SOUTHERN GROUP OF STATE FORESTERS
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Water Docket
Environmental Protection Agency
Mailcode: 2822T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Attention Docket ID No. EPA-HQ-OW-2015-0668

Dear EPA Representative:

The Southern Group of State Foresters (SGSF) is a non-profit organization comprised of the state forestry agency directors in the southern U.S. – namely, Texas, Oklahoma, Arkansas, Louisiana, Tennessee, Kentucky, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina and Virginia, as well as Puerto Rico and the Virgin Islands. These state agencies individually, and collectively as the SGSF, address a multitude of forestry issues that affect the region's 208 million acres of forestland, including those related to forest water resources. To that end, the SGSF welcomes the opportunity to provide information to EPA on existing programs that protect water quality from forest road discharges, and in particular, successful state forestry Best Management Practices (BMP) programs in the South.

There are many commonalities among the southern state forestry programs that lend themselves to a regional view on engaging in protecting water resources. Decades ago, our members recognized the common ecological, hydrological and socio-political environments they were operating under and began working together to develop programs that, while retaining state autonomy, also were enhanced through regional partnership and adaptive management. With this in mind, the comments herein and the documentation of success achieved in our region relative to BMP programs is presented within the southern context. Similarly, other regions of the country have different ecology, hydrology and politics which create BMP programs that look different than those in the South, yet are equally successful at achieving water quality outcomes. We appreciate this opportunity to share information and perspective on our experiences with southern BMP programs.

Scope of Existing State Forestry BMP Programs

Silviculture BMP programs have been established in all thirteen states in the South to address nonpoint source pollution related to forestry operations, including forest roads. State Foresters clearly recognize the importance of these programs, dedicating at least one individual in each state to coordinate forestry BMP efforts. These comprehensive programs cover all timber producing areas of the South and have become institutionalized throughout the entire forestry sector. While these programs are predominantly non-regulatory, states do have some regulatory mechanisms in place, in addition to private (market-based) incentives, to address water resource concerns related to BMP implementation.

Most BMP programs date back to the passing of the Clean Water Act. These dynamic programs have undergone multiple revisions, based on new science and information, and changes in operations and policy since that time. Notably, pursuant to Section 319 of the Clean Water Act, states are required to develop assessment reports and management programs that address nonpoint sources of pollution. These assessments and programs contain the necessary policy guidance and direction for implementation of BMPs, thus meeting the provisions of Section 319 as required by EPA.

In the South, state forestry BMP programs consist of four basic elements: 1) BMP development, 2) implementation (through education, outreach, demonstration, and training), 3) monitoring for both implementation and effectiveness, and 4) coordination with numerous organizations. Although each BMP program functions independently, state BMP program managers meet regularly, as ex officio members of the SGSF Water Resources Committee (WRC). The WRC was organized in 2000 to provide a regular forum for states to collaborate on all BMP program areas. The result of this collaboration has led to consistency in field methodology and associated policies, and the advancement of BMP programs region-wide. BMP program development in the southern states involves a wide variety of experts in forest operations and water quality protection. State forestry agencies take the lead in BMP development, revision, and adaptive management in close cooperation with their respective state water quality agencies, and experts from academia and industry, in order to ensure functionality and credibility.

To build on the success of and continually improve the various state BMP programs in the South, the WRC initiated a series of "review and technical assistance visits" across the region in 2003. The purpose of these visits was to maximize accountability, consistency and credibility of state forestry BMP programs. The review teams consisted of members from other state BMP programs and a U.S. Forest Service Representative. The teams conducted a thorough evaluation of the host state's BMP program against a list of agreed upon criteria for success. Following the review, a detailed report of findings and recommendations was prepared and presented to the host state. All state programs underwent initial evaluation between 2003 and 2006, with follow-up evaluations between 2007 and 2012 to measure progress. The results showed significant progress and advancement of BMP programs. State BMP programs in the South continue to grow and mature, and the fundamental elements of success are well established and have been continually verified.

Forestry BMP Implementation

State forestry agencies in the South regularly monitor BMP implementation on forest operations, including forest road construction, use, maintenance, and remediation, with some states having monitoring data from as early as 1981. Monitoring results provide a clear assessment of the effectiveness of education, outreach, and technical assistance efforts. In 2002, the WRC published *Silviculture Best Management Practices Implementation Monitoring – A Framework for State Forestry Agencies*. This "Framework" describes the methodology for conducting random and statistically significant implementation monitoring, and has the secondary purpose of establishing and maintaining consistency among the southern states.

