

**PUMPOUT STUDY  
ON DUKE POWER LAKES IN  
NORTH AND SOUTH CAROLINA**

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## **1.0 Introduction**

### **1.1 Purpose of Study**

Currently, all new, expanding or rebuilding marinas – both private and public – have a condition in their project area lease/permit that requires them to arrange for the proper disposal of sanitary wastes if they dock boats that have a marine toilet or that have a fixed or portable holding tank. The lessee/permittee is responsible for monitoring boats using their facility and the lease/permit may be canceled by Duke Power if specific violations are identified and timely remedial action is not taken by the lessee/permittee. At first glance, one may think all people with interest in maintaining water quality would find this requirement easy to comply with via installation and use of pumpouts. Besides the overall intention being to help maintain water quality, there are federal grant funds made available through state agencies to entice businesses, municipalities, counties and states to install pumpout components at their marina facilities. But when a marina operator pursues this option they may find a number of roadblocks that hinder setting up a functional pumpout system. Also, pumpouts will only be effective if boaters use them.

In March 1998, Duke Power and NC Marine Trade Services (a state extension-type agency) co-sponsored a one-day pumpout workshop at Duke's Lake Wylie Training Center. (The idea for this workshop was spawned from the Shoreline Management Guidelines (SMG) Focus Group that was implemented by Duke Power in 1997 to get input from major stakeholders on ways to improve Lake Use Permitting programs). The workshop brought together pumpout vendors, NC and SC agency personnel involved in regulating pumpout and waste disposal facilities and distributing grant funding, several members of the Lake Wylie Marine Commission and 27 operators of public and private marina facilities on Duke lakes. All participants learned a lot over the course of the day. Duke Power learned that the pumpout issue is complex and not as simple as placing a new requirement in all the old leases.

This study is performed to further clarify issues that need to be addressed to better streamline the process for marina operators (e.g. public marinas, private clubs, and homeowner's associations) to pursue installing pumpouts at facilities on Duke lakes.

### **1.2 Purpose of Revision 1**

Duke Power mailed the original study (dated September 30, 1998) to all SMG Focus Group members and held a meeting at Duke's Lake Wylie Training Center on October 22, 1998 to take comments from the Focus Group. (See Appendix 2 for a list of SMG Focus Group members and the minutes from the meeting.) This revision incorporates the results of the SMG Focus Group review. In addition, the SMG Focus Group presents a summary of recommendations in Section 7.0 of this document.

## 2.0 General Pumpout Information

### 2.1 Why are Pumpouts Necessary on Inland Lakes?

Congress enacted the Clean Water Act of 1972 (amended in 1987) which provides, among many other things, the law for “no discharge” of untreated waste by boats operated in enclosed lakes and reservoirs or in rivers not capable of interstate navigation. All boats built since 1977 with installed toilets must have an operable approved type Marine Sanitary Device (MSD). Since 1980, all boats (including those built before 1977) with installed toilets must have an operable MSD.

There are three types of Coast Guard approved MSD’s.

- Type I MSDs treat sewage so that the discharged effluent meets specified standards for bacteria content and contains no visible floating solids.
- Type II MSDs are similar, but must meet a higher standard of sewage treatment.
- Type III MSDs retain sewage for shore-based disposal.

Boats 65 feet in length or less may install a Type I, II, or III device. Vessels over 65 feet must install a Type II or III MSD. An approved system (Type I or II) will have a label verifying that it meets the Coast Guard regulations for design and construction and the Environmental Protection Agency (EPA) regulations and standards as required by the Clean Water Act. Holding tanks (Type III) do not require a certification label if they simply store sewage at ambient temperatures and pressures.<sup>1</sup>

It has been suggested that more and more boats with MSDs are visiting the Duke Power lakes and mechanisms are needed to accommodate owners of these boats when they need to empty their tanks. Most boats on Duke Lakes with MSDs are expected to be Type III or the portable type. At this time, no Duke lakes have been officially declared as “No Discharge Zones” for all systems by the Environmental Protection Agency. In July of 1998, SCDHEC submitted a petition to the Environmental Protection Agency suggesting Lakes Keowee, Murray, Thurmond and Wylie meet the minimum requirements for no discharge designation<sup>2</sup>. Keowee and Wylie are Duke Lakes.

It has also been suggested that the use of “porta-potties” on Duke Power lakes is on the rise. Assuming this is true, any boat using a Duke Power lake could potentially have a porta-potty, although it is likely that most will not.

### 2.2 How do Pumpouts work?

In general, a marina operator purchases the pumpout equipment from a reputable vendor. The pumpout device is capable of collecting the waste from the

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<sup>1</sup> Taken from Rhode Island DEM – Marine Pumpout Information at Web Site <http://www.state.ri.us/dem/pumpout/index.htm> on 8/5/98

<sup>2</sup> Report on Process of Selecting Lakes for Possible Designation as No Discharge Zones (NDZ’s) for Marine Toilets, Prepared by Billy McKinnon, Water Quality Division, SCDHEC, Dated December, 1998.

boat or portable holding tank and transferring it into either a sewer system, a drain field or larger holding tank. Pumpout devices may be either fixed to a pier or portable so it can be rolled out to the boats for sewage collection. Sometimes the pumpout is self-serve. In most cases, trained employees hired by the marina operate the pumpout equipment.

### **2.3 Historically, why do boaters not use a pumpout?**

Problem #1 – Pumpout unit not available or located within a reasonable distance at the time of a boater's need.

This can be attributed to the lack of adequate distribution of available pumpouts or simply the public being uninformed of where pumpouts are located, specifically pumpouts not restricted to private use. It is up to the marina operator to declare their services for true public use or private use. Some public marinas also close during the winter months so even if they have public pumpouts, they may not be open when boaters are in need of their service. Customers that use private pumpouts have the luxury of being informed of such by the marina operator but those seeking public pumpouts must take the initiative to find where they are located.

Problem #2 – Pumpout unit not working properly or not at all.

Boaters will get frustrated when they go to the trouble to locate a pumpout just to find it inoperable. If this occurs often, it could reduce the desire for boaters to seek out pumpouts. This can be minimized if marina operators do their homework when purchasing a pumpout to attain one that generally requires little maintenance and has history of long operating periods without equipment-related breakdowns.

Problem #3 – There is a fee for using the pumpout.

