

MEMORANDUM

To: Professor McCall
From: Mardi Smith
Date: April 27, 2005
Re: Lake Murray

QUESTIONS

1. Who owns Lake Murray and where does Lake Murray get its authority?
2. What is the environmental status of Lake Murray?
3. What causes pollution in Lake Murray and other bodies of water in the United States?
4. What federal environmental laws and regulations apply to the situation?
5. What state environmental laws and regulations apply to the situation?
6. What obligations and rights does DHEC have to work on the situation?
7. What can be done about the environmental situation of Lake Murray?

ANSWER

1. South Carolina Electric and Gas (“SCE&G”) owns Lake Murray, and the Federal Energy Regulatory Commission (“FERC”) licenses SCE&G to run the dam at Lake Murray.
2. Eight testing locations at Lake Murray are currently on the 2004 303(d) list for impaired waters.
3. Water pollution is caused by many things, including nonpoint and point source pollution.
4. Many federal environment laws apply, especially under the Clean Water Act.
5. Many state environmental laws apply, especially under the South Carolina Safe Water Act and the South Carolina Pollution Control Act.

6. South Carolina's Department of Health and Environmental Control ("DHEC") has the obligation to remedy the environmental situation at Lake Murray.
7. The Lake Murray Association can bring a citizen suit against DHEC, along with implementing many other deterrents to pollution.

DISCUSSION

1. Who owns Lake Murray and where does Lake Murray get its authority?

The South Carolina Electric and Gas Company ("SCE&G") is the owner of Lake Murray. Lake Murray is a lake formed from the damming of the Saluda River by the Saluda Dam. The Saluda Dam is a manmade dam, and the Federal Energy Regulatory Commission ("FERC") licenses SCE&G to run the Saluda Project. The Saluda Project entails the Saluda Dam, the land and water within the area, the powerhouse, and other resources. A contingency of the license from the FERC, SCE&G must keep the lake and nearby lands open for free access for the public for recreational activities including navigation of the water. SCE&G has the right to stop trespassers who abuse the privilege of using the land and water. *SCE&G v. Hix*, 306 S.C. 173, 410 S.E.2d 582 (1991).

It is a hydroelectric facility and a navigable body of water as SC Code § 49-1-10 (1987) defines a navigable body of water as:

All streams which have been rendered or can be rendered capable of being navigated by rafts of lumber or timber by the removal of accidental obstructions and all navigable watercourses and cuts are hereby declared navigable streams and such streams shall be common highways and forever free, as well to the

inhabitants of this State, without any tax or impost therefore, unless such tax or impost be expressly provided for by the General Assembly...

The South Carolina Court of Appeals ruled that a boater who wrecked into a dock stretching from land to an island on Lake Murray received personal injuries that were “special” or “particular,” as needed to bring a private action against the electric utility company for not keeping open a navigable waterway, as defined under South Carolina law. Federal rules require SCE&G to follow the FERC, which includes inspecting the shoreline to find anything that obstructs the FERC’s regulations. SCE&G did not realize that the dock was not allowed under the FERC. *Overcash III v. SCE&G*, 356 S.C. 165, 588 S.E.2d 116 (Ct.App. 2003). The case shows how the FERC has some control over Lake Murray’s waters.

Part of Lake Murray has been a water resource for over a century and probably long before that. People have found former mill wheels, locks and parts of a canal at the Saluda River in the Dreher Shoals part. The area served as the power source for a textile mill in the mid 1800’s. The Saluda River was dammed to run the mill, but the dam collapsed from high waters. Then during the Civil War, engineers suggested to General Robert E. Lee to use the Saluda River as a large power source. Environmental Research Center, Inc., *Environmental Inventory of Lake Murray South Carolina* vol. 1, 10 (1976).

Nothing major was done to make a great power source until the beginning of the twentieth century. G.A. Guinard acquired the flowage rights in the Dreher Shoals part of the Saluda River, and that began a quest to make a major water source from the Saluda River. Many different sources tried to get in on the idea of using the river as a power source at various times. Those sources included the South Carolina Power Company

(later bought by the General Gas and Electric Corporation), the owners of the utility companies for City of Columbia, the Lexington Water Power Company, the Foundation Company, and the Columbia Railway and Navigation Company. Then the Murray and Flood engineering firm suggested one huge undertaking. The task consisted of building a basin of water with the ability to hold almost one hundred and two billion cubic feet. *Id.*

The project would require such a large amount of water in order to put out a continuous output level. The dam to hold the water basin would be around eight thousand feet long and about one hundred and eighty three feet high. The Federal Power Commission gave the South Carolina Power Company and the Lexington Water Power Company under General Gas and Electric Corporation the permit to build the basin and dam in July of 1927. The United States Army Corp of Engineers approved all the designs and development of the hydroelectric power project. *Id.* at 10-11.

It was a great undertaking alone to build the proposed dam, but to get the one hundred thousand acres of land needed to make the basin was an enormous undertaking. T.C. Williams took the job of acquiring the needed land to build the hydroelectric plant. The land consisted of over one thousand different parcels. Around five thousand people lived on the land. Not only did all the people have to relocate, the schools, churches and graveyards had to relocate. Three churches, six schools, one hundred and ninety three graveyards and two thousand three hundred and twenty three graves all were relocated. Many communities were encompassed by Lake Murray. They included Derrick, Pine Ridge, Selwood, Wessinger, Cantsville, Leaphard, Savilla, Boyleston, Lorena and Holly's, Amick's and Lorick's ferries. *Id.* at 11.