All states in the South currently conduct implementation monitoring according to the Framework. In 2008 and 2012, the SGSF Water Resources Committee produced and published *Implementation of Forestry Best Management Practices – A Southern Region Report*. These reports summarize the implementation monitoring results, region-wide, from 1997 through 2007, and from 2007 to 2012, respectively, and are attached to these comments. The 2008 report showed the overall average implementation rate for the region to be 87%. In 2012, the overall average implementation rate had improved to 92%. The Forest Roads Category in the report showed implementation to be 87% in 2008 and 90% in 2012. The next implementation report is scheduled to be completed in 2016.

The South's record of successful BMP implementation is primarily the result of an aggressive education and outreach effort consisting of training and field demonstration. State forestry agency BMP personnel organize numerous workshops, site visits, and field days with foresters, loggers, landowners, road and site preparation contractors, regulatory agency personnel, and other interested parties. These training opportunities are vital to program success and ensure the application of BMPs is understood so that proper implementation can be expected. The annual number of workshops and participants may vary from state to state. Florida, for example, typically conducts 30 workshops per year with over 500 participants, including road contractors. Some states, such as Texas, North Carolina, and South Carolina have developed specialized BMP workshops and videos directly targeting forest roads and road contractors. BMP demonstrations have been established on State Forests throughout the South, allowing practitioners the opportunity to see the proper application firsthand. New and innovative online mapping applications that support pre-harvest planning have been developed in Virginia, Texas, and North Carolina. This technology enables users to quickly map properties, identify sensitive areas on site, and receive BMP recommendations based on the site conditions present. Plans are underway to expand these platforms throughout the South.

In addition, most states work cooperatively with the private sector and in conjunction with forest certification programs, such as the Sustainable Forestry Initiative, Inc., the American Tree Farm System, or the Forest Stewardship Council to deliver logger and contractor training on BMPs. For example, the Arkansas Timber Producers Association, in cooperation with the Arkansas Forestry Commission, organizes and conducts multiple workshops each year, reaching hundreds of loggers and contractors. Similarly, many forest landowners and forest products companies across the South require compliance with all applicable BMPs for loggers and road contractors operating on their property or delivering to their facilities. Failure to adhere to BMPs could result in an operator not being allowed to deliver wood to a facility temporarily, or even permanently depending upon that facility's certification policy. Finally, education and outreach opportunities frequently occur as state forestry agency personnel routinely interact with loggers, road contractors and landowners during various types of site visits. State forestry agencies work diligently with cooperators to remediate forest sites that pose threats to water resources as a result of poor BMP implementation. While rarely needed, states have mechanisms in place to refer cases to regulatory agencies for review and enforcement should the responsible parties refuse to remediate to an acceptable standard. Penalties can range from an operator being made to repeat logger training to monetary fines of several thousand dollars per day or more.

Forestry BMP Effectiveness

Academia, industry, and research based organizations have conducted numerous BMP effectiveness studies, many of which are focused specifically on forest roads. Some of the first efforts to improve forest management and protect the environment involved research on forest roads. The U.S. Forest Service's Coweeta Hydrologic Laboratory began conducting research on controlling erosion from forest roads in 1935. Virginia Tech, in response to a rigid sediment control policy in West Virginia, conducted a study to identify the most efficient and cost-effective temporary road BMPs. As a result of this study, BMPs recommended through this policy were changed to incorporate the newly approved practices. A database review of BMP studies reveals over 50 different experiments conducted in the South.

In addition to implementation monitoring, several states have conducted BMP effectiveness monitoring. This monitoring determines whether or not BMPs are actually protecting water quality during forestry operations. Arkansas, Florida, Georgia, North Carolina, South Carolina, Texas, and Virginia have conducted such monitoring, and in all cases, the BMPs evaluated were determined to be effective. The WRC has worked with Auburn University and the Coweeta Hydrologic Laboratory to look specifically at

effectiveness of forest road BMPs. This work evaluated a "road runoff model," which estimates a 31-60% reduction of sediment delivered to adjacent waters resulting from BMP implementation. Virginia Tech is working to enhance and expand this modeling concept to quantify sediment load reductions from BMP implementation for forest roads and other forestry activities by determining the sediment delivery rates from forestry activities with and without associated BMPs.

Finally, a recently published literature review summarizing 30 studies from 1985-2015 showed that properly applied BMPs were effective at protecting water quality (Cristan et al., 2016)[1]. Each southern state has a robust outreach and education program that encourages proper implementation of BMPs. As mentioned previously, these outreach programs have led to high BMP implementation rates across the southern region.

