UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Decision Rationale
For the Chestnut Creek
Benthic and Bacteriological TMDLs
Carroll and Grayson Counties, Virginia

Signed

_____

Jon M. Capacasa, Director
Water Protection Division

Date: *6/8/2006*

Decision Rationale

Total Maximum Daily Loads for
The Primary Contact (Bacteriological) and Aquatic Life Use Impairments on
Chestnut Creek Carroll and Grayson Counties, Virginia

I. Introduction

The Clean Water Act (CWA) requires a Total Maximum Daily Load (TMDL) be developed for those water bodies identified as impaired by a state where technology-based and other controls will not provide for attainment of water quality standards. A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources, including a margin of safety (MOS), that may be discharged to a water quality-limited water body.

This document will set forth the U. S. Environmental Protection Agency's (EPA) rationale for approving the TMDLs for the primary contact (bacteriological) and aquatic life use impairments on Chestnut Creek. EPA's rationale is based on the determination that the TMDLs meet the following eight regulatory conditions pursuant to 40 CFR §130.

1) The TMDLs are designed to implement applicable water quality standards.
2) The TMDLs include a total allowable load as well as individual waste load allocations (WLAs) and load allocations (LAs).
3) The TMDLs consider the impacts of background pollutant contributions.
4) The TMDLs consider critical environmental conditions.
5) The TMDLs consider seasonal environmental variations.
6) The TMDLs include a MOS.
7) There is reasonable assurance that the TMDLs can be met.
8) The TMDLs have been subject to public participation.

II. Background

The Chestnut Creek Watershed is located in Carroll and Grayson Counties, Virginia and Surry and Alleghany Counties, North Carolina. Chestnut Creek is a tributary to the New River in southern Virginia. The bacteriological and benthic impairments on Chestnut Creek extend 15.0 miles from the City of Galax and continue to its mouth. The 39,000-acre watershed is rural with forested and agricultural land making up 55 and 36 percent of the watershed respectively. The remainder of the watershed is composed of urban and wetlands.

In response to Section 303(d) of the CWA, the Virginia Department of Environmental Quality (VADEQ) listed Chestnut Creek (VAS-N06R) on Virginia's 1996 Section 303(d) list as

being unable to attain the general standard due to an aquatic life use impairment identified through benthic assessments. The primary contact impairment was identified on Virginia's 2004 Section 303(d) list based on violations of the bacteriological criteria. At the time of its listing, the bacteria criteria used fecal coliform as an indicator species and had an instantaneous standard 1,000 colony forming units (cfu) per 100 milliliters (ml) and a geometric mean standard of 200 cfu/100ml. This decision rationale will address the TMDLs for both impairments.

Fecal coliform is a bacterium which can be found within the intestinal tract of all warm blooded animals. Fecal coliform indicates the presence of fecal wastes and the potential for the existence of other pathogenic bacteria. The higher concentrations of fecal coliform indicate the elevated likelihood of increased pathogenic organisms.

EPA encouraged the states to use e-coli and enterococci as the indicator species instead of fecal coliform. A better correlation was drawn between the concentrations of e-coli and enterococci, and the incidence of gastrointestinal illness. The Commonwealth adopted e-coli and enterococci criteria in January 2003. According to the new criteria, streams are evaluated via the e-coli and enterococci criteria after 12 samples have been collected using these indicator species. Twelve e-coli samples have been collected from Chestnut Creek and it is therefore, assessed, according to the new criteria.

As Virginia designates all of its waters for primary contact, all waters are required to meet the bacteriological standard for primary contact. Virginia's standard applies to all streams designated as primary contact for all flows. The e-coli criteria requires a geometric mean concentration of 126 cfu/100ml of water with no sample exceeding 235 cfu/100 ml of water. The new e-coli criterion requires the concentration of e-coli not to exceed 235 cfu/100ml of water.

Although the TMDL and criteria require the 235 cfu/100 ml of water concentration limit not be exceeded, waters are not placed on the Section 303(d) list if their violation rate does not exceed 10 percent. Therefore, Chestnut Creek may be deemed as attaining its primary contact use prior to the implementation of all of the TMDL reductions. It is necessary to keep this in mind because the reductions required to attain the instantaneous criteria for e-coli in the model are extremely stringent.

