

CHAPTER 6

RESTORATION STRATEGIES IN THE TENNESSEE PORTION OF THE PIGEON RIVER WATERSHED

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6.1. BACKGROUND.

The Watershed Water Quality Management Plan serves as a comprehensive inventory of resources and stressors in the watershed, a recommendation for control measures, and a guide for planning activities in the next five-year watershed cycle and beyond. Water quality improvement will be a result of implementing both regulatory and nonregulatory programs.

In addition to the NPDES program, some state and federal regulations, such as the TMDL and ARAP programs, address point and nonpoint issues. Construction and MS4 storm water rules (implemented under the NPDES program) have transitioned from Phase 1 to Phase 2. More information on storm water rules may be found at: <http://www.state.tn.us/environment/wpc/stormh2o/>.

This Chapter addresses point and nonpoint source approaches to water quality problems in the Tennessee Portion of the Tennessee Portion of the Pigeon River Watershed as well as specific NPDES permittee information.

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6.2. COMMENTS FROM PUBLIC MEETINGS. Watershed meetings are open to the public, and most meetings were represented by citizens who live in the watershed, NPDES permittees, business people, farmers, and local river conservation interests. Locations for meetings were chosen after consulting with people who live and work in the watershed. Everyone with an interest in clean water is encouraged to be a part of the public meeting process. The times and locations of watershed meetings are posted at: <http://www.state.tn.us/environment/wpc/watershed/public.shtml>.

6.2.A. Year 1 Public Meeting. The Tennessee Portion of the Pigeon River Watershed public meeting was held jointly with the Upper French Broad River Watershed on December 5, 2007, at the Cocke County High School in Newport, Tennessee. The goals of the meeting were to: (1) present, and review the objectives of, the Watershed Approach, (2) introduce local, state, and federal agency and nongovernmental organization partners, (3) review water quality monitoring strategies, and (4) solicit input from the public. Eight people attended the meeting.

Major Concerns/Comments

- Newspaper article about 4 houses with straight pipes
- Is the Pigeon River as good as it's going to get?
- Why are so many agricultural sources listed on the 303(d) list?
- Many people did not hear about this meeting

6.2.B. Year 3 Public Meeting. Not Scheduled.

6.2.C. Year 5 Public Meeting. Not Yet Scheduled.

6.3. APPROACHES USED.

6.3.A. Point Sources. Point source contributions to stream impairment are primarily addressed by NPDES and ARAP permit requirements and compliance with the terms of the permits. Notices of NPDES and ARAP draft permits available for public comment can be viewed at <http://www.state.tn.us/environment/wpc/wpcppo/>. Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at http://www.epa.gov/enviro/html/pcs/pcs_query_java.html.

The purpose of the TMDL program is to identify remaining sources of pollution and allocate pollution control needs in places where water quality goals are still not being achieved. TMDL studies are tools that allow for a better understanding of load reductions necessary for impaired streams to return to compliance with water quality standards. More information about Tennessee's TMDL program may be found at: <http://www.state.tn.us/environment/wpc/tmdl/>.

TMDLs are prioritized for development based on many factors.

