements for the Native American Advisory Committee.

Entities who want to participate on the Native American Indian Advisory Committee must meet and comply with the following minimum requirements:

(A) The entity must have obtained State Recognition designation as either:

(1) A Tribe.

(2) A Group.

(B) Upon receiving State Recognition, the tribal council, and/or governmental authority of the "Tribe" or "Group" must provide in writing to the Commission, the name, address, and telephone number of the voting representative to serve on the Advisory Committee. Designees shall continue to serve until such time as the Executive Director of the Commission is notified in writing of a change by the appointing tribal council and/or governmental authority.

(C) Additionally, representatives from the following organizations shall serve as non-voting advisors to members of the Native American Indian Advisory Committee:

(1) Office of the Governor.
(2) Office of the State Archeologist.
(3) Federally Recognized Tribes.
(4) Commission for Minority Affairs.

(D) The Chair of the Native American Indian Advisory Committee shall be the Executive Director of the Commission for Minority Affairs or a designee appointed by the Executive Director.

(E) The Native American Indian Advisory Committee serves at the pleasure of the Board of the Commission for Minority Affairs.

(F) The Native American Indian Advisory Committee shall meet at least twice a year or at the call of the chair.

(G) The Native American Indian Advisory Committee may establish subcommittees to carry out its purpose.

139-108. Membership, Terms, and Voting Power of the State Recognition Committee.

(A) The State Recognition Committee shall consist of five (5) members:

(1) The State Archeologist.
(2) The Executive Director of the Commission for Minority Affairs.
(3) Two members of the Native American Indian Advisory Committee.
(4) One representative from a South Carolina Native American Indian entity or a notable Native American leader or scholar from across the United States.

(B) The State Archaeologist and the Executive Director of the Commission for Minority Affairs shall serve indefinitely. The Executive Director of the Commission for Minority Affairs shall serve as chair of the State Recognition Committee. The three remaining positions shall serve for two-year terms beginning July 1 and ending June 30 of each two-year term.

(C) Initially, three persons shall compose the Interim State Recognition Committee. This interim group shall consist of:

(1) The State Archeologist.
(2) The Executive Director of the Commission for Minority Affairs.
(3) One representative from a South Carolina Native American Indian entity or notable Native American leader or scholar from across the United States, to be decided by the State Archaeologist and the Executive Director of the Commission for Minority Affairs.

(D) The two entities first obtaining State Recognition shall take their seats on the following July 1 and will represent the Native American Indian Advisory Committee on the State Recognition Committee. Thereafter, the two members representing the Native American Indian Advisory Committee shall be selected by the Committee members, by majority vote from among those "Tribes" and "Groups" having obtained State Recognition.

(E) Upon seating the first two entities to obtain State Recognition on the State Recognition Committee, the four members of the State Recognition Committee shall select one person to fill the seat designated for "One representative from a South Carolina Native American Indian entity or a notable Native American leader or scholar from across the United States." The four State Recognition Committee members may select an individual from among the following categories:

(1) State recognized "Tribe" or "Group".
(2) Federally recognized "Tribe".
(3) Native American Entity.
(4) Native American Leader or Scholar.

(F) The establishment of the first three member Interim State Recognition Committee shall be at the discretion of the Executive Director of the Commission for Minority Affairs. Thereafter, elections shall be held in April every other year, prior to the end of the two-year term for seating of State Recognition Committee members.

(G) An entity applying for State Recognition must receive a majority vote or three (3) affirmative votes out of five (5) to be recommended for State Recognition. The absence of a member or failure of a committee member to vote will be counted as an "Abstention" vote. No member may cast a vote for another member.

(H) In the event that a member is no longer able to serve due to death, illness, or other personal reasons, a written letter of resignation from the governing body of the entity represented should be sent to the Executive Director of the Commission for Minority Affairs. Upon receiving the letter of resignation, the Executive Director

shall move forward to fill the vacancy and the remaining unexpired term in accordance with the guidelines set forth herein. If a member fails to participate after having been appointed to the State Recognition Committee, the Executive Director shall make the Chairperson of the Board of the Commission for Minority Affairs aware of the impact upon the State Recognition process, and the Board may vote to declare the seat vacant. If such occurs, a new appointment may be made in accordance with the manner in which the seat was filled, and in accordance with the guidelines set forth herein.

139-109. Duties of the State Recognition Committee.

(A) The State Recognition Committee shall review all information submitted to the Commission for Minority Affairs from entities seeking State Recognition as:

(1) A Tribe.
(2) A Group.
(3) A Special Interest Organization.

(B) The State Recognition Committee shall review all information submitted in accordance with R.139-102 (D)(E)(F) and R.139-105 (A)(B)(C), and request such information as it deems appropriate and necessary to make a recommendation to the Board of the Commission.

(C) The State Recognition Committee shall receive applications twice a year from entities seeking State Recognition, that being on or before April 1 and September 1 of each year.

(D) The State Recognition Committee shall make its recommendations within 120 days. The Chair of the State Recognition Committee must notify the Chair of the Board of the Commission for Minority Affairs of its recommendation regarding each entity.

(E) The Board of the Commission shall either reject or accept the recommendations of the State Recognition Committee in part, or in whole. In either event, all entities will be advised of the status of their requests and the reason for approval or rejection.

(F) Entities who fail to achieve State Recognition shall not be eligible to reapply for one year from the date of the letter of rejection and in accordance with R.139-109(C).

139-110. Verification of Authenticity of Documents.

(A) All copies of official records and other documents submitted in support of State Recognition of Native American Indian entities must include a means for the State Recognition Committee to ascertain authenticity. In the case of official records, this may include a stamped, dated, embossed, and signed certification on the document by the office from which the record was obtained. For other documents, a signed and notarized affidavit of origin and other relevant information to support authentication is required.

(B) In those instances where records are maintained under lock and key, such as tribal rolls, adoption papers, birth certificates and other legal papers, members of the State Recognition Committee may conduct an on-site review of such documents on the premises of the entity making application. Members of the Committee may request supporting documentation on-site that provides evidence of the existence of a viable Native American Indian "Tribe", "Group", and "Organization".

Article II

139-200. Purpose.
139-201. Scope.
139-202. Duties of Advisory Committees.
139-203. Membership, Terms, Size, and Administration of the Advisory Committees.

139-200. Purpose.

Section 1-31-40(A)(7)(10), South Carolina Code of Laws, provides that “The Commission shall establish advisory committees representative of minority groups, as the Commission considers appropriate to advise the Commission,” and “The Commission shall promulgate regulations as may be necessary to carry out the provisions of this article including, but not limited to, regulations regarding State Recognition of Native American Indian entities in the State of South Carolina;.”

139-201. Scope.

These rules and regulations shall be applicable to all advisory committees, except as specifically addressed separately for Native American Indians.

139-202. Duties of Advisory Committees.

A. Advise the Commission for Minority Affairs regarding socio-economic issues relevant to African Americans, Hispanics/Latinos, Asians and other ethnic minority groups in South Carolina.

B. Identify the needs and concerns of the various ethnic minorities and bring such needs and concerns to the attention of the Commission for Minority Affairs.

C. Make recommendations to the Commission for Minority Affairs to address the needs and concerns of ethnic minority groups.

139-203. Membership, Terms, Size, and Administration of the Advisory Committees.

A. The recommendation and selection of persons to serve on the Advisory Committees shall be made by the Executive Director of the Commission, with the review and approval of the Board of the Commission for Minority Affairs.

B. The committee members shall serve for two year terms and may be recommended for reappointment by the Executive Director of the Commission, with the review and approval of the Board of the Commission for Minority Affairs.

C. Advisory Committees shall not exceed twenty persons.

D. The chair of all Advisory Committees shall be the Executive Director of the Commission for Minority Affairs or a designee appointed by the Executive Director.

E. Advisory Committees serve at the pleasure of the Board of the Commission for Minority Affairs.

F. Advisory Committee members, including Native Americans, serve without compensation or per diem.

G. All meetings, documents and work produced or performed by an Advisory Committee, except as exempted by these regulations, shall be covered by the Freedom of Information Act.

Fiscal Impact Statement:

The South Carolina Commission for Minority Affairs estimates that costs incurred by the State in complying with the proposed regulation will be approximately $210,000.00. These new funds would be used to hire Program Coordinators for Native American Indian Affairs, African American Affairs, and Hispanic/Latino Affairs. Additionally, the agency would need an Administrative Specialist to handle the additional clerical work created by the increased workload with the Native American, Hispanic/Latino, and other ethnic groups. See FY2004-2005 Budget Request.

Statement of Rationale:

The State of South Carolina has agreed to formally recognize its first inhabitants - persons of Indian ancestry. These regulations formally outline how the recognition process will occur. Additionally, these regulations will afford each ethnic minority group an opportunity to advise the Commission through the creation of advisory committees.

Recognizing the State's first inhabitants is a way to continue efforts to improve race relations in South Carolina and to document the rich culture of all groups who call South Carolina home.

Document No. 2850
DEPARTMENT OF REVENUE
CHAPTER 117

Statutory Authority: 1976 Code Section 12-4-320

Regulations: All Regulations in Article 6 of Chapter 117, except SC Regulation 117-105.

Synopsis:

The South Carolina Department of Revenue is considering reorganizing, renumbering and making changes to its property regulations. All regulations in Article 6 of Chapter 117, except SC Regulation 117-105, will be repealed and the reorganized regulations will be added to a new Article 37 of Chapter 117. The regulations will be reorganized and renumbered so that regulations dealing with similar matters can be found together. In addition, each regulation would have several "subsections" numbered in a manner to allow future issues concerning the subject matter to be added on and still be in the same place in the regulation code as other similar issues.

Instructions:

Repeal all regulations in Article 6 of Chapter 117 except South Carolina Regulation 117-105. Add reorganized regulations to a new Article 37 of Chapter 117.

Text:
Article 37 - Property Tax Regulations

117-1700 Definitions – This section provides general definitions to be used in administering property taxes.

117-1700.1 (Reserved)

117-1700.2 Definition of "Power Driven" Farm Machinery and Equipment.

Article X, Section 1 of the South Carolina Constitution and Section 12-43-220(b) of the South Carolina Code of Laws provide~~s~~ for a separate classification for all power driven machinery and equipment, except for motor vehicles registered with the Department of Public Safety, if the machinery and equipment is owned by a farmer and is used on agricultural land that qualifies under Section 12-43-220(d) of the Code. Such machinery and equipment is taxed at an assessment ratio of five percent.

For purposes of administering this provision "power driven" farm machinery and equipment is defined as follows: The word "power" means "to supply with power and especially motive power." All machinery and equipment that is self-propelled, such as tractors and self-propelled combines would fit into the meaning of "power driven**,**" as would any other self-propelled machinery and equipment. Other types of equipment that operate by the power take-off on a tractor or by electrical or some other motive power would fall within the meaning of "power driven." This machinery and equipment includes (1) corn pickers, (2) cotton pickers (3) forage harvesters and blowers, (4) manure spreaders, (5) pickup hay balers, (6) planters, (7) windrowers, (8) conveyor systems, (9) milking machines, (10) processing, grading, and sorting equipment.

117-1700.3 Definition of Utility

The word "utilities" is hereby defined to include but not necessarily be limited to (1) water companies; (2) power companies, whether hydroelectric, steam, atomic, or other kinds for the transmission of power; (3) electric light companies; (4) electric cooperatives; (6) telephone and telegraph companies.
Utilities engaged in the transportation for hire of persons or property are classified separately.

117-1700.4 Definition of Transportation Companies

"Transportation companies" are hereby defined to include but not necessarily be limited to (1) Railroad companies; (2) Pipeline companies; and (3) Express companies.

117-1700.5 Definition of facility

A "facility" is generally a single physical location, where a taxpayer's business is conducted or where its services or industrial operations are performed. Where two or more distinct and separate economic activities are performed at a single physical location, each separate economic activity will be treated as a separate facility when: (1) each activity has its own separate and dedicated personnel; (2) separate reports can be prepared on the numbers of employees, their wages and salaries, sales, or receipts and expenses; (3) and employment and output are significant as to the activity. For purposes of item (2) above, it is irrelevant if separate reports are actually prepared, so long as separate reports can be prepared, this criteria is met.

117-1700.6 Definition of Parsonage.

This rule is adopted pursuant to the authority conferred by Sections 12-4-320(1) and 12-4-560 of the South Carolina Code of Laws, as amended, to further define a parsonage that is exempt from property taxation.
A parsonage is a church owned residence that is provided for its pastor, minister and associate ministers, whether ordained or not, and all such residences shall be exempt from all property taxation.

117-1700.7 Definition of Plant Site

A plant site shall consist of all land contiguous to a plant which is related to the overall manufacturing operation. It shall include all land on which personal property is located including but not limited to the following: parking lots, manufacturing areas, buildings, landscaping, piping, railroad siding, docking, water sheds, ditching, pollution control facilities, pumping stations, wells, roads, water tanks, areas for ingress and egress, water storage facilities, and all other lands directly related to manufacturing. When possible, a plant site will be one contiguous parcel using legal and or natural boundaries.

117-1720 Department of Revenue Responsibilities – These regulations are designed to address the Department of Revenue's Responsibilities in the Area of Property Tax and How the Department Administers Its Responsibilities.

117-1720.1 Responsibilities of the Department of Revenue with Respect to Property Taxation and Fee in Lieu of Property Taxes and Those Matters Handled by the Office of the Comptroller General.

Section 1. Purpose

This regulation seeks to clarify the jurisdiction of the Department of Revenue with respect to property taxation and fees in lieu of property taxes, to establish a set of agreed upon procedures the Department of Revenue will follow in referring matters to the Office of the Comptroller General and in administering its respective area of responsibility, and to establish a guide for county officials to use in interacting with the Department of Revenue on these subjects. These guides and procedures are not intended to be all inclusive and are intended to cover only those areas where doubt has existed between the two agencies and with the local officials. The further purpose of this regulation is to improve the services of the Department of Revenue to the public and to local county officials who are subject to its supervision. A further goal is to provide consistent, accurate and timely advice to those

officials who depend upon this information in order to perform their duties pursuant to law and to be able to deal with the public in a consistent manner.

Section 2. Department of Revenue Jurisdiction over Functions

A. General Information

Generally speaking, the Department of Revenue (Department or DOR) has jurisdiction over the duties involved with the proper assessment of property for tax purposes and the proper calculation of property taxes, while the Comptroller General supervises the collection of taxes and penalties, and administers the Homestead Tax Exemption Program, including the exemption from school operations found in Section 12-37-251, except for those functions specifically reserved to the DOR.

B. Section 12-4-520

Section 12-4-520 outlines in general terms the area of responsibility granted to the DOR by the General Assembly. Subsections (1) and (2) of that section grant DOR jurisdiction over assessors and county boards of tax appeal. Subsection (3) grants DOR jurisdiction over the assessment and equalization functions. It includes jurisdiction over the "taxation" of property and DOR is granted the power to investigate and take necessary action to insure that those functions are carried out properly. To the extent that it may not have been impliedly repealed, subsection (4) also states that the DOR, as often as annually, shall examine all the books, papers and accounts of assessors, auditors, treasurers and tax collectors, with a view to protecting the interests of the state, counties, and other political subdivisions and rendering these offices aid or instruction.

C. "Gray" Areas

There are "gray" areas as to when the assessment of property for tax purposes and the proper calculation of property taxes ends (DOR) and the collection jurisdiction (Comptroller General) begins. These areas which are not clearly assigned by the statutes are divided by agreement between the two agencies. This regulation formalizes how DOR will handle these issues.

D. Procedure in "Gray Areas"

If a question arises, and it is unclear under the terms of this agreement, or by statute, as to whom the question should be directed, the following applies: (1) if the question involves an assessor or the functions of the assessor, the question will be handled by DOR; (2) if the question involves the duties of the auditor, treasurer, or tax collector, the DOR will first refer the matter to the Comptroller General.

Section 3. Handling of Matters Within DOR's Jurisdiction

A. Questions and Complaints.

When DOR has jurisdiction over the function complained of or questioned, it will address the complaint or answer the question received from a county official.

B. Areas under the Jurisdiction of DOR.

1. Refunds, except for Homestead Exemption, manufacturers' depreciation reimbursement, and exemption from school operations (Sections 12-37-250, 12-37-935, and 12-37-251).
2. Abatements (except for nulla bona actions under Section 12-49-85 and the Homestead Exemption under Section 12-37-250 and the exemption from school operations under 12-37-251).
3. Penalties and interest where DOR has assessment jurisdiction, other than penalties and interest for late payments collected by the counties. (Section 12-37-250 and 12-37-251).

4. Motor Carrier tax collections. (Section 12-37-2810 through 12-37-2880.)
5. Determination of the 80% for property under appeal. (Section 12-60-2550.)
6. Millage and assessment ratios
7. Tax Bills and Notices
8. Exemptions, other than the Homestead Exemption and the exemption from school operations (Sections 12-37-250 and 12-37-251).
9. Extension of time for the performance of the duties imposed upon the assessors and auditors for the valuation of property for tax purposes, unless specific statutory provisions indicate otherwise. (Section 12-4-520(6).)
10. Postponement of the time for the imposition of penalties, when the Comptroller General extends the time for the collection of taxes. (Section 12-4-520(6).)
11. Supervisory authority over the values to be placed upon the duplicate: Tax Map Numbers, assessments and valuations, millage computation processes, exemptions - except those administered by the Comptroller General - assessment ratios and other required data. Sections 12-4-520, 12-4-530, 12-39-260, and Regulation 117-117.

C. Duties of County Auditors that DOR will refer to the Comptroller General.

1. Continuing education requirements. Section 12-39-15.
2. Completion of county tax books and opening date. Sections 12-39-140 and 12-39-150.
3. Compiling the duplicate and the form of the duplicate. Sections 12-39-150, 190, 200.
4. Nulla Bona actions. Section 12-49-85.
5. The Homestead Tax Exemption Program (Section 12-37-250 et seq., to include Section 12-37-251, except for those functions in Section 12-37-251 reserved to the Department of Revenue);
6. Annual tax reports. Sections 12-39-140 and 12-45-300.
7. Forfeited Land Commission. Section 12-51-55.

D. Duties of County Treasurers that DOR will refer to the Comptroller General

1. Media of payment of taxes. Section 12-45-90.
2. Apportionment of taxes and costs. Sections 12-45-140 through 170.
3. Time for the payment or collection of taxes. Sections 12-45-70 and 12-4-520(6).
4. Collections and executions. Section 12-45-180.
5. Annual tax reporting. Section 12-45-300.
6. Treasurers' and tax collectors' delegation of duty to seize property. Section 12-45-400.
7. Partial and installment payments and application of payments of delinquent taxpayers. Sections 12-45-410 and 12-45-75.
8. Enforced collections. Generally Chapters 49 and 51 of Title 12.
9. Penalties and interest, except for those instances under DOR responsibility.
10. Homestead tax exemptions. Section 12-37-250 through 12-37-295, including the exemption from school operations in Section 12-37-251, except for those functions in Section 12-37-251 specifically reserved to the Department of Revenue.
11. Business inventory tax and manufacturers depreciation reimbursements. Section 12-37-450 and Section 12-37-935.
12. The collection of Motor Vehicle Taxes, other than Motor Carrier taxes. (The Department of Revenue is charged with all aspects of the collection of motor carrier property taxes. Sections 12-37-2810 through 2880.)
13. County treasurers' continuing education requirements. Section 12-45-15.
14. Forfeited Land Commission. Section 12-59-10.

E. Procedures.

The procedures to be used by DOR are as follows:
Upon receipt of letter or call requesting information:
(1) Determine if inquiry is under jurisdiction of DOR;
(2) Refer inquiry to the Comptroller General when it is the appropriate agency; and
(3) All responses under DOR's jurisdiction will be made by DOR, with a copy to the Comptroller General.

117-1720.2. General Requirements for Ratio Study.

In accordance with Section 12-43-250 of the South Carolina Code of Laws, the Department of Revenue shall annually make a ratio study of all the counties in the State to determine if the level of appraisal and/or assessment and the degree of equity has been achieved as required by law. This information shall be obtained initially from the Assessor and field checked when necessary by personnel from the department. The sales that best reflect market value sales will be used to make an analysis to determine the level of appraisal and/or assessment and the degree of equity. If a county has a median appraisal level for all property as a whole or any class higher than 105% or lower than 80% of fair market value it shall be deemed unacceptable by the department. If the index of inequality reaches a rating higher than 15% for the county as a whole or any class of property, it shall be deemed unacceptable by the department. However, in the classification of agricultural when there is an insufficient number of market sales to determine the level of appraisal or the index of inequality, the department shall make a determination as to whether or not reassessment is required.

B. Average Appraisal. The median shall be the criteria to determine the level of appraisal or assessment for all property as a whole or for any class.

C. Index of Appraisal or Assessment Inequality. The index of inequality is defined as: one-half the difference between the ratio of the third and first quartile values over the median ratio.

$$\frac{1/2(Q3 - Q1)}{Median}$$

The answer when computed is registered as a percent. Whenever this formula is used on all property as a whole or any class with a rating above 15%, it shall be deemed unacceptable by the department.

D. Appraisal in Lieu of Sales. Whenever a county lacks sufficient market value sales to make an accurate ratio study for the county as a whole or any class, the department shall make appraisals of real property which shall be used in lieu of sales in ascertaining level of assessment and the degree of equity.

E. Valuation of Agricultural Property Based on Use. The department shall make studies to determine if agricultural real property is being appraised based on use as prescribed by law. The department shall make necessary studies to estimate what the market value of agricultural real property is when the highest and best use is for agricultural purposes.