To assess the biological integrity of a stream, Virginia uses EPA's Rapid Bioassessment Protocol II (RBPII) to determine status of a stream's benthic macroinvertebrate community.[1] This approach evaluates the benthic macroinvertebrate community between a monitoring site and its reference station. Measurements of the benthic community, called metrics, are used to identify differences between monitored and reference stations.[2] The state is currently in the

---

[1]Tetra Tech 2002. Total Maximum Daily Load (TMDL) Development for Blacks Run and Cooks Creek. Fairfax, Virginia.

[2]Ibid 1

process of changing this methodology to a stream condition index (SCI) approach.

As part of the RBPII approach, reference stations are established on streams which are minimally impacted by humans and have a healthy benthic community. These reference stations represent the desired community for the monitored sites. Monitored sites are evaluated as non-impaired, slightly impaired, moderately impaired, or severely impaired based on a comparison of the biological community of the reference and monitored sites. Streams that are classified as moderately (after a confirmatory assessment) or severely impaired after an RBPII evaluation are classified as impaired and are placed on the Section 303(d) list of impaired waters. Chestnut Creek was assessed as moderately impaired. Based on the SCI method, the stream oscillates between moderately impaired and non-impaired. Several assessments scored above the 61.3 SCI cutoff, which documents impaired conditions. The RBP II assessments consistently have shown a moderate impairment at stations on river mile 2.64 and 13.29.

The RBPII analysis assesses the health of the macroinvertebrate community of a stream. The analysis will inform the biologist if the stream's benthic community is impaired. However, it will not inform the biologist as to what is necessarily causing the degradation of the benthic community. Additional analysis may be required to determine the pollutants which are causing the impairment as information can be gleaned based on the composition of the community and the condition of the habitat. TMDL development requires the identification of impairment causes and the establishment of numeric endpoints that will allow for the attainment of designated uses and water quality criteria.[3]

A reference watershed approach was used to determine the numeric endpoints for the pollutants impacting Chestnut Creek. Numeric endpoints represent the water quality goals that are to be achieved through the implementation of the aquatic life use TMDL; which will allow the impaired water to attain its designated use. A reference watershed approach is based on selecting a non-impaired watershed that shares similar land use, ecoregion, and geomorphological characteristics with the impaired watershed. The stream conditions and loadings in the reference stream are assumed to be the conditions needed for the impaired stream to attain standards. Therefore, the TMDL intends to replicate the loadings of the reference watershed in the impaired watershed to allow it to attain criteria.

The bacteriological TMDL submitted by Virginia is designed to determine the acceptable load of e-coli which can be delivered to the impaired segment, as demonstrated by the Hydrologic Simulation Program Fortran (HSPF), in order to ensure that the water quality standard is attained and maintained. HSPF was considered an appropriate model to analyze the impaired water because of its dynamic ability to simulate both watershed loading and receiving

water quality over a wide range of conditions. The model was run to determine the fecal coliform loading to Chestnut Creek as most of the loading information and sampling results are

[3]Ibid 1

based on fecal coliform. The in-stream fecal coliform concentrations were then converted to e-coli using a conversion factor established by the Commonwealth.

The bacteriological TMDL analysis allocates the application/deposition of fecal coliform to land based and in-stream sources. For land based sources, the model accounts for the buildup and washoff of pollutants from these areas. Buildup (accumulation) refers to the complex spectrum of dry-weather processes that deposit or remove (die-off) pollutants between storms.[4] Washoff is the removal of fecal coliform which occurs as a result of runoff associated with storm events. These two processes allow the model to determine the amount of fecal coliform from land based sources which is reaching the stream. Point sources and wastes deposited directly to the stream were treated as direct deposits. Wastes which are deposited directly to the stream do not need a transport mechanism.

Local rainfall and temperature data were needed to develop the model. Weather data provides the rainfall data which drives the TMDL model. Weather data was obtained from the Galax Radio national climatic data center (NCDC) station 443267. Continuous stream flow data was available for Chestnut Creek via United States Geological Survey (USGS) gage 03165000. Both the bacteria and benthic TMDL hydrologic models were calibrated to flow data from this station. The bacteria loading model was calibrated and validated against observed data from the VADEQ monitoring stations within the Chestnut Creek Watershed.

The benthic TMDL was developed using the Generalized Watershed Loading Function model (GWLF). The GWLF model provides the ability to simulate runoff, sediment, and nutrient loadings from watersheds given variable source areas (e.g., agricultural, forested, and developed land).[5] GWLF is a continuous simulation model that uses daily time steps for weather data and water balance calculations.[6] Calculations are made for sediment based on daily water balance totals that are summed to give monthly values.