The construction of the lake began in April of 1927 with the clearing of land. In the end, around one hundred thousand feet of lumber was produced from the land. The timber was used to build the dam. Over five thousand people were hired to clear the land and build the dam. *Id.* at 11. Once they cleared the land, the builders lay down penstocks and arch conduit. A dike three thousand five hundred feet long kept the construction safe. They placed the penstocks and arch conduit on the north bank of the Saluda River. Eighteen inch tall concrete saddles were laid on a solid rock support sixteen feet from center to center. *Id.* at 12.

The construction of dam consisted of three stages: the upstream, downstream, and the core. The core was filled with impervious clay, whereas the upstream and downstream was filled with regular dirt. A segregation pool separates the upstream and downstream. Bermuda grass helps keep the soil on the downstream side of the dam while stone and gravel help keep the upstream side of the dam. *Id.* at 13.

Work on the dam finally ended in 1930, and the water filled up the lake. The lake ended up being over seventy eight square miles, using only fifty thousand out of the one hundred thousand acres acquired to build the hydroelectric plant. The lake holds seven hundred and sixty three billion gallons of water. The lake has a shoreline of around five hundred and twenty miles. *Id.* at 13.

Lake Murray also has a unique history in that it was used as a training site for bombing in World War II. Servicemen from the West Columbia Army Air Base used some of the islands on Lake Murray as targets for bombs. Some estimate during the training up to twenty three bombers crashed and remain in the lake. *Id.* at 13-14.

2. What is the environmental status of Lake Murray?

The water quality of Lake Murray is especially important to those who use the lake for recreational purposes. It should also be very important to those people who use the water downstream as their drinking water. The South Carolina Pollution Control Authority, the South Carolina Department of Health and Environmental Control (“DHEC”), and the United States Geological Survey all monitor the lake, along with the Environmental Protection Agency. They monitor the status of the water quality, movement, and discharge of Lake Murray. Environmental Research Center, Inc., *Environmental Inventory of Lake Murray South Carolina* vol. 1, 15-16 (1976).

In 1973 the Central Midlands Regional Planning Council put together the Lake Murray Shores Development Plan. The Plan determined that the lake had no major pollution sources at that time. The report concluded that septic tanks were the biggest threat to the purity of water in the lake. The greatest potential problem from septic tanks is in their installation. If a septic tank is not installed correctly it can cause pollution. *Id.* at 16.

Many tributaries contribute to Lake Murray. The water sources that comprise Lake Murray’s water supply are the Saluda River, the Little River, the Bush River, the Little Saluda River and Clouds Creek. The U.S. Geological Survey watches the quality and status of these bodies of water, along with the status of Lake Murray, including the elevation of the lake. *Id.* at 17.

As a part of compliance with the Federal Clean Water Act and Federal Regulation 40 CFR 130.7, DHEC lists South Carolina’s impaired waters. The list is called a 303(d) list for Section 303(d) of the Federal Clean Water Act. DHEC places waters on the lists

if they do not satisfy State water quality standards. Then it uses the list to know what water bodies to focus further inquiry. Further inquiry includes supervision and potential Total Maximum Daily Loads (TMDLs). *DHEC's Total Maximum Daily Load (TMDL) Program*, www.scdhec.com/water/html/tmdl.html (last updated October 22, 2004). DHEC produces a TMDL list every two years. DHEC uses its own data, along with outside sources, to determine which water bodies belong on the Impaired Waters List. One may suggest data for DHEC to consider in making its 303(d) list by calling Kathy Stecker at 803-898-4011, but it must be received by September 1 of each odd-numbered year to be able to make the next year's list. DHEC, TMDL. DHEC notifies the public in a statewide newspaper of its objective to update its 303(d) list, as required by 40 CFR 25.4(c). *DHEC's 303(d) List*, <http://www.scdhec.com/water/pubs/303d2004.pdf> (last updated October 22, 2004).

DHEC monitors South Carolina's waters at over six hundred and fifty stations throughout the state, including ninety random monitoring locations. DHEC's supervision of water also entails four hundred and sixty five shellfish locations, seventy five aquatic macroinvertebrate locations, around one hundred fish tissue monitoring locations, and many phytoplankton locations. *Id.* at 1. DHEC's 2004 303(d) list found over eight testing places out of the fourteen places tested on Lake Murray exceeded the recommended levels enough to put in on the 303(d) impaired waters list. *Id.* at 24.

The areas in Lake Murray on the 303(d) list are in Lexington, Saluda, and Newberry counties. The Lexington county areas are the spillway at the dam and marker sixty three in Lexington county marker sixty three in Lexington county. The areas in Newberry county are Hollands Landing, Macedonia Landing, Blacks Bridge at SC 391,

the Bush River arm, and the Saluda River arm. The Saluda county area is the Little Saluda arm at SC 391. The 303(d) list indicates that there is no plan for a TMDL to be developed within the next two years. Additionally, the uses listed for all the parts of Lake Murray on the impaired waters list is “AL”, which stands for aquatic life use. The causes are “PH”, a hydrogen ion concentration, in all areas except for the Little Saluda arm, whose cause is “TP”, which stands for total phosphorus. In two of the places, Blacks Bridge and Bush River arm, total phosphorus and hydrogen ion concentration are the sources for the impaired water. DHEC’s study of Lake Murray and other waters in South Carolina do not tell what the sources of the pollution are. One may speculate the high levels of phosphorus are from the water treatment facilities and from the chicken and cow farms in Saluda and Newberry counties. Further research is needed to determine what the actual sources are. *Id.* at 24, 8.