F. Counties' Failure to Meet the Requirements of the Law. Ratio studies will be made from market value sales taking place from January 1 through December 31 of each year and the county shall be notified of the findings of the ratio study on or before June first.

When a county fails to meet the standards herein prescribed, the department shall notify the county assessor and governing body by June first that the county fails to meet the standards and that a reassessment program must be immediately initiated which must be completed within two (2) years from the date of the notice or unless a one-year extension is granted within the two (2) year period because of extreme circumstances. All corrections in market sales reported for the preceding calendar year must be made to the department on or before March 21st of the year in which the reassessment program is to be implemented.

A failure to implement an acceptable reassessment program by June first of the year in which implementation of the program is required will mandate an order to the county auditor to abate or reduce the assessed value of all other classes of property at the level of assessment of the real property included in the program.

117-1720.3 Computation of Index of Taxpaying Ability for School District When Property is Under Appeal

Section 59-20-20 of the South Carolina Code of Laws as amended, requires the Department of Revenue to compute the index of taxpaying ability for each school district in South Carolina. The final index is to be furnished to the Department of Education and the auditor of each county on or before February 1 of each year. Changes and corrections may be made to the index before February 1 but no change is allowed after that date.

When an assessment is under appeal and the appeal extends beyond the year in which the assessment is made, the department will not take into account the full value of the property. Instead, for real property, the department will only take into account eighty percent of the assessed value or any valuation greater than eighty percent agreed to in writing by the taxpayer; and for personal property, the department will only take into account the value asserted by the taxpayer in the appeal. Once the appeal is resolved, the department will adjust the index in the year the appeal is resolved by the amount of any difference between the assessments.

When an appeal of the assessed value of property assessed pursuant to Section 12-43-220(a) of the Code (the assessment ratio for manufacturing or utility property) extends for more than two years and the amount in dispute is more than thirty percent of the total of assessed value of property in the school district in which the property under appeal is located, the index of taxpaying ability for the school district must be calculated using the value asserted by the taxpayer in the appeal, even if it is less than eighty percent of the assessed value.

The department shall maintain the necessary records for property under appeal The Auditor shall notify the department of the value of property currently under appeal, the value of property that was under appeal where the appeal is now resolved and the value has been determined and of any additional assessment. The Auditor shall furnish this information to the department on or before October 1 of each year.

117-1740 County Administrative Requirements and Forms to Filed with the County.

The purpose of these regulations are to define the general administrative requirements applicable to the counties in the administration of the property tax law and to provide information to be requested or used in county forms for purposes of administering the property tax laws of this State.

17-1740.1 General Requirements for Building Permits.

Section 1. Under the authority provided by Sections 12-43-240 and 12-4-550(1) of the South Carolina Code of Laws, building permits shall be issued for the entire county for each county in the State by the proper authorities designated by the county to issue such permits and copies of the building permits shall be furnished to the County Assessor within the time limit provided by Section 12-43-240. The information required to be in the building permit includes the information provided in Section 2, as well as any other information the Department of Revenue directs. The County Assessor shall furnish to the department copies of building permits within 30 days after issuance for all real property assessed by the department.

Section 2. All building permits must contain the following information.

1. Name of County – Date – Permit Number

2. Name and address of owner – school and/or tax district

3. Location of improvement – type of improvement

4. Subdivision with Lot Number & Block Number or Number of Acres

5. Type of work – New Improvement ( ) Alteration ( )Repair ( ) Add To ( )
Move ( ) Demolish ( )

6. Use of Improvements - Residential Single Family ( ) Duplex ( ) Apartment ( )
Commercial ( ) Institutional ( ) Warehouse ( ) Manufacturing ( )
Utility ( ) Other with description ( )____

_____.

7. Cost of Construction _____ Fee_____

8. Contractor or builder _____

9. Architect or engineer _____

10. If building, Number of Square Feet _____

11. Type of Construction: Frame ( ) Metal ( ) Wood ( )
Other with description _____

12. Exterior: Brick ( ) Concrete Block ( ) Stone ( ) Brick Veneer ( )
Stucco ( )Metal ( ) Wood ( ) Glass ( ) Other, including siding, with description
_____

13. Eve height and number of stories _____

14. If residential, number of rooms _____
Number of baths _____ Number of bedrooms _____

15. Type of heating: Hot air ( ) Radiator ( ) Hot water ( )Steam ( ) Central air conditioning ( )

15. Type of fuel: Gas ( ) Electric ( ) Oil ( ) Wood ( ) Coal ( )

16. Number of fireplaces: _____

17. Estimated Date of Completion _____

18. Tax map number _____

19. Signature of the owner, contractor or agent _____

20. Who the permit was issued by _____

21. Date of Issuance _____

117-1740.2 Cadastral Maps and Parcel Identifiers.

Section 1: Scope

This regulation provides requirements for the development and maintenance of cadastral maps and parcel identifiers which will be used by the Assessors to locate, inventory and appraise all real property within their jurisdiction. A county may elect to develop and maintain a manual mapping system or a digital (automated) mapping system; however, each county shall have a system of maps that conform to the minimum standards contained herein.

Section 2: Definitions

A. Base maps locate the major physical features of the landscape and contain the fundamental information from which the cadastral maps are prepared. Base maps should be tied to the geodetic network, either by means of ground control surveys or satellite methods of surveying. Base maps provide the means to relate the locations of cadastral parcels to the geodetic reference framework. Base maps can be in the form of line maps (generated manually or by computer) or photographic maps. Regardless of the form, base maps are usually created from aerial photographs. Aerial photographs provide an efficient and economical means for preparing the base maps.

B. Cadastral maps, also known as tax maps, should be viewed as overlays to the base maps. There should be cadastral maps for the entire assessing jurisdiction, showing ownership, the size and position of each parcel in relation to other properties, bodies of water, roads, and other major geographic features. The maps should be produced at an appropriate scale and display all boundary lines, dimensions, or areas; identifying parcel numbers; and other pertinent legal and descriptive information. The maps provide a physical framework upon which non-physical parcel information can be displayed, such as assessment comparisons, land appraisals, and market or other statistical data.

C. A parcel of land, for the purposes of this regulation, is a contiguous area of land under one ownership. The parcel is the area of land that, as determined by the Assessor, should be included in the description for appraisal and assessment purposes after considering all legal and practical factors. Parcels may have been conveyed by one or more legal instruments, or created by survey, and may contain several lots or fractions of a lot. Each parcel represents one property record, which is one unit of land that is capable of being separately assessed.

Section 3: Map Content

Each county shall have a system of maps that conform to the following minimum standards:

1. Aerial photography must cover the entire county. This photography may be stored on reproducible hard-copy material or may be stored as digital or scanner computer files. In either case, the county shall maintain the ability to provide hard-copy reproductions of the photography. New photography must match the existing photography within three percent (3%) of the width and length and contain all of the neat area.

Reflights of aerial photography for the entire county must be made every ten years. Counties may delay reflights for a period of up to two years with written permission from the Director of the Department of Revenue or his or her delegate. An example of a reason for requesting a delay of a reflight would be a county had experienced little or no change.

Each photograph will be individually rectified to best fit a minimum of three (3) identifiable points each of which will be spaced at least 5" apart at the mean elevation of the terrain on the negative scale of photography. As related to these points, there shall be no more than a three percent (3%) scale error between each point taken from available existing maps, such as large scale base maps or existing cadastral maps.

The flights will be made during snow free months when foliage is off the deciduous trees. The photography will be made during the hours of 9:30 A.M. to 3:00 P.M. Eastern Standard Time and when the altitude of the sun is at least 30 degrees above the horizon.

In addition, there shall be at least a three (3) inch overlap for rectified photo enlargements, and at least a 1.5 inch overlap for orthophoto enlargement. The camera used shall meet the U. S. Geological Survey specifications.

2. Scale of Photography

A. Counties acquiring aerial photography shall utilize the following scales:

1. Property outside incorporated city limits or subdivisions - 1" = 400'

2. Property within incorporated city limits and subdivisions - 1" = 100' or 1" = 50'

B. Deviation from scales set forth herein may be modified only with written permission of the Director of the department or his or her delegate. Before approving a deviation from the scale, the county must provide the department with a recommendation from the South Carolina Office of Research and Statistical Services of the Budget and Control Board that the scale proposed to be adopted by the county is sufficient to provide the information required by this regulation and is appropriate to use in preparing the map.

3. Cadastral Map Preparation. Cadastral maps shall be prepared using aerial photography (Section 3, part 1) as the base map. Other available sources deemed reliable by the Assessor may be used to compile the cadastral map such as deeds, plats, field research and existing maps as well as county, state and federal statutes identifying boundaries. Each cadastral map shall be compiled at the same scale as the corresponding aerial photographic base map, shall be oriented north, and shall show the following:

A. Boundaries of each property, lot or parcel identified by the Assessor.

B. Dimensions of each property, lot or parcel identified by the Assessor to the nearest foot where possible.

C. Assessor's assigned parcel identifier.

D. Streets, railroads, rights-of-way, rivers, lakes**,** and streams (and their names).

E. Acreage of the property, lot**,** or parcel rounded to the nearest tenth of an acre (for parcels five acres and larger).

F. Names of Subdivisions.

G. Scale of the map.

H. Adjoining map references and/or match lines.

I. Tax Districts.

J. Municipalities

K. County Name.

L. NORTH Arrow.

M. Disclaimer note indicating that this is not a survey.

4. Cadastral Map Maintenance. Cadastral maps shall be continually maintained by qualified personnel. As rural areas develop, 1" = 400' maps should be converted to 1" = 100' maps. Parcels may be mapped at 1" = 100' scale in areas where no 1" = 100' photography exists.

5. Any county obtaining new photography or reflights of existing photography shall consider recommendations of the South Carolina Office of Research and Statistical Services of the Budget and Control Board.

6. Each county shall have the ability to reproduce the aerial photographs and cadastral maps.

Section 4: General Requirements.

1. Maps and /or digital map data shall be numbered and filed in such a manner as to be readily retrievable for review, maintenance and/or reproduction.

2. Ownership records must be created, maintained and cross-referenced alphabetically by owner name, and numerical parcel identifier.

3. All maps shall be maintained in a timely manner to reflect all legal and physical changes.

4. There shall be indexes for maps of all scales indicating the map number, the area covered by the map, and location of the map.

5. If a county elects to establish a coordinate based mapping system, the maps and mapping procedures must meet the requirements contained in the publication "Standards and Procedures for County Base Mapping**,**"~~,~~ published by the South Carolina Office of Research and Statistical Service of the Budget and Control Board.

Section 5: Numbering System.

1. Each county in the state shall have a standardized parcel numbering system. If a county utilizes a manual mapping system, a sequential parcel numbering system shall be used that shall conform to the following minimum standards:

A. Each parcel shall be identified by a minimum of a ten (10) digit number which shall include:

Map Number - 3 digits

Sub-map Number - 2 digits

Block Number - 2 digits; and

Parcel (lot) Number - 3 digits

B. Each character within the identification number shall be numeric - no alpha (letter) characters shall be permitted.

C. Additional characters and/or decimals may be added to each field of digits; however, all additional characters shall be numeric. No alpha (letter) characters shall be permitted.

D. All characters within the numbering system shall be used to identify ownership parcels relative to map, sub-map, block and parcel number. No references to political subdivisions (school districts, municipalities, etc.) shall be included within the numbering system.

2. If a county utilizes a digital mapping system which is referenced to the S. C. State Plane Coordinate (SPC) System: that meets or exceeds National Standards of Map Accuracy as determined by the South Carolina Office of Research and Statistical Services of the Budget and Control Board, a coordinate-based parcel numbering system may be used in lieu of or in conjunction with a sequential parcel numbering system. The coordinate-based system must meet the following minimum requirements:

A. The visual center (centroid) of each parcel shall be assigned a coordinate value based upon its location within the S. C. SPC. This coordinate shall consist of a fourteen (14) digit number representing the Easting (7 digits) in feet and the Northing (7 digits) in feet. For example, coordinates for the visual center of a parcel as measured from the cadastral map:

"X" coordinate (Easting) - E 2,715,569

"Y" coordinate (Northing) - N 0,756,737

B. The digits in each coordinate value are paired by taking each digit separately from the east-coordinate and matching it with the corresponding digit of the north coordinate.

20 77 15 56 57 63 97

EN EN EN EN EN EN EN (E-Easting, N-Northing)

C. With this arrangement, the above example of a parcel identifier may be sorted as follows:

20 – Redundant lead number

7715 – number of basic map module at scale of (1” – 400’)

56 – Block number

5763 – Lot or parcel number

97 – utilized only to extend the capacity of the system

D. The parcel Identifier is obtained by recording the middle three sets of numbers (ten digits), and is written with dashes as follows:

7715-56-5763

E. Records of condominiums, townhouses or other cases of diverse ownership on one parcel of land will be further identified by the use of a decimal at the end of the parcel identifier with three (3) digits to the right of the decimal. The records for a condominium unit or units built on the above described hypothetical parcel could be assigned a suffix number to the parcel identifier of .001 through .999. For example, a condominium unit could have the following parcel identifier number.

7715-56-5763.008

117-1740.3 General Requirements for Appraisal Records.
Section 1. For the purposes of valuing property for ad valorem tax purposes, each county in the State shall keep the necessary records on all property to value such property in accordance with the laws of this State. The information required to be kept includes, but is not limited to, the information provided in Section 2, as well as any other information the Department of Revenue directs.

Section 2. There shall be a property appraisal record for each parcel of property in the county which shall contain the following information.

1. The name and address of the owner of the property;

2. the location of the property**;**

3. the Tax Map reference number for the property;

4. the Tax District where the property is located;

5. references to the last previous owner with deed book and page if obtained by deed or the proper legal reference as to how the property was obtained, if obtained by another method;

6. a legal description of the property;

7. the appraised value of the property;

8. the assessed value of the property;

9. the plat book and page if the property has been recorded with the Clerk of the Court or the Register of Mesne Conveyance. In addition, the date of the last transfer of the property shall be listed along with the consideration paid or the amount of any deed stamps or recording fees paid with respect to the transfer of the property;

10. the date of inspection;

11. the classification of the property according to the classifications provided in Article X, §1 of the South Carolina Constitution and Chapter 43, Title 12 of the South Carolina Code of Laws;

12. the topography characteristics of the land;

13. land improvements such as water, sewer, gas and electricity;

14. lot size to the nearest foot;

15. if listed in acreage, the number of acres;

16. a sketch, or dimensions of the real property improvements which contribute value, listing the measurements, number of stories, basement, porches, garages, outbuildings and other similar types of real property improvements**;**

17. calculation of the square footage of the real property improvements;

18. the name of the individual who appraised the property.

19. The following characteristics will be identified as to their type, condition, and number, whichever is applicable; foundation, basement, walls, roof, number of stories, number of bedrooms, fireplaces (including number thereof), garages and carports, storage rooms, types of heating and air conditioning, insulation, and kitchen built-ins.

20. For commercial and industrial property not assessed by the department the following characteristics should also be noted: type of wiring, type of sprinkler system, capacity of heating and air conditioning, humidification, type of roof structure, type of roof supports, eve height of improvements, annual rent received, and estimated remaining economic life.

21. The Assessor shall keep a record of the market value of agricultural property based on highest and best use and actual use for a period of at least six years, so that if the use should change, the property taxes can be calculated based on the market value for the year of the change and the previous five years.

Section 3. If any county has completed a program as of December 31, 1975, such county may be exempted from portions of the above provisions with written permission from the department.

Section 4. A county is allowed to keep an electronic record of the information contained in Section 2 above, in lieu of, or in addition to, a paper copy of the property appraisal record.

Section 5. The Assessor will**,** to the best of his or her ability**,** estimate the fair market value for all real property under his or her jurisdiction as of the assessment date, and this value shall be the value to which the assessment ratios provided in Chapter 43, Title 12 of the Code will be applied.

Section 6. If a county keeps a separate property record, the county may omit the information contained in items 1, 5, 6, 8, and 9 listed in Section 2 above from the property appraisal record.

117-1740.4 Form to Provide Department of Revenue with Information for Ratio Studies. (117-116)
Under the authority provided for in Section 12-4-550(1) of the South Carolina Code of Laws, all counties shall furnish to the Department of Revenue the information provided for on forms furnished by the department except for transfers which involve a true consideration of less than $100 and sales of properties that the sale price does not include the same land area and improvements as shown on the assessment roll or appraisal record. This information shall be forwarded to the department within forty-five days after the deed has been recorded commencing with all deeds recorded after December 31, 1975.

The information furnished shall be on forms provided by the department or in an electronic form such as a computer tape that is approved by the department. The county assessor shall furnish the information for all real property transfers except transfers which are by death or time share properties. The information shall be furnished to the department on a monthly basis by the last day of the following month. However, if the information is furnished to the department in electronic form such as a computer tape that is approved by the department, it shall be furnished to the department for each calendar year on or before the following January 31st next succeeding. If the county wishes to furnish this information more frequently, they may do so. The following information shall be furnished by the Assessor to the department when available.

1. County
2. Deed book and page
3. Seller, Mailing Address and Social Security or Federal Identification Number
4. Purchaser and mailing address
5. Date of sale
6. Tax district and school district
7. Total consideration-sale price
8. Number of acres
9. Number of lots

10. Improved or unimproved
11. Tax map number
12. Major legal classification at time of transfer (residential, agricultural, all other, department jurisdiction, manufacturing or utility, government or exempt)
13. Appraised value (market value) -land, improvements, total-condominiums and property with common areas, only the total is required.
14. Appraised use value (if applicable)
15. Appraisal district (optional)
16. Sub-classification (optional)
17. If it split off another parcel
18. Indicate if new owner might qualify to be exempt
19. Indicate if the sale is a true sale (market value). If no, why?

The Assessor will indicate one of the following reasons:
a. What sold does not match the appraisal record
b. Family Sale
c. Gift
d. Personal or other property included
e. Mortgage assumption cannot be determined
f. Foreclosure sale
g. Partial interest
h. Contract sale or bond for sale (if old)
i. Other (with explanation)

117-1760 Classification of Property – General Provisions as to Use of Property

The purpose of these regulations are to provide information about classifying companies and property for property tax purposes.

117-1760.1 Classification of Companies.

The major operation of the company shall regulate such classification where the company is involved in more than one operation.

117-1760.2 Multi-Use Property.

Code Sections 12-43-210 to 12-43-310 of the South Carolina Code of Laws provides classifications of property for property tax purposes at different ratios of assessment.

If a particular piece of property is used for more than one purpose, then the value of the total piece of property must be allocated on some equitable basis. Then separate ratios could be applied to arrive at the assessed value of each part. For example a duplex in which the owner resides in one part and rents the other part the value of the duplex must be allocated on an equitable basis, such as square footage.

117-1780 Classification of Property - Agricultural Use Property

These regulations address the application of the property tax laws to agricultural property and how property may qualify as agricultural use property. (See also, Property Tax Regulation 117-1840.4 on how to value agricultural use property)

117-1780.1 Definition of Agricultural Real Property.

Agricultural Real Property, as that term is used in 12-43-220(d), 12-43-230, and 12-43-232 of the South Carolina Code of Laws means a tract of real property which is used for agricultural purposes. Real property must meet the requirements for agricultural real property of Code Sections 12-43-220(d), 12-43-230 and 12-43-232 in order to be classified as agricultural real property. Additionally, the term Agricultural Real Property shall not include any property used as the residence of the owner or others. In no event shall real property be classified as agricultural real property when such property is not used for bona fide agricultural purposes. Real property is not used for agricultural purposes unless the owner or lessee thereof has, in good faith, committed the property to that use. Real property which is ostensibly used for agricultural purposes, but which is in reality used for other purposes, is not agricultural real property. The agricultural use of the property must be genuine in nature as opposed to sham or deception. The following factors shall be considered by county assessors in determining whether the tract in question is bona fide agricultural real property: (These factors are not, however, meant to be exclusive and all relevant facts must be considered.)

1. The nature of the terrain

2. The density of the marketable product (timber, etc.) on the land

3. The past usage of the land

4. The economic merchantability of the agricultural product

5. The use or not of recognized care, cultivation, harvesting and like practices applicable to the product involved, and any implemented plans thereof.

6. The business or occupation of the landowner or lessee, however, the fact that the tract may have been purchased for investment purposes does not disqualify it if actually used for agricultural purposes.

In cases in which the real property is committed to more than one use, one use being agricultural use and the other use or uses being unrelated to agriculture the agricultural activity use must comprise the most significant use of the property in order for it to be classified as agricultural real property.

The following uses of real property do not qualify as agricultural:

1. Recreation

2. Hunting Clubs

3. Fishing Clubs

4. Vacant Land (land lying dormant)

5. Any other similar use.

117-1780.2 Agricultural Special Assessment Applications

I. Qualifications--Requirements. Agricultural real property which is actually used for such purposes, not including however, a corporation which is the owner or lessee except for certain corporations which do not:
1. have more than ten (10) shareholders
2. have as a shareholder a person (other than an estate) who is not an individual
3. have a non-resident alien as a shareholder; and
4. have more than one (1) class of stock

II. Definition of Agricultural Real Property. Agricultural real property shall mean any tract of real property which is used to raise, harvest or store crops, feed, breed or manage livestock, or to produce plants, trees, fowl or animals useful to man, including the preparation of the products raised thereon for man's use and disposed of by marketing or other means. It includes but is not limited to such real property used for agricultural, grazing, horticulture, forestry, dairying, and mariculture. In the event at least 50% of a real tract shall qualify as "agricultural real property", the entire tract shall be so classified, provided no other business for profit is being operated thereon. The term "agricultural real property" shall not include any property used as the residence of the owner or other in that the taxation of such property is specifically provided for in Section 2(C) and (E) of the Act.