You're at the lake and just bought 30 gallons of fuel, fishing tackle, just paid your boating registration fee and you are ready to go. Next you determine the waste holding tank needs emptying. How much is that? This could be \$0 to \$35, depending where you are. Granted it is recognized that this is an added expense but just as valuable to the overall boating experience as ensuring the oil level is correct in the engine. Marina operators have the option of setting their own prices. In cases where federal grant money has been used to purchase a pumpout, the maximum cost is \$5 for the next ten years of operation. Boaters must comprehend this is just another obligation that goes with owning a boat. Boaters should understand that the pumpout system by itself is not typically recognized as a money making venture for the marina operator. At best it can be considered a marketing lure for acclimating the customers to other products and services offered by the marina which in some cases can be beneficial to the marina owner.

Problem #4 – Unfortunately, some people just aren't concerned.

It is believed that all Lake Users have some understanding about the potential risk for coming in contact with untreated sewage. Still it is sometimes difficult to grasp how much impact one person can make with improper disposal of boat waste. The boating public must understand the need for clean water and accept individual responsibility for preventing sewage contamination from their boats. Public education programs and peer pressure may be the better mechanisms to stress importance of disposing of waste properly from recreation vessels.

Perhaps a major reason for lack of concern by some is the small chance of getting caught. There is little information available in NC or SC to demonstrate that any boaters have been penalized for illegally disposing of their wastes. In a case where a boater was caught, the penalty was just being required to vacate the marina. Better enforcement and some significant fines could go a long way towards helping someone think about the consequences of breaking the law.

To date, Duke Power has only cited one marina operator for not meeting the pumpout requirement in the lease and after further review, it was determined that in fact, the marina did have an operating pumpout.

### 3.0 Pumpout Data At Various Lakes<sup>2</sup>

#### 3.1 Current Pumpout Status on Duke Power Lakes

The following information presents a composite of the pumpout status on Duke Power Lakes at this time. The boat and pumpout data is based on knowledge of the boats that use Duke Lakes and reference to the current Duke Power Lake Management commercial facility database.

LAKE	STATE	COUNTIES	LAKE ACRES	LAKE SHORELINE MILES	CONTAINS BOATS W/ HEADS	NUMBER OF PRIVATE PUMPOUTS	NUMBER OF PUBLIC PUMPOUTS
JAMES	NC	MCDOWELL & BURKE	6,812	137	YES	0	1
RHODHISS	NC	BURKE & CALDWELL	3,060	98	YES	0	0
HICKORY	NC	BURKE, CALDWELL, ALEXANDER & CATAWBA	4,223	106	YES	1 DUMP STATION ONLY	0
LOOKOUT SHOALS	NC	ALEXANDER, CATAWBA & IREDELL	1,305	33	YES	0	0
NORMAN	NC	CATAWBA, IREDELL, MECKLENBURG & LINCOLN	32,475	569	YES	7	3
MOUNTAIN ISLAND	NC	MECKLENBURG, LINCOLN, GASTON	3,281	80	YES	0	0
WYLIE	NC/SC	MECKLENBURG, GASTON, & YORK	13,443	314	YES	0	2
FISHING CREEK	SC	YORK, LANCASTER, & CHESTER	3,112	63	YES	0	0
ROCKY CREEK /GREAT FALLS	SC	LANCASTER, CHESTER & FAIRFIELD	1,324	41	NO	0	0
WATEREE	SC	LANCASTER, FAIRFIELD & KERSHAW	13,864	212	YES	1 DUMP STATION ONLY	0
GASTON SHOALS	NC/SC	CLEVELAND & CHEROKEE	160	14	NO	0	0
99 ISLANDS	SC	CHEROKEE	433	14	NO	0	0
KEOWEE	SC	OCONEE & PICKENS	18,372	300	YES	0	1
JOCASSEE	NC/SC	TRANSYLVANIA, OCONEE & PICKENS	7,565	75	YES	0	0
BELEWS	NC	STOKES, ROCKINGHAM, FORSYTH & GUILFORD	3,863	88	YES	0	1
TOTALS			113,292	2,134		9	8

<sup>2</sup> Reference: September 1998 Shoreline Management Plan Data for Catawba/Waterree acreage and miles. Duke Data Manual 1992 for lake Acreage and shoreline miles of other lakes.

### 3.2 Pumpout Information At Non-Duke Lakes

The following information was acquired through telephone survey with Lake Management Personnel in other Southeastern parts of the United States. This information provides a benchmark for contrasting Duke Power lakes with other lakes.

OWNER	STATE	LAKE(S)	LAKE ACRES	LAKE SHORELINE MILES	NUMBER OF PUMPOUTS	STATE MANDATES	COMPANY MANDATES	PERMIT BARRIERS	SEWAGE DISPOSAL METHOD
CP&L	NC	TILLERY	5260	60	0	NONE	NONE	UNKNOWN	UNKNOWN
GEORGIA POWER	GA	SINCLAIR OCONEE BURTON	15,330 19,050 2,775	417 374 62	2 ON SINCLAIR	NONE	BOATS W/ HEADS NOT ALLOWED ON OCONEE AND BOATS W/ HEADS DO NOT VISIT BURTON	NONE	DRAIN FIELDS AND HOLDING TANKS
CORPS OF ENGINEERS	SC	HARTWELL	56,000	962	3 PLUS 2 MORE TO BE ADDED SOON	N/A	CORPS MANDATES AT ALL CORPS LAKE MARINAS	NONE	DRAIN FIELDS AND HOLDING TANKS
LOWER COLORADO RIVER AUTHORITY	TX	BUCHANAN INKS LBJ MARBLE FALLS TRAVIS	23,060 802 6,375 780 18,929	UNKNOWN	1 ON LBJ, 7 ON TRAVIS	MUST MEET TEXAS NATURAL RESOURCE CONSERV. COMMISSION GUIDELINES	REQUIRED AT ANY MARINA WITH MORE THEN 25 BOATS HAVING MSD'S	NONE	DRAIN FIELDS AND HOLDING TANKS
SCE&G	SC	MURRAY	50,000	520	5 OR 6	DHEC MANDATES IN BUILDING CONSTR. PERMIT IN NAVIGABLE WATERS IF MARINAS ALLOW BOATS WITH MSD TO BE MOORED	NONE	NONE	SEWER SYSTEM, DRAIN FIELD AND HOLDING TANKS
YADKIN, INC	NC	HIGH ROCK TUCKERTOWN BADIN FALLS	15,180 2,560 5,353 204	360 75 115 6	0	NONE	BOATS WITH MSDS NOT ALLOWED ON LAKES	N/A	N/A

#### **4.0 Grant Money for Pumpouts**

The Clean Vessel Act of 1992 was passed to help reduce pollution from recreational vessel sewage discharges. The Clean Vessel Act established a grant program of \$40 million over five years to fund the installation of pumpout and dump stations for land-based disposal of vessel sewage. In May of 1998 Congress approved extending the pumpout provisions of the Clean Vessel Act through 2003. The Federal government pays 75 percent of the cost of installation of a pumpout facility. The administration of the funds is delegated to the state level of responsibility in North and South Carolina. Each of the two states has a modified version for administrating the program.