3. What causes pollution in Lake Murray and other bodies of water in the United States?

Federal laws such as the Clean Water Act and the Safe Drinking Water Act have successfully decreased surface water pollution and made drinking water safer by policing point source discharges and by implementing stringent standards for the country’s drinking water. Water in lakes, streams and estuaries in the United States are cleaner now than they were thirty years ago. South Carolina’s Water Plan says that pollution runoff, also known as nonpoint-source pollution, is the main cause of water pollution in the country and in South Carolina. A.W. Badr, Andrew Wachob, Joseph A. Gellici, *South Carolina Water Plan* 38-39 (2nd ed., SC Dept. of Natural Resources 2004). Nonpoint

source pollution is pollution that can come from farmland, livestock, storm drains, construction, city runoff, mining and logging, and waste facilities. Jackson B. Battle & Maxine I. Lipeles, *Water Pollution* 5 (3rd ed., Anderson 1998). Nonpoint source pollution is difficult to regulate because it comes from many sources, it is extensive and difficult to identify and monitor. It is so easily undetectable because it comes from many various places such as “bacteria and fertilizers from farms and chemicals and oils from cities” and waterways after storms. *South Carolina Water Plan*, 38.

The fact that the main source of pollution in the United States is nonpoint source pollution is encouraging while frustrating. It is encouraging because it means most of the point source pollution has been effectively reduced. It is discouraging because it means that nonpoint pollution is the source. Nonpoint pollution is very difficult to determine what source it comes from. *Id.* A TMDL consists of a “calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards...the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources and includes a margin of safety and consideration of seasonal variations.” A TMDL stands for the total maximum daily load and is what helps determine what causes pollution in an area. *DHEC’s Total Maximum Daily Load (TMDL) Program*, 1. If DHEC developed a TMDL for Lake Murray, it could determine and hopefully reduce the nonpoint source pollution in the lake.

4. What federal environmental laws and regulations apply to the situation?

The United States contains over forty million acres of lakes, three and one-half million miles of rivers and streams, thirty-four thousand square miles of estuaries (not

even including Alaska) and over thirty trillion gallons of groundwater. As a result, many Federal environmental laws and regulations impose environmental restrictions and requirements upon water quality in the United States. The government places more conditions on surface fresh water than on groundwater, even though almost all rural residents and nearly half of the general population depends on groundwater as their drinking water. Jackson B. Battle & Maxine I. Lipeles, *Water Pollution* 2-3 (3rd ed., Anderson 1998).

During 1970 the federal government became concerned with regulation of the environment and took many monumental steps to achieve a cleaner environment. The National Environmental Policy Act, passed in January 1, 1970 under President Nixon, brought new standards and goals for environmental law. That same year the Environmental Protection Agency was later formed and the sector of the federal government dealing with environmental issues was restructured. The first Earth day, April of 1970, led people throughout the United States to communicate their support of making the Earth cleaner. At the end a year filled with concern for the environment, the government passed the Clean Air Act of 1970. The Clean Air Act was the culmination of a year of trying to concentrate people's attention toward the environment. The goal of the 1970 Clean Water Act was to "protect and enhance the water quality of the nation's air" by making standards that the county could reasonably achieve. Martin Freedman & Bikki Jaggi, *Air and Water Pollution Regulation: Accomplishments and Economic Consequences* 3-4 (Quorum Books 1993).

The Clean Water Act grew with the approval of Federal Water Pollution Control Act Amendments ("the 1972 Act") in 1972 that passed even though vetoed by President

Nixon. Even though the Pollution Control Act Amendments of 1972 have been altered and a new Clean Water Act was passed in 1987, the Pollution Control Act Amendments paved the path for stricter government regulation of water. The 1972 Act aimed at minimizing pollution from specific sources. The sources, also known as point sources, usually disperse pollution through a visible pipe or drain. *Air and Water Pollution Regulation*, 21.

The 1972 Act had the goal of eliminating pollution discharge by 1985 through the reduction of point source pollution. The National Pollution Discharge Elimination System (NPDES) was also begun to monitor and issue the permits for discharge into waterways. The Environmental Protection Agency (“the EPA”) was appointed in charge of the National Pollution Discharge Elimination System and was given requirements for monthly reports revealing the pollution and discharge dropped into the nation’s waterways. In addition, the 1972 Act also required the EPA to use the Best Practicable Technology no later than July 1, 1977 and the Best Available Technology that can realistically afford no later than July 1, 1985. The requirements of permits and use of the best available and practicable technology were in hopes of achieving the aspiration of no pollution discharge by 1985. *Air and Water Pollution Regulation*, 21-22.

The 1974 Safe Water Drinking Act passed in order to help assure clean drinking water in the present and future. The Safe Water Drinking Act made the EPA create set standards for the country. The drinking levels had to include maximum amounts of contaminants. In addition, the EPA had to regulate groundwater that was used for drinking water and had to establish state grants for “well-head protection area programs.” *Water Pollution*, 5.

The EPA published a study showing the five leading causes of water quality depreciation:

Rank	Rivers	Lakes	Estruaries
1	Siltation	Nutrients	Nutrients
2	Nutrients	Metals	Bacteria
3	Bacteria	Siltation	Priority Toxic Organic Chemicals
4	Oxygen-depleting substances	Oxygen-depleting substances	Oxygen-depleting substances
5	Pesticides	Noxious aquatic plants	Oil and grease

The study came from 305(b) reports to the EPA in 1996. The biggest problem seems to be nutrients hurting the water quality in the United States. Nutrients in and of themselves are not harmful and are even required for a healthy aquatic environment. The problem is when there are too many nutrients, especially too much of nitrogen and phosphorus. When there is too much nitrogen and phosphorus, they spur the growth of excess weeds and algae in the water. The overgrowth of weeds and algae in the water obstruct the water, drown out submerged aquatic vegetation (SAV) and eventually deplete the oxygen in the water. *Water Pollution*, 8-9.