A reference watershed approach was used to estimate the necessary load reduction needed to restore a healthy aquatic community and allow Chestnut Creek to achieve its designated uses. The South Fork of the Holston River Watershed was selected as the reference watershed for Chestnut Creek. The target sediment load for the impaired segment was the median modeled sediment loads for the South Fork of the Holston River.

Table 1 - Summarizes the Specific Elements of the TMDL.

[4]CH2MHILL, 2000. Fecal Coliform TMDL Development for Cedar, Hall, Byers, and Hutton Creeks Virginia,

[5]Ibid 1

[6]Ibid 1

Segment	Parameter	TMDL	WLA	LA	MOS
Chestnut Creek	E-coli (cfu/yr)	3.24E+13	1.74E+09	3.24E+13	Implicit
	Sediment (Tons/yr)	7,351	18.9	6,597	735

The United States Fish and Wildlife Service has been provided with a copy of these TMDLs.

III. Discussion of Regulatory Conditions

EPA finds that Virginia has provided sufficient information to meet all of the eight basic requirements for establishing primary contact (bacteriological) and aquatic life (benthic) use impairment TMDLs for Chestnut Creek. EPA is therefore approving the TMDLs. EPA's approval is outlined according to the regulatory requirements listed below.

1) The TMDLs are designed to meet the applicable water quality standards.

Bacteria

Virginia has indicated that excessive levels of fecal coliform due to nonpoint sources (both wet weather and directly deposited nonpoint sources) have caused violations of the water quality criteria and designated uses on Chestnut Creek. The water quality criterion for fecal coliform was a geometric mean 200 cfu/100ml or an instantaneous standard of no more than 1,000 cfu/100ml. Two or more samples over a 30-day period are required for the geometric mean standard. Since the state rarely collects more than one sample over a 30-day period, most of the samples were measured against the instantaneous standard.

The Commonwealth has changed its bacteriological criteria as indicated above. The new e-coli criterion requires a geometric mean of 126 cfu/100ml of water with no sample exceeding 235 cfu/100 ml. The new criterion is more stringent and if the loading remains constant the violation rate should increase.

The HSPF model was used to determine the fecal coliform deposition rates to the land as well as loadings to the stream from direct deposit sources. Once the existing load was determined, allocations were assigned to each source category to develop a loading pattern that would allow Chestnut Creek to support the e-coli water quality criterion and primary contact use. The following discussion is intended to describe how controls on the loading of e-coli to Chestnut Creek will ensure that the criterion is attained. Bacteria violations were observed in all flows in both the observed and simulated data.

The TMDL modelers determined the fecal coliform production rates within the watershed. Data used in the model was obtained from a wide array of sources, including farm practices in the area, the amount and concentration of farm animals, animal access to the stream,

wildlife in the watershed, wildlife fecal production rates, land uses, weather, stream geometry, etc.. The model combined all of the data to determine the hydrology and water quality of the stream. The land within the watersheds were categorized into specific land uses. The land uses had specific loading rates and characteristics that were defined by the modelers. Therefore, the loading rates are different in land defined as forested versus pasture. Pasture land support cattle and are influenced differently by stormwater runoff.

The Chestnut Creek bacteria TMDL model was run using weather data collected from the Galax Radio NCDC weather station. This data was used to determine the precipitation rates in the watershed which transport land deposited pollutants to the stream through overland and groundwater flow. Waste that was deposited to the land or stored was subjected to a die-off rate. The longer fecal coliform stayed on the ground the greater the die-off. Materials that were washed off the surface shortly after deposition were subjected to less die-off. The hydrology model of the TMDL was calibrated to observed USGS gage data within the watershed. The hydrology model was calibrated to data collected from 1994 through 1998. During this process, model parameters are adjusted within a reasonable range to develop a simulated flow that follows similar patterns to the observed flows monitored at the gauging station. The parameters are then fixed and the model run to new weather data and the simulated flows are once again compared to those collected at the USGS gage. If the simulated and observed flows still correspond, the model is considered to reflect observed conditions.

