



Albemarle-Pamlico National Estuary Program

Public Involvement Office

MEMORANDUM

Michael F. Easley
Governor

William G. Ross Jr.
Secretary
Department of
Environment and
Natural Resources

Kerr T. Stevens
Director
Division of Water Quality

Guy Stefanski
Program Coordinator

Joan Giordano
Outreach Coordinator

TO: Neuse River Basin Regional Council Members
FROM: Joan Giordano, Outreach Coordinator
SUBJ: Agenda for September 28, 2001
DATE: September 20, 2001

Hi folks,

Enclosed is the agenda for our next regularly scheduled meeting being held on **September 28, 2001**. As you can see, we'll convene at **9:30 am** at the **Wayne Center in Goldsboro** and plan to adjourn by noon. **Thanks again to Norman Ricks for arranging our meeting space!**

Our agenda promises to be interesting as well as informative. Please notice that we have several items to discuss and need everyone's input. Also, Surabhi Shah with the NC Public Water Supply Section of DWR, will be presenting information on the SWAP program which she coordinates. Because water supply is an issue of great concern to the Neuse Regional Council, Ms. Shah's presentation is seen as preparatory to our anticipated Water Supply Seminar scheduled for early next year.

Please make every effort to attend the meeting. Thank you for your continued participation and commitment to protecting the natural resources of the Neuse River Basin and all of eastern North Carolina. I look forward to seeing you on September 28th and please drive safely.



N.C. Department of Environment and Natural Resources
Division of Water Quality

943 WASHINGTON SQUARE MALL WASHINGTON, NORTH CAROLINA 27889 • PHONE: (252) 946-6481 EXT. 269 • FAX: (252) 975-3716
<http://h2o.enr.state.nc.us/nep>

NEUSE RIVER BASIN REGIONAL COUNCIL

The Wayne Center
208 West Chestnut Street
Goldsboro, NC
(919) 731-1520

September 28, 2001

AGENDA

9:30 am	Welcome & Call to Order	Andy McLawhorn, Chairman
9:35	Roll Call	Joan Giordano, APNEP
9:45	Consideration of Minutes from Last meeting	Chairman McLawhorn
9:50	<u>OLD BUSINESS</u> Discussion: - Update on Public Meeting for Water Supply Conference to be held in February/March - "Best in the Basin" Brochure	Joan Giordano Joan Giordano
10:15	SWAP (Source Water Protection Program)	Surabhi Shah, NC Source Water Protection Program Coordinator
11:15	New Business	
11:30	Public Comment	
11:40	Plans for Next Meeting	All
12:00	Adjourn	



NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

SURABHI K. SHAH
ENVIRONMENTAL ENGINEER
SOURCE WATER ASSESSMENT
AND PROTECTION
PUBLIC WATER SUPPLY SECTION
DIVISION OF ENVIRONMENTAL HEALTH



1634 MAIL SERVICE CENTER, RALEIGH, NC 27699-1634
2728 CAPITAL BOULEVARD, RALEIGH, NC 27604
PHONE 919-715-9563 FAX 919-715-4374
Surabhi.Shah@ncmail.net

RECYCLED PAPER

NC's Wellhead Protection Program

EPA Approved Program

North Carolina's Wellhead Protection Program

Surabhi Shah
NC Source Water Protection Coordinator
Public Water Supply Section, NC DENR

Public Water Supply Section



- Complements other state groundwater protection programs
- A local program for counties, cities, and public water supply systems in North Carolina
- A voluntary program

Public Water Supply Section



NC's Wellhead Protection Program

- Develop by the Groundwater Section, Division of Water Quality
- Received EPA approval on March 28, 1995
- Responsibility for administering the Program transferred to the Public Water Supply Section on July 24, 1998

Public Water Supply Section



Gayle Johnson

Resources

- Using set-aside funds from the DWSRF, the PWS Section added two new positions (one Hydrogeologist II and one Office Assistant) to handle the implementation and management of the WHP Program.
- These position also provide assistance in the development and implementation of the SWAP.

Public Water Supply Section



Resources

- The PWS Section contracted two technicians with the NCRWA using DWSRF set-aside funds.
- A third technician with the NCRWA is funded through an EPA grant *Rural water Assoc.*
- These technicians provide on-site technical assistance to PWS system owners and operators in the development of WHP Plans.

Public Water Supply Section



Keith Starmer

Resources

Fred Hill

- PWS Section staff in Regional Offices
- Available for WHP Activities

Public Water Supply Section



15 pts.
State revolving grant based on points

Resources

- In March 1999, the priority rating system used by the PWS Section to award loans and grants for water projects was modified to include awarding priority points to PWS systems with approved WHP Plans.
- The Construction Grants and Loans Section, Div. of Water Quality has adopted a similar priority rating system for awarding loans and grants for wastewater projects.