III. Name shown on Property Tax Record Soc. Sec. No. OR Fed. I.D. No.

1. _____ _____
2. _____ _____

If more than two (2) owners, attach a sheet with above information on each owner.

IV. Tax Map Sheet Reference Number _____
Location of tract of land _____
No. of Acres _____
Tax District _____

V. Purpose for which the tract of real property is being used.

_____
_____

VI. Is any portion of the entire tract being used for other than agricultural profit.

NO _____ YES _____ IF YES, EXPLAIN

_____
_____

Based upon my knowledge and interpretation of the requirements for the special assessment and use value appraisal, I certify that the tract of land described in this application meets such requirements for the current tax year.

_____
Signature of owner or agent

_____
Date Phone No.

If agent signed for owner, give relationship and mailing address;

_____
_____

117-1780.3. Roll Back Provisions on Agricultural Land.
Whenever a tract of real property has 50% or more of its area being used for agricultural purposes, the entire tract shall qualify for agricultural real property. Excluding, however that portion on which a business is operated for profit or on which is located the residence of the owner or others in that the taxation of such property is specifically provided for in Sections 12-43-210 to 12-43-310 of the South Carolina Code of Laws. If all or a portion of the agricultural part of the tract should change in use as to disqualify the non-agricultural portion which was receiving the agricultural classification, then only that part of the agricultural portion and the non-agricultural portion on which the use changes, shall be subject to the roll-back Code Sections 12-43-210 to 12-43-310.

117-1800 Classification of Property – Legal Residence

These regulations address the application of the property tax laws to residential property and how property may qualify as legal residence property.

117-1800.1 Application for Special Assessment as Legal Residence.

1. Qualification Requirements. The property must be occupied by the owner as his legal residence and the property and the owners of the property must meet the requirements of Section 12-43-220(c) of the South Carolina Code of Laws. The legal residence includes not more than five acres contiguous to the actual residence owned totally or in part in fee, or by life estate, but shall not include any portion which is not owned and occupied for residential purposes. If the residential real property is held in trust and the income beneficiary of the trust occupies the property as a residence, then the four percent assessment ratio described in Code Section 12-43-220(c) applies if the trustee certifies to the assessor that the property is occupied by the income beneficiary of the trust.

2. Definition of Legal Residence. For property tax purposes the term "Legal Residence" shall mean the permanent home or dwelling place owned by a person and occupied by the owner thereof and where he or she is domiciled.

3. This application must be completed in full and the owners of the property or the owners' agent must apply for the four percent legal assessment ratio before the first penalty date (January 15) for the payment of taxes for the tax year for which the owner first claims eligibility for the four percent assessment ratio. The application must be filed with the county assessor and must include, but is not limited to, the following information:

A. Name(s)shown on property tax record _____

B. Owner's name and social security number. If more than one owner, list all owners of the property with applicable social security numbers.

_____ _____

_____ _____

_____ _____

C. Tax map sheet reference number _____
Location of the Property_____ Legal Description of the Property
_____
_____
_____
_____
_____
_____

D. The date the applicant began to occupy the property _____

E. Precinct in which the applicant is registered to vote _____

F. Are there any other buildings including apartments or land area rented on the property: Yes ( ) No ( )
If yes, describe _____

G. Is the property subject to vacation rentals as provided in Title 27, Chapter 50, Article 2 of the South Carolina Code of Laws for more than 90 days during the year?
Yes ( ) No ( )

H. The application must contain the following statement:

"Under penalty of perjury, I certify that:

(A) the residence which is the subject of this application is my legal residence and where I am domiciled at the time of this application and that I do not claim to be a legal resident of a jurisdiction other than South Carolina for any purpose; and

(B) that neither I nor any member of my household is residing in, or occupying, any other residence which I or any member of my immediate family has qualified for the special assessment ratio allowed by this section."

For purposes of the statement, "a member of my household" means (1) the owner- occupant's spouse, except when that spouse is legally separated from the owner-occupant; and; (2) any child of the owner-occupant claimed, or eligible to be claimed, as a dependent on the owner-occupant's federal income tax return.

I. Any other information that the county assessor determines is necessary to establish the domicile of the taxpayer.

J. Owner or agents' signature _____ Date _____ Ph. No. _____

Co-owner's or agent's signature _____ Date _____ Ph. No. _____

If agent signed for owner, give relationship and attach authorization that provides authority for agent to sign on behalf of owner_____

Mailing address: _____

117-1820 Manufacturing Plants Constructed Pursuant to the Industrial Revenue Bond Act.

These regulations address how manufacturing plants that are subject to the Industrial Revenue Bond Act are to be treated.

117-1820.1 Manufacturing Plants Constructed Pursuant to the Industrial Revenue Bond Act.

The Lessee of all manufacturing plants constructed pursuant to Chapter 29, Title 4 of the South Carolina Code of Laws, shall file a return with the Department of Revenue in the same manner as if owned by the lessee. The department shall value and calculate an assessment for the manufacturing plant in the same manner as if owned by the lessee and furnish the assessment to the county in which it is located as information so that the county, school districts and other political units may determine such rental charge as required by law which would be equivalent to the ad valorem tax that would result if such property were privately owned.

117-1840 Valuation of Property Subject to Property Taxes

These regulations address how property subject to South Carolina property taxes are to valued.

117-1840.1 Value of Merchants' Furniture, Fixtures and Equipment.
The fair market value of merchants' furniture, fixtures and equipment shall be the depreciated value as shown by the merchants' records for South Carolina income tax purposes, provided however, that in no event is the original cost of the property to be reduced by more than ninety percent of the original capitalized costs.

117-1840.2 Use of Assessment Guides Published by the Department

a. Section 12-4-560 of the South Carolina Code of Laws provides, in part, that the Department of Revenue shall prepare appropriate manuals, guides, and other aids for the equitable assessment of all properties.

Under this authority, the use of the department's assessment guides is mandatory by county auditors for the assessment of personal property such as automobiles, trucks, and other similar items, unless otherwise directed by the department. In accordance with Code Section 12-37-930, in preparing the assessment guides for vehicles, the fair market value for vehicles must be based on values derived from a nationally recognized publication of vehicle valuations, except that the value may not exceed ninety-five percent of the prior year's value. The county auditor must use the assessment guides exactly as furnished, except in unusual and extenuating circumstances or where a piece of property is not listed in the guide. An example of "unusual and extenuating circumstances" on personal property is an automobile that was completely destroyed and worthless on the assessment date. The assessed value of such personal property or nonlisted property shall be determined by the county auditor. When unusual or extenuating circumstances are present, the county auditor shall value the property as provided in subsection b. of this regulation taking into consideration the unusual or extenuating circumstances.

b. All personal property which is under county jurisdiction and is not covered by assessment guides furnished by the department for the assessment of vehicles shall be appraised by the county auditor in the same manner as business personal property under the jurisdiction of the department as provided for in Property Tax Regulation 117-1840.1. Any personal property which is not appraised and assessed by the department, but is subject to taxation by the county auditor, shall be appraised and assessed at 10.5% of the appraised value.

The county auditor shall require a return for this personal property which contains, but is not limited to, the following information:
(a) Name,
(b) Address,
(c) Social Security Number or Federal Identification Number,
(d) Location of the Property,
(e) Original Cost of the Property,
(f) Amount of Depreciation (if any) for income tax purposes, and
(g) A statement from the taxpayer stating that the information given is accurate and truthful to the best of his knowledge. The statement must be signed and dated by the taxpayer or his agent or legal representative.

c. Use Value of Cropland and Timberland

Section 1. Overview and Law.

Section 12-43-220(d) of the South Carolina Code of Laws, provides that implementation of the use value procedures for timberland and cropland, as provided in Code Section 12-43-220 shall be the responsibility of the Department of Revenue. Under this authority, the value's in this regulation must be used by county assessors for assessment of cropland and timberland.

Code Section 12-43-220(d)(2)(B)(i) provides that the fair market values for agricultural purposes determined for the 1991 tax year are effective for all subsequent years. Accordingly, the fair market values provided for in this regulation are the values per acre determined for the 1991 tax year and thereafter. These fair market values for cropland and timberland are contained in Sections 2 and 3 of this regulation, respectively.

Section 2. Values Per Acre for Agricultural Land – Cropland

Cropland was separated into seven production classes. Each soil type within each county was assigned to a class. A listing of the soil types for each county with the appropriate class designated is shown in Section 4. The following table includes a low, an average and a high value for each class. The average must be used except when written justification for a different value is made on the appropriate recording document that is used to record property appraisals in accordance with applicable regulations. In no event may the value be less than the low value nor above the high value. Variables, including field size, ingress and egress**,** and location are among the factors which may justify an adjustment to the average.

TABLE 1 –Value Per Acre of Cropland for 1991 and Years Thereafter

CLASS	LOW	AVERAGE	HIGH
1	349	378	404
2	234	255	273
3	149	161	179
4	102	110	119
5	51	60	68
6	34	43	51
7	9	9	9

Section 3. Values Per Acre for Agricultural Land - Timberland

The forty six counties are classified into one of four marketing provinces. These provinces were established relative to prices paid for pine stumpage in all counties. Additionally, each type of soil in each county is grouped into a class. A list of the provinces that each county has been assigned to is contained in Section 5. A listing of the soil types for each county with the appropriate class designated is listed in Section 4. The following table includes a low, an average and a high value for each class within each province. The average must be used except when written justification for a different value is made on the appropriate recording document that is used to record property appraisals in accordance with applicable regulations. In no event may the value be less than the low value nor above the high value. Variables, including field size, ingress and egress**,** and location, are among the factors which may justify an adjustment to the average.

Table 2 –Timberland Value Per Acre for Years 1991 and Thereafter

Timberland Class	Coastal Plain Province			Sand Hill Province			Western Piedmont Province			Piedmont Province Blue Ridge		
	Low	Mod	High	Low	Mod	High	Low	Mod	High	Low	Mod	High
Class 1	255	273	289	187	213	238	230	242	255	179	199	221
Class 2	199	213	226	153	170	187	161	192	221	136	157	179
Class 3	128	161	195	110	128	145	128	141	153	102	119	136
Class 4	114	119	128	85	98	110	94	102	110	60	81	102

Class 5	81	85	89		76			76			76	
Class 6	60	76	89	51	68	89	51	68	89	51	68	89
Class 7	9											

Section 4. Listing of Soils with Cropland Classes.

SOIL NAME	CLASS	
	CROP	TIMBER
Ailey Loamy Sand, 2 to 6 percent slopes	6	4
Ailey Loamy Sand, 2 to 10 percent slopes	6	4
Ailey Sand, 0 to 6 percent slopes	6	4
Ailey Sand, 6 to 10 percent slopes	6	4
Ailey Sand, 10 to 15 percent slopes	6	4
Alaga Loamy Sand, 0 to 4 percent slopes	6	3
Alamance Silt Loam, 0 to 2 percent slopes	3	3
Alamance Silt Loam, 2 to 6 percent slopes	4	3
Alamance Silt Loam, 2 to 6 percent slopes, eroded	4	3
Alamance Silt Loam, 6 to 10 percent slopes	6	3
Alamance Silt Loam, 6 to 10 percent slopes, eroded	6	3
Alamance Silt Loam, Gently Sloping Phase	3	3
Alamance Silt Loam, Sloping Phase	6	3
Alamance Very Fine Sandy Loam, 2 to 6 percent slopes	4	3
Albany Loamy Fine Sand, 0 to 2 percent slopes	6	3
Albany Loamy Sand	6	3
Albany Loamy Sand, 0 to 2 percent slopes	6	3
Albany-Blanton Association	6	3
Albany-Pelham-Ocilla Association	6	3
Alpin Sand, 0 to 6 percent slopes	6	3

Alpin Sand, 6 to 10 percent slopes	6	3
Alpin Sand, 10 to 15 percent slopes	6	3
Altavista Fine Sandy Loam, 0 to 2 percent slopes	1	2
Altavista Fine Sandy Loam, 0 to 6 percent slopes	2	2
Altavista Fine Sandy Loam, 2 to 6 percent slopes, eroded	2	3
Altavista Fine Sandy Loam, Gently Sloping Phase	2	2
Altavista Sandy Loam, 0 to 2 percent slopes	1	2
Altavista Sandy Loam, 0 to 6 percent slopes, eroded	2	2
Altavista Sandy Loam, 2 to 6 percent slopes	2	2
Altavista Silt Loam, 0 to 2 percent slopes	1	2
Altavista Silt Loam, 2 to 6 percent slopes	2	2
Amite Sandy Loam, 0 to 2 percent slopes	3	3
Amite Sandy Loam, 2 to 6 percent slopes	3	3
Angie Fine Sandy Loam, 0 to 2 percent slopes	3	2
Angie Fine Sandy Loam, 2 to 6 percent slopes	6	2
Appling and Cecil Sandy Loams, 2 to 6 percent slopes	3	3
Appling and Cecil Sandy Loams, 6 to 10 percent slopes, eroded	6	3
Appling and Chesterfield Soils, 10 to 15 percent slopes, eroded	6	3
Appling and Chesterfield Soils, 2 to 6 percent slopes, eroded	6	3
Appling and Chesterfield Soils, 6 to 10 percent slopes, eroded	6	3
Appling Coarse Sandy Loam, Thin Solum, 10 to 15 percent	6	3

slopes		
Appling Coarse Sandy Loam, Thin Solum, 10 to 15 percent slopes, eroded	6	3
Appling Coarse Sandy Loam, Thin Solum, 15 to 25 percent slopes, eroded	6	3
Appling Coarse Sandy Loam, Thin Solum, 2 to 6 percent slopes	3	3
Appling Coarse Sandy Loam, Thin Solum, 2 to 6 percent slopes, eroded	6	3
Appling Coarse Sandy Loam, Thin Solum, 6 to 10 percent slopes	5	3
Appling Coarse Sandy Loam, Thin Solum, 6 to 10 percent slopes, eroded	6	3
Appling Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Appling Fine Sandy Loam, 2 to 6 percent slopes, eroded	6	3
Appling Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Appling Loamy Sand, 2 to 6 percent slopes	3	3
Appling Loamy Sand, 6 to 10 percent slopes	5	3
Appling Sandy Clay Loam, 10 to 15 percent slopes, severely eroded	6	3
Appling Sandy Clay Loam, 6 to 10 percent slopes severely eroded	6	3
Appling Sandy Loam, 10 to 15 percent slopes	6	3
Appling Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Appling Sandy Loam, 10 to 20 percent slopes	6	3

Appling Sandy Loam, 10 to 20 percent slopes, eroded	6	3
Appling Sandy Loam, 15 to 25 percent slopes	6	3
Appling Sandy Loam, 15 to 25 percent slopes, eroded	6	3
Appling Sandy Loam, 15 to 30 percent slopes	6	3
Appling Sandy Loam, 2 to 6 percent slopes	3	3
Appling Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Appling Sandy Loam, 6 to 10 percent slopes	5	3
Appling Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Appling Sandy Loam, Eroded Gently Sloping Phase	3	3
Appling Sandy Loam, Eroded Moderately Steep Phase	6	3
Appling Sandy Loam, Eroded Sloping Phase	6	3
Appling Sandy Loam, Eroded Strongly Sloping Phase	6	3
Appling Sandy Loam, Gently Sloping Phase	3	3
Appling Sandy Loam, Sloping Phase	6	3
Appling Sandy Loam, Strongly Sloping Phase	6	3
Aquic Udifluvents	3	2
Argent Association	3	1
Argent Association, Undrained	6	6
Argent Clay Loam	3	1
Argent Clay Loam, Undrained	6	6
Argent Fine Sandy Loam	3	1
Argent Fine Sandy Loam, Undrained	6	6
Argent Loam	6	1
Argent Loam, Undrained	6	6
Argent-Okeetee Association	6	1

Armenia Loam	6	4
Ashe and Cleveland Soils, 15 to 40 percent slopes	6	4
Ashe Sandy Loam, 10 to 25 percent slopes	6	3
Ashe Sandy Loam, 25 to 40 percent slopes	6	3
Ashe Sandy Loam, 25 to 50 percent slopes	6	3
Ashe Sandy Loam, 40 to 90 percent slopes	6	3
Ashe and Cleveland Association, Stony, Very Steep	6	4
Ashe and Cleveland Association, Very Steep	6	4
Autryville Sand, 0 to 6 percent slopes	5	3
Baratari Fine Sand	6	3
Baratari Fine Sand, Undrained	6	6
Baratari Sand	6	3
Baratari Sand, Undrained	6	6
Barth Loamy Sand	6	3
Bayboro Clay Loam	6	2
Bayboro Clay Loam, Undrained	6	6
Bayboro Loam	3	2
Bayboro Loam, Undrained	6	6
Bayboro Sandy Clay Loam	3	2
Bayboro Sandy Clay Loam, Undrained	6	6
Bayboro Sandy Loam	3	2
Bayboro Sandy Loam, Undrained	6	6
Bayboro, undrained	6	6
Beaches	6	6
Bertie Loamy Fine Sand	2	2

Bertie Loamy Sand	2	2
Bertie-Coosaw-Tomotley Association	5	2
Bethera Fine Sandy Loam	3	2
Bethera Fine Sandy Loam, Undrained	6	6
Bethera Loam	6	2
Bethera Loam, Undrained	6	6
Bethera Variant Fine Sandy Loam	3	2
Bethera Variant Fine Sandy Loam, Undrained	6	6
Bladen Clay Loam	3	2
Bladen Clay Loam, Undrained	6	6
Bladen Fine Sandy Loam	3	2
Bladen Fine Sandy Loam, Undrained	6	6
Bladen Loam	3	2
Bladen Loam, Undrained	6	6
Bladen,undrained	6	6
Blaney Loamy Sand, 0 to 6 percent slopes	6	4
Blaney Loamy Sand, 10 to 15 percent slopes	6	4
Blaney Loamy Sand, 6 to 10 percent slopes	6	4
Blaney Sand, 2 to 10 percent slopes	6	4
Blaney Sand, 6 to 10 percent slopes	6	4
Blaney-Vaucluse Complex, 10 to 25 percent slopes	6	4
Blanton Fine Sand, 0 to 6 percent slopes	6	3
Blanton Fine Sand, 6 to 10 percent slopes	6	3
Blanton Loamy Sand, 0 to 6 percent slopes	6	3
Blanton Sand, 0 to 6 percent slopes	6	3

Blanton Sand, 2 to 6 percent slopes	6	3
Blanton Sand, 6 to 10 percent slopes	6	3
Blanton Sand, 6 to 15 percent slopes	6	3
Bohicket Association	7	7
Bonneau Loamy Sand, 0 to 2 percent slopes	4	2
Bonneau Loamy Sand, 0 to 6 percent slopes	4	2
Bonneau Loamy Sand, 2 to 6 percent slopes	4	2
Bonneau Sand, 0 to 6 percent slopes	4	2
Borrow Pit	6	6
Bradley Sandy Loam, 10 to 20 percent slopes, eroded	6	3
Bradley Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Bradley Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Brevard Fine Sandy Loam, 10 to 15 percent slopes	6	3
Brevard Fine Sandy Loam, 6 to 10 percent slopes	4	3
Brevard Sandy Clay Loam, 10 to 25 percent slopes, eroded	6	4
Brevard Sandy Clay Loam, 2 to 10 percent slopes, eroded	6	4
Brevard-Evard Complex, 15 to 25 percent slopes	6	3
Brogdon Loamy Sand, 0 to 2 percent slopes	3	2
Brogdon Sand	2	2
Brogdon Sand, 0 to 2 percent slopes	3	2
Brookman Loam	3	2
Brookman Loam, Undrained	6	6
Buncombe Association	6	2
Buncombe Association, Flooded	6	6
Buncombe Loamy Sand	6	2

Buncombe Loamy Sand, Flooded or Undrained	6	6
Buncombe Loamy Sand, 0 to 4 percent slopes	6	2
Buncombe Loamy Sand, 0 to 4 percent slopes, flooded	6	6
Buncombe Loamy Sand, 2 to 5 percent slopes	6	2
Buncombe Loamy Sand, 2 to 5 percent slopes, Undrained	6	6
Buncombe Sand	6	2
Buncombe Sand, Flooded	6	6
Buncombe Sand, 0 to 4 percent slopes	6	2
Buncombe Sand, 0 to 4 percent slopes, Flooded	6	6
Buncombe-Santee Association	6	2
Byars Loam	6	2
Byars Loam, Undrained	6	6
Byars Loamy Sand	6	2
Byars Loamy Sand, Undrained	6	6
Byars Sandy Loam	6	2
Byars Sandy Loam, Undrained	6	4
Cahaba Fine Sandy Loam, 0 to 2 percent slopes	3	2
Cahaba Fine Sandy Loam, 2 to 6 percent slopes	4	2
Cahaba Fine Sandy Loam, Gently Sloping Phase	2	2
Cahaba Fine Sandy Loam, Level Phase	2	2
Cahaba Loamy Fine Sand, 0 to 3 percent slopes	3	2
Cahaba Loamy Sand, 0 to 2 percent slopes	3	2
Cahaba Sandy Loam	2	2
Cahaba-Leaf Complex	5	2
Cainhoy Fine Sand, 0 to 6 percent slopes	6	3