The water quality model for bacteria was calibrated to observed data collected from Chestnut Creek. The water quality model was calibrated to observed data from 1989 through 1993 and validated to data collected from 1998 through 2002. Unlike the hydrology data, the water quality data were grab samples and not continuous. Therefore, they represent a snapshot of the water quality for that specific date and time, while the model attempts to represent a continuous condition. The calibration did correspond to the overall trends observed in the monitoring data.

Through the development of this and other similar TMDLs, it was discovered that natural conditions (wildlife contributions to the streams) could cause or contribute to violations of the bacteria criteria. Many of Virginia's TMDLs, including the TMDL for Chestnut Creek, have called for some reduction in the amount of wildlife contributions. EPA believes that a significant reduction in wildlife is not practical and will not be necessary due to the implementation plan discussed below.

A phased implementation plan will be developed for all streams in which the TMDL calls for reductions in wildlife. In Phase 1 of the implementation, the Commonwealth will begin implementing the reductions (other than wildlife) called for in the TMDL. In Phase 2, which can occur concurrently to Phase 1, the Commonwealth will consider addressing its standards to accommodate this natural loading condition. The Commonwealth has indicated that during Phase 2, it may develop a Use Attainability Analysis (UAA) for streams with wildlife reductions which are not used for frequent bathing. Depending upon the result of the UAA, it is possible that these streams could be designated for secondary contact.

After the completion of Phase 1 of the implementation plan, the Commonwealth will monitor the stream to determine if the wildlife reductions are actually necessary, as the violation level associated with the wildlife loading may be smaller than the percent error of the model. In Phase 3, the Commonwealth will investigate the sampling data to determine if further load reductions are needed in order for these waters to attain standards. If the load reductions and/or the new application of standards allow the stream to attain standards, then no additional work is warranted. However, if standards are still not being attained after the implementation of Phases 1 and 2, further work and reductions will be warranted.

Benthic

As stated above, the biological assessments on Chestnut Creek were not able to discern a clear stressor to the creek. The TMDL modelers therefore conducted a stressor identification analysis to determine what was impacting the benthic community. Current ambient water quality data was able to rule out dissolved oxygen, temperature or pH as possible stressors to Chestnut Creek. However, historic data from the early 1990s seems to document an excessive amount of nutrients reaching the stream. In the early 1990s, total phosphorous concentrations routinely exceeded the state's screening level of 0.2 mg/l. In 1991, the Galax Waste Water Treatment Plant moved its discharge to the New River which may have lowered total phosphorous concentrations in Chestnut Creek. A historic mining operation discharged waste high in iron and with a low pH to Chestnut Creek. A passive treatment system (wetland) was installed in 1988 to address some of the mining impacts to the stream. In the early 1970s, other waste units were remediated to cease their discharge completely. It should be noted that the effluent from the wetlands was evaluated to be 3.14 toxic units, acute in 2005. However, Chestnut Creek was determined to have a capacity to assimilate 27 toxic units, acute.

The stressor identification determined that excessive sediment was impacting the benthic community. In high enough concentrations sediment can have detrimental impacts on the benthic community. Sediment fills interstitial spaces that provide habitat for many organisms. Excessive levels of sediment may also clog an organisms gill surfaces thus lowering its respiratory ability. Lastly, excessive sediment increases turbidity which lowers the feeding efficiency of visual predators. Habitat assessments conducted with the benthic assessments consistently revealed that the habitat was marginal regarding sediment, with monitoring sites having low embeddedness and pool sediment scores; this documents the filling of habitat for benthic macroinvertebrates. Other possible stressors such as organic enrichment were ruled out based on the composition of aquatic organisms, with certain organisms that document organic enrichment not being as dominant as would be expected.

The GWLF model was used to determine the loading rates of sediment to the impaired and reference streams from all point and nonpoint sources. The TMDL modelers determined the sediment loading rates within each watershed. Data used in the model was obtained on a wide array of items, including land uses in the area, point sources in the watershed, weather, stream geometry, etc..

The GWLF model provides the ability to simulate runoff and sediment loadings from watersheds given variable source areas (e.g., agricultural, forested, and developed land). GWLF is a continuous simulation model that uses daily time steps for weather data and water balance calculations.[7] Local rainfall and temperature data were needed to simulate the hydrology this data was obtained from the Galax Radio NCDC weather station. In the GWLF model, the nonpoint source load calculation is affected by terrain conditions, such as the amount of vegetative, land slope, soil erodibility, and land practices used in the area.[8] Parameters within the model account for these conditions and practices. Although the GWLF model was developed for ungaged watersheds, it was calibrated to observed data collected at the same USGS gage as the HSPF model.