Public Water Supply Section



NC's Wellhead Protection Program

- As part of the Program transfer, the PWS Section received thirteen (13) WHP Plans submitted for approval to the GW Section dating back to 1995.
- The PWS Section contacted all local governments and public water suppliers which had submitted WHP Plans for review and approval to provide technical support and to encourage their continued development.

Public Water Supply Section



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- On average, each WHP Plan received requires two reviews before approval can be granted. Some Plans have taken as many as five reviews.

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- Consultants conducting site assessments at contamination sites must identify PWS wells and WHPAs occurring within 1500 feet of the site.

cannot be sited close to well

Public Water Supply Section



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- Based on the results of the site assessment, the UST Section assigns a priority ranking to the contamination site.
- The PWS Section provides maps of all approved WHPAs to the UST Section to assist in this prioritization.

Public Water Supply Section



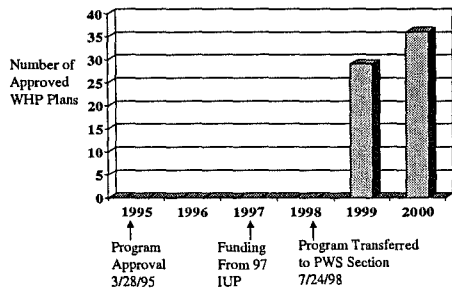
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Public Water Supply Section



Cumulative Wellhead Protection Plan Approvals



Public Water Supply Section



Success Stories

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Public Water Supply Section



Ongoing Efforts

- New, User-Friendly WHP Guidance Document
- Revised Delineation Strategy for Confined Aquifers
- WHP Areas available on the Web
- WHP Promotion and Outreach

Public Water Supply Section



WHP Promotion & Outreach

- Promotional Brochures and Posters
- League of Municipalities "Town Hall Day"
- "Water Safe Community" Designation

Public Water Supply Section



NORTH CAROLINA'S SOURCE WATER ASSESSMENT PROGRAM

Public Water Supply Section

North Carolina's Source Water Assessment Program (SWAP)

- In 1996 Congress Directed the States to Assess Existing GW/ SW Sources for Potential as Long-term Reliable Drinking Water Supplies
- Promote Source Water Protection
 - Cost Effective Strategy to Ensure Safe Drinking Water
- Continuation/Enhancement of Existing State Programs
 - Wellhead Protection Program *GW*
 - Water Supply Watershed Protection Program *SW*

Public Water Supply Section

Source Water Assessment Program Requirements

- Delineate Boundaries of Source Water Assessment Areas
 - Groundwater and Surface Water Intakes
- Inventory Potential Contaminants
- Determine Susceptibility of PWS Sources
 - Low, High* → *maybe vulnerable*

Public Water Supply Section

Source Water Assessment Area of a Groundwater Intake

Delineated Area
Determined in
Accordance with the
Wellhead Protection
Program

Public Water Supply Section

Source Water Assessment Area Surface Water Intake

Delineated Area
Determined in
Accordance with
Water Supply
Watershed Protection
Rules

Public Water Supply Section

Inventory Potential Contaminant Sources (PCSs)

Individual Program
Database Information
Converted into GIS
Data Layers

Source Category	Count
NPDES and Stormwater	644
Animal Operations	8,905
Non-Discharge	1,103
LUST sites	2,666
LUST - permitted facilities	5,023
PRF non LUST sites	712
Petroleum Contaminated Soils	13,112
CERCLIS	1,259
Nation Priority List	23
Hazardous Waste Facilities	48
Inactive Hazardous Sites	138
Pre-Seritary Landfill dumps	1,828
Sara Title II - Tier 1 Facilities	9,103
Solid Waste Facilities	1,259

Total PCSs = 47,828

Public Water Supply Section

Determine Susceptibility of Public Water Supply (PWS) Systems

$$\text{Susceptibility} = \text{Contaminant Rating} + \text{Inherent Vulnerability Rating}$$

Public Water Supply Section



Contaminant Rating

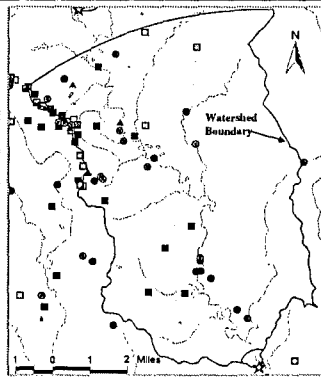
- Rating Based On:
 - Number of PCSs
 - Proximity to Intake
 - Relative Risk of Contaminant

Public Water Supply Section



Potential Contaminant Sources in Water Supply Watershed

- ☆ Surface Water Intake
- Water Supply Watershed
- ▭ Streams and water bodies
- Stormwater discharges
- NPDES discharges
- Animal operations
- PIRF non LUST sites
- Underground injection wells
- ▲ SARA Title III - Tier II facilities
- ◆ Nuclear power plants
- Underground storage tanks
- LUST sites
- Hazardous waste facilities
- Septage land application
- Solid waste facilities
- Pre-Sanitary landfill dumps
- Inactive hazardous sites