Cainhoy Variant Sand, 0 to 6 percent slopes	6	3
Cantey Loam	3	2
Cantey Loam, Undrained	6	6
Cape Fear Loam	3	2
Cape Fear Loam, Undrained	6	6
Capers Association	7	7
Capers Silt Loam	6	6
Capers Silty Clay Loam	7	7
Caroline Fine Sandy Loam, 0 to 2 percent slopes	2	4
Caroline Fine Sandy Loam, 2 to 6 percent slopes	2	4
Caroline Fine Sandy Loam, 2 to 6 percent slopes, eroded	3	4
Caroline Fine Sandy Loam, 6 to 10 percent slopes	4	4
Caroline Fine Sandy Loam, Eroded, Strongly Sloping Phase	6	4
Caroline Loamy Sand, 0 to 2 percent slopes	2	4
Caroline Loamy Sand, 10 to 15 percent slopes	6	4
Caroline Loamy Sand, 10 to 15 percent slopes, Eroded	6	4
Caroline Loamy Sand, 15 to 25 percent slopes, eroded	6	4
Caroline Loamy Sand, 2 to 6 percent slopes	2	4
Caroline Loamy Sand, 2 to 6 percent slopes, eroded	6	4
Caroline Loamy Sand, 6 to 10 percent slopes	4	4
Caroline Loamy Sand, 6 to 10 percent slopes, eroded	6	4
Caroline Loamy Sand, Thick Surface, 2 to 6 percent slopes	2	4
Caroline Loamy Sand, Thick Surface, 6 to 10 percent slopes	4	4
Caroline Sandy Clay Loam, 6 to 10 percent slopes,	6	4

severely eroded		
Caroline Sandy Loam, 2 to 6 percent slopes	2	4
Caroline Sandy Loam, 2 to 6 percent slopes, eroded	6	4
Cartecay and Chewacla Soils	3	2
Cartecay and Toccoa Soils	3	2
Cartecay-Chewacla Complex	3	2
Cartecay-Toccoa Complex	3	2
Cataula Clay Loam, 10 to 15 percent slopes, severely eroded	6	5
Cataula Clay Loam, 15 to 25 percent slopes, severely eroded	6	5
Cataula Clay Loam, 2 to 6 percent slopes, severely eroded	6	5
Cataula Clay Loam, 6 to 10 percent slopes, eroded	6	3
Cataula Clay Loam, 6 to 10 percent slopes, severly eroded	6	5
Cataula Clay Loam, 6 to 15 percent slopes, severely eroded	6	5
Cataula Clay Loam, Severely Eroded, Gently Sloping Phase	6	5
Cataula Clay Loam, Severely Eroded, Sloping Phase	6	5
Cataula Clay Loam, Severely Eroded, Strongly Sloping Phase	6	5
Cataula Sandy Clay Loam, 2 to 6 percent slopes, eroded	6	3
Cataula Sandy Clay Loam, 6 to 10 percent slopes	6	3
Cataula Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	3
Cataula Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Cataula Sandy Loam, 10 to 15 percent slopes, eroded	6	3

Cataula Sandy Loam, 2 to 6 percent slopes	6	3
Cataula Sandy Loam, 2 to 6 percent slopes, eroded	6	3
Cataula Sandy Loam, 6 to 10 percent slopes	6	3
Cataula Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Cataula Sandy Loam, Eroded, Gently Sloping Phase	6	3
Cataula Sandy Loam, 2 to 6 percent slopes, eroded	6	3
Cecil Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Cecil Clay Loam, 10 to 20 percent slopes, severely eroded	6	4
Cecil Clay Loam, 10 to 25 percent slopes, severely eroded	6	4
Cecil Clay Loam, 15 to 25 percent slopes, severely eroded	6	4
Cecil Clay Loam, 2 to 6 percent slopes, eroded	6	4
Cecil Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Cecil Clay Loam, 6 to 10 percent slopes, eroded	6	4
Cecil Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Cecil Clay Loam, Severely Eroded, Gently Sloping Phase	6	3
Cecil Clay Loam, Severely Eroded, Moderately Steep Phase	6	3
Cecil Clay Loam, Severely Eroded, Sloping Phase	6	4
Cecil Clay Loam, Severely Eroded, Strongly Sloping Phase	6	4
Cecil Fine Sandy Loam, 10 to 15 percent slopes	6	3
Cecil Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Cecil Fine Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Cecil Fine Sandy Loam, 2 to 6 percent slopes	3	3
Cecil Fine Sandy Loam, 2 to 6 percent slopes, eroded	6	4
Cecil Fine Sandy Loam, 6 to 10 percent slopes	4	3
Cecil Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4

Cecil Sandy Clay Loam, 2 to 10 percent slopes, eroded	6	4
Cecil Sandy Clay Loam, 2 to 6 percent slopes, eroded	6	4
Cecil Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	4
Cecil Sandy Loam, 10 to 15 percent slopes	6	3
Cecil Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Cecil Sandy Loam, 15 to 25 percent slopes	6	3
Cecil Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Cecil Sandy Loam, 15 to 30 percent slopes	6	3
Cecil Sandy Loam, 2 to 6 percent slopes	3	3
Cecil Sandy Loam, 2 to 6 percent slopes, eroded	4	4
Cecil Sandy Loam, 25 to 35 percent slopes	6	3
Cecil Sandy Loam, 25 to 35 percent slopes, eroded	6	4
Cecil Sandy Loam, 6 to 10 percent slopes	4	3
Cecil Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Cecil Sandy Loam, Eroded Gently Sloping Phase	3	4
Cecil Sandy Loam, Eroded Moderately Steep Phase	6	4
Cecil Sandy Loam, Eroded Sloping Phase	6	4
Cecil Sandy Loam, Eroded Steep Phase	6	4
Cecil Sandy Loam, Eroded Strongly Sloping Phase	6	4
Cecil Sandy Loam, Gently Sloping Phase	3	3
Cecil Sandy Loam, Moderately Steep Phase	6	3
Cecil Sandy Loam, Sloping Phase	6	3
Cecil Sandy Loam, Strongly Sloping Phase	6	3
Cecil-Pacolet Complex	6	3
Cecil-Urban Land Complex, 0 to 8 percent slopes	6	3

Cecil-Urban Land Complex, 10 to 25 percent Slopes	6	3
Cecil-Urban Land Complex, 2 to 10 percent slopes	4	3
Cecil-Urban Land Complex, 2 to 6 percent slopes	3	3
Cecil-Urban Land Complex, 6 to 10 percent slopes	4	3
Cecil-Urban Land Complex, 8 to 15 percent slopes	6	3
Centenary Sand	6	3
Centenary Variant Sand	6	3
Charleston Loamy Fine Sand	2	3
Chastain Association, Frequently Flooded	6	6
Chastain Loam, Frequently Flooded	6	2
Chastain Loam, Occassionally Flooded	6	1
Chastain Silty Clay Loam	6	2
Chastain Soils	6	2
Chastain-Chewacla Association	6	2
Chastain-Chewacla-Congaree Association	6	2
Chenneby Silty Clay Loam	3	1
Chenneby Soils	6	1
Chesterfiled Sandy Loam, 10 to 15 percent slopes	6	3
Chesterfield Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Chesterfield Sandy Loam, 2 to 6 percent slopes	3	3
Chesterfield Sandy Loam, 6 to 10 percent slopes	6	3
Chewacla and Worsham Soils	6	1
Chewacla Loam	3	1
Chewacla Loam, Undrained	6	6
Chewacla Loam, undrained, unflooded	6	6

Chewacla Silt Loam	6	1
Chewacla Silt Loam, Undrained	6	6
Chewacla Soils	3	1
Chewacla Soils, Undrained	6	6
Chewacla Soils, Frequently Flooded	3	1
Chewacla-Wenhadee Clay Loam	6	1
Chewacla-Wehadkee Complex	3	1
Chewacla-Wehadkee Complex, Undrained, Flooded	6	6
Chewacla-Wehadkee Silty Clay Loam	6	1
Chipley Fine Sand, 0 to 2 percent slopes	6	2
Chipley Loamy Fine Sand	6	2
Chipley Loamy Fine Sand, 0 to 2 percent slopes	6	2
Chipley Loamy Fine Sand, 2 to 6 percent slopes	6	2
Chipley Loamy Sand	6	2
Chipley Loamy Sand, 0 to 2 percent slopes	6	2
Chipley Loamy Sand, 2 to 6 percent slopes	6	2
Chipley Loamy Sand, Dark Surface	6	2
Chipley Sand	6	2
Chipley Sand, 0 to 2 percent slopes	6	2
Chipley-Echaw Complex	6	2
Chipley-Pelham-Echaw Association	6	2
Chisolm Loamy Fine Sand, 0 to 2 percent slopes	4	2
Chisolm Loamy Fine Sand, 0 to 6 percent slopes	4	2
Chisolm Loamy Sand, 0 to 6 percent slopes	4	2
Clarendon Loamy Sand	2	2

Clarendon Loamy Sand, 0 to 2 percent slopes	2	2
Clarendon Sandy Loam	2	2
Clifton Fine Sandy Loam, 15 to 35 percent slopes	6	2
Coastal Beach Sands	6	6
Coastal Beaches	6	5
Coastal Beaches and Dune Land	6	6
Colfax Fine Sandy Loam, 2 to 6 percent slopes	5	3
Colfax Loamy Sand, 1 to 4 percent slopes	5	3
Colfax Sandy Loam	6	3
Colfax Sandy Loam, 2 to 6 percent slopes	5	3
Congaree Fine Sandy Loam	1	2
Congaree Loam	1	2
Congaree Silt Loam	1	2
Congaree Soils	1	2
Congaree-Chewacla Silt Loams	1	2
Coosaw Loamy Fine Sand	3	3
Coronaca Sandy Clay Loam, 2 to 6 percent slopes	4	4
Coronaca Sandy Clay Loam, 6 to 10 percent slopes	6	4
Cowerts Loamy Sand, 2 to 6 percent slopes	4	2
Coxville Clay Loam	6	2
Coxville Fine Sandy Loam	3	2
Coxville Fine Sandy Loam, Undrained	6	6
Coxville Fine Sandy Loam, Thin Surface	3	2
Coxville Loam	6	2
Coxville Loam, Undrained	6	6

Coxville Sandy Clay Loam	3	2
Coxville Sandy Clay Loam, Undrained	6	6
Coxville Sandy Loam	3	2
Coxville Sandy Loam, Undrained	6	6
Craven Fine Sandy Loam	3	3
Craven Fine Sandy Loam, 0 to 2 percent slopes	1	3
Craven Fine Sandy Loam, 2 to 6 percent slopes	2	3
Craven Fine Sandy Loam, 6 to 10 percent slopes	6	3
Craven Loam, 0 to 2 percent slopes	1	3
Craven Loam, 2 to 6 percent slopes	2	3
Craven Loamy Sand, 0 to 2 percent slopes	1	3
Craven Loamy Sand, 2 to 6 percent slopes	2	3
Craven Sandy Loam, 0 to 2 percent slopes	1	3
Craven Sandy Loam, 2 to 6 percent slopes	2	3
Crevasse-Dawhoo Complex, Rolling	6	2
Davidson Clay Loam, 10 to 15 percent slopes, eroded	6	3
Davidson Clay Loam, 10 to 15 percent slopes, severely eroded	6	3
Davidson Clay Loam, 2 to 6 percent slopes, eroded	2	3
Davidson Clay Loam, 2 to 6 percent slopes, severely eroded	2	3
Davidson Clay Loam, 6 to 10 percent slopes, eroded	4	3
Davidson Clay Loam, 6 to 10 percent slopes, severely eroded	4	3
Davidson Loam, 10 to 25 percent slopes, eroded	6	3

Davidson Loam, 2 to 10 percent slopes, eroded	4	3
Davidson Loam, 2 to 6 percent slopes	1	3
Davidson Loam, 2 to 6 percent slopes, eroded	2	3
Davidson Loam, 6 to 10 percent slopes	1	3
Davidson Loam, 6 to 10 percent slopes, eroded	2	3
Davidson Loam, Gently Sloping Phase	3	3
Davidson Sandy Clay Loam, 10 to 15 percent slopes, eroded	6	3
Davidson Sandy Clay Loam, 2 to 6 percent slopes	1	3
Davidson Sandy Clay Loam, 2 to 6 percent slopes, eroded	2	3
Davidson Sandy Clay Loam, 6 to 10 percent slopes	2	3
Davidson Sandy Clay Loam, 6 to 10 percent slopes, eroded	2	3
Davidson Sandy Clay Loam, 6 to 10 percent slopes, eroded	4	3
Dawhoo and Rutlege Loamy Fine Sand	6	2
Dawhoo Loamy Sand	3	2
Dawhoo Loamy Sand, Undrained	6	6
Deloss Fine Sandy Loam	3	1
Deloss Fine Sandy Loam, Undrained	6	6
Dorovan Muck	6	4
Dothan Loamy Fine Sand, 0 to 2 percent slopes	1	2
Dothan Loamy Fine Sand, 2 to 6 percent slopes	2	2
Dothan Loamy Sand, 0 to 2 percent slopes	1	2
Dothan Loamy Sand, 2 to 6 percent slopes	2	2
Dothan Loamy Sand, 6 to 10 percent slopes	3	2
Dothan-Urban Land Complex, 0 to 6 percent slopes	2	2
Dunbar and Ardilla Fine Sandy Loams, 0 to 2 percent	1	2

slopes		
Dunbar Fine Sandy Loam	1	2
Dunbar Loamy Sand	1	2
Dunbar Sandy Loam	1	2
Duplin and Exum Soil, 0 to 2 percent slopes	1	2
Duplin and Exum Soils, 2 to 6 percent slopes	1	2
Duplin Fine Sandy Loam	2	2
Duplin Fine Sandy Loam, 0 to 2 percent slopes	1	2
Duplin Fine Sandy Loam, 2 to 6 percent slopes	1	2
Duplin Sandy Loam	2	2
Duplin Sandy Loam, 0 to 2 percent slopes	1	2
Durham Loamy Sand, 2 to 6 percent slopes	3	3
Durham Loamy Sand, 2 to 6 percent slopes, eroded	3	3
Durham Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Durham Loamy Sand, Gently Sloping Thick Surface Phase	3	3
Durham Loamy Sand, Thick Surface, 2 to 6 percent slopes	3	3
Durham Sandy Loam, 2 to 6 percent slopes	3	3
Durham Sandy Loam, 6 to 10 percent slopes	6	3
Durham Sandy Loam, Gently Sloping Phase	3	3
Durham Sandy Loam, Sloping Phase	6	3
Durham Sandy Loam, Sloping Thick Surface Phase	6	3
Echaw Loamy Fine Sand	6	3
Echaw Loamy Sand	6	3
Echaw Sand	6	3
Eddings Fine Sand, 0 to 6 percent slopes	6	3

Edisto Loamy Fine Sand	1	2
Edneyville and Ashe Soils, Very Steep	6	2
Edneyville Fine Sandy Loam, 10 to 15 percent slopes	6	2
Edneyville Fine Sandy Loam, 10 to 25 percent slopes	6	2
Edneyville Fine Sandy Loam, 15 to 25 percent slopes	6	2
Edneyville Fine Sandy Loam, 25 to 40 percent slopes	6	2
Edneyville Fine Sandy Loam, 40 to 80 percent slopes	6	2
Edneyville Fine Sandy Loam, 6 to 10 percent slopes	5	2
Edneyville Soils, 25 to 40 percent slopes	6	2
Efland Silt Loam, 10 to 15 percent slopes, eroded	6	3
Efland Silt Loam, 2 to 6 percent slopes	3	3
Efland Silt Loam, 6 to 10 percent slopes	6	3
Efland Silt Loam, Eroded Sloping Phase	6	3
Efland Silt Loam, Gently Sloping Phase	6	3
Efland Silty Clay Loam, 2 to 6 percent slopes, severely eroded	6	3
Efland Silty Clay Loam, 6 to 10 percent slopes, severely eroded	6	3
Elbert Loam	6	3
Enon Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Enon Clay Loam, 2 to 6 percent slopes, severely eroded	3	4
Enon Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Enon Clay Loam, 6 to 15 percent slopes, severely eroded	6	4
Enon Loam, 10 to 25 percent slopes, eroded	6	4
Enon Loam, 2 to 6 percent slopes, eroded	6	4

Enon Loam, 6 to 10 percent slopes, eroded	6	4
Enon Sandy Loam, 10 to 15 percent slopes	6	4
Enon Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Enon Sandy Loam, 15 to 25 percent slopes	6	4
Enon Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Enon Sandy Loam, 2 to 6 percent slopes	3	4
Enon Sandy Loam, 2 to 6 percent slopes, eroded	6	4
Enon Sandy Loam, 6 to 10 percent slopes	5	4
Enon Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Enon Sandy Loam, Eroded Gently Sloping Phase	3	4
Enon Sandy Loam, Eroded Moderately Steep Phase	6	4
Enon Sandy Loam, Eroded Sloping Phase	6	4
Enon Sandy Loam, Eroded Strongly Sloping Phase	6	4
Enon Sandy Loam Gently Sloping Phase	3	4
Enon Sandy Loam, Moderately Steep Phase	6	4
Enon Sandy Loam, Sloping Phase	6	4
Enon Sandy Loam, Strongly Sloping Phase	6	4
Enon Silt Loam, 2 to 6 percent slopes	3	4
Enoree Loamy Sand	3	2
Enoree Loamy Sand, Undrained	6	6
Enoree Soils	3	2
Enoree Soils, Undrained	6	6
Eulonia Association	2	2
Eulonia Fine Sandy Loam	2	2
Eulonia Sandy Loam	2	2

Eunola Loamy Fine Sand	2	2
Eunola Loamy Sand	2	2
Eunola Loamy Sand, 0 to 2 percent slopes	2	2
Eustis Fine Sand, 0 to 2 percent slopes	6	3
Eustis Fine Sand, 2 to 6 percent slopes	6	3
Eustis Fine Sand, 6 to 10 percent slopes	6	3
Eustis Loamy Sand, 0 to 2 percent slopes	6	3
Eustis Loamy Sand, 0 to 6 percent slopes	6	3
Eustis Loamy Sand, 10 to 15 percent slopes	6	3
Eustis Loamy Sand, 2 to 6 percent slopes	6	3
Eustis Loamy Sand, 6 to 10 percent slopes	6	3
Eustis Loamy Sand, 6 to 15 percent slopes	6	3
Eustis Loamy Sand, Gently Sloping Phase	6	3
Eustis Loamy Sand, Terrace, 0 to 6 percent slopes	6	3
Eustis Sand, 0 to 6 percent slopes	6	3
Eustis Sand, 10 to 15 percent slopes	6	3
Eustis Sand, 6 to 10 percent slopes	6	3
Eustis Sand, Gently Sloping Phase	6	3
Eustis Sand, Moderately Shallow, 0 to 2 percent slopes	6	3
Eustis Sand, Moderately Shallow, 2 to 6 percent Slopes	6	3
Eustis Sand, Moderately Shallow, 6 to 10 percent slopes	6	3
Eustis Sand, Shallow, 0 to 2 percent slopes	6	3
Eustis Sand, Shallow, 2 to 6 percent slopes	6	3
Eustis Sand, Shallow, 6 to 10 percent slopes	6	3
Eustis Sand, Sloping Phase	6	3

Eustis Sand, Terrace, 0 to 6 percent slopes	6	3
Evard-Brevard Association, Steep	6	2
Exum Sandy Loam	2	2
Faceville and Ruston Soils, 0 to 2 percent slopes	1	3
Faceville and Ruston Soils, 10 to 15 percent slopes, eroded	6	3
Faceville and Ruston Soils, 2 to 6 percent slopes	3	3
Faceville and Ruston Soils, 2 to 6 percent slopes, eroded	6	3
Faceville and Ruston Soils, 6 to 10 percent slopes	4	3
Faceville and Ruston Soils, 6 to 10 percent slopes, eroded	6	3
Faceville Fine Sandy Loam, 2 to 6 percent slopes	1	3
Faceville Loamy Fine Sand, 0 to 2 percent slopes	1	3
Faceville Loamy Fine Sand, 2 to 6 percent slopes	1	3
Faceville Loamy Fine Sand, 2 to 6 percent slopes, eroded	3	3
Faceville Loamy Fine Sand, 6 to 10 percent slopes, eroded	6	3
Faceville Loamy Sand, 0 to 2 percent slopes	1	3
Faceville Loamy Sand, 0 to 6 percent slopes	1	3
Faceville Loamy Sand, 2 to 6 percent slopes	1	3
Faceville Loamy Sand, 2 to 6 percent slopes, eroded	3	3
Faceville Loamy Sand, 6 to 10 percent slopes	4	3
Faceville Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Faceville Loamy Sand, 6 to 15 percent slopes	6	3
Faceville Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Faceville Sandy Loam, 0 to 2 percent slopes	1	3