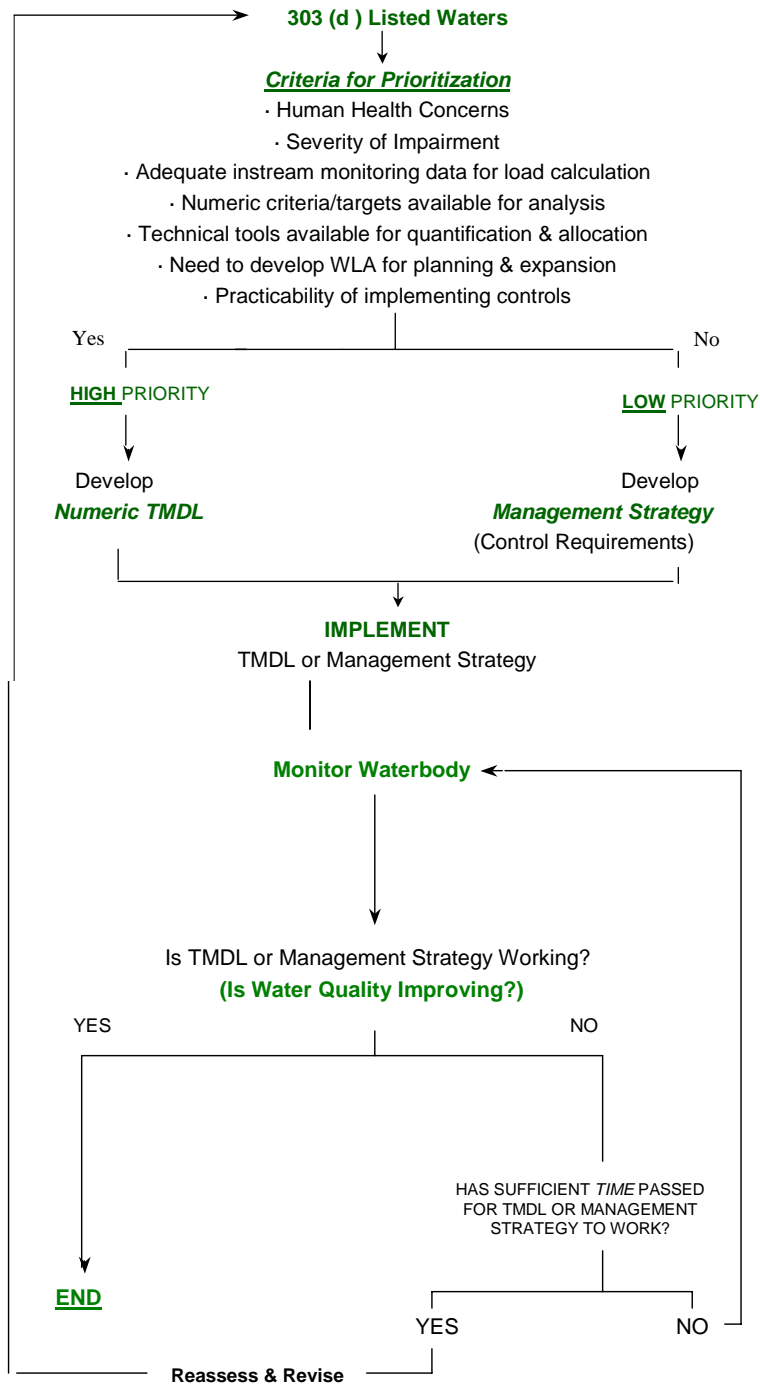


Figure 6-2. Prioritization Scheme for TMDL Development.

6.3.B. Nonpoint Sources

Common nonpoint sources of pollution include urban runoff, riparian vegetation removal, and inappropriate land development, agricultural, and road construction practices. Since nonpoint pollution exists essentially everywhere rain falls, existing point source regulations can have only a limited effect. Other measures are, therefore, necessary.

There are several state and federal regulations that address some of the contaminants impacting waters in the Tennessee Portion of the Pigeon River Watershed. Most of these are limited to only point sources: a pipe or ditch. Often, controls of point sources are not sufficient to protect waters, so other measures are necessary. Some measures include efforts by landowners and volunteer groups and the possible implementation of new regulations. Many agencies, such as the Tennessee Department of Agriculture (TDA) and the Natural Resources Conservation Service (NRCS), offer financial assistance to landowners for corrective actions (like Best Management Practices) that may be sufficient for recovery of impacted streams. Many nonpoint problems will require an active civic involvement at the local level geared towards establishment of improved zoning guidelines, building codes, streamside buffer zones and greenways, and general landowner education.

The following text describes types of impairments, possible causes, and suggested improvement measures. Restoration efforts should not be limited to only those streams and measures suggested below.

6.3.B.i. Sedimentation.