Public Water Supply Section



Contaminant Rating for WS II, III Watersheds

Contaminant Sources in:	Number of Higher Risk PCSs	Cumulative Number of Higher and Moderate Risk PCSs	Cumulative Number of Higher, Moderate and Lower Risk PCSs
Critical Area	(No. of sources) < 1 Score: (1 or 0)	(No. of sources) > 5 Score: (1 or 0)	(No. of sources) > 50 Score: (1 or 0)
Watershed Area (within 1000 feet of streambank)	(No. of sources) > 10 Score: (1 or 0)	(No. of sources) > 100 Score: (1 or 0)	(No. of sources) > 500 Score: (1 or 0)
Watershed Area (beyond 1000 feet of streambank)	(No. of sources) > 100 Score: (1 or 0)	(No. of sources) > 500 Score: (1 or 0)	(No. of sources) > 1000 Score: (1 or 0)

Public Water Supply Section



Inherent Vulnerability Rating

- Potential for Contaminants to Reach a Source Water
- Based on Physical Characteristics and Existing Conditions of the Watershed or Aquifer

Public Water Supply Section

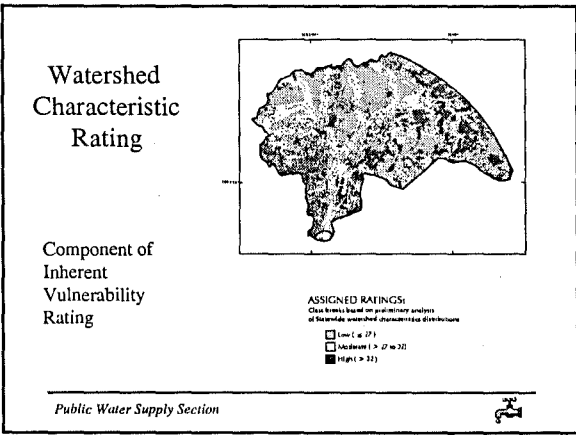
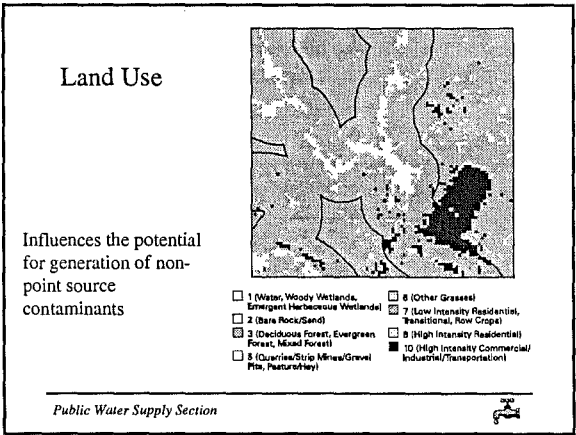
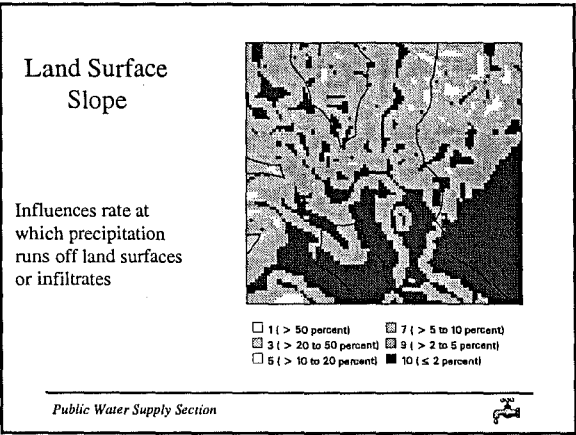


Surface Water Intake Inherent Vulnerability Rating

- Watershed Classification (I, II, III, IV, or V)
- Intake Location
- Raw Water Quality
- Watershed Characteristics Rating
 - Average Annual Precipitation
 - Land Slope, Land Cover, Land Use
 - GW Contribution