Faceville Sandy Loam, 2 to 6 percent slopes	1	3
Faceville Sandy Loam, 6 to 10 percent slopes	4	3
Fennin Fine Sandy Loam, 15 to 40 percent slopes	6	2
Flint Fine Sandy Loam, 0 to 2 percent slopes	2	2
Flint Fine Sandy Loam, 2 to 6 percent slopes	3	3
Flint Fine Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Flint Fine Sandy Loam, 6 to 12 percent slopes	6	3
Flint Fine Sandy Loam, Level Phase	3	3
Flint Fine Sandy Loam, Sloping Phase	6	3
Fluvaqvents and Udipsamments	6	6
Foreston Fine Sand	2	2
Foreston Loamy Sand	2	2
Fresh Water Marsh, Firm Clay and Loams	6	6
Fresh Water Marsh, Firm Muck and Peats	6	6
Fresh Water Marsh, Soft	6	6
Fripp-Baratari Complex	6	4
Fripp-Baratari Complex, 0 to 6 percent slopes	6	4
Fuquay Fine Sand, 0 to 6 percent slopes	5	3
Fuquay Fine Sand, 6 to 10 percent slopes	6	3
Fuquay Loamy Sand	5	3
Fuquay Loamy Sand, 0 to 2 percent slopes	5	3
Fuquay Loamy Sand, 0 to 6 percent slopes	5	3
Fuquay Loamy Sand, 2 to 6 percent slopes	5	3
Fuquay Loamy Sand, 6 to 10 percent slopes	6	3
Fuquay Sand, 0 to 2 percent slopes	5	3

Fuquay Sand, 0 to 4 percent slopes	5	3
Fuquay Sand, 0 to 6 percent slopes	5	3
Fuquay Sand, 10 to 15 percent slopes	6	3
Fuquay Sand, 2 to 6 percent slopes	5	3
Fuquay Sand, 6 to 10 percent slopes	6	3
Fuquay-Urban Land Complex, 0 to 6 percent slopes	5	3
Gently Sloping Land, Sandy and Clay Sediments	6	3
Georgeville Loam, 2 to 6 percent slopes	3	3
Georgeville Loam, 6 to 10 percent slopes	6	3
Georgeville Silt Loam, 10 to 15 percent slopes, eroded	6	3
Georgeville Silt Loam, 15 to 25 percent slopes, eroded	6	3
Georgeville Silt Loam, 2 to 6 percent slopes	3	3
Georgeville Silt Loam, 2 to 6 percent slopes, eroded	3	3
Georgeville Silt Loam, 6 to 10 percent slopes	6	3
Georgeville Silt Loam, 6 to 10 percent slopes, eroded	6	3
Georgeville Silt Loam, Gently Sloping Phase	3	3
Georgeville Silt Loam, Sloping Phase	6	3
Georgeville Silt Loam, Strongly Sloping Phase	6	3
Georgeville Silty Clay Loam, 10 to 15 percent slopes, severely eroded	6	3
Georgeville Silty Clay Loam, 2 to 6 percent slopes, severely eroded	6	3
Georgeville Silty Clay Loam, 2 to 6 percent slopes, eroded	6	3
Georgeville Silty Clay Loam, 6 to 10 percent slopes,	6	3

eroded		
Georgeville Silty Clay Loam, 6 to 10 percent slopes,	6	3
severely eroded		
Georgeville Silty Clay Loam, Eroded Gently Sloping Phase	6	3
Georgeville Silty Clay Loam, Eroded Sloping Phase	6	3
Georgeville Silty Clay Loam, Severely Eroded, Sloping	6	3
Phase		
Georgeville Silty Clay Loam, Severely Eroded, Strongly	6	3
Sloping Phase		
Georgeville Very Fine Sandy Loam, 10 to 15 percent slopes	6	3
Georgeville Very Fine Sandy Loam, 2 to 6 percent slopes	3	3
Georgeville Very Fine Sandy Loam, 6 to 10 percent slopes	6	3
Gilead Loamy Sand, 0 to 2 percent slopes	6	3
Gilead Loamy Sand, 10 to 15 percent slopes	6	3
Gilead Loamy Sand, 10 to 15 percent slopes, eroded	6	3
Gilead Loamy Sand, 2 to 6 percent slopes	6	3
Gilead Loamy Sand, 2 to 6 percent slopes, eroded	6	3
Gilead Loamy Sand, 6 to 10 percent slopes	6	3
Gilead Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Gilead Loamy Sand, Gently Sloping Thick Surface Phase	6	3
Gilead Loamy Sand, Sloping Thick Surface Phase	6	3
Gilead Loamy Sand, Thick Surface, 2 to 6 percent slopes	6	3
Gilead Loamy Sand, Thick Surface, 6 to 10 percent slopes	6	3
Gilead Sand, 0 to 2 percent slopes	6	3
Gilead Sand, 2 to 6 percent slopes	6	3

Gilead Sand, 6 to 10 percent slopes	6	3
Gilead Sand, Thick Surface, 0 to 2 percent slopes	6	3
Gilead Sand, Thick Surface, 2 to 6 percent slopes	6	3
Gilead Sand, Thick Surface, 6 to 10 percent slopes	6	3
Gilead Sandy Loam, 2 to 6 percent slopes	6	3
Gilead Sandy Loam, Gently Sloping Phase	6	3
Gilead Sandy Loam, Sloping Phase	6	3
Gills Silt Loam, 2 to 6 percent slopes	6	5
Gills Silt Loam, 2 to 6 percent slopes, eroded	6	5
Gills Silt Loam, 6 to 10 percent slopes, eroded	6	5
Givhans Loamy Sand	6	2
Goldsboro Fine Sandy Loam	2	2
Goldsboro Loamy Fine Sand, 0 to 2 percent slopes	1	2
Goldsboro Loamy Sand	2	2
Goldsboro Loamy Sand, 0 to 2 percent slopes	1	2
Goldsboro Loamy Sand, Moderately Deep Variant	2	2
Goldsboro Loamy Sand, Thick Surface	6	2
Goldsboro Sandy Loam	2	2
Goldsboro Sandy Loam, 0 to 2 percent slopes	1	2
Goldston Silt Loam, 10 to 15 percent slopes	6	4
Goldston Silt Loam, 15 to 30 percent slopes	6	4
Goldston Silt Loam, 15 to 35 percent slopes	6	4
Goldston Silt Loam, 2 to 6 percent slopes	6	4
Goldston Silt Loam, 6 to 10 percent slopes	6	4
Goldston Silt Loam, 6 to 15 percent slopes	6	4

Goldston Silt Loam, Sloping Phase	6	4
Goldston Silt Loam, Strongly Sloping Phase	6	4
Goldston Slaty Silt Loam, 10 to 15 percent slopes	6	4
Goldston Slaty Silt Loam, 15 to 40 percent slopes	6	4
Goldston Slaty Silt Loam, 6 to 10 percent slopes	6	4
Goldston Slaty Silt Loam, 6 to 15 percent slopes	6	4
Goldston Variant Loam, 25 to 60 percent slopes	6	4
Goldston-Pickens Complex, 2 to 6 percent slopes	6	4
Goldston-Pickens Complex, 6 to 10 percent slopes	6	4
Grady Loam	3	2
Grady Loam, Undrained	6	6
Grady Loam, Thin Surface	3	2
Grady Loam, Thin Surface, Undrained	6	6
Grady Sandy Loam	3	2
Grady Sandy Loam, Undrained	6	6
Greenville Loamy Sand, 0 to 2 percent slopes	1	3
Greenville Loamy Sand, 2 to 6 percent slopes	3	3
Greenville Loamy Sand, 6 to 10 percent slopes	6	3
Greenville Sandy Loam, 0 to 2 percent slopes	1	3
Greenville Sandy Loam, 2 to 6 percent slopes	3	3
Greenville Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Greenville Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Grover Fine Sandy Loam, 15 to 25 percent slopes	6	3
Grover Fine Sandy Loam, 2 to 6 percent slopes, eroded	6	4
Grover Fine Sandy Loam, 25 to 40 percent slopes	6	3

Grover Fine Sandy Loam, 40 to 80 percent slopes	6	3
Grover Fine Sandy Loam, 6 to 15 percent slopes, eroded	6	4
Gullied Land	6	4
Gullied Land, Cecil Soil Material, Sloping	6	4
Gullied Land, Cecil Soil Material, Steep	6	4
Gullied Land, Firm Materials	6	4
Gullied Land, Friable Material	6	4
Gullied Land, Friable Material, 10 to 35 percent slopes	6	4
Gullied Land, Friable Material, 2 to 10 percent slopes	6	4
Gullied Land, Friable Material, Hilly	6	4
Gullied Land, Friable Material, Rolling	6	4
Gullied Land, Georgeville Soil Material, Sloping	6	4
Gullied Land, Helena Soil Material, Steep	6	4
Gullied Land, Hilly	6	4
Gullied Land, Rolling	6	4
Gullied Land, Pacolet Soils Complex	6	4
Gundy Silt Loam, 10 to 15 percent slopes	6	4
Gundy Silt Loam, 15 to 25 percent slopes	6	4
Gwinnett Sandy Loam, 15 to 25 percent slopes	6	3
Gwinnett Sandy Loam, 25 to 40 percent slopes	6	3
Gwinnett Sandy Loam, 40 to 60 percent slopes	6	3
Halewood Fine Sandy Loam, 10 to 15 percent slopes	6	2
Halewood Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	2
Halewood Fine Sandy Loam, 15 to 25 percent slopes	6	2
Halewood Fine Sandy Loam, 15 to 25 percent slopes, eroded	6	2

Halewood Fine Sandy Loam, 2 to 6 percent slopes	2	2
Halewood Fine Sandy Loam, 25 to 45 percent slopes	6	2
Halewood Fine Sandy Loam, 6 to 10 percent slopes, eroded	5	2
Handsboro Soils	7	7
Haplaqvents	6	4
Haynesville and Cecil Fine Sandy Loams, 10 to 15 percent slopes	6	2
Haynesville and Cecil Fine Sandy Loams, 10 to 15 percent slopes, eroded	6	3
Haynesville and Cecil Fine Sandy Loams, 15 to 25 percent slopes	6	2
Haynesville and Cecil Fine Sandy Loams, 15 to 25 percent slopes, eroded	6	3
Haynesville and Cecil Fine Sandy Loams, 2 to 6 percent slopes	2	2
Haynesville and Cecil Fine Sandy Loams, 25 to 45 percent slopes	6	2
Haynesville and Cecil Fine Sandy Loams, 25 to 45 percent slopes, eroded	6	3
Haynesville and Cecil Fine Sandy Loams, 6 to 10 percent slopes	4	2
Haynesville and Cecil Fine Sandy Loams, 6 to 10 percent slopes, eroded	5	3
Haynesville and Cecil Loams, 10 to 15 percent slopes severly eroded	6	3

Haynesville and Cecil Loams, 15 to 45 percent slopes, severely eroded	6	3
Haynesville and Cecil Loams, 6 to 10 percent slopes, severely eroded	6	3
Haynesville Fine Sandy Loam, 15 to 40 percent slopes	6	2
Haynesville Fine Sandy Loam, 40 to 80 percent slopes	6	2
Haynesville Sandy Loam, 15 to 25 percent slopes	6	2
Haynesville Sandy Loam, 25 to 40 percent slopes	6	2
Haynesville Sandy Loam, 6 to 15 percent slopes	6	2
Haynesville, Cecil and Halewood Sandy Loams, Shallow, 15 to 25 percent slopes	6	2
Haynesville, Cecil and Halewood Sandy Loams, Shallow, 25 to 60 percent slopes	6	2
Haywood Loam, 6 to 15 percent slopes	4	2
Helena Fine Sandy Loam, 2 to 10 percent slopes, severely eroded	6	3
Helena Fine Sandy Loam, 2 to 6 percent slopes	4	3
Helena Fine Sandy Loam, 2 to 6 percent slopes, eroded	4	3
Helena Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Helena Loamy Sand, 2 to 6 percent slopes	4	3
Helena Loamy Sand, 6 to 10 percent slopes	6	3
Helena Loamy Sand, Gently Sloping Thick Surface Phase	3	3
Helena Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Helena Sandy Loam, 2 to 10 percent slopes, eroded	6	3
Helena Sandy Loam, 2 to 6 percent slopes	4	3

Helena Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Helena Sandy Loam, 6 to 10 percent slopes	6	3
Helena Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Helena Sandy Loam, Eroded Sloping Phase	6	3
Helena Sandy Loam, Eroded Strongly Sloping Phase	6	3
Helena Sandy Loam, Gently Sloping Phase	3	3
Helena Sandy Loam, Sloping Phase	6	3
Herndon Loam, 2 to 6 percent slopes	3	3
Herndon Loam, 6 to 15 percent slopes	3	3
Herndon Silt Loam, 10 to 15 percent slopes	6	3
Herndon Silt Loam, 10 to 15 percent slopes, eroded	6	3
Herndon Silt Loam, 10 to 25 percent slopes, eroded	6	3
Herndon Silt Loam, 2 to 6 percent slopes	3	3
Herndon Silt Loam, 2 to 6 percent slopes, eroded	3	3
Herndon Silt Loam, 6 to 10 percent slopes	5	3
Herndon Silt Loam, 6 to 10 percent slopes, eroded	6	3
Herndon Silt Loam, Eroded Gently Sloping Phase	3	3
Herndon Silt Loam, Eroded Sloping Phase	6	3
Herndon Silt Loam, Eroded Strongly Sloping Phase	6	3
Herndon Silt Loam, Gently Sloping Phase	3	3
Herndon Silt Loam, Sloping Phase	6	3
Herndon Silt Loam, Strongly Sloping Phase	6	3
Herndon Silty Clay Loam, 2 to 6 percent slopes, severely eroded	6	3
Herndon Silty Clay Loam, 6 to 10 percent slopes, severely	6	3

eroded		
Herndon Very Fine Sandy Loam, 2 to 6 percent slopes	3	3
Herndon Very Fine Sandy Loam, 6 to 10 percent slopes	5	3
Herndon-Urban Land Complex, 2 to 6 percent slopes	3	3
Hiwassee Clay Loam, 10 to 15 percent slopes, eroded	6	4
Hiwassee Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Hiwassee Clay Loam, 10 to 25 percent slopes, severely eroded	6	4
Hiwassee Clay Loam, 2 to 6 percent slopes, eroded	4	4
Hiwassee Clay Loam, 6 to 10 percent slopes, eroded	6	4
Hiwassee Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Hiwassee Clay Loam, 6 to 15 percent slopes, eroded	6	4
Hiwassee Fine Sandy Loam, 0 to 2 percent slopes	3	3
Hiwassee Sandy Clay Loam, 10 to 15 percent slopes, eroded	6	4
Hiwassee Sandy Clay Loam, 2 to 6 percent slopes, eroded	6	4
Hiwassee Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	4
Hiwassee Sandy Loam, 10 to 15 percent slopes	6	3
Hiwassee Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Hiwassee Sandy Loam, 10 to 18 percent slopes, eroded	6	4
Hiwassee Sandy Loam, 10 to 25 percent slopes	6	3
Hiwassee Sandy Loam, 10 to 25 percent slopes, eroded	6	4
Hiwassee Sandy Loam, 15 to 25 percent slopes	6	4
Hiwassee Sandy Loam, 15 to 25 percent slopes, eroded	6	4

Hiwassee Sandy Loam, 2 to 6 percent slopes	3	3
Hiwassee Sandy Loam, 2 to 6 percent slopes, eroded	3	4
Hiwassee Sandy Loam, 2 to 8 percent slopes	3	3
Hiwassee Sandy Loam, 2 to 8 percent slopes, eroded	6	4
Hiwassee Sandy Loam, 6 to 10 percent slopes	5	3
Hiwassee Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Hiwassee Sandy Loam, Eroded Gently Sloping Phase	3	4
Hiwassee Sandy Loam, Eroded Sloping Phase	6	4
Hiwassee Sandy Loam, Eroded Strongly Sloping Phase	6	4
Hiwassee Sandy Loam, Gently Sloping Phase	3	3
Hiwassee Sandy Loam, Sloping Phase	6	3
Hobonny Soils	6	6
Hockley Loamy Fine Sand, 0 to 2 percent slopes	2	2
Hockley Loamy Fine Sand, 2 to 6 percent slopes	2	2
Huckabee Loamy Sand, Gently Sloping Phase	6	3
Huckabee Sand, Gently Sloping Phase	6	3
Huckabee Sand, Sloping Phase	6	3
Hyde Loam	6	1
Hyde Loam, Undrained	6	6
Hyde Mucky Loam	6	1
Independence Loamy Sand, Gently Sloping Phase	6	3
Iredell Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Iredell Complex, 2 to 6 percent slopes, eroded	4	4
Iredell Complex, 6 to 10 percent slopes, eroded	6	4

Iredell Fine Sandy Loam, 1 to 6 percent slopes	4	4
Iredell Fine Sandy Loam, 2 to 6 percent slopes	4	4
Iredell Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Iredell Loam, 0 to 2 percent slopes	6	4
Iredell Loam, 2 to 6 percent slopes	4	4
Iredell Loam, 2 to 6 percent slopes, eroded	3	4
Iredell Loam, 6 to 10 percent slopes	6	4
Iredell Loam, 6 to 10 percent slopes, eroded	6	4
Iredell Loam, Thin Solum, 0 to 2 percent slopes	6	4
Iredell Loam, Thin Solum, 2 to 6 percent slopes	6	4
Iredell Sandy Loam, 0 to 2 percent slopes	4	4
Iredell Sandy Loam, 2 to 6 percent slopes	4	4
Iredell Sandy Loam, 2 to 6 percent slopes, eroded	4	4
Iredell Sandy Loam, 6 to 10 percent slopes	6	4
Iredell Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Iredell Sandy Loam, Gently Sloping Phase	3	4
Iredell Stony Loam, 2 to 6 percent slopes	6	4
Iredell Variant Loam, 0 to 2 percent slopes	4	4
Iredell Very Stony Loam, 0 to 6 percent slopes	6	4
Irvington Loamy Sand, 0 to 2 percent slopes	3	2
Irvington Loamy Sand, 2 to 6 percent slopes	4	2
Irvington Loamy Sand, 6 to 10 percent slopes	6	2
Irvington Loamy Sand, 6 to 10 percent slopes, eroded	6	2
Izagora Fine Sandy Loam	2	2
Izagora Loamy Sand(Johns)	2	2

Izagora Sandy Loam	2	2
Izagora Sandy Loam, Gray Variant	2	2
Izagora Sandy Loam, Sandy Substratum	2	2
Johns Fine Sandy Loam	1	2
Johns Loamy Sand	1	2
Johns Loamy Sand, 0 to 2 percent slopes	1	2
Johns Loamy Sand, 2 to 6 percent slopes	1	2
Johns Sandy Loam	1	2
Johnston Association	3	1
Johnston Association, Undrained	6	6
Johnston Association, Frequently Flooded	6	1
Johnston Loam	3	1
Johnston Loam, Undrained	6	6
Johnston Loamy Sand	3	1
Johnston Loamy Sand, Undrained	6	6
Johnston Sandy Loam	3	1
Johnston Sandy Loam, Undrained	6	6
Johnston Soils	3	1
Johnston Soils, Undrained	6	6
Johnston-Rutlege Association, Frequently Flooded	6	1
Johnston-Rutlege Association, Frequently Flooded	6	6
Undrained		
Kalmia Loamy Fine Sand, 0 to 2 percent slopes	1	2
Kalmia Loamy Fine Sand, 2 to 6 percent slopes	2	2
Kalmia Loamy Fine Sand, Thick Surface, 0 to 2 percent	1	2

slopes		
Kalmia Loamy Sand	2	2
Kalmia Loamy Sand, 0 to 2 percent slopes	1	2
Kalmia Loamy Sand, 2 to 6 percent slopes	2	2
Kalmia Loamy Sand, 6 to 10 percent slopes	5	2
Kalmia Loamy Sand, Gently Sloping Thick Surface Phase	6	2
Kalmia Loamy Sand, Level Thick Surface Phase	6	2
Kalmia Loamy Sand, Thick Surface	6	2
Kalmia Sandy Loam, 0 to 2 percent slopes	1	2
Kalmia Sandy Loam, 2 to 6 percent slopes	2	2
Kalmia Sandy Loam, Gently Sloping Phase	2	2
Kalmia Sandy Loam, Level Phase	2	2
Kenansville Sand, 0 to 4 percent slopes	6	4
Kenansville Sand, 0 to 6 percent slopes	6	4
Kershaw Sand, 0 to 10 percent slopes	6	5
Kershaw Sand, 0 to 15 percent slopes	6	5
Kershaw Sand, 0 to 6 percent slopes	6	5
Kershaw Sand, 2 to 10 percent slopes	6	5
Kershaw Sand, 6 to 10 percent slopes	6	5
Kiawah Loamy Fine Sand	3	3
Killian Loamy Sand, 10 to 15 percent slopes	6	2
Killian Loamy Sand, 2 to 6 percent slopes	6	2
Killian Loamy Sand, 6 to 10 percent slopes	6	2
Killian Loamy Sand, 6 to 10 percent slopes, eroded	6	2
Killian Loamy Sand, Thick Surface, 2 to 6 percent slopes	6	2

Killian Loamy Sand, Thick Surface, 6 to 10 percent slopes	6	2
Kirksey Loam, 2 to 6 percent slopes	6	4
Kirksey Silt Loam, 2 to 6 percent slopes	6	4
Kirksey Silt Loam, 6 to 10 percent slopes	6	4
Klej Loamy Sand	6	2
Klej Loamy Sand, Terrace	6	2
Kureb Sand, 0 to 6 percent slopes	6	4
Lakeland and Troup Sand, 15 to 25 percent slopes	6	3
Lakeland Fine Sand, 0 to 6 percent slopes	6	3
Lakeland Gravely Sand, 0 to 6 percent slopes	6	3
Lakeland Gravely Sand, 6 to 10 percent slopes	6	3
Lakeland Loamy Sand	6	4
Lakeland Sand, 0 to 6 percent slopes	6	3
Lakeland Sand, 10 to 15 percent slopes	6	3
Lakeland Sand, 10 to 25 percent slopes	6	3
Lakeland Sand, 15 to 25 percent slopes	6	3
Lakeland Sand, 2 to 6 percent slopes	6	3
Lakeland Sand, 6 to 10 percent slopes	6	3
Lakeland Sand, 6 to 15 percent slopes	6	3
Lakeland Sand, Gently Sloping Phase	6	3
Lakeland Sand, Gently Sloping Shallow Phase	6	3
Lakeland Sand, Gravely Variant, 0 to 10 percent slopes	6	3
Lakeland Sand, Gravely Variant, 10 to 15 percent slopes	6	3
Lakeland Sand, Level Shallow Phase	6	3
Lakeland Sand, Moderately Shallow, 0 to 2 percent slopes	6	3