Adaptive Management

The non-regulatory approach of the southern state's BMP programs facilitates adaptive management. Innovative solutions to protect water quality can be developed outside the strict framework of a regulatory program. For example, operators across the south began placing logging debris and mulch along forest roads and skid trails in an attempt to reduce runoff and sedimentation. State BMP Program Managers evaluated the results of this effort and determined that it was effective which led to a revision of their guidelines to include this practice. In Texas, original BMP guidelines developed in 1989 did not include a recommendation for streamside management zones (SMZ) along intermittent streams. Texas A&M Forest Service staff recognized the need to protect these intermittent streams with SMZs and revised their guidelines in 1992 to include this new provision.

Continuing education for forestry professionals and development of reference guides are used to share adaptive management strategies. In North Carolina, for example, recent effort and funding was directed to producing and distributing two detailed reference manuals specifically aimed at forest roads. In 2013, the U.S. Forest Service gave permission for the state to re-print and distribute several hundred copies of an excellent guide entitled *Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads*. Then in 2014, the N.C. Forest Service updated and republished an out-of-print road building guide that was originally a cooperative product from the U.S. Forest Service and Soil Conservation Service (the predecessor to the NRCS). This new guide, entitled *A Guide for Forest Access Road Construction and Maintenance in the Southern Appalachian Mountains* was shared with the U.S. Forest Service and other states in the Appalachian Mountain region.

Forestry BMP Enforcement

Despite the BMP outreach and education programs and state agency adaptive management strategies, there are rare instances when operators cannot or are unwilling to comply with BMP recommendations. As the following examples show, non-regulatory BMPs work in concert with other regulations as well as market-based incentives to follow guidelines. Southern states have a variety of enforcement approaches to achieve compliance. For example, in South Carolina, should an in-stream water quality impact occur, the South Carolina Forestry Commission recommends corrective actions. If the suggested corrective actions are not implemented, a site summary is sent to the South Carolina Department of Environmental Control (SCDHEC). This site summary may result in an enforcement hearing, with penalties ranging from the requirement of a logger to repeat logger training to fines reaching up to $10,000 per day.

[1] Cristan, R. et al. 2016. Effectiveness of forestry best management practices in the United States: Literature Review. Forest Ecology and Management. 360: 133-151

States also use market-based enforcement strategies. South Carolina, for example, conducts courtesy BMP implementation exams, often unannounced, on active harvesting and site preparation operations and a rating of "Acceptable" or "Unacceptable" is given for the following categories: Road Systems, Streamside Management Zones, Stream Crossings, Harvesting Systems, Site Preparation, and Minor Drainage. Sites are also examined to determine if non-compliance with BMPs has resulted in an in-stream impact. This gives BMP foresters the opportunity to interact with operators and evaluate BMP implementation and compliance onsite. If any deficiencies are found, BMP foresters can make suggestions of how to correct the problem before completion of harvesting or site preparation, and before equipment is moved off-site. A monthly report of courtesy exams is sent to the Sustainable Forestry Initiative State Implementation Committee (SIC), every primary forest products mill in the state, as well as several regulatory agencies, including the SCDHEC and the U.S. Army Corps of Engineers. If a site receives an "Unacceptable" rating in any category, the Inconsistent Practices Chair of the SIC ensures that the mills that received wood from the site are notified. As part of a mill's Sustainable Forestry Initiative (SFI) policy, the mill will take action against the operator that received an "Unacceptable," which could range from a warning to refusal of wood for a period of time or indefinitely. Given these combined approaches, overall BMP compliance in SC is greater than 93% and greater than 98% on sites with a BMP courtesy exam.

North Carolina uses a combined approach of promoting non-regulatory BMPs as a method to achieve compliance with the required statewide performance standards that were codified in 1990 as a state rule called the *Forest Practices Guidelines Related to Water Quality* (FPGs). The North Carolina FPGs require protection of streams and waterbodies from sedimentation during a forest harvest activity, which often includes constructing or improving roads and stream crossings. The North Carolina forestry BMPs outline multiple methods that can be implemented in order to comply with the state standards. The N.C. Forest Service inspects, on average, 3,000 to 4,000 forest sites annually. In the rare case where a violation is identified, the appropriate state environmental quality agency is notified and subsequently takes action with the involved parties to bring the site back into compliance. For the last 10 years, annual average compliance with the FPGs across NC has exceeded 90%.

Specific Elements of Forest Road Programs

Forest road programs that are successful and widely accepted by the forestry sector generally include elements already found in state BMP programs in the South. First, BMPs based on applicable research findings and local experience, and that are flexible to promote innovation and adaptive management are critical. For example, loggers often use large wooden pallet mats for temporary road access on soft ground, and deploy portable timber or steel bridge-mats for temporarily crossing streams and ditches in a low-impact manner to maximize protection of water quality. These types of once-novel ideas are commonplace across the South, and are an example of adaptive management BMPs for roads.