Public Water Supply Section



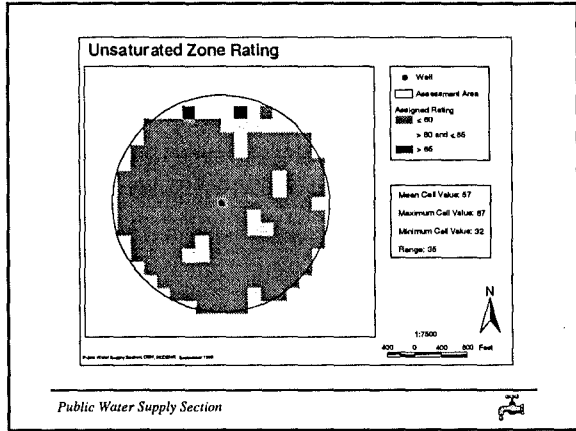


Surface Water Intake Inherent Vulnerability Rating

Intake Characteristics	Higher Vulnerability	Moderate Vulnerability	Lower Vulnerability
Watershed Classification	WS-IV, WS-V 10	WS-III, WS-II 5	WS-I 1
Intake Location	Direct Stream 8	Class 3 Impoundments 4	Class 1 and 2 Impoundments 2
Raw Water Quality (water plant data)	T.U. > 100 or T coliform > 2000 5	T.U. > 25 or T coliform > 1000 3	T.U. ≤ 25 and T coliform ≤ 1000 1
Watershed Characteristics Rating	10	5	1
Totals	33 - 21	13 - 20	5 - 12

Public Water Supply Section

- ### Ground Water Inherent Vulnerability Rating
- Well Integrity / Construction
 - Aquifer Type
 - Unsaturated Zone Rating
 - Vertical Hydraulic Conductance
 - Land Slope
 - Land Cover
 - Land Use
- Public Water Supply Section



Ground Water Intake Inherent Vulnerability Rating

Intake Characteristics	Higher Vulnerability	Moderate Vulnerability	Lower Vulnerability
Aquifer	10	5	-1
Unsaturated Zone	10	5	1
Well Integrity/Construction	5	3	1
Totals	25-18	17-15	14-1

Public Water Supply Section



Susceptibility Determination

- Combine Ratings for Potential Contaminant Sources and Inherent Vulnerability
- Result is Qualitative Susceptibility Determination (Higher, Moderate, or Lower)

Public Water Supply Section



Susceptibility Determination for PWS Intakes by Combining the Inherent Vulnerability and Contaminant Ratings.

Contaminant Rating	Inherent Vulnerability Rating		
	Higher	Moderate	Lower
Higher	H	H	M
Moderate	H	M	M
Lower	M	M	L

Public Water Supply Section



SWAP Plan Approval and Implementation

- EPA Approved November 1999
- Assessments Complete May 2003

Public Distribution of SWAP Results

- Maps and Reports
- ✳ • Internet www.deh.enr.state.nc.us/pws ✳
- Paper Copies to PWS Systems Owners and to Others by Request

Public Water Supply Section



Source Water Protection

- SWAP Goal: to equip local drinking water protection initiatives, provide support through a Source Water Protection (SWP) Program
- SWAP Workshop planned to help local SWP efforts to use SWAP results
- SWP pilot project currently underway

Public Water Supply Section



Ideas or Questions about... Source Water Assessment Program (SWAP) or Source Water Protection (SWP)?

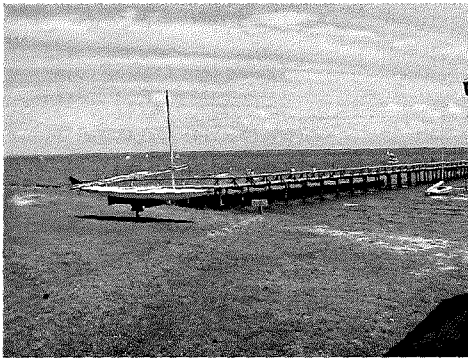
We'd love to hear from you! Please contact:
Surabhi Shah
Source Water Assessment & Protection Coordinator
PWS Section, NC DENR
919-715-9563
surabhi.shah@ncmail.net

Public Water Supply Section

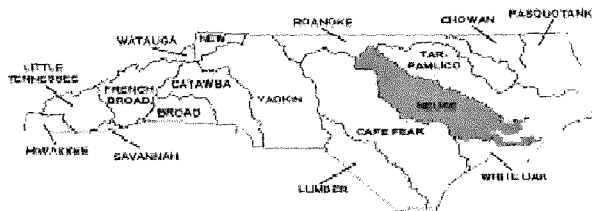
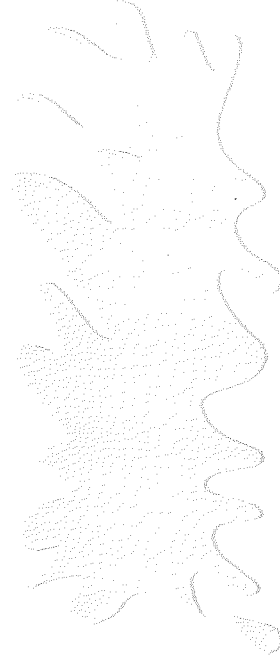


More "Top 20"