6.3.B.i.a. From Construction Sites. Construction activities have historically been considered “nonpoint sources.” In the late 1980’s, EPA designated them as being subject to NPDES regulation if more than 5 acres were being disturbed. In the spring of 2003, that threshold became 1 acre. The general permit issued for such construction sites establishes conditions for maintenance of the sites to minimize pollution from storm water runoff, including requirements for installation and inspection of erosion controls. Also, the general permit imposes more stringent inspection and self-monitoring requirements on sites in the watershed of streams that are already impaired due to sedimentation. No streams are currently listed as impaired by sediment and land development in the Tennessee Portion of the Pigeon River Watershed.

Construction sites within a sediment-impaired watershed may also have higher priority for inspections by WPC personnel, and are likely to have enforcement actions for failure to control erosion.

6.3.B.i.b. From Channel and/or Bank Erosion. Some small streams within the Tennessee Portion of the Pigeon River Watershed suffer from varying degrees of streambank erosion. When stream channels are altered, or large tracts of land are cleared, storm water runoff, will cause banks to become unstable and highly erodable. Heavy livestock traffic can also severely disturb banks. Destabilized banks contribute to sediment load and to the loss of beneficial riparian vegetation to the stream. Some inappropriate

agricultural practices have impacted the hydrology and morphology of stream channels in this watershed.

Several agencies such as the NRCS and TDA, as well as watershed citizen groups, are working to stabilize portions of stream banks using bioengineering and other techniques. Affected streams, like English Creek and Sinking Creek, could benefit from these types of projects. Other methods or controls that might be necessary to address common problems are:

Voluntary activities

- Re-establish bank vegetation (English Creek).
- Establish off-channel watering areas for livestock by moving watering troughs and feeders back from stream banks (English Creek).
- Limit cattle access to streams and bank vegetation (English Creek and its tributaries).

Additional strategies

- Increase efforts in the Master Logger program to recognize impaired streams and require more effective management practices.
- Better community planning for the impacts of development on small streams, especially development in growing areas (examples: Newport and Cosby areas).
- Require post-construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion.
- Implement additional restrictions on logging in streamside management zones.
- Limit clearing of stream and ditch banks. *Note: Permits may be required for any work along streams.*
- Limit road and utilities crossings of streams.
- Restrict the use of off-highway vehicles on stream banks and in stream channels.

6.3.B.i.c. From Agriculture and Silviculture. The Water Quality Control Act exempts normal agricultural and silvicultural practices that do not result in a point source discharge. Nevertheless, efforts are being made to address impacts due to these exempted practices.

The Master Logger Program has been in place for several years to train loggers how to install Best Management Practices that lessen the impact of logging activities on streams. Recently, laws and regulations established the authority for the Commissioners of the Departments of Environment and Conservation and of Agriculture to stop the logging operation that, upon failing to install these BMPs, is causing impacts to streams.

Since the Dust Bowl era, the agriculture community has strived to protect the soil from wind and water erosion. Agencies such as the Natural resources Conservation Service (NRCS), the University of Tennessee Agricultural Extension Service, and the Tennessee Department of Agriculture are striving to identify better ways of farming, to educate the farmers, and to install the methods that address the sources of some of the impacts due to agriculture. Cost sharing is available for many of these measures.

Many sediment problems traceable to agricultural practices also involve riparian loss due to close row cropping or pasture clearing for grazing. Lack of any type of vegetated

buffer along stream corridors is sometimes a problem in the Tennessee Portion of the Pigeon River Watershed. Impacted streams that could benefit from the establishment of riparian buffer zones include English Creek and its tributaries.

6.3.B.ii. Pathogen Contamination.