2) The TMDLs include a total allowable load as well as individual waste load allocations and load allocations.

Total Allowable Loads

Virginia indicates that the total allowable loading is the sum of the loads allocated to land based precipitation driven nonpoint source areas (forest and agricultural land segments) and point sources. Activities that increase the levels of bacteria and sediment to the land surface or their availability to runoff are considered flux sources. The actual value for total loading can be found in Table 1 of this document. The total allowable load is calculated on an annual basis.

Waste Load Allocations

There were several facilities identified as discharging sediment and/or bacteria to Chestnut Creek. Most of the permits were for stormwater sources although there National Pollutant Discharge Elimination System (NPDES) individual permits and general permits for small treatment facilities. Table 2 documents the WLA for these facilities.

EPA regulations require that an approvable TMDL include individual WLAs for each point source. According to 40 CFR 122.44(d)(1)(vii)(B), "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA pursuant to 40 CFR 130.7." Furthermore, EPA has authority to object to the

[7]Ibid 1

[8]Ibid 1

issuance of any NPDES permit that is inconsistent with the WLAs established for that point source.

Table 2 – WLAs for Chestnut Creek

Facility	Permit Number	Pollutant	WLA
Single Family Unit	VAG400062	Bacteria	8.71E+08 cfu/yr
Single Family Unit	VAG400439	Bacteria	8.71E+08 cfu/yr
Honeywell – Gossan Mine Site	VA0082333	Sediment	6.913 Tons/yr
Single Family Unit	VAG400062	Sediment	0.041 Tons/yr
Single Family Unit	VAG400439	Sediment	0.041 Tons/yr
Vaughn Furniture Company – Corporate	VAR100070	Sediment	0.597 Tons/yr
Virginia Department of Transportation	VAR100556	Sediment	0.388 Tons/yr
Vaughan Bassett Furniture Company	VAR050012	Sediment	0.202 Tons/yr
Vaughan Furniture Company – B.C.	VAR050014	Sediment	4.672 Tons/yr
Vaughan Furniture Company – E.C.	VAR050015	Sediment	0.436 Tons/yr
Consolidated Glass and Mirror Corporation	VAR050019	Sediment	0.00
National Textiles, Galax Plant	VAR050049	Sediment	2.741 Tons/yr
Webb Furniture Enterprises, Plant 1	VAR050099	Sediment	1.589 Tons/yr
Web Furniture Enterprises, Plant 2	VAR050100	Sediment	0.981 Tons/yr
Web Furniture Enterprises, Inc. Particle	VAR050101	Sediment	0.296 Tons/yr
Rolling Frito Lay Sales LP – Galax Bins	VAR051557	Sediment	0.00

Load Allocations

According to Federal regulations at 40 CFR 130.2(g), LAs are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting loading. Wherever possible, natural and nonpoint source loads should be distinguished.

In order to accurately simulate landscape processes and nonpoint source loadings of bacteria, VADEQ used the HSPF model to represent the impaired watersheds. The HSPF model is a comprehensive modeling system for the simulation of watershed hydrology, point and nonpoint source loadings, and receiving water quality. HSPF uses precipitation data for continuous and storm event simulation to determine total loading to the impaired segments from the various land uses within the watershed.

For the sediment TMDL the GWLF model was used to ascertain the sediment loading to Chestnut Creek and South Fork of the Holston River the reference watershed. The model provides the monthly sediment load to the stream through the use of the universal soil loss equation (USLE). The USLE derives the sediment loading by using information on precipitation rates, best management practices, land slope, and vegetative cover. Tables 3a and 3b identify the current and TMDL loading for bacteria and sediment to Chestnut Creek.