#### **4.1 North Carolina Grant Program**

The Federal Funds enter North Carolina through the NC Division of Marine Fisheries in Morehead City, NC. From there, the funds are allocated to the North Carolina DENR Division of Coastal Management in Raleigh, NC for the coastal counties and the North Carolina Wildlife Resources Commission in Raleigh, NC for the inland counties. North Carolina offers the following grant application options:

- 1) 75% up to \$10,000 – The \$10,000 limit is a North Carolina limitation. Limit is based on current statistics that show systems average \$5,000 to \$7,000 for installation. Owner can charge up to \$5.00 to customers for the pumpout service for the first 10 years.
- 2) 85% up to \$10,000 – If owner agrees to provide pumpout service at no charge for the first ten years.
- 3) 90% up to \$10,000 – If owner is a municipality.

At the Division of Coastal Management, a group made up of environmental health constituents, at least one engineer and two marina operators will review an application before it is approved. On average, an application is processed in two to three weeks. Upon approval, the pumpout must be installed within one year. Grant funds are not distributed until the pumpout is installed. Since the grant program started, the Division of Coastal Management has distributed \$138,000 to approximately 40 coastal sites.

The North Carolina Wildlife Resources Commission has not distributed any grant money to-date for inland counties, but plans to do so in 1999.

## 4.2 South Carolina Grant Program

The Federal Funds enter South Carolina through the Bureau of Ocean & Coastal Resource Management in Beaufort, SC. The application process is administered through the Department of Health and Environmental Control (DHEC) in Columbia, SC. DHEC processes grants up to 75% of actual pumpout costs. DHEC's process has been streamlined to where the application is one page. Here is a brief description of the process:

- 1) Owner acquires blank application form from DHEC office in Columbia, SC (See Appendix 3).
- 2) Application must be co-signed by owner and registered engineer. Engineer's responsibility is to ensure adequacy of design and that proper techniques are in place for legal sewage disposal. (Local DHEC office where pumpout is being installed will have to be contacted if a waste septic tank system is being utilized instead of a county/municipal sewer system hook up.)
- 3) If the proposed design satisfies all requirements, a contract is processed to earmark the grant funds for distribution at completion of pumpout installation. The average duration for this step is two to three weeks.
- 4) An application to release funds must be submitted by the owner to DHEC after the pumpout is installed.
- 5) DHEC reserves the right to inspect the site after the pumpout is installed and make sure there are no problems with the operation and maintenance of the system.

SCDHEC has not received any applications recently for grant money to install a pumpout on a Duke Lake.

## 5.0 Issues Currently Hindering Pumpout Installations

### 5.1 System Wide Issues

- 1) **Lack of county/municipal sewer systems** – Disposal of collected wastes into a sewer system will normally be the most economical and environmentally-sound alternative. Although the amount of shoreline served by sewer systems is increasing, the vast majority of shoreline along Duke Power's lakes does not have a sewer system and may not have it for a long time, if at all. Pumpout operators must therefore either install their own sewage treatment system (e.g. package plant or septic tank/drain field) or obtain approval for holding tank use. These methods can add significant cost to the total lifecycle costs for the pumpout. It also may not be possible to "backfit" pumpout devices on existing public or private marinas where there is no county/municipal sewer system if adequate space is not available to install their own treatment facility or if holding tank permits cannot be obtained.
- 2) **Potential ineffectiveness of the pumpout article in Duke Power's lease/permit** – Marinas approved before approximately 1988 do not have the standard pumpout article in their lease/permit. The standard pumpout article would be added if they ever decide to apply for rebuild or expansion approval

or if their lease is transferred or renewed. Even though many marinas do have this pumpout article, there are still only 17 pumpouts on Duke Power's system. Either only a very small percentage of the boats using these marinas have heads or fixed/portable holding tanks or many marina operators are not "policing" the boats using their facilities. Also, since Duke Power has not yet cancelled any leases/permits due to non-compliance with the pumpout article, it is likely that some marina operators don't feel the issue is important.

- 3) **Lack of a coordinated permitting process, and particularly a design standard for capacity** - Since most pumpouts will likely have to discharge to package treatment plants, septic tank/drain fields or holding tanks, determining the appropriate design capacity for the receiving facility is very important. Few "live-aboards" actually exist on the Duke system, so it would not seem appropriate to require design capacities for each boat docking location that approach those for residential homes. Both state and county health departments may be involved with the permitting process and unless their efforts are well coordinated, it is very possible that one could require significantly higher design capacities than the other. It would also be beneficial if the two states developed a simplified permitting application process.
- 4) **Lack of "trip points" for when pumpouts should be required** – One logical approach is that once a proposed public or private lake facility reaches a certain boat docking/launching capacity, then the likelihood of the facility housing boats that could produce a discharge becomes significant enough to mandate pumpout installation. The question remains however as to what these trip points should be. If set too high, they will likely only have limited positive effects on pumpout installation. If set too low, facility operators may not be able to afford proper maintenance, and a worse environmental situation could result.