- ◆ Brices Creek Boat Ramp
Croatan National Forest
141 E. Fisher Ave.
New Bern, NC 28560
- ◆ Union Point Park
New Bern, NC 28563
- ◆ Hancock & Cahogue
Creeks
Croatan National Forest
Cahogue Creek Rd. (off Hwy. 101)
- ◆ Camp Don Lee
Route 65, Box 80-A
Arapahoe, NC 28510



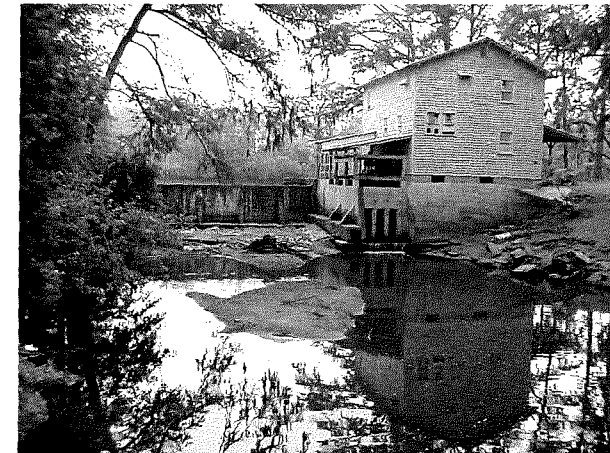
Camp Don Lee



Neuse River Basin Regional Council

Neuse River Basin
Regional Council

Best in the Basin 2000



Trenton Old Mill Pond in Jones County, NC

*The 20 Best Sites in
the Neuse River Basin*

*Albemarle-Pamlico National
Estuary Program*



From the Chairman...

In March 1995, Governor James B. Hunt, Jr. created five river basin Regional Councils corresponding to the five major river basins that comprise the Albemarle-Pamlico National Estuary Program (APNEP) region. The APNEP is located in the Division of Water Quality within the NC Department of Environment and Natural Resources (NCDENR)



Hancock Creek

and is co-sponsored by the US EPA and the State of North Carolina. The purpose of the Regional Councils is to advise and consult with local, state and federal governments, as well as stakeholders and the general public, regarding the implementation of management strategies contained in the APNEP's Comprehensive Conservation and Management Plan (CCMP). The Neuse River Basin Regional Council (NRBRC), the first Regional Council to be established, has met regularly since its inception in November, 1995 to address and discuss many environmental concerns.

Council members, which include representa from all counties located within the basin, decided to celebrate the year 2000 by underscoring many of the positive aspects of water quality in the Neuse basin. The result is the "Top 20 Places to Celebrate the Neuse River Basin in the Year 2000." The locations listed in this brochure were chosen as outstanding sites and deserving of a word of praise.

The NRBRC wishes to say "Thank-you" to those who work to keep these places beautiful and environmentally sound. They make the lives of all residents a little better.

... **Andy McLawhorn, Chairman**
Neuse River Basin Regional Council

The "Top 20"

- Upper South Flat River
Soil & Water Conservation District**
Hurdle Mills, NC 27541
- ◆ **Ellerbe Creek**
Durham County, NC
- ◆ **Eno River State Park**
6101 Cole Mill Road
Durham, NC 27705
- ◆ **Lake Michie**
Durham County Water Resources
101 City Hall Plaza
Durham, NC 27701
- ◆ **Hemlock Bluffs Nature Center**
2616 Kildaire Farm Road
Cary, NC 27511
- ◆ **Falls Lake State Recreation Area**
13304 Creedmoor Road
Wake Forest, NC 27587
- ▼ **Smithfield Town Commons**
Smithfield, NC 27577
- ◆ **Cliffs of the Neuse
State Park**
345-A Park Entrance Road
Seven Springs, NC 28578
- ◆ **Seven Springs
Boat Ramp**
345-A Park Entrance Road
Seven Springs, NC 28578
- ◆ **Riggs Farm No Till &
Irrigation Project**
Pollocksville, NC 28573 (Private Site)
- ◆ **Clay Hill Farms Spray Field
Improvements**
Pollocksville, NC 28573 (Private Site)
- ◆ **Pollocksville Boat Ramp**
Pollocksville, NC 28573
- ◆ **Trenton Old Mill Pond**
Trenton, NC 28585
- ◆ **River Bend Wetlands Restoration
Project**
River Bend, NC 28562
- ◆ **Cool Springs Environmental
Education Center**
Weyerhaeuser Corporation
PO Box 1391
New Bern, NC 28563
- ◆ **Hog Island & Turkey Island
Neuse River Game Lands**
Craven County, NC

Neuse River Basin Regional Council





Albemarle-Pamlico National Estuary Program

Public Involvement Office

MEMORANDUM

TO: Neuse River Basin Regional Council Members

FROM: *Joan*
Joan Giordano, Outreach Coordinator

SUBJ: Next Meeting - November 30, 2001

DATE: November 1, 2001

Michael F. Easley
Governor

William G. Ross Jr.
Secretary
Department of
Environment and
Natural Resources

Gregory J. Thorpe, Ph.D.
Acting Director
Division of Water Quality

Guy Stefanski
Program Coordinator

Joan Giordano
Outreach Coordinator

Enclosed is the agenda for our next regularly scheduled meeting (11/30/01) which will be held in Smithfield, at the Centenary United Methodist Church. The church is located in downtown Smithfield at the corner of Market and 2nd Streets. We'll begin at 10:00am. I have enclosed directions to the meeting place, and our thanks go to Chairman McLawhorn for making the meeting location arrangements. Also, he has agreed to bring kayaks for paddling, so keep your fingers crossed for beautiful weather!