A depletion of oxygen in the water is required for aquatic life. But in the same way too many nutrients are harmful, too little oxygen (or too much depleted oxygen) is harmful to aquatic life. Carp and sludge worms can live in water with low oxygen amounts, whereas trout and salmon require greater amounts of oxygen in the water. Trout and salmon generally need at least three to four mg/L (milligrams of oxygen dissolved in one liter of water or parts of oxygen per million parts of water). Other types of fish need even more oxygen in the water than that. *Id.*

The causes of oxygen depletion in water vary, but include an increase in large amounts of biodegradable organic materials. “Biodegradable organic materials contain plant, fish, or animal matter. Leaves, lawn clippings, sewage, manure, shellfish processing waste, milk solids, and other food processing wastes are examples of oxygen-depleting organic materials that enter our surface waters.” Bacteria live in healthy and unhealthy aquatic environments, but having too much organic matter causes the bacteria, which break down the organic matter, to overcompensate and use the oxygen to try to feed off of the excess organic matter. In addition, toxic waste can deplete algae, weeds, or fish and cause an increase in bacteria which use more oxygen. Other sources of pollution do not affect bacteria’s consumption of oxygen but cause chemical reactions that deplete oxygen in water. Even things such as temperature and salinity can affect the quantity of oxygen in the water. *Id.*

Siltation refers to “the suspension and deposition of small sediment particles in waterbodies.” Having too many sediments in water can cause reduce clearness and the space the water occupies. Sediment can also hurt and even obstruct fish gills, and cover and prevent fish eggs from surviving. Rain and erosion help sediment enter bodies of water. *Water Pollution*, 10.

Metals enter aquatic life and usually embed in the top of the food chains, which means usually fish end up ingesting metal as opposed to finding metal in the water column. Business and mining have increased the number of metals, and those many of those metals end up polluting water. *Id.* at 10.

Toxic Organic Chemicals consist of “organic compounds that contain carbon, such as polychlorinated biphenyls (PCBs), dioxins, and the pesticide DDT.” They are

usually in the environment because they do not easily decompose. These organic chemicals often cause cancer for humans along with birth defects for animals in the top of the food chain. *Id.* at 10.

Bacteria is also a problem for bodies of water. Bacteria can cause an assortment of problems. It can come from many sources, “including inadequately treated sewage, stormwater drains, septic systems, runoff from livestock pens, and sewage dumped overboard from recreational boats.” *Id.* at 10.

Additionally, pH and changes in the area can cause water quality to deteriorate. The pH level refers to the acidity of the water. Water with too much acid prevents reproduction and other activities necessary for proper aquatic life. Usually a high pH is from runoff and acid rain. *Id.* at 11.

Changes in the environment also can negatively impact the water quality. Shade is important because it lowers the water temperature. Also growth by the shoreline helps prevent erosion. When new areas are developed, that can change the pattern of water and runoff, which can also negatively impact aquatic life. *Id.* at 11.

The EPA also put out a study on what human causes negatively impact water quality in the United States:

Rank	Rivers	Lakes	Estuaries
1	Agriculture	Agriculture	Industrial Discharges
2	Point Sources	Unspecified Nonpoint Sources	Urban Runoff/ Storm Sewers
3	Hydrologic Modification	Atmospheric Deposition	Municipal Point Sources
4	Habitat Modification	Urban Runoff/ Storm Sewers	Upstream Sources
5	Resource Extraction	Municipal Point Sources	Agriculture

The study came from 305(b) reports to the EPA in 1996. The biggest problem from humans seems to be agriculture hurting the water quality of lakes in the United States. *Id.* at 12.

Various departments of the governments play a role in restoring and preserving the quality of the water in the United States. The Environmental Protection Agency (“EPA”) carries the largest burden for water. Other departments include the Commerce Department’s National Oceanic and Atmospheric Administration (NOAA) (which is concerned with ocean water), the Army Corps of Engineers (which covers security against floods and preserving the coasts, managing rivers, and the Clean Water Act §404 (dredge-and-fill permit program)), the Department of the Interior whose agencies such as the Bureau of Reclamation (which deals with water in the West), U.S. Geological Survey (which monitors significant rivers and aquifers), and the Fish and Wildlife Service (which deals with fresh water) work to help water be pure in the United States. In addition, the Department of Agriculture works on conserving and managing water, especially concerning agriculture uses. *Id.* at 2.

5. What state environmental laws and regulations apply to the situation?

South Carolina law gives DHEC the power to “make, adopt, promulgate and enforce reasonable rules and regulations” for many things including for the disposition of sewage. SC Code Ann § 44-1-140(11) (1976). If a building or dwelling is used to for more than two hours per day, the owner must have proper sewage facilities. SC Code Ann Regs 61-56.III(A).

The owner of land wishing to build a septic tank system must apply for a permit to build the septic tank. SC Code Ann Regs 61-56.III(B), 61-56.V. The person seeking a septic tank system permit has the burden of proving that the septic tank system will meet the requirements for a permit. SC Code Ann Regs 61-56.V. DHEC is allowed to charge for permits for those desiring to build on-site individual septic tank systems. SC Code Ann § 48-2-50 (1976). DHEC is also allowed to charge for collecting samples and testing to determine if the land can properly support a septic tank or water system. SC Code Ann § 44-55-100(d) (1976).

The requirements include proper soil, water table height, rock placement, minimum capacity, proper makeup, proper building. SC Code Ann Regs 61-56(V), VI(A). The septic tank system must also have a proper distribution pipe and soil absorption trenches. SC Code Ann Regs 61-56.VII(B). The requirements for septic tank systems vary depending on the composition of the soil. SC Code Ann Regs 61-56.VIII. Most importantly, septic tanks permits will not given issued if the petitioner can use a public sewage system. SC Code Ann Regs 61-56.X.