Lakeland Sand, Moderately Shallow, 10 to 15 percent slopes	6	3
Lakeland Sand, Moderately Shallow, 2 to 6 percent slopes	6	3
Lakeland Sand, Moderately Shallow, 6 to 10 percent slopes	6	3
Lakeland Sand, Moderately Shallow, Terrace, 0 to 4 percent slopes	6	3
Lakeland Sand, Shallow, 0 to 2 percent slopes	6	3
Lakeland Sand, Shallow, 10 to 15 percent slopes	6	3
Lakeland Sand, Shallow, 2 to 6 percent slopes	6	3
Lakeland Sand, Shallow, 6 to 10 percent slopes	6	3
Lakeland Sand, Sloping Phase	6	3
Lakeland Sand, Sloping Shallow Phase	6	3
Lakeland Sand, Strongly Sloping Phase	6	3
Lakeland Sand, Terrace, 0 to 6 percent slopes	6	3
Lakeland Soils, Undulating	6	4
Lakeland, 0 to 6 percent slopes	6	3
Lakeland-Urban Land Complex, 2 to 6 percent slopes	6	3
Lakewood Sand	6	3
Lakewood Sand, 0 to 10 percent slopes	6	3
Lakewood Sand, Gently Sloping Phase	6	3
Leaf Clay Loam, Thin Surface	6	2
Leaf Fine Sandy Loam	3	2
Leaf Fine Sandy Loam, Undrained	6	6
Leaf Loam	6	2
Leaf Loamy Sand, Sandy Substratum	3	2

Lenoir Fine Sandy Loam	2	2
Lenoir Loam	2	2
Lenoir Fine Sandy Loam	2	2
Lenoir Sandy Loam	2	2
Leon Fine Sand	6	4
Leon Sand	6	4
Leon Sand, 0 to 2 percent slopes	6	4
Levy Soils	6	3
Lignum Silt Loam, 2 to 6 percent slopes	3	3
Lincolnville Clay Loam	3	5
Lloyd Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Lloyd Clay Loam, 15 to 25 percent slopes, severely eroded	6	4
Lloyd Clay Loam, 15 to 30 percent slopes, severely eroded	6	4
Lloyd Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Lloyd Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Lloyd Clay Loam, 6 to 15 percent slopes, severely eroded	6	4
Lloyd Clay Loam, Compact Subsoil, 10 to 20 percent slopes, severely eroded	6	5
Lloyd Clay Loam, Compact Subsoil, 2 to 6 percent slopes, severely eroded	6	5
Lloyd Clay Loam, Compact Subsoil, 6 to 10 percent slopes, severely eroded	6	5
Lloyd Clay Loam, Severely Eroded Gently Sloping Phase	6	3
Lloyd Clay Loam, Severely Eroded Sloping Phase	6	3
Lloyd Clay Loam, Severely Eroded Strongly Sloping Phase	6	5

Lloyd Loam, 10 to 15 percent slopes, eroded	6	4
Lloyd Loam, 15 to 25 percent slopes	6	3
Lloyd Loam, 2 to 6 percent slopes	3	3
Lloyd Loam, 2 to 6 percent slopes, eroded	3	4
Lloyd Loam, 25 to 35 percent slopes	6	3
Lloyd Loam, 6 to 10 percent slopes	6	3
Lloyd Loam, 6 to 10 percent slopes, eroded	6	4
Lloyd Loam, Moderately Shallow, 15 to 25 percent slopes, eroded	6	4
Lloyd Loam, Moderately Shallow, 25 to 40 percent slopes	6	3
Lloyd Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Lloyd Sandy Loam, 15 to 25 percent slopes	6	3
Lloyd Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Lloyd Sandy Loam, 2 to 6 percent slopes, eroded	3	4
Lloyd Sandy Loam, 25 to 35 percent slopes	6	3
Lloyd Sandy Loam, 6 to 10 percent slopes	6	3
Lloyd Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Lloyd Sandy Loam, Compact Soil, 2 to 6 percent slopes, eroded	3	3
Lloyd Sandy Loam, Eroded Gently Sloping Phase	3	3
Lloyd Sandy Loam, Eroded Sloping Phase	6	3
Lloyd Sandy Loam, Eroded Strongly Sloping Phase	6	3
Lloyd Sandy Loam, Gently Sloping Phase	3	3
Lloyd Sandy Loam, Moderately Steep Phase	6	3
Lloyd Sandy Loam, Sloping Phase	6	3

Lloyd Sandy Loam, Strongly Sloping Phase	6	3
Local Alluvial Land	2	2
Local Alluvial Land, Well Drained	2	2
Lockhart Clay Loam, 10 to 15 percent slopes, severely eroded	6	3
Lockhart Clay Loam, 15 to 25 percent slopes, severely eroded	6	3
Lockhart Clay Loam, 2 to 6 percent slopes, severely eroded	6	3
Lockhart Clay Loam, 6 to 10 percent slopes, severely eroded	6	3
Lockhart Clay Loam, Severely Eroded Gently Sloping Phase	6	3
Lockhart Clay Loam, Severely Eroded Sloping Phase	6	3
Lockhart Coarse Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Lockhart Coarse Sandy Loam, 15 to 25 percent slopes, eroded	6	3
Lockhart Coarse Sandy Loam, 2 to 6 percent slopes, eroded	6	3
Lockhart Coarse Sandy Loam, 25 to 35 percent slopes	6	3
Lockhart Coarse Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Lockhart Gravelly Sandy Loam, 10 to 15 percent slopes	6	3
Lockhart Gravelly Sandy Loam, 15 to 25 percent slopes	6	3
Lockhart Coarse Sandy Loam, 2 to 6 percent slopes	6	3
Lockhart Gravelly Sandy Loam, 25 to 40 percent slopes	6	3

Lockhart Gravelly Sandy Loam, 6 to 10 percent slopes	6	3
Lockhart Sandy Loam, 4 to 10 percent slopes, eroded	6	3
Louisa Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Louisa Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Louisa Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Louisburg Loamy Sand, 10 to 15 percent slopes	6	3
Louisburg Loamy Sand, 10 to 15 percent slopes	6	3
Louisburg Loamy Sand, 10 to 40 percent slopes	6	3
Louisburg Loamy Sand, 15 to 25 percent slopes	6	3
Louisburg Loamy Sand, 15 to 40 percent slopes	6	3
Louisburg Loamy Sand, 6 to 10 percent slopes	6	3
Louisburg Loamy Sand, 6 to 15 percent slopes	6	3
Louisburg Sandy Loam, 10 to 15 percent slopes	6	3
Louisburg Sandy Loam, 10 to 25 percent slopes	6	3
Louisburg Sandy Loam, 10 to 35 percent slopes, eroded	6	3
Louisburg Sandy Loam, 15 to 25 percent slopes	6	3
Louisburg Sandy Loam, 2 to 6 percent slopes	6	3
Louisburg Sandy Loam, 25 to 40 percent slopes	6	3
Louisburg Sandy Loam, 6 to 10 percent slopes	6	3
Louisburg Sandy Loam, 6 to 15 percent slopes	6	3
Lucy Loamy Sand, 0 to 6 percent slopes	6	3
Lucy Loamy Sand, 0 to 2 percent slopes	6	3
Lucy Loamy Sand, 2 to 6 percent slopes	6	3
Lucy Loamy Sand, 6 to 10 percent slopes	6	3
Lucy Sand, 0 to 6 percent slopes	6	3

Lucy Sand, 2 to 6 percent slopes	6	3
Lucy Sand, 6 to 10 percent slopes	6	3
Lumbee Loamy Sand	3	2
Lumbee Loamy Sand, Undrained	6	6
Lumbee Sandy Loam	3	2
Lumbee Sandy Loam, Undrained	6	6
Lynchburg Fine Sandy Loam	1	2
Lynchburg Loamy Fine Sand	1	2
Lynchburg Loamy Sand	1	2
Lynn Haven Fine Sand	6	3
Lynn Haven Loamy Sand	6	3
Lynn Haven Sand	6	3
Made Land	6	6
Madison and Cecil Clay Loams, 10 to 15 percent slopes, severely eroded	6	4
Madison and Cecil Clay Loams, 15 to 25 percent slopes, severely eroded	6	4
Madison and Cecil Clay Loams, 2 to 6 percent slopes, severely eroded	6	4
Madison and Cecil Clay Loams, 6 to 10 percent slopes, severely eroded	6	4
Madison and Cecil Sandy Loams, 10 to 15 percent slopes	6	4
Madison and Cecil Sandy Loams, 10 to 15 percent slopes, eroded	6	4
Madison and Cecil Sandy Loams, 15 to 25 percent slopes	6	4

Madison and Cecil Sandy Loams, 15 to 25 percent slopes, eroded	6	4
Madison and Cecil Sandy Loams, 2 to 6 percent slopes	3	4
Madison and Cecil Sandy Loams, 2 to 6 percent slopes, eroded	4	4
Madison and Cecil Sandy Loams, 25 to 35 percent slopes, eroded	6	4
Madison and Cecil Sandy Loams, 6 to 10 percent slopes	5	4
Madison and Cecil Sandy Loans, 6 to 10 percent slopes, eroded	6	4
Madison and Pacolet Soils, 15 to 40 percent slopes	6	4
Madison Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Madison Clay Loam, 10 to 25 percent slopes, severely eroded	6	4
Madison Clay Loam, 15 to 40 percent slopes, severely eroded	6	4
Madison Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Madison Clay Loam, 6 to 10 percent slopes, eroded	6	4
Madison Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Madison Clay Loam, 10 to 15 percent slopes, eroded	6	4
Madison Fine Sandy Loam, High, 10 to 15 percent slopes	6	4
Madison Fine Sandy Loam, High 10 to 15 percent slopes, eroded	6	4

Madison Fine Sandy Loam, High 15 to 25 percent slopes	6	4
Madison Fine Sandy Loam, High, 15 to 25 percent slopes, eroded	6	4
Madison Fine Sandy Loam, High, 2 to 6 percent slopes	4	4
Madison Fine Sandy Loam, High, 25 to 40 percent slopes	6	4
Madison Fine Sandy Loam, High, 6 to 10 percent slopes	6	4
Madison Fine Sandy Loam, High, 6 to 10 percent slopes, eroded	6	4
Madison Loam, High, 15 to 25 percent slopes, severely eroded	6	4
Madison Sandy Clay Loam, 10 to 15 percent slopes, eroded	6	4
Madison Sandy Clay Loam, 10 to 25 percent slopes, eroded	6	4
Madison Sandy Clay Loam, 2 to 6 percent slopes, eroded	6	4
Madison Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	4
Madison Sandy Loam, 10 to 15 percent slopes	6	4
Madison Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Madison Sandy Loam, 10 to 25 percent slopes, eroded	6	4
Madison Sandy Loam, 15 to 25 percent slopes	6	4
Madison Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Madison Sandy Loam, 15 to 30 percent slopes, eroded	6	4
Madison Sandy Loam, 15 to 40 percent slopes	6	4
Madison Sandy Loam, 2 to 6 percent slopes	3	4
Madison Sandy Loam, 2 to 6 percent slopes, eroded	4	4
Madison Sandy Loam, 25 to 40 percent slopes, eroded	6	4
Madison Sandy Loam, 6 to 10 percent slopes	5	4

Madison Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Madison Sandy Loam, Thin Solum Variant, 2 to 6 percent slopes, eroded	6	4
Madison Sandy Loam, Thin Solum Variant, 6 to 10 percent slopes, eroded	6	4
Magnolia Loamy Sand, 0 to 2 percent slopes	3	3
Magnolia Loamy Sand, 2 to 6 percent slopes	3	3
Magnolia Loamy Sand, 2 to 6 percent slopes, eroded	3	3
Magnolia Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Magnolia Sandy Clay Loam, 10 to 15 percent slopes, severely eroded	6	3
Magnolia Sandy Clay Loam, 2 to 6 percent slopes, severely eroded	3	3
Magnolia Sandy Clay Loam, 6 to 10 percent slopes	6	3
Magnolia Sandy Loam, 0 to 2 percent slopes	3	3
Magnolia Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Magnolia Sandy Loam, 2 to 6 percent slopes	3	3
Magnolia Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Magnolia Sandy Loam, 6 to 10 percent slopes	6	3
Magnolia Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Manteo Channery Silt Loam, 10 to 15 percent slopes	6	5
Manteo Channery Silt Loam, 10 to 15 percent slopes, eroded	6	5
Manteo Channery Silt Loam, 15 to 35 percent slopes	6	5
Manteo Channery Silt Loam, 15 to 35 percent slopes,	6	5

eroded		
Manteo Channery Silt Loam, 2 to 10 percent slopes	6	5
Manteo Channery Silt Loam, 6 to 15 percent slopes, eroded	6	5
Marlboro Fine Sandy Loam, 0 to 2 percent slopes	3	3
Marlboro Fine Sandy Loam, 2 to 6 percent slopes	3	3
Marlboro Loamy Sand, 0 to 2 percent slopes	3	3
Marlboro Loamy Sand, 2 to 6 percent slopes	3	3
Marlboro Loamy Sand, 2 to 6 percent slopes, eroded	3	3
Marlboro Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Marlboro Loamy Sand, 6 to 12 percent slopes, eroded	6	3
Marlboro Sandy Loam, 0 to 2 percent slopes	3	3
Marlboro Sandy Loam, 2 to 6 percent slopes	3	3
Marlboro Sandy Loam, Gently Sloping Phase	3	3
Marlboro Sandy Loam, Level Phase	3	3
Marsh	4	1
Marsh, Undrained	6	6
Masada and Altavista Soils, 2 to 6 percent slopes	3	3
Masada Gravelly Sandy Loam, 2 to 6 percent slopes	3	3
Mascotte Sand	6	3
McColl Fine Sandy Loam	6	2
McColl Fine Sandy Loam, Undrained	6	6
McColl Loam	3	2
McColl Loam, Undrained	6	6
McColl Sandy Loam	3	2
McColl Sandy Loam, Undrained	6	6

Mecklenburg Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Mecklenburg Clay Loam, 15 to 25 percent slopes, severely eroded	6	4
Mecklenburg Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Mecklenburg Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Mecklenburg Clay Loam, 6 to 15 percent slopes, eroded	6	4
Mecklenburg Fine Sandy Loam, 10 to 15 percent slopes, severely eroded	6	4
Mecklenburg Fine Sandy Loam, 2 to 6 percent slopes	2	4
Mecklenburg Fine Sandy Loam, 2 to 6 percent slopes, eroded	6	4
Mecklenburg Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Mecklenburg Loam, 0 to 2 percent slopes	3	4
Mecklenburg Loam, 10 to 15 percent slopes, eroded	6	4
Mecklenburg Loam, 15 to 25 percent slopes	6	4
Mecklenburg Loam, 15 to 25 percent slopes, eroded	6	4
Mecklenburg Loam, 2 to 6 percent slopes, eroded	6	4
Mecklenburg Loam, 6 to 10 percent slopes, eroded	6	4
Mecklenburg Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	4
Mecklenburg Sandy Loam, 10 to 15 percent slopes	6	4

Mecklenburg Sandy Loam, 2 to 6 percent slopes	2	4
Mecklenburg Sandy Loam, 6 to 10 percent slopes	4	4
Mecklenburg Sandy Loam, Eroded Sloping Phase	4	4
Mecklenburg Sandy Loam, Eroded Strongly Sloping Phase	6	4
Mecklenburg Sandy Loam, Gently Sloping Phase	3	4
Mecklenburg Sandy Loam, Sloping Phase	6	4
Mecklenburg Silt Loam, 6 to 10 percent slopes	4	4
Meggett Clay Loam	3	1
Meggett Fine Sandy loam	3	1
Meggett Loam	3	1
Mine Pitts and Dumps	6	6
Mixed Alluvial Land	3	2
Mixed Alluvial Land, Undrained	6	6
Mixed Alluvial Land, Poorly Drained	6	2
Mixed Alluvial Land, Well Drained	2	2
Mixed Alluvial Land, Wet	6	2
Mixed Wet Alluvial Land	6	2
Moderately Gullied Land, Firm Materials	6	4
Moderately Gullied Land, Friable Materials	6	4
Moderately Gullied Land, Friable Materials, 10 to 40 percent slopes	6	4
Moderately Gullied Land, Friable Materials, 2 to 10 percent slopes	6	4
Molena Loamy Sand, 0 to 10 percent slopes	6	3
Molena Loamy Sand, 2 to 8 percent slopes	6	3

Molena Sand, 0 to 6 percent slopes	6	3
Molena Variant Sand, 1 to 4 percent slopes	6	3
Muck	3	6
Muckabee Variant Sandy Loam	3	5
Murad Fine Sand	6	3
Musella Clay Loam, 10 to 25 percent slopes, severely eroded	6	4
Musella Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Musella Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Musella Fine Sandy Loam, 15 to 40 percent slopes, eroded	6	4
Musella Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Musella Soils, 40 to 80 percent slopes	6	4
Myatt Loam	3	2
Myatt Loam, Undrained	6	6
Myatt Loamy Sand	3	2
Myatt Loamy Sand, Undrained	6	6
Myatt Sandy Loam	3	2
Myatt Sandy Loam, Undrained	6	6
Nason Complex, 10 to 30 percent slopes	6	3
Nason Loam, 10 to 15 percent slopes	4	3
Nason Loam, 10 to 15 percent slopes, eroded	6	3
Nason Loam, 15 to 25 percent slopes	6	3
Nason Loam, 15 to 25 percent slopes, eroded	6	3
Nason Silt Loam, 10 to 15 percent slopes	4	3

Nason Silt Loam, 10 to 15 percent slopes, eroded	6	3
Nason Silt Loam, 10 to 25 percent slopes	6	3
Nason Silt Loam, 15 to 25 percent slopes	6	3
Nason Silt Loam, 15 to 25 percent slopes, eroded	6	3
Nason Silt Loam, 2 to 6 percent slopes	4	3
Nason Silt Loam, 2 to 6 percent slopes, eroded	4	3
Nason Silt Loam, 6 to 10 percent slopes	4	3
Nason Silt Loam, 6 to 10 percent slopes, eroded	6	3
Nason Silt Loam, 6 to 15 percent slopes	4	3
Nason Silty Clay Loam, 10 to 25 percent slopes, severely eroded	6	3
Nason Silty Clay Loam, 2 to 10 percent slopes, severely eroded	6	3
Nason Very Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Nason Very Fine Sandy Loam, 15 to 25 percent slopes	6	3
Nason Very Fine Sandy Loam, 2 to 6 percent slopes	4	3
Nason Very Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Nemours Fine Sandy Loam, 0 to 2 percent slopes	2	3
Nemours Fine Sandy Loam, 2 to 6 percent slopes	3	3
Nemours Sandy Loam	3	2
Newhan Sand, 0 to 6 percent slopes	6	6
Norfolk and Dothan Soils, 0 to 2 percent slopes	2	2
Norfolk Fine Sandy Loam, Gently Sloping Phase	2	2

Norfolk Fine Sandy Loam, Level Phase	2	2
Norfolk Loamy Fine Sand, 0 to 2 percent slopes	2	2
Norfolk Loamy Fine Sand, 2 to 6 percent slopes	3	2
Norfolk Loamy Fine Sand, Thick Surface, 0 to 2 percent slopes	2	2
Norfolk Loamy Fine Sand, Thick Surface, 2 to 6 percent slopes	3	2
Norfolk Loamy Sand	2	2
Norfolk Loamy Sand, 0 to 2 percent slopes	2	2
Norfolk Loamy Sand, 2 to 6 percent slopes	3	2
Norfolk Loamy Sand, 2 to 6 percent slopes, eroded	2	2
Norfolk Loamy Sand, 6 to 10 percent slopes	4	2
Norfolk Loamy Sand, 6 to 10 percent slopes, eroded	5	2
Norfolk Loamy Sand, Gently Sloping Thick Surface Phase	6	2
Norfolk Loamy Sand, Level Thick Surface Phase	6	2
Norfolk Loamy Sand, Moderately Deep Variant, 0 to 2 percent slopes	2	2
Norfolk Loamy Sand, Sloping Thick Surface Phase	6	2
Norfolk Loamy Sand, Strongly Sloping Thick Surface Phase	6	2
Norfolk Loamy Sand, Thick Surface, 0 to 2 percent slopes	2	2
Norfolk Loamy Sand, Thick Surface, 2 to 6 percent slopes	3	2
Norfolk Loamy Sand, Thick Surface, 6 to 10 percent slopes	4	2
Norfolk Loamy Sand, Thin Solum, 2 to 6 percent slopes	3	2
Norfolk Loamy Sand, Thin Solum, 2 to 6 percent slopes, eroded	2	2