As you can see from the agenda, we will have a presentation dealing with nitrogen runoff, which is something you have asked to hear. Dr. David Hardy, an Extension Specialist-Soil Science Dept. at NC State University will be our speaker. Given current rules that are in place dealing with nitrogen reduction in the Neuse, I'm sure you'll find Dr. Hardy's presentation interesting and informative.

Additionally, between now and November 30th, please give serious thought to the nomination of new officers for our Regional Council. Election of officers (Chair, Vice-Chair and Secretary) occurs in January according to our by-laws, and we need to adhere to this schedule. In other words, at the meeting following the one on the 30th, we will be voting!

I look forward to seeing you on the 30th and, as always, thank you for your dedication and commitment to protecting the natural resources in eastern North Carolina.



N. C. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY

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ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

NEUSE RIVER BASIN REGIONAL COUNCIL

Wayne Center
Chestnut Street
Goldsboro, NC
September 28, 2001

MINUTES

The meeting was called to order by Chairman Andy McLawhorn at 9:55am. He asked for self-introductions of those present (See Attachment A), and then for acceptance of the minutes from the previous meeting (6/8/01). Sondra Riggs moved that the minutes be accepted as mailed, and Marguerite Whitfield seconded the motion. Motion carried.

Joan Giordano gave an overview of the planning meeting, held at her office in August, which pertained to the proposed Water Supply Conference scheduled for February 2002. She then presented the completed *Best in the Basin* brochure, the NRBRC's ongoing outreach project. She added that mass distribution of the document would depend on available funds from the NC Division of Water Quality, and hoped that they would be forthcoming.

Following her comments, Mrs. Giordano introduced the meeting's featured speaker, Surabhi Shah who represents the NC Source Water Protection Program. Ms. Shah began her presentation by asking those present what their interest in, and issues with, water supply were. She then proceeded with her presentation on the Source Water Assessment Program (SWAP) and its predecessor program, the Wellhead Protection Program. (See Attachments B,C). She explained that the Wellhead Protection Program dealt only with groundwater, while the SWAP deals with both surface and groundwater. She also mentioned that the SWAP has no pilot program in eastern North Carolina and asked that the NRBRC consider being a catalyst for such an effort. Discussion ensued.

There being no further public comment, plans for the next meeting were determined. It was decided that the next meeting would take place in Johnston County, preferably in Smithfield, and Chairman McLawhorn agreed to make logistical arrangements. There being no further business, the meeting was adjourned.

ATTENDANCE

NEUSE RIVER BASIN REGIONAL COUNCIL

The Wayne Center
208 West Chestnut Street
Goldsboro, NC
(919) 731-1520

September 28, 2001

<u>NAME</u>	<u>AFFILIATION</u>
1. Margaret U. Holton	Orange County
2. Arly McLawhorn	Pitt County
3. Joan Scordano	APNEP
4. Betty Sandow	APNEP
5. Jimmy B. Clayton	Person County
6. Bill Telford	City of Durham
7. Sam Holton	Winton, Chapel Hill
8. Kelly Buffen	Waynes Co
9. Guy Stefanski	APNEP
10. Norman Rickett	Wayne County, Finance
11. Marguerite Whitliff	Lenoir Co
12. Sandra Spock Riggs	Jones Co. Commissioner
13. Amanda M. Powell	DNER
14. Surabhi Shah	DENR DWS Section
15. BILL RITCHIE	Craven County @ Large



North Carolina's Wellhead Protection Program

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Public Water Supply Section



NC's Wellhead Protection Program

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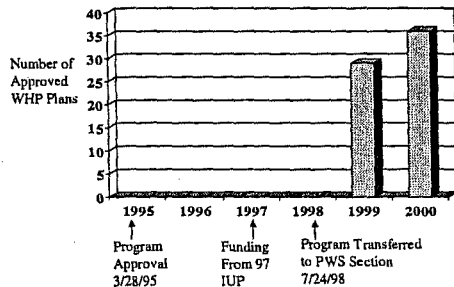
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Public Water Supply Section