Contractors who wish to repair, build, or clean septic tank systems must have a license from DHEC. In order to earn such a license, the contractor must take a test on the rules concerning septic tank systems unless the person seeking the license exclusively cleans septic tank systems and disposal systems. SC Code Ann Regs 61-56.1.III(A), (A)(3), (A)(4). DHEC is allowed to charge for a license or renewal of a license to repair, build, or clean septic tank systems. SC Code Ann Regs 61-56.1.III(A)(5).

If a licensee does not comply with the regulations, DHEC can suspend or revoke the license and can impose penalties. DHEC must notify the violating licensee of the

reason for the revocation of his license. DHEC also must give the licensee time to appeal the decision to revoke his license. Once having his license revoked, a licensee has to wait one year until he can reapply for a license. Once a licensee's license has been revoked twice, he cannot get another one. SC Code Ann Regs 61-56.1.VI(A)-(C).

As a part of DHEC's authority, it has the ability to make laws concerning the disposition of sewage to prevent the spreading of infectious diseases caused by sewage in surface and ground waters. SC Code Ann Regs 61-57.1. DHEC requires that all land subdivided into two or more tracts for building have connections to public water and sewer. The requirement applies to all subdivisions, even ones that have not been approved and have not even sold half of the lots. SC Code Ann Regs 61-57.III(D). DHEC must issue a permit for a subdivision to use a separate water or sewage system. SC Code Ann § 48-1-100 (1976).

DHEC must give approval in writing for the construction of any shared septic tank system or public water system. In order to get approval from DHEC, the petitioner must present plats of the proposed development with lot lines and specifications, roads, easements, and a proposed community water or sewage system. DHEC may require the petitioner to include in the plats the contours and drainage fields. SC Code Ann Regs 61-57.IV(A). The designer of the proposed subdivision can apply for each lot to have individual septic tanks. He must show, usually through soil tests and the water table status, that each lot has the requisite space and soil for an on-site septic system. SC Code Ann Regs 61-57.IV(B)(1).

One way to prevent pollution is to ascertain the condition of septic tanks around Lake Murray. The purpose of the Safe Water Act is to ameliorate the sewage disposal

problem of septic tanks leaking into the ground and/or the water because of the building septic tanks where the land cannot support them. SC Code Ann § 44-55-810 (1976). One way to help DHEC enforce the approval of septic tanks is by making it illegal to connect electricity without having permission from the county or municipality. SC Code Ann § 44-55-820 (1976). If someone provides electricity to someone without permission from the county or municipality, they are guilty of a misdemeanor and if convicted will be fined up to one hundred dollars or imprisoned for up to thirty days. SC Code Ann § 44-55-840 (1976). SC Code Ann § 44-55-440 (1976) says that if a person installed a sewage system before June 3, 1951, he is exempt from these requirements as long as he maintains the sewage system in compliance with DHEC. Under the Safe Water Act, old permits are still valid as long as they meet the conditions of the original permits even if issued before the effective date of title forty four of the South Carolina Code unless “the physical character of the property for which they were issued changes”. SC Code Ann § 44-55-710 (1976).

South Carolina’s Safe Water Drinking Act (“Safe Water Act”) gives the South Carolina Board of Health and Environmental Control (“the Board”) the power to implement the Safe Water Act. SC Code Ann § 44-55-20(1) (1976). The Safe Water Act requires every county in South Carolina with a city with more than seventy thousand people, according to the United States census, to follow the rules set out in the Safe Water Act and the rules of their county board of health (which are approved by the Board of Health) for building, installing, and maintaining septic tanks. SC Code Ann § 44-55-610 (1976).

The Act also requires that when regulating public water systems the board must include provisions for swimming, boating, skiing, and other such recreational activities for all reservoirs and cannot stop such activities without researching and giving notice to the public that these activities would be harmful to the public well-being. If the Board finds that these activities are harmful to the public, it must publish its findings at least once a week for six weeks in a newspaper of “general” circulation in the location of the concerned areas. In addition, any citizen of South Carolina who objects to the findings may request a public hearing, after which the Board or the Department of Health and Environmental Control (“DHEC”) will notify the interested parties. If the citizen still objects, he may appeal to the circuit court who reviews the determinations of the Board and DHEC. SC Code Ann § 44-55-50 (A),(B) (1976). The DHEC commissioner may issue an emergency order for water systems and is effective immediately and only is issued if there is impending danger to public health. SC Code Ann § 44-55-60 (1976).

The Safe Water Act also requires that every person providing or renting houses to their employees must include sewage closets with sewage connections for their employees. SC Code Ann § 44-55-420 (1976). DHEC has the power to establish the rules and regulations it needs to enforce the Safe Water Act. SC Code Ann § 44-55-430 (1976). If a person does not follow the requirements under the Safe Water Act and gets a notice with “Unsanitary, unlawful to use”, he has committed a misdemeanor and can be fined from five dollars to fifty dollars or put in jail for no more than thirty days. SC Code Ann § 44-55-300 (1976). The county boards are allowed to specify rules, etc. for septic tanks but must contain certain limitations. The limitations are:

- 1) no septic tank shall be installed which has a net liquid capacity of less than five hundred gallons;
- 2) the length of each tank shall be at least but not more than three times the width;
- 3) the uniform liquid depth of each tank shall be not less than two feet six inches; and
- 4) the theoretical detention period of each tank shall be not less than twenty-four hours based upon the average daily flow.

If a septic tank is going to hold more than one thousand gallons, the county health officer must approve it before it is installed. SC Code Ann § 44-55-630 (1976).