Possible sources of pathogens are inadequate or failing septic tank systems, overflows or breaks in public sewer collection systems, poorly disinfected discharges from sewage treatment plants, and fecal matter from pets, livestock and wildlife washed into streams and storm drains. Permits issued by the Division of Water Pollution Control regulate discharges from point sources and require adequate control for these sources. Individual homes are required to have subsurface, on-site treatment (i.e., septic tank and field lines) if public sewers are not available. The Division of Ground Water Protection within the Knoxville Field Office and delegated county health departments regulate septic tanks and field lines. In addition to discharges to surface waters, businesses may employ either subsurface or surface disposal of wastewater. The Division of Water Pollution Control regulates surface water disposal.

Currently, only 2 stream systems in the Tennessee Portion of the Pigeon River Watershed are known to have excessive pathogen contamination. Sinking Creek in Newport is impacted by urban areas, with contributions of bacterial contamination coming from storm water runoff and septic drainfields. In agricultural watersheds, English Creek shows elevated bacterial levels from pasture grazing and cattle access to streams.

Other measures that may be necessary to control pathogens are:

Voluntary activities

- Establish off-channel watering of livestock.
- Limit livestock access to streams and restrict stream crossings.
- Improve and educate on the proper management of animal waste from feeding operations.

Enforcement strategies

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Determine timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems.
- Identify Concentrated Animal Feeding Operations not currently permitted.

Additional strategies

- Develop intensive planning in areas where sewer is not available and treatment by subsurface disposal is not an option due to poor soils, floodplains, or high water tables.
- Develop and enforce leash laws and controls on pet fecal material.
- Greater efforts by sewer utilities to identify leaking lines or overflowing manholes.

6.3.B.iii. Excessive Nutrients and/or Dissolved Oxygen Depletion.

These two impacts are usually listed together because high nutrients often contribute to low dissolved oxygen within a stream. Since nutrients often have the same source as pathogens, the measures previously listed can also address many of these problems. Elevated nutrient loadings are also often associated with urban runoff from impervious surfaces, from fertilized lawns and croplands, and faulty sewage disposal processes. Nutrients are often transported with sediment, so many of the measures designed to reduce sediment runoff will also aid in preventing organic enrichment of streams and lakes.

Other sources of nutrients can be addressed by:

Voluntary activities

- Educate homeowners and lawn care companies in the proper application of fertilizers.
- Encourage landowners, developers, and builders to leave stream buffer zones. Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures. Examples of streams that could benefit are English Creek and its tributaries and Cosby Creek.
- Use grassed drainage ways that can remove fertilizer before it enters streams.
- Use native plants for landscaping since they don't require as much fertilizer and water.

Physical changes to streams can prevent them from providing enough oxygen to biodegrade the materials that are naturally present. A few additional actions can address this problem:

- Maintain shade over a stream. Cooler water can hold more oxygen and retard the growth of algae. As a general rule, all stream channels suffer from some canopy removal. An intact riparian zone also acts as a buffer to filter out nutrient loads before they enter the water.
- Discourage impoundments. Ponds and lakes do not aerate water. *Note: Permits may be required for any work on a stream, including impoundments.*

Regulatory strategies.

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Impose more stringent permit limits for nutrients discharged from sewage treatment plants.
- Impose timely and appropriate enforcement for noncomplying sewage treatment plants, large and small, and their collection system.
- Identify Concentrated Animal Feeding Operations not currently permitted.
- Support and train local MS4 programs within municipalities to deal with storm water pollution issues.

6.3.B.iv. Toxins and Other Materials.

Although some toxic substances are discharged directly into waters of the state from a point source, much of these materials are washed in during rainfalls from an upland location, or via improper waste disposal that contaminates groundwater. No streams are currently listed as impaired from these kinds of sources in the Tennessee Portion of the Pigeon River Watershed. More stringent inspection and regulation of permitted industrial facilities, and local storm water quality initiatives and regulations, could help reduce the amount of contaminated runoff reaching state waters. Examples of streams that could benefit from these measures include Sinking Creek in Newport.

Many materials enter our streams due to apathy, or lack of civility or knowledge by the public. Litter in roadside ditches, garbage bags tossed over bridge railings, paint brushes washed off over storm drains, and oil drained into ditches are all blatant examples of pollution in streams.