## 5.2 North Carolina Issues

- 1) **Grant Funding Delays** - In the recent past, there have been several NC Marina Operators on Duke Lakes to communicate an active interest in acquiring a pumpout component for their business. They have taken steps to acquire quotes from a vendor and evaluated the options for legally disposing of the boat waste after collection. In addition to this, several have communicated stalled efforts in reaching someone with the NC Wildlife Resources Commission to learn how to acquire available grant funds allocated for the inland lakes. The interface with the NC Wildlife Resources Commission needs to be improved to help operators take advantage of the grant money. It is understood that the process through the NC Wildlife Resources Commission is being revamped and completion is expected before the end of 1998.
- 2) **Pump and haul disposal** - There are two additional drawbacks to the pump and haul technique for disposing of waste off the marina property. First, the holding tank must be sized to optimize the frequency at which it will have to be emptied. (The pump and haul fee can range from \$150 to \$175/trip

according to a vendor in the Lake Norman area who suggested the tank should be at least 1000 gallons.) Second, the state has a regulation interpretation that generally restricts this to a temporary option (6 months or less), usually set up for something like a circus or some other temporary event. In other words, under the current regulation interpretation, a business could possibly set up the holding tank for the pumpout and later find out it can only be pumped out a minimal number of times.

### 5.3 South Carolina Issues

- 1) **Pump and haul disposal** - South Carolina's process has been streamlined to the point that acquisition of a pumpout system is fairly simple. If there is an issue to mention, it is disposal of waste after collecting it from a boat. As in North Carolina, the marina owner has the option of utilizing a county/municipal sewer system, a private sewer treatment system, a septic sewer system or a temporary holding tank. In the case where a holding tank is used, the owner is required to prove a contract arrangement is in place to have the material disposed of legally off site as part of the approval process with DHEC. At one time, the holding tank was considered as a temporary use in SC much similar to NC's current situation. The state regulation was changed to allow the use of this mechanism if the overall purpose was to improve water quality. It is stipulated that any option for using the other mechanisms must be non-existent and if one of the other mechanisms became viable in the future, the holding tank would have to be abandoned.

## 6.0 Conclusions and Key Data Points

### 6.1 Duke Power Conclusions Prior to SMG Focus Group Review

- 1) Dumping of untreated wastes directly from boats on Duke Power-operated lakes in NC and SC is illegal. Dumping of treated waste from Type I or II MSDs is illegal in NC and SC if the lake is rated as a "NO DISCHARGE LAKE" by EPA Standards. No Duke Power-operated lakes have this EPA rating at this time, although DHEC has submitted a petition to EPA recommending four SC lakes be considered. Lake Hartwell has already been added under this classification and Duke's Lake Keowee and Wylie are included in the DHEC recommendation to EPA.
- 2) The current state of pumpouts on Duke Power's lakes doesn't appear to be worse than that of the other 6 lake managers we surveyed. In fact, it is better in some cases.
- 3) Duke Power knows of no general or specific studies that quantify the potential water quality impacts or health risks posed by discharge of marine wastes in its lakes. Duke Power is however very interested in maintaining and improving lake water quality and better use of pumpout facilities by boaters could help do that.
- 4) Except for Rocky Creek Lake, Great Falls Lake, Gaston Shoals Lake and 99 Islands Lake, all the Duke Power lakes are likely to have at least some boats using them currently or in the near future that could produce a discharge. A logical goal would be to have at least one public pumpout established on each of those remaining lakes within a reasonable time period (e.g. by the end of the current pumpout federal funding window, December 31, 2003). The larger or more heavily used lakes may need several public pumpouts, or more innovative methods, such as pumpout boats.
- 5) Private facilities (e.g. subdivisions, yacht clubs, ski clubs, long-term campgrounds, etc) should be required to provide their own pumpout services, provided they are of a large enough size that it is likely that:
  - Significant numbers of boats that could produce a discharge will use them.
  - They can afford proper pumpout operation and maintenance.

In this manner, the proximity of a pumpout to the boats that need them is improved and public pumpouts are less likely to be over-burdened.

- 6) The following function identifies the number of marine sewage discharges in any lake on any given day:

# Marine Sewage Discharges =  $f$  (# and type of boaters)  $\times$   $f$  (% boats that could produce discharge)  $\times$   $f$  (% boat operators choosing to dump in the lake)

The three main factors above have the following primary influences:

- a) # and type of boaters
  - # of boats
  - # of people per boat
  - Activities pursued
  - Time on the lake
- b) % of boats that could produce discharge
  - % with installed heads, sinks, showers, etc.
  - % with porta-potties
  - % with fixed holding tanks
  - % with portable holding tanks
- c) % boat operators choosing to dump in the lake
  - knowledge level about water quality and public health impacts
  - knowledge level about any legal requirements and enforcement
  - Proximity to a known pumpout
  - Number and distribution of public pumpouts
  - Pumpout operability
  - Availability of full-service pumpouts
  - Knowledge level about using self-service pumpouts
  - Cost of pumpout per use

Minimizing the number of marine sewage discharges on all the lakes appears to be a logical goal for the SMG Focus Group. Duke Power believes that the most “bang for the buck” can be attained by Focus Group members working together to minimize item c) *% of boat operators choosing to dump in the lake*.

**6.2 Conclusions from SMG Focus Group Review** (Refer to SMG FOCUS GROUP MEETING MINUTES from October 22, 1998 in Appendix 2 for a more complete summary of the meeting.)

- 1) All occupied vessels can produce a waste discharge, regardless whether it contains a MSD or not.
- 2) Opportunities to add on-shore restrooms for the public should be taken advantage of. Suggestion is that the additional restrooms would also help reduce the amount of waste discharged on the lakes and ease the number of pumpouts required.

- 3) It will take a consolidated effort from marinas, local and state agencies and Duke to resolve waste disposal issues.
- 4) Duke, NC Marine Trade Services and the Marine Commissions will work together to petition for changes in the Pump and Haul regulation interpretation in North Carolina. The existing South Carolina Pump and Haul regulation will be utilized as a reference.
- 5) NC Wildlife Resources Commission Grant Program needs to give more attention to removing the barriers for making funds available for inland waters and raising the \$10,000 limit for grants in North Carolina.
- 6) Education mechanisms must be utilized to the maximum extent possible to educate the boaters and marina operators. The education effort will be headed by the Marine Commissions and implemented by ALL.
- 7) Duke needs to reconsider the number of slips a marina may have before a pumpout is required. General consensus was that the 100-slip trip point proposed originally is too high.
- 8) It was suggested that new techniques are available in the market for building septic systems on sites and marina developers/owners need to research and take this in consideration during the design phase to attempt to reduce system cost.
- 9) Lake Norman Marine Commission representative agreed to pursue gathering of additional information on use of pumpout boats before ruling out the option completely.
- 10) Consensus was reached that the SMG Focus Group would not work collectively to pursue getting Duke lakes designated as "No Discharge Zone".