Every septic tank needs to be installed so that it would be approved by the county board of health and made of the materials specified by the county board of health. SC Code Ann § 44-66-640,650 (1976). Each septic tank needs at least one hundred feet of distribution pipe correctly installed as specified by the county board of health. In addition, no septic tank “effluent” should be “discharged” into any stream without the county board of health giving approval. SC Code Ann § 44-55-680 (1976). The penalty for building or using a septic tank without getting approved first by the county board of health is a misdemeanor with a fine of at least ten dollars and no more than fifty dollars or imprisonment no less than five days but not longer than twenty days. Each day during a violation entails a separate offense. SC Code Ann § 44-55-700 (1976).

In South Carolina, the county can require lot owners to connect and use the District’s water and sewer. South Carolina’s Supreme Court found that fees associated with connecting to the water and sewer were not “general revenue measures” that were

only able to be “levied only through representative government” because they were required to get water and sewer in return from the District. *Ford v. Georgetown County Water and Sewer District*, 341 S.C. 10, 532 S.E.2s 873 (2000).

Another South Carolina Supreme Court case held that a county did not have the sovereign immunity to deny a landowner a permit to install a septic tank. The Court also held that the denial of the permit constituted a taking without due process. *Yarborough v. Parker v. Florence County Health Dept.*, 281 S.C. 480, 316 S.E.2d 671 (1984).

6. What obligations and rights does DHEC have to work on the situation?

DHEC has the authority under the Pollution Control Act to determine damages in civil penalties for violation of the Pollution Control Act under SC Code Ann. § 48-1-10ff. DHEC’s authority in the Pollution Control Act overrides the Tort Claims Act since the Pollution Control Act specifically deals with the remedy for negligent discharge of pollutants. *City of Rock Hill v. SC DHEC and SC Wildlife & Marine Resources Dept.*, 302 S.C. 161, 394 S.E.2d 327 (1990).

South Carolina’s *Water Plan* cites the S.C. Pollution Control Act saying:

It is declared to be the public policy of the State to maintain reasonable standards of purity of the air and water resources of the State, consistent with the public health, safety and welfare of its citizens, maximum employment, the industrial development of the State, the propagation and protection of terrestrial and marine flora and fauna, and the protection of physical property and other resources.

The *South Carolina Water Plan* makes it clear clean water is desired in South Carolina. It asserts that pollution runoff, also known as nonpoint-source pollution, is the main cause of water pollution in the country and in South Carolina. *South Carolina Water Plan*,³⁸.

The Environmental Protection Agency (“EPA”) gave DHEC the power to enforce the Federal Clean Water Act in South Carolina. In order for DHCE to receive funding “to prevent and reduce water pollution in South Carolina, DHEC must monitor, and compile and analyze data on, surface and ground water quality.” Also under the Clean Water Act Section 106 DHEC is required to observe, gather, and examine data on water in South Carolina so that it may get funding by the EPA. *Id.*

DHEC also may require more municipalities to offer city water to residents of Lake Murray. The less people using septic tanks, the less chance there is for possible leakage of waste into Lake Murray. Also, if DHEC required the homeowners on Lake Murray to connect to city water if it is available to them, that would prevent many of the old septic systems from being used. These are just a few of the many limitations DHEC could place on septic tank systems.

7. What can be done about the environmental situation of Lake Murray?

Many things are being done around the county about the environmental status of water. One program, Effluent Trading in Watersheds, allows a business who puts out less water pollution than it is allowed to put out to sell its unused water pollution rights to similar industries in its watershed. Trading programs could also be used for nonpoint water pollution, especially farm runoff at Lake Murray. If the current technology could monitor the amount of nonpoint source pollution from the chicken and cow farms around and on Lake Murray, the EPA could allow DHEC to administer a trading program for the farmers. In order to have Effluent Trading in the Lake Murray area and watersheds flowing to it, DHEC would have to individually monitor the farms whose watershed is ending up in Lake Murray. Then DHEC would have to set maximum standards for their

output. If a farmer is under the maximum water pollution discharge standard, he could sell his unused discharge amount to another farmer whose watershed also ends up in Lake Murray. The problem is that DHEC does not currently monitor the amount of nonpoint water pollution entering the lake. *Water Pollution*, 6.

Another program, Project XL, allows companies to develop their own approach to helping make a better environment in exchange for less pollution that they would put out under the current law. One mill in Flint River, Georgia has developed a system to reduce its total environmental effect. The EPA cooperates with businesses who try to implement Project XL. *Water Pollution*, 6. In regard to the situation of water pollution in Lake Murray, a project such as Project XL would help the environment, but the businesses must decide to implement such a program. The businesses that could do this include the water treatment facilities and the farmers, if their nonpoint water pollution is ever monitored.

The EPA also has a program to help minimize combined sewer overflows (“CSOs”). The sewer overflows usually include raw sewage, industrial waste, and garbage and trash from roads. CSOs are the “leading cause” for “beach closures and shellfishing restrictions.” In 1994 the EPA created a “concensus policy” to help areas affected by CSOs. *Water Pollution*, 6-7. CSOs do not seem to be the most threatening source of pollution for Lake Murray, but should be analyzed as a potential source of water pollution affecting Lake Murray.

In order to get off the 303(d) list of impaired waters, a water body at least meet some of “the following: 1) the most recent date and information indicat[ing] that water quality standards are being met, 2) a TMDL has been developed and approved, and 3) the

listing analysis conducted for the 2002 list contained errors (e.g., laboratory reporting error, QA/QC requirements not met, legal ruling).” DHEC, 303d, 2. Thus, in order for Lake Murray’s testing stations to get off the list of impaired waters, the pollution must be reduced. Additionally either a TMDL is one option, but a TMDL at its best only tells the community what the pollution is and where the pollution is coming from. A TMDL does not do anything in the reduction of pollution, it merely monitors it in hopes that the perpetrators and other causes of the pollution will be ascertained so that DHEC can monitor them.