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Public Water Supply Section

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Public Water Supply Section

Source Water Assessment Area of a Groundwater Intake

Delineated Area Determined in Accordance with the Wellhead Protection Program

Public Water Supply Section

Source Water Assessment Area Surface Water Intake

Delineated Area Determined in Accordance with Water Supply Watershed Protection Rules

Public Water Supply Section

Inventory Potential Contaminant Sources (PCSs)

Individual Program Database Information Converted into GIS Data Layers

Potential Contaminant Sources From Existing Program Databases

Total PCSs = 47,828

644	5,023	712	6,905	2,866
1,103	5,262	136	1,259	6,102
23	46	1,828	13,112	

NPDES and Stormwater	Animal Operations
Non-Discharge	LUST sites
LUST - permitted facilities	PRF non LUST sites
Petroleum Contaminated Soils	CERCLA
Nation Priority List	Hazardous Waste Facilities
Inactive Hazardous Sites	Pre-Sanitary Landfill dumps
State Title II - Tier I Facilities	Solid Waste Facilities

Public Water Supply Section

Determine Susceptibility of Public Water Supply (PWS) Systems

$$\text{Susceptibility} = \text{Contaminant Rating} + \text{Inherent Vulnerability Rating}$$

Public Water Supply Section



Contaminant Rating

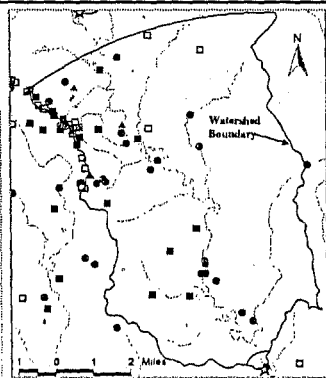
- Rating Based On:
 - Number of PCSs
 - Proximity to Intake
 - Relative Risk of Contaminant

Public Water Supply Section



Potential Contaminant Sources in Water Supply Watershed

- ★ Surface Water Intake
- Water Supply Watershed
- Streams and water bodies
- Stormwater discharges
- NPDES discharges
- Animal operations
- PIRF non LUST sites
- Underground injection wells
- ▲ SARA Title III - Tier II facilities
- Nuclear power plants
- Underground storage tanks
- LUST sites
- Hazardous waste facilities
- Spillage land application
- Solid waste facilities
- Pre-Sanitary landfill dumps
- Inactive hazardous sites



Public Water Supply Section



Contaminant Rating for WS II, III Watersheds

Contaminant Sources:	Number of Higher Risk PCSs (No. of sources)	Cumulative Number of Higher and Moderate Risk PCSs (No. of sources)	Cumulative Number of Higher, Moderate and Lower Risk PCSs (No. of sources)
Critical Area	1 Score: (1 or 0)	> 5 Score: (1 or 0)	> 50 Score: (1 or 0)
Watershed Area (within 1000 feet of streambank)	> 10 Score: (1 or 0)	> 100 Score: (1 or 0)	> 500 Score: (1 or 0)
Watershed Area (beyond 1000 feet of streambank)	> 100 Score: (1 or 0)	> 500 Score: (1 or 0)	> 1000 Score: (1 or 0)

Public Water Supply Section



Inherent Vulnerability Rating

- Potential for Contaminants to Reach a Source Water
- Based on Physical Characteristics and Existing Conditions of the Watershed or Aquifer

Public Water Supply Section

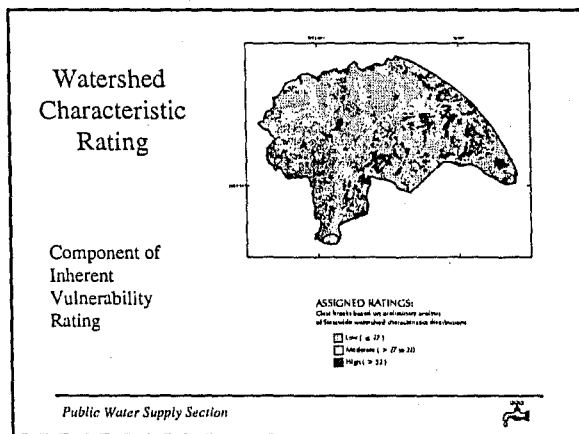
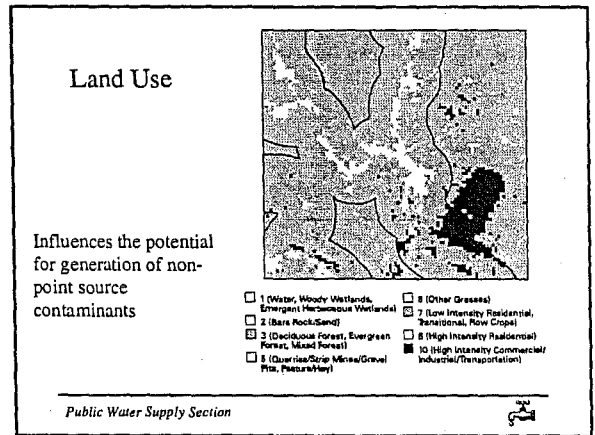
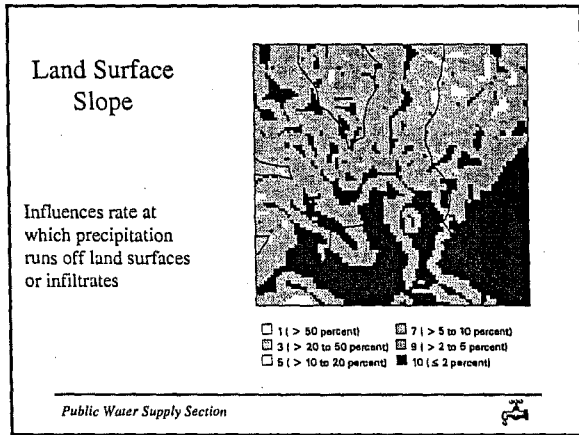