### 6.3 Key Data Points

- 1) A survey performed by SCDHEC on Lake Wylie found that 188 boats out of 1925 boats (9.8%) had some type of MSD on board.
- 2) The expected average percents of vessels with holding tanks in North and South Carolina are 16% and 11% respectively. The expected percents of vessels with Portable Toilets in North and South Carolina are 25% and 23% respectively. (Source: "Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines," *Federal Register*, Vol. 59, No. 47, March 10, 1994; and "National Recreational Boating Survey: Sanitation Pumpout Questionnaire Tabulations," U.S. Department of Fish and Wildlife Service, January 1992.)
- 3) Currently, there are 189 Commercial Facilities leased/permitted on Duke Lakes.

- 4) The average number of wet slips per Commercial Facility leased/permitted on Duke Lakes is 43.
- 5) Of the current 85 Duke Access Areas, 42 are either under lease or under consideration for lease. Seven of the areas already under lease have public restrooms.

## 7.0 Summary of Recommendations

Considering sections 1-6, the following Action Plan is provided.

### **SMG Focus Group – Pumpout Action Plan**

**Goal** – Minimize the % of boat operators choosing to dump marine sewage into a Duke Power lake.

#### **Objectives and Supporting Activities**

1. Improve availability of marine pumpout/dump stations and public restrooms.
  - a) Remove NC permitting barrier for holding tanks  
**Lead – NCDENR, Duke Power (Joe Carrker) and NC Marine Trade Services (Mike Bradley)**

**Target – Make initial contact with NCDENR (Ms. Collen Sullings, Section Chief of Division of Water Quality) by Feb 1, 1999 and pursue response from NCDENR by June 1, 1999.**

Duke and other interested parties issue request to North Carolina Division of Water Quality to consider change in administrative interpretation of regulation to allow holding tanks at pumpout locations as a permanent solution. This shall be contingent on fact other alternatives are not available, written agreements are formed for disposing of waste at state permitted locations, and modifications will be incorporated for disposing of waste if an alternative disposal method becomes available in the future. Leads will use SCDHEC regulation references in discussions with NCDENR.

- b) Remove NC Grant funding barriers.  
**Lead – NCWRC (Don Tobaben) Target– Jan 1, 1999.**

It is recommended that the North Carolina Wildlife Resources Commission expedite finalization of the process for making grant money available to owners installing pumpouts on inland lakes. Consideration should also be given to allow grants above \$10,000 to be awarded.

- c) Revise the SMG to require all new, rebuilding or expanding Commercial Facilities or Commercial Facilities transferring or renewing their leases to install a pumpout if any of the following criteria are met:

- The facility sells boat fuel.
- The total number of boat docking locations is greater than or equal to 65 or the facility plans to moor at least 25 boats with MSD'S, including Commercial/Residential, and Commercial/Non-residential slips. A facility may be exempted from this requirement if written proof from a state or local agency can be provided to document the facility cannot be permitted to dispose of waste collected from boats to satisfaction of applicable regulations. These numbers are based on the following data:

Average Boats in NC with Holding Tanks per EPA = 16%  
Average Boats in SC with Holding Tanks per EPA = 11%  
Average Boats in NC with Portable Toilets per EPA = 25%  
Average Boats in SC with Portable Toilets per EPA = 24%  
(Reference Item 2 in Section 6.3 of this document)

Potential total for boats with either a Holding Tank or Portable Toilet in NC per EPA = 41%

Potential total for boats with either a Holding Tank or Portable Toilet in SC per EPA = 34%

Assume that a long-term worst case would be to have 1/3 to 1/2 of all boats with holding tanks or porta-potties. The Lower Colorado River Authority is one member of the industry who has set a level that any facility with 25 or more boats moored at the facility with MSD's are required to have pumpouts. This is deemed a reasonable number to apply to Duke Lakes also, considering that such a facility is likely to be both large enough to represent a measurable water quality risk and capable of affording adequate pumpout system maintenance.

Working backward from the 25-boat trip point with the ratios, an estimate of the total number of boats at any given location that should trigger the pumpout requirement is determined as follows:

$25/.33 = 75$  and  $25/.5 = 50$ ; making the average 62.5 or rounded to 65 boats.

**Lead – Duke Power (Joe Hall)**

**Target – Implement with pending comprehensive SMG revision in 1999.**

- d) Require all existing marinas with 65 or more boat docking locations or those that moor 25 or more boats with MSD's to install a pumpout station not later than Jan 1, 2004. A Facility may be exempted from this requirement if written proof from a state or local agency can be provided to document the facility cannot be permitted to dispose of waste collected from boats to satisfaction of applicable regulations.

**Lead – Duke Power (Joe Hall) Target– Notify all marina operators via letter by June 1999.**

- e) **Duke** will offer to reimburse Commercial/Non-residential facility owners (maximum of 2 per lake) who sell boat fuel to the general public an amount of 20% or \$1500, whichever is less, of the pumpout equipment cost who install sanitation facilities for pump and/or disposal of waste by Jan 1, 2001. This is provided the pumpout is also made available to the general public at a maximum fee of \$5 for the first ten years of operation. Reimbursements will not be distributed until after Jan 1, 2000 and will be done through reductions in annual user fees to the maximum extent possible.

**Lead – Duke Power (Joe Hall)**

**Target– Advise all Commercial/Non-residential facility owners of opportunity in writing by March 1999.**

- f) The coastal pumpout administrators in NC and the pumpout administrators for DHEC in SC have both granted funds in past to offset cost of providing a pumpout boat in popular boating areas. Duke recommends that the **Lake Norman and Lake Wylie Marine Commissions** research these options and consider creative ways that the boats could be utilized.

**Lead – Centralina COG (Mike McLaurin / Anthony Roberts) Target– Jun 1999.**

- g) Encourage installation of facilities at Public Access Areas where appropriate to support waste disposal.

g) (1) Require entities proposing new leases of Duke Power Access Areas or expanding facilities within an existing lease to consider installing public restrooms and/or a combination pumpout/dump station in their lease applications.

g) (2) Ensure pumpouts that are installed at Duke Power Access Areas are fitted with the special device necessary for dual use as dump stations.