One option concerned citizens can take to help Lake Murray is to bring a citizen suit against DHEC. It would be more efficient for all the concerned citizens to join the Lake Murray Association and then get the Association to bring the suit on behalf of the Lake Murray residents and businesses. The cost for joining the Lake Murray Association is fifteen dollars per person and thirty dollars per business. *Lake Murray Association*, www.lakemurrayassociation.com (as updated February 28, 2005).

Even though citizen suits are not very common, they can be very effective. One group of citizens in South Carolina did not like it when DHEC gave a company a permit to treat and discharge water into the North Tyger River. The plaintiffs brought the suit because DHEC gave Laidlaw Environmental Services (TOC), Inc. a National Pollutant Discharge Elimination System (“NPDES”) but the company emitted more pollutants than allowed, especially mercury. The plaintiffs, Friends of the Earth, Inc., and others, informed Laidlaw of their plans to file a citizen suit. The plaintiffs filed the suit under 33 U.S.C. §1365(a). *Friends of the Earth, Inc., et al. v. Laidlaw Envir. Serv. (TOC), Inc.*, 528 U.S. 167, 120 S.Ct. 693 (2000).

In the *Laidlaw* case, the plaintiffs filed a suit for declaratory and injunctive relief along with civil penalties. After the plaintiffs gave notice of the lawsuit, DHEC fined Laidlaw one hundred thousand dollars and made Laidlaw agree to comply with the NPDES requirements. The district court denied summary judgment and a motion to dismiss because of §1365(b)(1)(B) for Laidlaw, holding that the plaintiffs had standing and that the suit should not be dismissed because of DHEC's efforts to remedy the situation before the lawsuit. The district court determined that Laidlaw violated its permit after the plaintiffs filed the suit thirteen times for its mercury limit in addition to thirteen monitoring and ten reporting abuses. The district court held that Laidlaw had received an "economic benefit" from its violation of its NPDES permit in the amount of one million ninety two thousand five hundred and eighty one dollars, but the district court only rewarded four hundred and five thousand eight hundred dollars. Additionally, Laidlaw had to pay for a large number of the plaintiffs' attorney fees. No injunction was given because Laidlaw had improved its conformity with its permit since the lawsuit began. *Id.*

The Fourth Circuit had dismissed the case as moot since the defendants had come into compliance with their NPDES permit when the suit began. The Supreme Court determined the plaintiffs were allowed to bring a citizen suit even after the defendant began following the mandates under its NPDES permit. *Id.*

Congress, through the Clean Water Act, also referred to as the Federal Water Pollution Control Act (33 U.S.C. § 1251ff), gave the EPA and approved states authorization to issue NPDES permits. An NPDES permit allows an entity to discharge a limited amount of pollutants, and it establishes ways to monitor and receive notice of the

amount of pollution discharged from the entity. § 505 of the Clean Water Act allows any citizen to file a citizen suit to implement any restriction in an NPDES permit. In order to file a citizen suit, a citizen must be “a person or persons having an interest which is or may be adversely affected,” as defined in 33 U.S.C. § 1365(a),(g). A citizen may not bring an action to enforce a NPDES permit under the Safe Water Act if the EPA or the state has taken action to implement the permit conditions, as stated in 33 U.S.C. § 1365(b)(1)(B). *Id.*

Even though the plaintiffs sued for civil penalties, the United States Treasury gets the civil penalties under 33 U.S.C. § 1365. The court must consider “the seriousness of the violation or violations, the economic benefit (if any) resulting from the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require” in order to establish civil penalties in citizen suit. The court has discretion to determine if a party should win the lawsuit expenses, possibly including attorney and expert witness fees. *Id.* at 175, citing 33 U.S.C. § 1319(d),1365(d).

In order for a plaintiff to have standing he must show:

- (1) he has suffered an ‘injury in fact’ that is
 - (a) concrete and particularized and
 - (b) actual or imminent, not conjectural or hypothetical;
- (2) the injury is fairly traceable to the challenged action of the defendant;
and
- (3) it is likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision.

Id. at 180, citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-561, 119 L. Ed. 2d 351, 112 S. Ct. 2130 (1992). Even though Lake Murray has many citizens who can bring the suit, the Lake Murray association could represent all the residents of the lake and surrounding citizens who are suffer an injury by Lake Murray's becoming more polluted. In order for the Lake Murray Association to bring the lawsuit, the Association can sue when:

- (1) its members would otherwise have standing to sue in their own right,
- (2) the interests at stake are germane to the organization's purpose, and
- (3) neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.

Id. at 181, citing *Hunt v. Washington State Apple Advertising Comm'n*, 432 U.S. 333, 343, 53 L. Ed. 2d 383, 97 S. Ct. 2434 (1977). Such a lawsuit would require lots of funding and time, with many committed citizens. It needs the support of the Lake Murray Association and many residents on the lake and in the communities around the lake.

In 2002, a decision was made not to spray any more herbicides to kill the hydrilla in the lake. The herbicide that was being used corroded aluminum on metals, while other herbicides on the market had the potential to harm the people who may drink the water downstream. WIS, *State Officials Won't Spray Herbicide on Lake Murray Hydrilla*, <http://www.wistv.com/Global/story.asp?s=932373> (September 12, 2002). Many Lake Murray residents pushed to have carp put in the lake to help eat the hydrilla. WIS, *State Considers Carp to Combat Hydrilla in Lake Murray*, <http://www.wistv.com/Global/story.asp?s=939992> (September 18, 2002). Solutions such

as carp to eat the hydrilla over putting more pesticides in the water will help reduce the pollution in the water.