Planning is one of the most important BMPs to ensure efficient, functional and environmentally friendly road systems. All southern states include planning BMPs in manuals, educational materials, and training programs. As mentioned earlier, efforts are underway to expand online operational planning and layout systems in Texas and North Carolina to help practitioners easily access geospatial information and properly plan road systems and BMP implementation. Users can enter their address; map their property; view aerial photos, soil and topographic maps; identify streams, wetlands, and steep slopes; buffer streams and wetlands; calculate watershed area and culvert size; delineate roads and view their elevation profile; and generate reports with BMP recommendations based on the site conditions of their mapped property.

Continuous improvement through ongoing monitoring, research, and outreach is paramount to effective forest road programs. Forest road BMPs have been shown to be effective with a reduction of sediment loss by 80-90% or more[2]. Similarly, research has indicated that 90% of sediment problems come from only 10% of road segments[3]. Computer models, coupled with field visits, can identify these critical areas and allow forest managers to focus corrective action on problem segments. Disseminating information from new research, technology, monitoring, and field observations throughout the forestry sector is critical for continued and sustained success of these BMP programs.

The above listed approaches function to establish long-term partnerships and foster multi-organizational, cross-disciplinary cooperation. This serves to establish a culture within the forestry sector that promotes effective BMP implementation. Equally important is the need to focus on avoiding unacceptable impacts in a cooperative, rather than punitive manner, especially where ownership patterns (over 5 million private forest owners across the South hold 200 million acres of forest land, 86 percent of the total forest land area[4]) could overwhelm a permit program.

Statutory Definitions

SGSF does not believe that EPA should establish statutory definitions for the terms "forest road," or "logging road." While attempts could be made to develop definitions, and have been in the past, the nature of this class of roads typically is not singularly focused. Roads, public or private, generally serve numerous purposes and are traveled by a wide variety of vehicles for an assortment of reasons. A road that is constructed and/or maintained for silviculture purposes may also be used for a wide variety of non-forestry activities, including but not limited to recreation, other industry, accessing private property, and more. Further, the same silviculture BMPs are used to manage stormwater runoff and control nonpoint source pollution from all forest roads, regardless of the current or future activities for which the road is used.

Conclusion

In summation, SGSF supports a flexible, non-regulatory option for managing stormwater discharges from forest roads. We firmly believe that current state BMP programs are the correct approach to controlling runoff from forest roads in the South, as well as all other forestry-related nonpoint source pollution. For decades, these non-regulatory programs have functioned in concert with other state regulatory abilities and market-driven incentives, and have resulted in an effective, measureable and sustainable approach to protecting water quality during forestry operations – including forest road construction and maintenance. We believe this non-regulatory approach has encouraged acceptance and cooperation by practitioners, and has been the key to successful programs across the South. It is our view that these non-regulatory, BMP-based programs are the most successful and cost-effective approach to addressing stormwater discharges from forest roads.

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[2] National Council for Air and Stream Improvement, Inc. (NCASI). 2012. Assessing the effectiveness of contemporary forestry best management practices (BMPs): Focus on roads. Special Report No. 12-01. National Council for Air and Stream Improvement, Inc., Research Triangle Park, NC.

[3] Black, T., and Luce, C. 2012. Inventory and monitoring the impacts of forest roads in Idaho. J. For. 110(6):519. AND Callahan, C.P. 1999. A simplified field method for quantification of basin-wide sediment delivery and how it may be applied to TMDL's. P. 495-499 in Proceedings Specialty Conference: Wildland Hydrology. Olsen, D.S., and Potyondy, J.P. [eds.]. American Water Resources Association, Herndon, VA.

[4] Wear, D.N. and Greis, J.G. (2013) Southern Forest Futures Technical Report, http://www.srs.fs.fed.us/pubs/gtr/gtr_srs178.pdf

A significant number of our member states, including North Carolina, South Carolina, Georgia, Florida and Virginia are also submitting information during this comment period, which we encourage the EPA to examine closely. Each of these comments provides additional specificity to the regional picture painted here, and should help the EPA recognize program diversity, both of the BMP items themselves, as well as in monitoring, enforcement and adaptive management elements. In addition, these comments should convey the operational difficulties that would result from trying to define "forest roads", "logging roads", or any similar term at a national level. We appreciate the opportunity to provide our insights on this issue and look forward to providing any additional information, support and technical assistance, as your agency moves forward.

Sincerely,

Robert Farris
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Chair, Southern Group of State Foresters