Norfolk Loamy Sand, Thin Solum, 6 to 10 percent slopes	4	2
Norfolk Sand, Thick Surface, 0 to 2 percent slopes	2	2
Norfolk Sand, Thick Surface, 2 to 6 percent slopes	3	2
Norfolk Sand, Thick Surface, 6 to 10 percent slopes	4	2
Norfolk Sandy Loam, 0 to 2 percent slopes	2	2
Norfolk Sandy Loam, 2 to 6 percent slopes, eroded	2	2
Norfolk Sandy Loam, 2 to 8 percent slopes	3	2
Norfolk Sandy Loam, 6 to 10 percent slopes, eroded	5	2
Norfolk Sandy Loam, Gently Sloping Phase	2	2
Norfolk Sandy Loam, Gently Sloping Thin Solum Phase	2	2
Norfolk Sandy Loam, Level Phase	2	2
Norfolk Sandy Loam, Level Thin Solum Phase	2	2
Norfolk Sandy Loam, Sloping Phase	5	2
Ochlockonee Loamy Sand	2	1
Ocilla Loamy Fine Sand	6	3
Ocilla Loamy Sand	6	3
Ocilla Loamy Sand, 0 to 2 percent slopes	6	3
Ogeechee Loamy Fine Sand	3	2
Okeetee Fine Sandy Loam	3	2
Okeetee-Eulonia Association	3	2
Okenee Loam	3	1
Okenee Loam, Undrained	6	6
Okenee Sandy Loam	6	2
Olanta Loamy Sand	1	2
Onslow Loamy Fine Sand	1	3

Onslow Loamy Sand	1	3
Orange Loam, 0 to 4 percent slopes	6	4
Orange Loam, 2 to 6 percent slopes	6	4
Orange Loam, 6 to 10 percent slopes	6	4
Orange Silt Loam, 0 to 2 percent slopes	6	4
Orange Silt Loam, 2 to 6 percent slopes	6	4
Orange Silt Loam, 2 to 6 percent slopes, eroded	6	4
Orange Silt Loam, 6 to 10 percent slopes, eroded	6	4
Orange Silt Loam, Gently Sloping Phase	6	4
Orangeburg Loamy Sand, 6 to 10 percent slopes	3	2
Orangeburg Loamy Fine Sand, 0 to 2 percent slopes	1	2
Orangeburg Loamy Fine Sand, 2 to 6 percent slopes	1	2
Orangeburg Loamy Sand, 0 to 2 percent slopes	1	2
Orangeburg Loamy Sand, 10 to 15 percent slopes	6	2
Orangeburg Loamy Sand, 10 to 15 percent slopes, eroded	5	2
Orangeburg Loamy Sand, 2 to 6 percent slopes	1	2
Orangeburg Loamy Sand, 2 to 6 percent slopes, eroded	2	2
Orangeburg Loamy Sand, 6 to 10 percent slopes	3	2
Orangeburg Loamy Sand, 6 to 10 percent slopes, eroded	3	2
Orangeburg Loamy Sand, Overwash, 0 to 4 percent slopes	1	2
Orangeburg Sandy Loam, 2 to 6 percent slopes, eroded	2	2
Orangeburg Sandy Loam, 6 to 10 percent slopes, eroded	3	2
Orangeburg-Urban Land Complex, 6 to 15 percent slopes	5	2
Orummer-Rutledge Loamy Fine Sands	6	2
Osier Fine Sand	6	3

Osier Fine Sand, Undrained	6	6
Osier Loamy Sand	6	3
Osier Loamy Sand, Undrained	6	6
Osier Sand	6	3
Osier Sand, Undrained	6	6
Osier Variant Loamy Sand	6	3
Pacolet Clay Loam, 10 to 15 percent slopes, eroded	6	4
Pacolet Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Pacolet Clay Loam, 10 to 25 percent slopes, Gullied	6	4
Pacolet Clay Loam, 10 to 25 percent slopes, severely eroded	6	4
Pacolet Clay Loam, 15 to 25 percent slopes, eroded	6	4
Pacolet Clay Loam, 15 to 25 percent slopes, severely eroded	6	4
Pacolet Clay Loam, 2 to 10 percent slopes, severely eroded	6	4
Pacolet Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Pacolet Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Pacolet Fine Sandy Loam, 10 to 25 percent slopes, eroded	6	4
Pacolet Fine Sandy Loam, 2 to 6 percent slopes, eroded	3	4
Pacolet Fine Sandy Loam, 25 to 40 percent slopes	6	3
Pacolet Fine Sandy Loam, 40 to 80 percent slopes	6	3
Pacolet Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4

Pacolet Sandy Clay Loam, 10 to 15 percent slopes, eroded	6	4
Pacolet Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Pacolet Sandy Loam, 10 to 15 percent slopes	6	3
Pacolet Sandy Loam, 10 to 25 percent slope	6	3
Pacolet Sandy Loam, 15 to 25 percent slopes	6	3
Pacolet Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Pacolet Sandy Loam, 15 to 40 percent slopes	6	3
Pacolet Sandy Loam, 2 to 6 percent slopes	3	3
Pacolet Sandy Loam, 2 to 6 percent slopes, eroded	5	4
Pacolet Sandy Loam, 25 to 40 percent slopes	6	3
Pacolet Sandy Loam, 25 to 40 percent slopes, eroded	6	4
Pacolet Sandy Loam, 6 to 10 percent slopes	6	3
Pacolet Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Pacolet Soils, 10 to 25 percent slopes, severely eroded	6	4
Paleaquults, Sandy	3	1
Pamlico Muck	3	4
Pamlico Muck, Undrained	6	6
Pantego Fine Sandy Loam	3	1
Pantego Fine Sandy Loam, Undrained	6	6
Pantego Loam	6	1
Pantego Loam, Undrained	6	6
Pantego Sandy Loam	3	1
Pantego Sandy Loam, Undrained	6	6
Paxville Association	3	1
Paxville Association, Undrained	6	6

Paxville Fine Sandy Loam	3	1
Paxville Loam	6	1
Paxville Loam, Undrained	6	6
Peat	6	6
Pelham Loamy Sand	6	2
Pelham Loamy Sand, Undrained	6	6
Pelham Sand	6	2
Pelham Sand, Undrained	6	6
Pelion Loamy Sandy, 0 to 2 percent slopes	6	4
Pelion Loamy Sand, 2 to 6 percent slopes	6	4
Pelion Loamy Sand, 6 to 10 percent slopes	6	4
Pelion Loamy Sand, 6 to 15 percent slopes	6	4
Pelion-Urban Land Complex, 2 to 10 percent slopes	6	4
Persanti Fine Sandy Loam	2	2
Persanti Fine Sandy Loam, 0 to 2 percent slopes	2	2
Persanti Fine Sandy Loam, 2 to 6 percent slopes	3	2
Persanti Very Fine Sandy Loam	2	2
Persanti Very Fine Sandy Loam, 0 to 2 percent slopes	2	2
Pickens Slaty Silt Loam, 10 to 25 percent slopes	6	5
Pickens Slaty Silt Loam, 25 to 35 percent slopes	6	5
Pickens Slaty Silt Loam, 6 to 15 percent slopes	6	5
Pickney Loamy Fine Sand	6	1
Pickney Loamy Sand	6	1
Pits and Dumps	6	6
Plummer Loamy Sand	6	2

Plummer Sand, Terrace	6	2
Pocalla Sand, 0 to 2 percent slopes	5	3
Pocalla Sand, 0 to 4 percent slopes	5	3
Pocalla Sand, 0 to 6 percent slopes	5	3
Pocomoke Loam	3	2
Pocomoke Loamy Fine Sand	6	2
Polawana Loamy Fine Sand	3	1
Polawana Loamy Fine Sand, Undrained	6	6
Polawana Loamy Sand	6	1
Polawana Loamy Sand, Undrained	6	6
Ponzer Mucky Loam	3	4
Ponzer Mucky Loam, Undrained	6	6
Ponzer Soils	3	4
Ponzer Soils, Undrained	6	6
Porters Loam, 15 to 40 percent slopes	6	2
Porters Loam, 25 to 45 percent slopes	6	2
Porters Loam, 40 to 70 percent slopes	6	2
Porters Loam, 6 to 15 percent slopes	5	2
Porters Stony Loam, 25 to 45 percent slopes	6	2
Portsmouth and Okenee Loams	3	2
Portsmouth Fine Sandy Loam	3	1
Portsmouth Fine Sandy Loam, Undrained	6	6
Portsmouth Loam	3	1
Portsmouth Loam, Undrained	6	6
Portsmouth Loamy Sand	6	1

Portsmouth Loamy Sand, Undrained	6	6
Portsmouth Mucky Loam	3	1
Portsmouth Sandy Loam	3	2
Portsmouth Sandy Loam, Undrained	6	6
Portsmouth-Johnson Association	3	1
Portsmouth-Johnson Association, Undrained	6	6
Quitman Loamy Sand	3	2
Rabun Cobbly Loam, 25 to 40 percent slopes	6	2
Rabun Cobbly Loam, 40 to 70 percent slopes	6	2
Rabun Loam, 10 to 25 percent slopes	6	2
Rains Association	3	2
Rains Association, Undrained	6	6
Rains Fine Sandy Loam	3	2
Rains Fine Sandy Loam, Undrained	6	6
Rains Loamy Sand	3	2
Rains Loamy Sand, Undrained	6	6
Rains Sandy Loam	3	2
Rains Sandy Loam, Undrained	6	6
Rains Sandy Loam, Moderately Deep Variant	3	2
Rains Lynchburg Association	3	5
Red Bay Sandy Loam, 0 to 2 percent slopes	2	2
Red Bay Sandy Loam, 2 to 6 percent slopes	2	2
Rembert Loam	3	2
Rembert Loam, Undrained	6	6
Ridgeland Fine Sand	6	3

Ridgeland Loamy Fine Sand	6	3
Ridgeland Loamy Sand	6	3
Ridgeland Sand	6	3
Rimini Fine Sand	6	5
Rimini Sand	6	5
Rimini Sand, 0 to 6 percent slopes	6	5
Rion Loamy Sand, 15 to 40 percent slopes	6	3
Riverview Silt Loam	5	1
Riverwash	6	6
Roanoke Silt Loam	3	3
Roanoke Silt Loam, Undrained	6	6
Rock Land	6	6
Rock Outcrop	6	6
Rockland-Cleveland Complex, 25 to 80 percent slope	6	4
Rosedhu Fine Sand	6	3
Rosedhu Fine Sand, Undrained	6	6
Ruston Fine Sandy Loam, Gently Sloping Phase	2	2
Ruston Fine Sandy Loam, Level Phase	2	2
Ruston Loamy Sand, 0 to 2 percent slopes	2	2
Ruston Loamy Sand, 0 to 6 percent slopes	2	2
Ruston Loamy Sand, 2 to 6 percent slopes	2	2
Ruston Loamy Sand, 2 to 6 percent slopes, eroded	2	2
Ruston Loamy Sand, 6 to 10 percent slopes	2	2
Ruston Loamy Sand, Gently Sloping Thick Surface Phase	5	2
Ruston Loamy Sand, Level Thick Surface Phase	5	2

Ruston Loamy Sand, Sloping Thick Surface Phase	6	2
Ruston Loamy Sand, Thick Surface, 0 to 2 percent slopes	6	2
Ruston Loamy Sand, Thick Surface, 10 to 15 percent slopes	6	2
Ruston Loamy Sand, Thick Surface, 2 to 6 percent slopes	6	2
Ruston Loamy Sand, Thick Surface, 6 to 10 percent slopes	6	2
Ruston Sandy Loam, 0 to 2 percent slopes	2	2
Ruston Sandy Loam, 2 to 6 percent slopes	2	2
Ruston Sandy Loam, 6 to 10 percent slopes	5	2
Ruston Sandy Loam, Eroded Sloping Phase	5	2
Ruston Sandy Loam, Gently Sloping Phase	2	2
Ruston Sandy Loam, Level Phase	2	2
Rutlege Loamy Sand	6	2
Rutlege Loamy Sand, Undrained	6	6
Rutlege Loam	6	2
Rutlege Loamy Fine Sand	6	2
Rutlege Loamy Fine Sand, Undrained	6	6
Rutlege Mucky Loam	6	2
Rutlege Sand	6	2
Rutlege Sand, Undrained	6	6
Rutlege-Johnston Association	6	4
Rutlege-Johnston Association, Undrained	6	6
Rutlege-Pamlico Complex	6	3
Saluda and Edneyville Soils, 15 to 25 percent slopes	6	3
Saluda and Edneyville Soils, 25 to 40 percent slopes	6	3
Saluda and Ednyville Soils, Very Steep	6	3

Saluda Sandy Loam, 10 to 25 percent slopes	6	3
Saluda Sandy Loam, 25 to 40 percent slopes	6	3
Saluda Sandy Loam, 40 to 70 percent slopes	6	3
Sandy and Clayey Land, Moderately Steep	6	3
Sandy and Clayey Land, Sloping	6	3
Santee Association	3	1
Santee Association, Undrained	6	6
Santee Clay Loam	3	1
Santee Fine Sandy Loam	3	1
Santee Fine Sandy Loam, Undrained	6	6
Santee Loam	3	1
Santee Loam, Undrained	6	6
Scranton Fine Sand	4	3
Scranton Loamy Fine Sand	4	3
Scranton Loamy Sand	4	3
Seabrook Fine Sand	5	2
Seabrook Loamy Fine Sand	5	2
Seabrook Sand	5	2
Seagate Loamy Fine Sand	5	3
Seagate Loamy Sand	5	3
Seewee Complex	6	2
Seewee Fine Sand	6	2
Severely Gullied Land	6	4
Sloping Land, Sandy and Clayey Sediments	6	3
Sloping Land, Sandy and Clayey Sediment, Eroded Phase	6	3

Sloping Sandy Land	6	4
Smithboro Fine Sandy Loam	2	2
Smithboro Loam	2	2
Smithboro Silt Loam	6	4
St. Johns Fine Sand	6	4
Starr Loam, 0 to 6 percent slopes	2	1
Starr Soils	2	1
State Fine Sandy Loam	2	1
State Sandy Loam, 0 to 2 percent slopes	2	1
Stono Fine Sandy Loam	3	1
Stono Fine Sandy Loam, Undrained	6	4
Stony Land	6	4
Stony Land, Moderately Steep	6	4
Summerton Fine Sandy Loam, 0 to 2 percent slopes	2	3
Summerton Fine Sandy Loam, 2 to 6 percent slopes	3	3
Summerton Fine Sandy Loam, 6 to 10 percent slopes	5	3
Summerton Loamy Fine Sand, 0 to 2 percent slopes	3	3
Summerton Loamy Fine Sand, 2 to 6 percent slopes	3	3
Summerton Loamy Fine Sand, 6 to 10 percent slopes	5	3
Summerton Loamy Sand, 2 to 6 percent slopes	3	3
Summerton Loamy Sand, 6 to 10 percent slopes	5	3
Summerton Sandy Loam, 0 to 2 percent slopes	2	3
Sunsweet Loamy Fine Sand, 10 to 25 percent slopes	6	3
Sunsweet Loamy Fine Sand, 6 to 10 percent slopes	6	3
Swamp	6	6

Talladega and Chandler Loams, 10 to 25 percent slopes	6	4
Talladega and Chandler Loams, 25 to 60 percent slopes	6	4
Tallapoosa Loam, 15 to 25 percent slopes	6	4
Tallapoosa Loam, 25 to 40 percent slopes	6	4
Tallapoosa Loam, 40 to 80 percent slopes	6	4
Tallapoosa Loam, 6 to 15 percent slopes	6	4
Talledaga Soils, 40 to 80 percent slopes	6	4
Tatum Gravelly Silt Loam, 10 to 15 percent slopes, eroded	6	3
Tatum Gravelly Silt Loam, 15 to 25 percent slopes, eroded	3	3
Tatum Gravelly Silt Loam, 2 to 6 percent slopes, eroded	3	3
Tatum Gravelly Silt Loam, 6 to 10 percent slopes, eroded	6	3
Tatum Loam, 10 to 15 percent slopes, eroded	4	3
Tatum Loam, 10 to 25 percent slopes, eroded	6	4
Tatum Loam, 15 to 25 percent slopes, eroded	6	3
Tatum Silt Loam, 10 to 15 percent slopes, eroded	6	3
Tatum Silt Loam, 15 to 25 percent slopes, eroded	6	3
Tatum Silt Loam, 15 to 25 percent slopes, eroded	6	3
Tatum Silt Loam, 2 to 6 percent slopes	4	3
Tatum Silt Loam, 2 to 6 percent slopes, eroded	3	3
Tatum Silt Loam, 6 to 10 percent slopes	5	3
Tatum Silt Loam, 6 to 10 percent slopes, eroded	6	3
Tatum Silty Clay Loam, 10 to 15 percent slopes, severely eroded	6	4
Tatum Silty Clay Loam, 10 to 25 percent slopes, severely eroded	6	4

Tatum Silty Clay Loam, 15 to 25 percent slopes, severely eroded	6	4
Tatum Silty Clay Loam, 15 to 35 percent slopes, severely eroded	6	4
Tatum Silty Clay Loam, 2 to 6 percent slopes, severely eroded	6	4
Tatum Silty Clay Loam, 6 to 10 percent slopes, severely eroded	6	4
Tatum Very Fine Sandy Loam, 10 to 15 percent slopes	6	3
Tatum Very Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Tatum Very Fine Sandy Loam, 15 to 25 percent slopes	6	3
Tatum Very Fine Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Tatum Very Fine Sandy Loam, 2 to 6 percent slopes	4	3
Tatum Very Fine Sandy Loam, 2 to 6 percent slopes, eroded	3	4
Tatum Very Fine Sandy Loam, 25 to 35 percent slopes	6	3
Tatum Very Fine Sandy Loam, 6 to 10 percent slopes	4	3
Tatum Very Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Tawcaw Association, Frequently Flooded	6	1
Tawcaw Silty Clay Loam	6	1
Tawcaw Soils	3	1
Tawcaw-Chastain Association	6	2
Tawcaw-Chastain Association, Frequently Flooded	6	1

Tidal Marsh, Firm	7	7
Tidal Marsh, Firm Mucks and Peats	6	7
Tidal Marsh, Soft	6	7
Tifton Loamy Sand, 0 to 1 percent slopes	1	2
Tifton Loamy Sand, 0 to 2 percent slopes	1	2
Tifton Loamy Sand, 2 to 6 percent slopes	1	2
Tirzah Silt Loam, 10 to 15 percent slopes, eroded	6	3
Tirzah Silt Loam, 2 to 6 percent slopes	3	3
Tirzah Silt Loam, 2 to 6 percent slopes, eroded	3	3
Tirzah Silt Loam, 6 to 10 percent slopes	6	3
Tirzah Silt Loam, 6 to 10 percent slopes, eroded	6	3
Tirzah Silt Loam, Eroded Gently Sloping Phase	3	3
Tirzah Silt Loam, Eroded Strongly Sloping Phase	6	3
Tirzah Silt Loam, Gently Sloping Phase	3	3
Tirzah Silt Loam, Sloping Phase	6	3
Tirzah Silty Clay Loam, 6 to 10 percent slopes, severely eroded	6	3
Toccoa Fine Sandy Loam	5	2
Toccoa Loam	5	2
Toccoa Sandy Loam	5	2
Toccoa Soils	5	2
Toccoa-Cartecay Complex	6	2
Tomotley Fine Sand	6	2
Tomotley Fine Sand, Undrained	6	6
Tomotley Loamy Fine Sand	3	2

Tomotley Loamy Fine Sand, Undrained	6	6
Tomotley Sandy Loam	6	2
Tomotley Sandy Loam, Undrained	6	6
Troup Fine Sand, 0 to 2 percent slopes	6	3
Troup Fine Sand, 0 to 6 percent slopes	6	3
Troup Fine Sand, 10 to 15 percent slopes	6	3
Troup Fine Sand, 2 to 6 percent slopes	6	3
Troup Fine Sand, 6 to 10 percent slopes	6	3
Troup Fine Sand, 0 to 2 percent slopes	6	3
Troup Sand, 0 to 6 percent slopes	6	3
Troup Sand, 10 to 25 percent slopes	6	3
Troup Sand, 0 to 2 percent slopes	6	3
Troup Sand, 2 to 6 percent slopes	6	3
Troup Sand, 6 to 10 percent slopes	6	3
Troup Sand, 6 to 15 percent slopes	6	3
Troup, Wagram and Lakeland Sand, 10 to 15 percent slopes	6	3
Troup-Urban Land Complex, 0 to 6 percent slopes	6	3
Tusquitee Loam, 4 to 10 percent slopes	3	2
Udipsamments	6	5
Udorthents	6	6
Udorthents-Argents Complex	6	6
Udrothents, Loamy	6	6
Udorthents, Sandy	6	6
Udorthents-Argents Complex	6	6
Vacluse Loamy Sand, 10 to 15 percent slopes	6	3

Vance Clay Loam, 10 to 25 percent slopes, severely eroded	6	3
Vance Clay Loam, 2 to 10 percent slopes, severely eroded	6	3
Vance Sandy Clay Loam, 6 to 10 percent slopes, eroded	6	3
Vance Sandy Loam, 10 to 15 percent slopes, eroded	6	3
Vance Sandy Loam, 15 to 25 percent slopes, eroded	6	3
Vance Sandy Loam, 2 to 6 percent slopes	4	3
Vance Sandy Loam, 6 to 10 percent slopes	5	3
Vance Sandy Loam, 6 to 10 percent slopes, eroded	6	3
Varina Fine Sandy Loam, 0 to 2 percent slopes	2	3
Varina Fine Sandy Loam, 2 to 6 percent slopes	2	3
Varina Loamy Fine Sand, 0 to 2 percent slopes	2	3
Varina Loamy Fine Sand, 2 to 6 percent slopes	2	3
Varina Loamy Sand, 0 to 2 percent slopes	2	3
Varina Loamy Sand, 2 to 6 percent slopes	2	3
Varina Loamy Sand, 6 to 10 percent slopes	3	3
Varina Sandy Loam, 0 to 2 percent slopes	2	3
Varina Sandy Loam, 2 to 6 percent slopes	2	3
Varina Sandy Loam, 2 to 6 percent slopes, eroded	3	3
Vaucluse-Ailey Complex, 15 to 25 percent slopes	6	3
Vaucluse-Ailey Complex, 6 to 15 percent slopes	6	3
Vaucluse-Udorthents Complex	6	5
Vaucluse and Blaney Loamy Sands, 10 to 15 percent slopes	6	3
Vaucluse and Blaney Loamy Sand, 2 to 6 percent slopes	6	3
Vaucluse and Blaney Loamy Sand, 6 to 10 percent slopes	6	3
Vaucluse Gravelly Loamy Sand, 10 to 15 percent slopes	6	3