**Lead – Duke Power (Chuck Borawa) Target– Letter sent to all entities leasing or considering lease of a Duke Power Access Area by Feb 1999.**

2. Educate the boaters, marina operators, and state/local permitting personnel on the importance of proper marine waste disposal, their role in the process, the location of public pumpouts and the state/local permitting processes.

a) Marine commissions, NCDENR and SCDHEC combine efforts on an educational brochure and simplified permitting process, and obtain county/city buy-in to the process.

**Lead – Centralina COG (Mike McLaurin / Anthony Roberts)  
Target – Dec 1999**

b) Use existing means to distribute brochure (websites, boaters use, newsletters, send out with boat registrations, lake associations, etc).

**Lead - ALL Target – Dec 1999**

c) Ask US Coast Guard Auxiliaries and Power Squadron to include pumpout demonstration in their boating safety classes.

**Lead – Lake Norman Marine Commission (Bob Elliott)  
Target - Start of 1999 Boating Season**

d) Revise popular maps to show pumpout symbol for public pumpouts. (Duke Power (Done), marine commissions, Kingfisher)

**Lead – Independent Responsible Party, Duke to send written request to Kingfisher by 1/31/99  
Target – Next Publication of Maps**

3. Strengthen monitoring efforts and enforcement efforts.

a) Annual inspection of major marinas (65 or more wet slips) by Duke Power.

**Lead – Duke Power (Joe Hall) Target – Dec 1999**

b) Include phone numbers for reporting violations in brochure developed in item 2.

**Lead – Centralina COG (Mike McLaurin / Anthony Roberts)  
Target – Dec 1999**

c) Provide marina operators with samples of dye tablets, instruction of their use, where to get more and examples of positive results at other marinas.

**Lead – NC Marine Trade Services (Mike Bradley) / Duke Power (Joe Hall) Target – Provide to all marina operators on Duke Lakes by June 1999**

## 8.0 Potential Impact on Pumpout Availability

The following table projects how the above recommendations may change the availability of pumpouts on Duke Lakes.

LAKE	CURRENT NUMBER OF PUMPOUTS	NUMBER OF EXISTING COMMERCIAL FACILITIES WITH 65 OR MORE SLIPS	NUMBER OF NEW COMMERCIAL FACILITIES WITH SLIPS UNDER APPLICATION	NUMBER OF EXISTING COMMERCIAL FACILITIES WITH GAS PUMPS	NUMBER OF DUKE POWER ACCESS AREAS WITH LETTERS OF LEASING INTEREST	ESTIMATED NUMBER OF TOTAL PUMPOUTS MADE AVAILABLE ON DUKE LAKES BY JAN 1, 2004 BY FULLY IMPLEMENTING ACTION PLAN **
JAMES	1	4	2	3	5	7
RHODHISS	0	1	0	2	3	3
HICKORY	1 DUMP STATION ONLY	1	4	8	3	7
LOOKOUT SHOALS	0	0	1	0	2	0
NORMAN	10	22	24	26	12	25
MOUNTAIN ISLAND	0	0	1	0	3	2
WYLIE	2	9	2	10	4	11
FISHING CREEK	0	0	0	0	1	0
ROCKY CREEK /GREAT FALLS	0	0	0	0	0	0
WATEREE	1 DUMP STATION ONLY	0	0	7	0	4
GASTON SHOALS	0	0	0	0	0	0
99 ISLANDS	0	0	0	0	0	0
KEOWEE	1	3	5	4	5	4
JOCASSEE	0	0	0	0	4	0
BELEWS	1	1	0	1	0	1
TOTALS	17	41	39	61	42	64

\*\* The numbers in this column are just assumptions. The actual quantities are dependent on all recommendations under Step 1 of the Pumpout Action Plan being implemented.

## APPENDICES

## APPENDIX 1

### EXAMPLES OF PUMPOUT SYSTEM COST

- 1) Following are the unit costs for a typical pumpout system in the State of Oregon.<sup>4</sup> These costs have been taken from actual schedule of values submitted by contractors bidding a job. Upland utility unit cost are not shown and should be estimated the same as for regular construction projects.

Potty Dump Station	\$3,500 each
Pumpout Station	\$6,500 each
In-Line Lift Station ( in a 8' x 10' Concrete Float Pod)	\$12,000 each
In-Line Lift Station (in a 8' x 20' Wood Float Pod)	\$17,000 each
Electrical Control Panel	\$7,000 each
Electric Line (Water Side)	\$12 / linear foot
Sewer Line (Water Side)	\$9 / linear foot
Water Line (Water Side)	\$9 / linear foot
Average Total Installation Cost	\$50,000 +/-

<sup>4</sup> Proceedings Eleventh Annual Conference Focus on Large River Access, CVA and Marina Facilities, States Organization for Boating Access, Sept 27 – October 1, 1997, Page 207.

2) Following are the estimated unit costs for a Pumpout System at a 48 - dock Commercial/Residential marina by Crescent Resouces, Inc. It is assumed that the septic tank system is necessary because of the Pumpout System only.

<b>Developer Expense:</b>	<b>Cost</b>
Pumpout System	\$15,000
Portapotty Dump	\$1,500
Offsite Septic System *	\$11,500
Offwater Lot Value for Septic Field *	\$20,000
Onsite Well *	\$3,500
<b>Total</b>	<b>\$51,500</b>
<b>HOA Annual Expense:</b>	
Pumpout System Inspection & Operation	\$3,250
Pumpout System Reserve Fund	\$400
Electric	\$250
Seasonal Startup & Shutdown ½*	\$500
Septic System Reserve & Maintenance *	\$500
Well Testing *	\$500
<b>Total</b>	<b>\$5,650</b>
<b>Overall HOA Boatslip Expense Annual Budget:</b>	
Dock Maintenance	\$6,500 (34%)
Duke Dock Lease	\$3,360 (18%)
Dock Electricity	\$1,330 (7%)
Dock Insurance	\$1,900 (10%)
Pumpout System (see above)	\$5,650 (30%)
Miscellaneous	\$300 (2%)
<b>Total Boatslip Expense Annual Budget</b>	<b>\$19,040 = \$397/Slip/Yr</b>

\* Cost would not be there if county water/sewer were available.