Some of these problems can be addressed by:

Voluntary activities

- Provide public education.
- Paint warnings on storm drains that connect to a stream.
- Sponsor community clean-up days.
- Landscape public areas.
- Encourage public surveillance of their streams and reporting of dumping activities to their local authorities.

Enforcement strategies

- Prohibit illicit discharges to storm drains.
- Strengthen litter law enforcement at the local level.

6.3.B.v. Habitat Alteration.

The alteration of the habitat within a stream can have severe consequences. Whether it is the removal of the vegetation providing a root system network for holding soil particles together, the release of sediment, which increases the bed load and covers benthic life and fish eggs, the removal of gravel bars, “cleaning out” creeks with heavy equipment, or the impounding of the water in ponds and lakes, many alterations impair the use of the stream for designated uses. Habitat alteration also includes the draining or filling of wetlands.

Individual landowners and developers are responsible for the vast majority of stream alterations. Some measures that can help address these problems are:

Voluntary activities

- Sponsor litter pickup days to remove litter that might enter streams.
- Organize stream cleanups removing trash, limbs and debris before they cause blockage.
- Avoid use of heavy equipment to “clean out” streams.

- Plant native vegetation along streams to stabilize banks and provide habitat.
- Encourage developers to avoid extensive use of culverts in streams.

Current regulations

- Restrict modification of streams by such means as culverting, lining, or impounding.
- Require mitigation for impacts to streams and wetlands when modifications are allowed.

Additional Enforcement

- Increased enforcement may be needed when violations of current regulations occur.

6.3.B.vi. Storm Water.

MS4 discharges are regulated through the Phase I or II NPDES-MS4 permits. These permits require the development and implementation of a Storm Water Management Program (SWMP) that will reduce the discharge of pollutants to the maximum extent practicable and not cause or contribute to violations of state water quality standards. The NPDES General Permit for Discharges from Phase I and II MSF facilities can be found at:

<http://www.state.tn.us/environment/wpc/stormh2o/>.

For discharges into impaired waters, the MS4 General Permit requires that SWMPs include a section describing how discharges of pollutants of concern will be controlled to ensure that they do not cause or contribute to instream exceedances of water quality standards. Specific measurements and BMPs to control pollutants of concern must also be identified. In addition, MS4s must implement the proposed waste load allocation provisions of an applicable TMDL (i.e., siltation/habitat alteration, pathogens) and describe methods to evaluate whether storm water controls are adequate to meet the waste load allocation. In order to evaluate SWMP effectiveness and demonstrate compliance with specified waste load allocations, MS4s are encouraged to develop and implement appropriate monitoring programs by the designated date.

Some storm sewer discharges are not regulated through the NPDES MS4 program. Strategies to address runoff from in these urban areas include adapting Tennessee Growth Readiness Program (TGRP) educational materials to the watershed. TGRP is a statewide program built on existing best management practices from the Nonpoint Education for Municipal Officials program and the Center for Watershed Protection. TGRP developed the program to provide communities and counties with tools to design economically viable and watershed friendly developments. The program assists community leaders in reviewing current land use practices, determining impacts of imperviousness on watershed functions, and allowing them to understand the economics of good watershed management and site design.

6.4. PERMIT REISSUANCE PLANNING

Under the *Tennessee Water Quality Control Act*, municipal, industrial and other dischargers of wastewater must obtain a permit from the Division. Approximately 1,700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES). These permits establish pollution control and monitoring requirements based on protection of designated uses through implementation of water quality standards and other applicable state and federal rules.