Surface Water Intake Inherent Vulnerability Rating

- Watershed Classification (I, II, III, IV, or V)
- Intake Location
- Raw Water Quality
- Watershed Characteristics Rating
 - Average Annual Precipitation
 - Land Slope, Land Cover, Land Use
 - GW Contribution

Public Water Supply Section



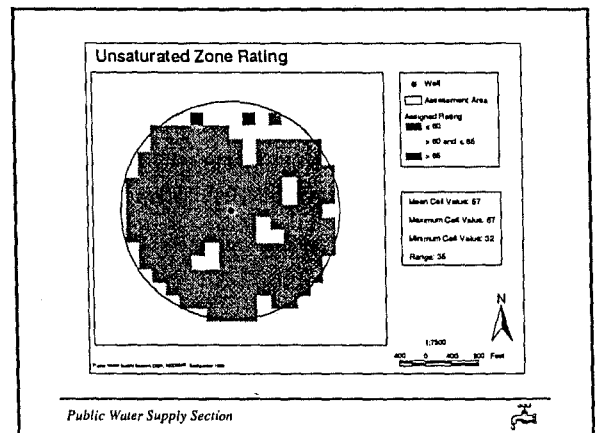


Surface Water Intake Inherent Vulnerability Rating

Intake Characteristics	Higher Vulnerability	Moderate Vulnerability	Lower Vulnerability
Watershed Classification	WS-IV, WS-V 10	WS-III, WS-II 5	WS-I 1
Intake Location	Direct Stream 8	Class 3 Impoundments 4	Class 1 and 2 Impoundments 2
Raw Water Quality (water plant data)	T.U. > 100 or T.coliform > 2000 5	T.U. > 25 or T.coliform > 1000 3	T.U. ≤ 25 and T.coliform ≤ 1000 1
Watershed Characteristics Rating	10	5	1
Totals	33 - 21	13 - 20	5 - 12

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- ### Ground Water Inherent Vulnerability Rating
- Well Integrity / Construction
 - Aquifer Type
 - Unsaturated Zone Rating
 - Vertical Hydraulic Conductance
 - Land Slope
 - Land Cover
 - Land Use
- Public Water Supply Section



Ground Water Intake Inherent Vulnerability Rating

Intake Characteristics	Higher Vulnerability	Moderate Vulnerability	Lower Vulnerability
Aquifer	10	5	-1
Unsaturated Zone	10	5	1
Well Integrity/Construction	5	3	1
Totals	25-18	17-15	14-1

Public Water Supply Section



Susceptibility Determination

- Combine Ratings for Potential Contaminant Sources and Inherent Vulnerability
- Result is Qualitative Susceptibility Determination (Higher, Moderate, or Lower)

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Susceptibility Determination for PWS Intakes by Combining the Inherent Vulnerability and Contaminant Ratings.

Contaminant Rating	Inherent Vulnerability Rating		
	Higher	Moderate	Lower
Higher	H	II	M
Moderate	II	M	M
Lower	M	M	L

Public Water Supply Section



SWAP Plan Approval and Implementation

- EPA Approved November 1999
- Assessments Complete May 2003

Public Distribution of SWAP Results

- Maps and Reports
- Internet www.deh.enr.state.nc.us/pws
- Paper Copies to PWS Systems Owners and to Others by Request

Public Water Supply Section



Source Water Protection

- SWAP Goal: to equip local drinking water protection initiatives, provide support through a Source Water Protection (SWP) Program
- SWAP Workshop planned to help local SWP efforts to use SWAP results
- SWP pilot project currently underway

Public Water Supply Section



Ideas or Questions about... Source Water Assessment Program (SWAP) or Source Water Protection (SWP)?

We'd love to hear from you! Please contact:
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Public Water Supply Section