## APPENDIX 2

### CURRENT SMG FOCUS GROUP MEMBER LIST

Ron Ahle – South Carolina Department of Natural Resources  
Lois Ardelean – Friends of Lake Keowee Society  
Tony Bebbler – SC Parks, Recreation and Tourism  
Mike Bradley – NC Marine Trade Services  
Nancey Brock – SC Department of Archives & History  
Thorton Brooks, Jr. – Bluewater, Inc.  
Rocky Browder – SC Department of Health and Environmental Control  
Bill Ebeling – Friends of Lake Keowee Society  
John Ellis – US Fish and Wildlife – Raleigh, NC  
Bob Elliott – Lake Norman Marine Commission  
Rheta Geddings – SC Department of Health and Environmental Control  
Renee Gledhill-Early – NC Department of Cultural Resources  
Steve Gilbert – US Fish and Wildlife – Charleston, SC  
Chris Goudreau – North Carolina Wildlife Resources Commission  
Joe Hall – Duke Power Lake Management  
Lana Hathaway – Landcraft Properties  
Jeff Havel – SC Department of Health and Environmental Control  
John Hefner – US Fish and Wildlife – Raleigh, NC  
Gerrit Jobsis – SC Department of Natural Resources  
Bob Johnson – US Army Corps of Engineers – Asheville, NC  
Randy Kessinger – Wateree Home Owners Association  
Jeff Lineberger – Duke Power Lake Management  
Donna Lisenby – Catawba Riverkeeper  
Barbara Lockwood – Mountain Island Marine Commission  
Mike McLaurin – Lake Wylie Marine Commission  
Ron Montgomery – Dockmasters  
Richard Moore – NC Department of Environment & Natural Resources  
Lloyd Pace – Mecklenburg County  
Mike Parker – NC Department of Environment & Natural Resources  
Sandi Pearson – Duke Power Lake Management  
Richard Phillips – NC Department of Environment & Natural Resources  
Bob Riggs – US Army Corps of Engineers, Charleston, SC  
Steve Schreiner – Crescent Resources, Inc.  
Joel Shytle – Mecklenburg County  
Jeff Skeris – Landcraft Properties, Inc.  
Mark Sleeper – Lake Wylie Marine Commission  
Dwayne Stutzman – NC Department of Environment and Natural Resources, Division of Park & Recreation  
Gene Titus – Lake Norman Marine Commission  
Don Tobaben – NC Wildlife Resources Commission

## **SMG FOCUS GROUP MEETING MINUTES – October 22, 1998 at Lake Wylie Training Center**

### **SMG Focus Group Member Attendees:**

Mike Bradley, Rocky Browder, Bob Elliott, Chris Goudreau, Joe Hall, Jeff Lineberger, Mike Parker, Sandi Pearson, Steve Schreiner

### **Other Attendees:**

Billy McKinnon – SC Department of Health and Environmental Control  
Joe Carriker, Buz Cobb, Ann Duncan, Wade Harmon, Mallory Liles, & Kelvin Reagan– Duke Power Lake Management  
Andrea Beam, Bill McCabe – Duke Power Group Environment Health & Safety  
Kelly Randall, Larry Thompson – Mecklenburg County Environmental Health  
Jack Postal – Friends of Lake Keowee Society

**Facilitators:** Joe Hall, Joe Carriker

### **Summary:**

Joe Hall opened the meeting by welcoming everyone and asking that each participant give their name, group affiliation, and their interest in the issue. Some of the comments were as follows:

- To see what other associations are doing (FOLKS)
- What applies to coastal regions can also apply to inland lakes, also interest in marine facilities and what they offer. A concern of the coastal region is loss of slips when cash flow problems cause marina owner to turn over slips to private individuals, therefore endangering definition of “true public marina”. (M. Bradley – NCMTS)
- Impact of development on lakes (S. Schreiner - CRI)
- Attending as a commenting agency on permitting / stabilization, interest in final disposal of pumped out waste. (M. Parker - NCDWQ, C. Goudreau - NCWRC)
- First-time Focus Group participants; maintenance/checkup on pumpout subsurface disposal would involve the County. (L. Thompson & K. Randall – Mecklenburg County)
- Interested as a permit administrator of SC DHEC, clean vessel act. (R. Browder)
- Four of ten lakes selected for “No Discharge” consideration, of which 2 Duke lakes (Wylie, Keowee) are included. (B. McKinnon - SCDHEC)
- Divided opinions on pumpout being a clear-cut and simple issue.

The pumpout portion of the meeting was open discussion led by Joe Carriker, loosely following an agenda set up by Joe. The following are comments/suggestions made by participants on each topic:

### **GENERAL PUMPOUT INFORMATION**

- The primary goal for the meeting is to identify barriers that hinder making pumpouts available on Duke Lakes and discuss what cooperative measures can be implemented to increase pumpout availability and their use.
- ALL boats have the potential to produce discharge if they are occupied.
- Clarified that the overall understanding is the Clean Water Act means NO discharge of untreated waste.
- Dumping of treated waste is illegal if lake is rated as a “No Discharge Lake” by EPA Standards. (Only Lake Hartwell – not a Duke lake – has this classification at this time, though Duke’s Lakes Keowee and Wylie are under evaluation.)
- The reality is that some waste (due to cost, pumpout unavailability, etc.) is being dumped into the lake rather than going into treatment tanks.
- Boaters must be educated on pumpouts.
- Enforcement is an issue; marinas must play an active part in enforcement (i.e. dye tablets in boat tanks).
- Usage factors are education, availability, cost (fee), and lack of concern.
- It is difficult to tell what type of MSD a boat has by just looking at it. To be certain, one generally must go on board and check the US Coast Guard Tag on the equipment.

#### **PUMPOUT DATA AT VARIOUS LAKES**

- There are eight public marinas on Duke lakes with pumpout facilities, and also some private marinas that provide pumpout service.
- A survey done on non-Duke lakes in the southeastern part of the United States indicates the issue is not being addressed in most cases.
- What is the penalty for non-compliance and is it severe enough?