The following three sections provide specific information on municipal, industrial, and water treatment plant active permit holders in the Tennessee Portion of the Pigeon River Watershed. Compliance information was obtained from EPA's Permit Compliance System (PCS). All data was queried for a five-year period between May 1, 2002 and May 31, 2007. PCS can be accessed publicly through EPA's Envirofacts website. This website provides access to several EPA databases to provide the public with information about environmental activities that may affect air, water, and land anywhere in the United States:

http://www.epa.gov/enviro/html/ef_overview.html

Stream Segment information, including designated uses and impairments, are described in detail in Chapter 3, *Water Quality Assessment of the Tennessee Portion of the Pigeon River Watershed*.

6.4.A. Municipal Permits

TN0020702 Newport STP

Discharger rating: Major
City: Newport
County: Knox
EFO Name: Knoxville
Issuance Date: 7/31/05
Expiration Date: 7/31/10
Receiving Stream(s): Pigeon River Mile 4.0
HUC-12: 060101060108
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Equalization, activated sludge, ammonia stripping, filtration, chlorination, re-aeration, aerobic sludge digestion, belt press dewatering, sludge drying

Name	TN06010106001_1000
Size	Pigeon River
Unit	3.7
First Year on 303(d) List	Miles
Designated Uses	-
Causes	Industrial Water Supply (Supporting), Fish and Aquatic Life (Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Sources	N/A
Name	N/A

Table 6-1. Stream Segment Information for Newport STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	10	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	272	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	5	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	7.5	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	181	lb/day	MAvg Load	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
CBOD % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
CBOD5	All Year	30	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	All Year	25	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	726	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	All Year	20	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year	907	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
D.O.	All Year	5	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
IC25 7day Ceriodaphnia Dubia	All Year	11	Percent	DMin Conc	Semi-annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	11	Percent	DMin Conc	Semi-annually	Composite	Effluent
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Composite	Effluent
TRC	All Year	0.17	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	1451	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS	All Year	1088	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent

Table 6-2a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-2b.

Tables 6-2a-b. Permit Limits for Newport STP.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 1 Total Suspended Solids
- 1 Settleable Solids
- Suspended Solids % Removal
- 4 Overflows
- 7 Bypasses

Comments:

3/21/07 Pretreatment Compliance Evaluation Inspection: In Compliance.

TN0054879 Cosby School

Discharger rating: Minor
City: Newport
County: Knox
EFO Name: Knoxville
Issuance Date: 12/01/05
Expiration Date: 10/31/10
Receiving Stream(s): Cosby Creek at mile 4.3
HUC-12: 060101060107
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Conc	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-3. Permit Limits for Cosby School.

Comments:
 None

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TN0065072 TN DOT I-40 Cocke-Hartford Welcome Center STP

Discharger rating: Minor
City: Newport
County: Knox
EFO Name: Knoxville
Issuance Date: 9/01/05
Expiration Date: 7/31/10
Receiving Stream(s): Pigeon River at mile 20.7
HUC-12: 060101060106
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Septic tank, anaerobic reactor, artificial marsh and UV disinfection

Name	TN06010106001_4000
Size	Pigeon River
Unit	5.03
First Year on 303(d) List	Miles
Designated Uses	-
Causes	Fish and Aquatic Life (Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Industrial Water Supply (Supporting)
Sources	160
Name	Industrial Point Source Discharge, Sources Outside State Jurisdiction or Borders

Table 6-4. Stream Segment Information for Cocke-Hartford Welcome Center.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	#/100mL	DMax Conc	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Table 6-5. Permit Limits for Cocke-Hartford Welcome Center.

Comments:
 None

6.4.B. Industrial Permits

TN0003735 Sonoco Products Newport

Discharger rating: Minor
City: Newport
County: Cocke
EFO Name: Knoxville
Issuance Date: 6/30/05
Expiration Date: 6/30/10
Receiving Stream(s): Pigeon River at mile 0.9 (Outfall 001) and at mile 1.0 (Outfall 002)
HUC-12: 060101060108
Effluent Summary: Process wastewater (Outfall 001) and sanitary wastewater (Outfall 002)
Treatment system: Outfall 001 is an aerobic digester & clarifier. Water is recycled back to process for the most part but must have some discharge to prevent buildup of dissolved salts. Outfall 002 is small system with a recirculating sand filter.