Vaucluse Gravelly Loamy Sand, 2 to 6 percent slopes	6	3
Vauclose Gravely Loamy Sand, 6 to 10 percent slopes	6	3
Vaucluse Loamy Sand, 10 to 15 percent slopes	6	3
Vaucluse Loamy Sand, 10 to 15 percent slopes, eroded	6	3
Vaucluse Loamy Sand, 10 to 25 percent slopes	6	3
Vaucluse Loamy Sand, 15 to 20 percent slopes, eroded	6	3
Vaucluse Loamy Sand, 15 to 25 percent slopes, eroded	6	3
Vaucluse Loamy Sand, 2 to 6 percent slopes	6	3
Vaucluse Loamy Sand, 2 to 6 percent slopes, eroded	6	3
Vaucluse Loamy Sand, 2 to 6 percent slopes, Thick Surface	6	3
Vaucluse Loamy Sand, 6 to 10 percent slopes	6	3
Vaucluse Loamy Sand, 6 to 10 percent slopes, eroded	6	3
Vaucluse Loamy Sand, Gently Sloping Thick Surface Phase	6	3
Vaucluse Loamy Sand, Sloping Thick Surface Phase	6	3
Vaucluse Loamy Sand, Thick Surface, 10 to 15 percent slopes	6	3
Vaucluse Loamy Sand, Thick Surface, 6 to 10 percent slopes	6	3
Vaucluse Loamy Sand, Thick Surface, 6 to 15 percent slopes	6	3
Vaucluse Sand, 10 to 15 percent slopes	6	3
Vaucluse Sand, 10 to 15 percent slopes, eroded	6	3
Vaucluse Sand, 15 to 25 percent slopes, eroded	6	3
Vaucluse Sand, 2 to 6 percent slopes	6	3
Vaucluse Sand, 6 to 10 percent slopes	6	3

Vaucluse Sand, 6 to 10 percent slopes, eroded	6	3
Vaucluse Sand, Gravelly Variant, 10 to 15 percent slopes, eroded	6	3
Vaucluse Sand, Thick Surface, 10 to 15 percent slopes	6	3
Vaucluse Sand, Thick Surface, 2 to 6 percent slopes	6	3
Vaucluse Sand, Thick Surface, 6 to 10 percent slopes	6	3
Vaucluse Sandy Loam, 3 to 8 percent slopes, eroded	6	3
Vaucluse Sandy Loam, 6 to 10 percent slopes, severely eroded	6	3
Vaucluse Sandy Loam, Eroded Sloping Phase	6	3
Vaucluse Sandy Loam, Eroded Strongly Sloping Phase	6	3
Vaucluse Sandy Loam, Gently Sloping Phase	6	3
Vaucluse Sandy Loam, Moderately Steep Phase	6	3
Vaucluse Sandy Loam, Sloping Phase	6	3
Vaucluse Sandy Loam, Strongly Sloping Phase	6	3
Vaucluse Soils, 10 to 15 percent slopes, eroded	6	3
Vaucluse Soils, 10 to 25 percent slopes	6	3
Wadmalaw Fine Sandy Loam	6	1
Wadmalaw Fine Sandy Loam, Undrained	6	6
Wadmalaw Variant Loamy, Fine Sand	3	1
Wadmalaw Variant Loamy, Fine Sand, Undrained	6	6
Wagram Loamy Fine Sand, 0 to 6 percent slopes	6	3
Wagram Loamy Sand, 0 to 2 percent slopes	6	3
Wagram Loamy Sand, 10 to 15 percent slopes	6	3
Wagram Loamy Sand, 2 to 6 percent slopes	6	3

Wagram Loamy Sand, 6 to 10 percent slopes	6	3
Wagram Sand, 6 to 10 percent slopes	6	3
Wagram Sand, 0 to 6 percent slopes	6	3
Wagram Sand, 10 to 15 percent slopes	6	3
Wagram Sand, 2 to 6 percent slopes	6	3
Wahee Fine Sand	3	2
Wahee Fine Sandy Loam	3	2
Wahee Fine Sandy Loam, Undrained	6	6
Wahee Fine Sandy Loam VIII	6	2
Wahee Loam	3	2
Wahee Sandy Loam	3	2
Wahee Sandy Loam, 0 to 4 percent slopes	3	2
Wahee Sandy Loam, Sandy Substratum II	3	2
Wahee Vary Fine Sandy Loam	3	2
Wakulla Sand, 0 to 2 percent slopes VII	6	3
Wando Fine Sand, 0 to 6 percent slopes	6	3
Wando Loamy Fine Sand, 0 to 6 percent slopes	6	3
Wando Sand	6	3
Wando Sand, 0 to 6 percent slopes	6	3
Watauga Fine Sandy Loam, 10 to 25 percent slopes, eroded	6	3
Wagauga Fine Sandy Loam, 2 to 6 percent slopes, eroded	2	3
Watauga Fine Sandy Loam, 25 to 40 percent slopes	6	3
Watauga Fine Sandy Loam, 6 to 10 percent slopes, eroded	5	3
Wateree Sandy Loam, 10 to 25 percent slopes	6	3
Wateree-Rion Complex, 15 to 40 percent slopes	6	3

Wateree-Rion Complex, 6 to 15 percent slopes	6	3
Wedowee Loamy Sand, 10 to 30 percent slopes	6	3
Wedowee Loamy Sand, 2 to 6 percent slopes	3	3
Wedowee Sandy Loam, 10 to 15 percent slopes	6	3
Wedowee Sandy Loam, 10 to 25 percent slopes, eroded	6	3
Wedowee Sandy Loam, 2 to 6 percent slopes	3	3
Wedowee Sandy Loam, 6 to 10 percent slopes	6	3
Wehadkee and Chewacla Silt Loams	3	1
Wehadkee and Chewacla Silt Loam, Undrained	6	6
Wehadkee and Chewacla Soils	6	2
Wehadkee and Johnston Soils	6	2
Wehadkee Silt Loam	6	1
Wehadkee Silt Loam, Undrained	6	6
Wehadkee Soils	6	1
Wehadkee Soils, Undrained	6	6
Wehadkee-Chastain Association	6	2
Wehadkee-Chastain Association, Undrained	6	6
Wehadkee-Chewacla Complex	3	1
Wehadkee-Chewacla Complex, Undrained	6	6
Wickham Clay Loam, 6 to 10 percent slopes, severely eroded	6	2
Wickham Fine Sandy Loam, 0 to 2 percent slopes	1	2
Wickham Fine Sandy Loam, 2 to 6 percent slopes	2	2
Wickham Fine Sandy Loam, Gently Sloping Phase	2	2
Wickham Fine Sandy Loam, Sloping Phase	5	2

Wickham Sandy Clay Loam, 6 to 10 percent slopes, severely eroded	6	3
Wickham Sandy Loam, 0 to 2 percent slopes	1	2
Wickham Sandy Loam, 10 to 15 percent slopes, eroded	6	2
Wickham Sandy Loam, 10 to 25 percent slopes, severely eroded	6	2
Wickham Sandy Loam, 15 to 25 percent slopes, eroded	6	2
Wickham Sandy Loam, 2 to 10 percent slopes, eroded	5	2
Wickham Sandy Loam, 2 to 6 percent slopes	2	2
Wickham Sandy Loam, 2 to 6 percent slopes, eroded	2	2
Wickham Sandy Loam, 6 to 10 percent slopes, eroded	5	2
Wickham Sandy Loam, 6 to 15 percent slopes, eroded	6	2
Wicksburg Loamy Fine Sand, 0 to 6 percent slopes	6	3
Wicksburg Loamy Sand, 0 to 2 percent slopes	6	3
Wicksburg Loamy Sand, 2 to 6 percent slopes	6	3
Wilkes Complex, 10 to 15 percent slopes	6	4
Wilkes Complex, 15 to 35 percent slopes	6	4
Wilkes Complex, 15 to 35 percent slopes, eroded	6	4
Wilkes Complex, 2 to 6 percent slopes	6	4
Wilkes Complex, 6 to 10 percent slopes	6	4
Wilkes Complex, 6 to 15 percent slopes, eroded	6	4
Wilkes Fine Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Wilkes Fine Sandy Loam, 15 to 40 percent slopes	6	4
Wilkes Fine Sandy Loam, 15 to 40 percent slopes, eroded	6	4
Wilkes Fine Sandy Loam, 2 to 6 percent slopes, eroded	6	4

Wilkes Fine Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Wilkes Fine Sandy Loam, 6 to 15 percent slopes	6	4
Wilkes Sandy Loam, 10 to 15 percent slopes	6	4
Wilkes Sandy Loam, 10 to 15 percent slopes, eroded	6	4
Wilkes Sandy Loam, 15 to 25 percent slopes, eroded	6	4
Wilkes Sandy Loam, 15 to 30 percent slopes	6	4
Wilkes Sandy Loam, 15 to 35 percent slopes	6	4
Wilkes Sandy Loam, 15 to 40 percent slopes	6	4
Wilkes Sandy Loam, 2 to 10 percent slopes	6	4
Wilkes Sandy Loam, 2 to 6 percent slopes	1	4
Wilkes Sandy Loam, 6 to 10 percent slopes	6	4
Wilkes Sandy Loam, 6 to 10 percent slopes, eroded	6	4
Wilkes Sandy Loam, 6 to 15 percent slopes	6	4
Wilkes Sandy Loam, 6 to 15 percent slopes, eroded	6	4
Wilkes Sandy Loam, Eroded Moderately Steep Phase	6	4
Wilkes Sandy Loam, Eroded Sloping Phase	6	3
Wilkes Sandy Loam, Eroded Steep Phase	6	4
Wilkes Sandy Loam, Eroded Strongly Sloping Phase	6	4
Wilkes Sandy Loam, Gently Sloping Phase	6	4
Wilkes Sandy Loam, Moderately Steep Phase	6	4
Wilkes Sandy Loam, Sloping Phase	6	4
Wilkes Sandy Loam, Steep Phase	6	4
Wilkes Sandy Loam, Strongly Sloping Phase	6	4
Wilkes Soils, 15 to 40 percent slopes	6	4
Williman Loamy Fine Sand	3	2

Williman Loamy Fine Sand, Undrained	6	6
Winnsboro Fine Sandy Loam, 10 to 15 percent slopes	6	4
Winnsboro Fine Sandy Loam, 2 to 6 percent slopes	3	4
Winnsboro Fine Sandy Loam, 6 to 10 percent slopes	5	4
Winnsboro Sandy Loam, 10 to 25 percent slopes	6	4
Winnsboro Sandy Loam, 2 to 6 percent slopes	3	4
Winnsboro Sandy Loam, 6 to 10 percent slopes	5	4
Witherbee Fine Sand	6	2
Witherbee Sand	6	2
Worsham Fine Sandy Loam	6	3
Worsham Fine Sandy Loam, 0 to 6 percent slopes	6	3
Worsham Loam, 1 to 4 percent slopes	6	3
Worsham Sandy Loam, 0 to 6 percent slopes	6	3
Worsham Sandy Loam, 2 to 6 percent slopes, eroded	6	3
Worsham Sandy Loam, 2 to 6 percent slopes	6	3
Worsham Sandy Loam, 6 to 15 percent slopes	6	3
Worsham Sandy Loam, 6 to 15 percent slopes, eroded	6	3
Worsham Sandy Loam, Gently Sloping Phase	6	3
Worsham Silt Loam, 0 to 6 percent slopes	6	3
Yemassee Loamy Fine Sand	1	2
Yemassee Sandy Loam	1	2
Yemassee Variant Loamy Sand	1	2
Yonges Fine Sandy Loam	2	1
Yonges Fine Sandy Loam, Undrained	6	6
Yonges Loamy Fine Sand	3	1

Yonges Loamy Fine Sand, Undrained	6	6
Yonges-Argent Association	3	1

Section 5. Listing of Timberland Provinces with Listing of Counties in Each Province

MARKETING PROVINCES

Four marketing provinces were established relative to prices paid for pine stumpage in all counties. These "marketing areas" or provinces are listed below.

Coastal Plain

Allendale	Charleston	Florence	Marion
Bamberg	Clarendon	Georgetown	Marlboro
Barnwell	Colleton	Hampton	Orangeburg
Beaufort	Darlington	Horry	Sumter
Berkeley	Dillon	Jasper	Williamsburg
Calhoun	Dorchester	Lee	

Fall Line/Sand Hills

Aiken	Kershaw
Chesterfield	Lexington
Fairfield	Richland

Western Piedmont

Edgefield	Newberry
Greenwood	Saluda
McCormick	

Piedmont/Blue Ridge

Abbeville	Chester	Laurens	Spartanburg
Anderson	Greenville	Oconee	Union
Cherokee	Lancaster	Pickens	York

117-1840.5 Discount for Subdivided Land.

Code Sections 12-43-224 and 12-43-225 of the South Carolina Code of Laws provides a discount from market value for subdivided land.

For purposes of Code Sections 12-43-224 and 12-43-225, a subdivision is a tract of land which has been divided by a developer into separate parcels or lots with suitable streets, roadways, open areas, and appropriate facilities for development as residential, commercial or industrial sites that have been surveyed and a plat recorded with the appropriate county official.

A developer is someone who owns 10 or more building lots which are offered for sale in a subdivision on December 31 of the year immediately preceding the calendar year in which the developer wishes the discount to apply.

In order for the provisions of Sections 12-43-224 and 12-43-225 of the Code to apply, the owners of such real property or their agents must make written application before May 1st of the tax year in which the multiple lot ownership discount value is claimed. The application shall be made to the County Assessor upon forms provided by the county and approved by the Department. The failure to apply is treated as a waiver of the discount for that year.

Code Section 12-43-224 allows the current fair market value of the land to be discounted because the subdivided parcels will be sold over a period of years. The discount rate consists of the appropriate interest rate and effective tax rate. This rate is used to discount the value over the period it will take to sell the lots. Code Section 12-43-225 allows a further discount to the value of the land. This further discounted value is determined by dividing the total number of platted building lots into the value of the entire parcel as undeveloped property and subtracting the result from the value of each lot as determined under Code Section 12-43-224. The difference between the value of each parcel as undeveloped property and the value of each parcel determined under Code Section 12-43-224 is then subtracted from each lots already discounted value under Code Section 12-43-224.

To the extent that a county undergoes a reassessment program, the value of the subdivided land must be recalculated.

In order to calculate the discount, the following information is necessary.

A. The value of the undivided parcel of undeveloped land assuming that the land was not subdivided.

B. An interest rate. This interest rate is the typical interest rate charged by developers within the county to purchasers of lots when the purchase is financed by the developer or, in the absence of financing by the developer, the typical interest rate charged by local savings and loans institutions for mortgages for new homes. In the year in which the next reassessment is implemented, the interest rate is changed to the rate determined for that year.

C. The effective tax rate for the tax district in which the lots are located. The tax rate used by the Assessor must be uniform in the tax district. In the year in which the next reassessment is implemented, the tax rate is changed to the rate in effect for that year.

D. A period over which it is anticipated that the lots will be sold. The Assessor shall determine a reasonable number of years for the developer to sell the platted lots based on the best evidence available such as sales history of the subdivided lots in question. However, this period may not exceed seven years.

E. A market value for the property. For this purpose, each subdivided lot is valued separately. The market value used by the Assessor must be the value used for the year in which the last reassessment was implemented. If all property in the county is reassessed, the market value for the lots will be changed to the current market value determined as of the year the new reassessment values are implemented.

To determine the discounted value of each subdivided lot, the market value of each lot (item (E) above) is reduced by a discount rate obtained by using the factors in items (B) and (C) above to obtain a discounted value for all the subdivided lots under Section 12-43-224 of the Code. The discount rate is applied over the period provided in (D) above. This calculation is designed to determine what the present value of the lots is. Present value refers to the economic principle that a dollar received today is worth more than a dollar received tomorrow. It is future value discounted to its value today. In order to determine the "present value" of a transaction, a discount rate (such as the one provided in Code Section 12-43-224) is applied to determine the worth of future benefits in today's dollars.

The reduced value of each lot as determined under Section 12-43-224 of the Code is further reduced by the provisions of Section 12-43-225 of the Code. This further discounted value is determined by dividing the total number of platted building lots into the value of the entire parcel as undeveloped property and subtracting the result from the value of each lot as determined under Code Section 12-43-224. The difference between the value of each parcel as undeveloped property and the value of each parcel determined under Code Section 12-43-224 is then subtracted from the each lot's already discounted value under Code Section 12-43-224.

The following is an example of the procedure used to compute the discounted value.

EXAMPLE:

Step 1: Determine the value of the land as an undivided parcel. For purposes of this example, assume the land as a whole has a fair market value of $1,000,000.

Step 2: Determine how many lots the land will be subdivided into and the value of these lots. For purposes of this example, assume that there are 100 lots appraised at $20,000 a lot for a total value of $2,000,000.

Step 3; Estimate the number of years it will take to sell the lots and divide the number of lots by the number of years it will take to sell the lots to determine how many lots will be sold each year. For purposes of this example, assume that it will take 5 years to sell the lots. 100 lots divided by a 5 year sellout period means that 20 lots will be sold each year.

Step 4. Determine the amount of proceeds that will be generated by the sale of 20 lots each year. The value of each lot is $20,000 and it is estimated that 20 lots will be sold each year, therefore, the proceeds generated each year would be $400,000.

Step 5. Determine the discount rate that is to be applied to the yearly proceeds to determine the present value of those proceeds. The components of the discount rate to be applied to subdivided land under Section 12-43-224 of the Code are:

a. an interest rate. For purposes of this example, assume an interest rate of 6%.

b. the effective tax rate for the tax district that the lots are located in. For purposes of this example assume that the effective tax rate is 2% determined as follows: 332 mills x .06 assessment ratio (the constitutionally prescribed assessment ratio for this type of property) = .01992 which is rounded up to 2%

This results in a discount rate of 8%.

Step 6. Determine the value of each lot as follows:

a. Determine the present worth of $1.00 in a year by applying a 8% discount rate for 5 years (the period over which the lots will be sold) to get a total of 3.99271. This is the value of receiving $1 each year for 5 years. The present value for that $5.00 dollars is $3.99 (rounded).

b. Determine the current value of the lots by multiplying 3.99271 x the amount of proceeds generated from the sale of 20 lots ($400,000 of income each year.)

c. Determine the total discounted value for the sale of all lots by multiplying the discounted value of 3.99271 x 400,000 to get a total value of $1,597,084 for all the lots.

d. Divide the total discounted value of all the lots ($1,597,084) by the total number of lots (100) to determine the discounted value of each lot. $1,597,084/100 = $15,970.84

Step 7. Determine the further discount allowed by Section 12-43-225 as follows:

a. Divide total number of platted building lots (100) into the value of the entire parcel as undeveloped real property. Assume for purposes of example that value of entire parcel is $1,000,000. Divide 100/$1,000,000 = $10,000 per lot.

b. Subtract value of each lot as parcel of undivided land ($10,000) from the value of each lot as determined under Section 12-43-224 ($15,970.84).

c. Reduce the discounted value of each lot ($15,970.84) by 100% of the difference ($5,970.84) to determine the reduced value of each lot. $15,970.84 - $5,970.84 = $10,000

117-1860 – Returns

These regulations address how and where returns dealing with property taxes are to be filed .

117-1860.1 Licensed Automotive Vehicles and Airplanes.

The return of property to the Department of Revenue for property assessment purposes shall not include licensed automotive vehicles or airplanes. Such licensed automotive vehicles and airplanes shall be returned to local County Authorities for property assessment purposes.

For the purpose of this Rule, “Licensed Automotive Vehicles” means vehicles that are licensed by the South Carolina Highway Department as provided by law.

Fiscal Impact Statement:

There will be no impact on state or local political subdivisions expenditures in complying with this proposed legislation.

Statement of Rationale:

The purpose of this proposal is to reorganize, renumber and make changes to property tax regulations. All regulations in Article 6 of Chapter 117, except SC Regulation 117-105, will be repealed and the reorganized regulations will be added to a new Article 37 of Chapter 117. The regulations will be reorganized and renumbered in the new article so that regulations dealing with similar matters can be found together. In addition, each regulation would have several “subsections” numbered in a manner to allow future issues concerning the subject matter to be added on and still be in the same place in the regulation code as other similar issues.

Statement of Need and Reasonableness:

The new reorganized regulations in the new Article 37 are needed to organize the regulations to allow taxpayers to find all "regulations" on one subject matter in one place. This will reduce any taxpayer confusion that may result from having many regulations on a single subject matter. The proposal to re-organize these regulations is also reasonable in that it is the department's responsibility to maintain regulations in an orderly manner.