#### **PUMPOUT GRANT MONEY**

- Clean Vessel Act has been extended through 2003
- It was suggested that the \$10,000 limit in NC should be raised. The current limit may have a negative impact on increasing the number of pumpouts.
- Some marina operators on Duke lakes have expressed interest in acquiring grant money, but they have been unable to get application initiated with the NC Wildlife Resources Commission Representative. For some, a perception exists that there is little or no interest by NCWRC to assist with the pumpout program.
- In past, the inland and coastal grant programs distributed grant funds differently and there seemed to be a definite coastal preference. Grading is now done on a different scale for each in an effort to distribute money more evenly.
- State must apply to Federal Agency by January 3, 1999 for funds they want that year. (State is encouraged to make sure the

request covers all anticipated needs. Grant money can be utilized to supplement salaries and travel expenses if associated with pumpout facilities/programs.)

- State can ask for extension of existing grants or reapply every year.
- (Coastal) Any gas pumping station (not just marinas) can get grant money for pumpout system.

### **ISSUES CURRENTLY HINDERING PUMPOUT INSTALLATIONS**

- SC has done well at simplifying the problem and has a model program.
- Cost of equipment - SC will cost share with marina on pumpout equipment.
- Availability - SC bought two pumpout boats and portable pumpout (has all hookups) to be utilized as a service that can actually be dispatched to the boats for waste collection.
- Difficulties in getting grant money in NC.
- Big issue is what to do with waste after it is collected off a boat.
- Established location may not have room for system (septic tank).
- Difference in regulations – Basic state regulations are followed but local reg's vary (SC is 5 gal. per slip per day; NC is 10 gal. per slip per day; NC has 100 counties, each may have a different regulations).
- State will pay to install meters to get volume of waste to gather historical data, but marina may not want meter because volume of usage is so small (system is there only for legal purposes and may not be used).
- NC issue: If a facility cannot tie into city or county municipality due to lack of availability or is unable to build a suitable on site sewage handling system it leaves the only alternative to be a holding tank on shore. Currently, NC State regulations allow the use of a holding tank for waste only as a temporary alternative.
- Some counties in NC and SC may not be willing to accept waste from marinas due to unknowns about chemical content, although this issue has been discussed and resolved in many other parts of the United States.
- More older, existing marinas are affected than “new” marinas.
- Pumpouts are desirable but not always profitable and in some cases even cost more money than they generate.

## MAJOR CONSIDERATIONS / RECOMMENDATIONS

- Need consolidated effort from marinas, local and state agencies, and Duke to resolve waste disposal issue
- Additional on-shore restrooms may reduce need for some pumpouts
- Require porta-potties at public access areas (response was that if unmanned, they end up in lake. SC dropped idea because of this problem). General consensus that installation of manned facility may be better than unmanned (due to vandalism, accidental discharge, etc.)
- Identify opportunities to increase number of public restrooms available at marinas.
- Composting toilet – Estimated Cost \$10,000 – \$30,000 each. Waste must still be collected periodically depending on usage. Questions included legal acceptability, plumbing codes. (Double Springs Campground at Devil’s Fork State Park on Lake Jocassee considered this option, but had reservations and opted for another solution. This option has been implemented at a facility near Portland Oregon and it is working well.)
- Mechanisms could be incorporated where a Marina with only the holding tank option could provide proof (to state/local agency) agreement with hauler that waste will be properly disposed of.
- Need good distribution of facilities on lake.
- SC (coastal) requirement of 2 toilets and 2 sinks for women’s bathroom, 1 toilet and 1 urinal, and 1 sink for men’s bathroom, per 100 slips.
- Categorized as “public serving water areas” and valued at different rate (tax-wise) to compensate owner for overhead costs.
- Use formula of total number of slips, type of boats, percentage of boats with tanks, etc. to calculate reimbursement of installation of pumpout service.
- Time-release septic systems have pre-determined flow rate to drain field that will cut off when maximum is reached (in retention system). This can greatly reduce required drain field size. NOTE: Ellingwood and Associates in Raleigh, NC does that type of system.
- Require meter on pumpout to measure usage (can be used to determine kind/size of septic system).
- Education is essential. (Mike McLaurin and Anthony Roberts were nominated to co-chair and spearhead publication of educational brochure. Bob Elliott to get names of contacts for Coast Guard Auxiliary and Power Squadron for pumpout demonstration in boating safety classes).
- Educate marina owners on pumpout systems before making part of their lease (Mike Bradley to get us information).
- Marina owners need to know what kind of chemicals to sell and which to avoid.

- Some may consider having two holding tanks for treatment before going into septic tank if there is a concern with the waste being too concentrated.
- Floating restrooms with pumpouts are another option. (In some parts of the country they are maintained by State agencies).
- Many Public Access sites on lakes managed by parks and agencies with leases being offered on all 85 Duke sites, pumpout is a lease requirement. Verbal interest is good, applicants must respond in writing by end of year. By mid 2000, counties and cities must send proposed development for sites.
- Pumpout boats (300 gal. currently in SC) - In grant money request, ask for O & M funding to pay workers (not volunteers) for operating. Municipalities and private marinas can both use.
- Have at least one public pumpout established at each lake within a reasonable amount of time (e.g. by the end of the current pumpout federal funding window). Larger or more heavily used lakes (Norman, Wylie, Keowee) may need several public pumpouts. If no dump station, people use bathrooms at public facilities when available and clog up system (with porta-potties).
- Issue request (to agency) to allow holding tanks at pumpout locations as a permanent solution with modifications incorporated to change to alternate disposal method if one becomes available in the future.
- Remove NC grant funding barrier.
- Require all new, rebuilding or expanding Commercial Facilities to install a pumpout if selling boat fuel, and/or if the total number of slips is greater or equal to 100 (too many?).
- Reimbursement to Commercial/Non-residential facilities (2 per lake max.) who sell boat fuel – 20% (or \$1500, whichever is less) from Duke, 75% from State. Duke reimbursements distributed after 1/1/2000 through reductions in annual user fees.
- Remove “No Discharge Zone” designation from original list of objectives (p.14, item c). “No Discharge” means that not even clean water may be discharged.

#### **ACTION ITEMS:**

1. Bob Elliott to get contact list for Coast Guard Auxiliary and Power Squadron.
2. Mike Bradley to get information on pumpout systems.
3. Mike McLaurin, Anthony Roberts to co-chair and develop pumpout brochure.
4. Joe Carriker to refine pumpout information and get revisions out.

**APPENDIX 3**  
**SCDHEC PUMPOUT FUNDING APPLICATION**