Name	TN06010106001_4000
Size	Pigeon River
Unit	5.03
First Year on 303(d) List	Miles
Designated Uses	-
Causes	Fish and Aquatic Life (Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Industrial Water Supply (Supporting)
Sources	160
Name	Industrial Point Source Discharge, Sources Outside State Jurisdiction or Borders

Table 6-6. Stream Segment Information for Sonoco Products Newport.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	180	lb/day	DMax Load	2/Week	Composite	Effluent
BOD5	All Year	180	lb/day	MAvg Load	2/Week	Composite	Effluent
Color (Pt-Co Units)	All Year	2380	Pt-Co Units	DMax Conc	Weekly	Grab	Effluent
Color (Pt-Co Units)	All Year	1186	Pt-Co Units	MAvg Conc	Weekly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Continuous	Recorder	Effluent
Flow	All Year		MGD	DMax Load	Continuous	Recorder	Effluent
Pentachlorophenol	All Year	9E-04	mg/L	DMax Conc	Monthly	Grab	Effluent
Pentachlorophenol	All Year	0.52	lb/day	DMax Load	Monthly	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	200	lb/day	DMax Load	2/Week	Composite	Effluent
TSS	All Year	200	lb/day	MAvg Load	2/Week	Composite	Effluent
Trichlorophenol	All Year	3E-04	mg/L	DMax Conc	Monthly	Grab	Effluent
Trichlorophenol	All Year	0.18	lb/day	DMax Load	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Weekly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekly	Grab	Effluent

Table 6-7. Permit Limits for Outfall 001 at Sonoco Products Newport.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	5.1	lb/day	DMax Load	2/Month	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
BOD5	All Year	3.4	lb/day	MAvg Load	2/Month	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	3.4	lb/day	MAvg Load	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	Grab	Effluent
TSS	All Year	5.1	lb/day	DMax Load	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Tables 6-8. Permit Limits for Outfall 002 at Sonoco Products Newport.

Enforcement:

Directors Order #05-177D issued for failing to report TMSP storm water data for monitoring year 2004.

Comments:

Recycle cardboard and paper products into paperboard via a non-deink mechanical processing plant

12/13/06 Compliance Evaluation Inspection:

- Solids build-up in the wastewater treatment system and its subsequent permit limit violations during extremely cold weather have been eliminated since SONOCO installed air injectors in the lagoon in addition to splashers that already existed. Mr. Glenn explained that air injectors compensate for temperature drops caused by evaporative cooling of wastewater by splashers.
- No NPDES and TMSP permit parameters were reported violated in past twelve months.

TN0002003 Ace Products, Inc.

Discharger rating: Minor
City: Newport
County: Knox
EFO Name: Knoxville
Issuance Date: 3/01/05
Expiration Date: 2/01/10
Receiving Stream(s): Wet weather conveyance at mile 0.16 to Pigeon River at mile 0.5
HUC-12: 060101060108
Effluent Summary: Curing press water & plant floor drains, treated sanitary wastewater (via IMP 01A), cooling tower blowdown, boiler blowdown, water softener backwash; plus, untreated groundwater inflow from Outfall 001 and industrial storm water runoff from Outfall SW1.
Treatment system: Sanitary wastewaters - activated sludge with disinfection. Cooling tower blowdown, boiler blowdown, water softener backwash; plus, untreated groundwater inflow and storm water runoff - oil/water separation.

Name	TN06010106001_1000
Size	Pigeon River
Unit	3.7
First Year on 303(d) List	Miles
Designated Uses	-
Causes	Industrial Water Supply (Supporting), Fish and Aquatic Life (Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Sources	N/A
Name	N/A

Table 6-9. Stream Segment Information for Ace Products, Inc.

Comments:

12/7/06: Ace Products' all three plants located in Tennessee, Louisiana, and Pennsylvania were shut down due to the company's going out of business. Some of the equipment was sold.