Other decisions with water purity and environmental concerns in mind will help keep Lake Murray clean. In July of 2003, spokesmen from SCE&G met with environmental representatives from South Carolina where they agreed that SCE&G may acquire new turbines that would produce more oxygen for the fish in the water. WIS, *SCE&G Looks at Ways to Cut Fish Kills on Saluda River*, <http://www.wistvcom/Global/story.asp?s=1384135> (July 31, 2003). In 2004, representatives from South Carolina proposed increasing the regulations for SCE&G in order to raise oxygen levels for fish in Lake Murray. SCE&G opposed the proposals and felt that the proposals would not help fish in the Saluda River. WIS, *SC Health Officials Propose Tougher Oxygen Levels for Saluda River*, <http://www.wistvcom/Global/story.asp?s=1440045> (September 12, 2002).

Another environmental problem is that Lexington county landowners have experienced trouble with radium in their well water. A spill from Tin Products plant seems to be the source of the radium in the water for Lexington County residents. WIS, *Concerns over Radium in Lexington Co. Groundwater Subject of Meeting* <http://www.wistvcom/Global/story.asp?s=1373624> (July 24, 2003). In August of 2004, a finding discovered fish in South Carolina's Lake Murray, Lake Hartwell, and Lake Wateree that contain high mercury levels. The study blames power plants for the high level of mercury in the fish and asserts that nearly forty percent of fish caught in the lakes surpass the federal recommended levels for women. DHEC disputes the findings of the study. WIS, *Group Warns Fish Caught in SC Lakes Contain Mercury*,

<http://www.wistv.com/Global/story.asp?s=2128065> (August 3, 2004). Mercury in fish and the water is a huge environmental problem that must be fixed. The worst part is that people use Lake Murray's water as their drinking water.

Unless residents of Lake Murray take action, their lake could become polluted to the point where it is no longer safe to swim or drink the water. Lake Murray has such a great impact on the area around it that it is important not only for the homeowners and those who drink the water, but also for all the people and businesses affected by the lake to have clean water. Cathy Dreher, *Lake Murray Dam Becomes Dreher Shoals Dam* 42 Columbia Star 2 (February 11, 2005).

Bibliography

1. Cathy Dreher, *Lake Murray Dam Becomes Dreher Shoals Dam* 42 Columbia Star 2 (February 11, 2005).
2. *City of Rock Hill v. SC DHEC and SC Wildlife & Marine Resources Dept.*, 302 S.C. 161, 394 S.E.2d 327 (1990).
3. *DHEC's Total Maximum Daily Load (TMDL) Program*, www.scdhec.com/water/html/tmdl.html (last updated October 22, 2004).
4. *DHEC's 303(d) List*, <http://www.scdhec.com/water/pubs/303d2004.pdf> (last updated October 22, 2004).
5. Environmental Research Center, Inc., *Environmental Inventory of Lake Murray South Carolina* vol. 1, 2 (1976).
6. *Ford v. Georgetown County Water & Sewer District*, 341 S.C. 10, 532 S.E.2s 873 (2000).
7. *Friends of the Earth, Inc. et. al. v. Laidlaw Envir. Serv. (TOC) Inc.*, 528 U.S. 167, 120 S.Ct. 693 (2000).
8. Jackson B. Battle & Maxine I. Lipeles, *Water Pollution* (3rd ed., Anderson 1998).
9. *Lake Murray Association*, www.lakemurrayassociation.com (as updated February 28, 2005).
10. Martin Freedman & Bikki Jaggi, *Air and Water Pollution Regulation: Accomplishments and Economic Consequences* 1-21 (Quorum Books 1993).
11. *Overcash III v. SCE&G*, 356 S.C. 165, 588 S.E.2d 116 (Ct.App. 2003).
12. Sally Benjamin & David Belluck, *State Groundwater Regulation: Guide to Laws, Standards, and Risk Assessment* 511-517 (BNA Books 1994).

13. SC Code Ann §44-1-10,100,140 (1976).
14. SC Code Ann § 44-66-640,650 (1976).
15. SC Code Ann § 48-1-100 (1976).
16. SC Code Ann § 48-2-50 (1976).
17. SC Code Ann § 48-55-60,100,300,420,430,610,630,680,700,810 (1976).
18. SC Code Ann § 49-1-10 (1987).
19. SC Code Ann Regs 61-56.I. ff
20. SC Code Ann Regs 61-57ff
21. A.W. Badr, Andrew Wachob, Joseph A. Gellici, *South Carolina Water Plan* 38-39 (2nd ed., SC Dept. of Natural Resources 2004).
22. WIS, *Concerns over Radium in Lexington Co. Groundwater Subject of Meeting*, <http://www.wistvcom/Global/story.asp?s=1373624> (July 24, 2003).
23. WIS, *Group Warns Fish Caught in SC Lakes Contain Mercury*, <http://www.wistv.com/Global/story.asp?s=2128065> (August 3, 2004).
24. WIS, *SCE&G Looks at Ways to Cut Fish Kills on Saluda River*, <http://www.wistvcom/Global/story.asp?s=1384135> (July 31, 2003).
25. WIS, *SC Health Officials Propose Tougher Oxygen Levels for Saluda River*, <http://www.wistvcom/Global/story.asp?s=1440045> (September 12, 2002).
26. WIS, *State Considers Carp to Combat Hydrilla in Lake Murray*, <http://www.wistv.com/Global/story.asp?s=939992> (September 18, 2002).
27. WIS, *State Officials Won't Spray Herbicide on Lake Murray Hydrilla*, <http://www.wistv.com/Global/story.asp?s=932373> (September 12, 2002).
28. *Yarborough v. Parker*, 281 S.C. 480, 316 S.E.2d 671 (1984).