Table 3a - LA for Bacteria (E-coli) for Chestnut Creek

Source Category	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
Cropland	1.66E+13	3.32E+11	98
Built Up	1.57E+15	3.14E+13	98
Pasture	6.00E+15	1.20E+14	98
Forest	2.97E+14	2.97E+14	0
Livestock Access	2.69E+14	5.38E+12	98
Barren and Wetlands	1.32E+12	1.32E+12	0
Other, North Carolina Loads	5.38E+13	5.38E+13	0
Livestock - Direct	2.86E+11	1.00E+11	65
Wildlife - Direct	2.22E+13	2.22E+13	0
Direct Deposits, N.C.	1.95E+12	1.95E+12	0
Straight Pipes and Sewer Overflows	1.62E+13	0.00E+00	100

Table 3b - LA for Sediment for Chestnut Creek

Source Category	Existing Load (Tons/yr)	Proposed Load (Tons/yr)	Percent Reduction
Forest, Disturbed	447	295	34
Pasture/Hay	5,733	4,025	30
Quarries	16	16	0
Row Crops	1,664	1,290	22.5
Developed	200	200	0
Forest, Undisturbed	17	17	0
North Carolina	162	162	0
Streambank	890	587	34
Straight Pipes	14	0.0	100
Point Sources	18.9	18.9	0.0

3) The TMDLs consider the impacts of background pollution.

The TMDL considers the impact of background pollutants by considering the bacteria and sediment loadings from background sources like wildlife and forested land and calibrating the model to observed conditions.

4) The TMDLs consider critical environmental conditions.

According to EPA's regulation 40 CFR 130.7 (c)(1), TMDLs are required to take into account critical conditions for stream flow, loading, and water quality parameters. The intent of this requirement is to ensure that the water quality of Chestnut Creek is protected during times when it is most vulnerable.

Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards[9]. Critical conditions are a combination of environmental factors (e.g., flow, temperature, etc.), which have an acceptably low frequency of occurrence. In specifying critical conditions in the waterbody, an attempt is made to use a reasonable "worst-case" scenario condition. For example, stream analysis often uses a low-flow (7Q10) design condition because the ability of the waterbody to assimilate pollutants without exhibiting adverse impacts is at a minimum.

The HSPF and GWLF models were run over a multi-year period to insure that they accounted for a wide range of climatic conditions. The allocations developed in these TMDLs will therefore insure that the criteria are attained over a wide range of environmental conditions including wet and dry weather conditions.

5) The TMDLs consider seasonal environmental variations.

Seasonal variations involve changes in stream flow and loadings as a result of hydrologic and climatological patterns. In the continental United States, seasonally high flows normally occur in early spring from snow melt and spring rain, while seasonally low flows typically occur during the warmer summer and early fall drought periods.

Bacteria loadings also change during the year based on crop cycles, waste application rates, vegetative cover and cattle access patterns. Consistent with the discussion regarding critical conditions, the HSPF and GWLF models and TMDL analysis effectively considered seasonal environmental variations through the use of observed weather data over an extended period of time and by modifying waste application rates, crop cycles, and livestock practices.

6) The TMDLs include a margin of safety.

---

[9]EPA memorandum regarding EPA Actions to Support High Quality TMDLs from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds to the Regional Management Division Directors, August 9, 1999.

This requirement is intended to add a level of safety to the modeling process to account for any uncertainty. The MOS may be implicit, built into the modeling process by using conservative modeling assumptions, or explicit, taken as a percentage of the WLA, LA, or TMDL. Virginia included an implicit MOS in the bacteria TMDL through the use of conservative modeling assumptions such as modeling the point sources as discharging at their permitted maximums. An explicit 10 percent MOS was used for the sediment TMDL.

7) There is a reasonable assurance that the TMDLs can be met.

EPA requires that there be a reasonable assurance that the TMDLs can be implemented. WLAs will be implemented through the NPDES permit process. According to 40 CFR 122.44(d)(1)(vii)(B), the effluent limitations for an NPDES permit must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA. Furthermore, EPA has authority to object to issuance of an NPDES permit that is inconsistent with WLAs established for that point source.

Nonpoint source controls to achieve LAs can be implemented through a number of existing programs such as Section 319 of the CWA, commonly referred to as the Nonpoint Source Program.

8) The TMDLs have been subject to public participation.

During the development of the TMDL for the Chestnut Creek Watershed, public involvement was encouraged through several meetings to discuss and disseminate the TMDL. A basic description of the TMDL process and the agencies involved was presented at the first public meeting on July 21, 2005 at the Galax Courthouse in Galax, Virginia with 24 people in attendance. The first technical advisory committee meeting was held on July 21, 2005 at the Galax Public Library in Galax, Virginia with 18 people in attendance. The second and final public meeting was held on January 30, 2006 at the Galax Public Library. Twenty people attended the final public meeting. Both public meetings were noticed in the Virginia Register and open to a 30-day public comment period. Three written comments were received.