

An Assessment of the Restaurant Grease Collection and Rendering Industry in South Carolina

August 2006

**Produced by the South Carolina Energy Office
Authored by Travis Moore & Erika Hartwig**

An Assessment of the Restaurant Grease Collection and Rendering Industry in South Carolina

Table of Contents

Executive Summary.....	2
Introduction.....	2
Methodology.....	2
Results.....	3
Background and Terminology of Greases, Fats and Oils.....	3
The Haulers and Renderers.....	5
Regulating the Industry.....	6
Emergence of Biodiesel.....	8
Conclusion.....	11
References.....	12
Appendix A (DHEC Retail Food Establishments Regulation).....	14
Appendix B (The South Carolina Rendering Act of 1998).....	15
Appendix C (Georgia’s 2004 Law Regulating Grease Haulers).....	20
Appendix D (Gasoline, Lubricating Oils and Other Petroleum Products).....	22
Appendix E (SC Yellow Grease and Biodiesel Facility Map).....	30
Appendix F (Waste Grease Collectors for South Carolina).....	31

EXECUTIVE SUMMARY

As oil prices fluctuate, petroleum becomes less readily available, and security threats realized, America is beginning to evaluate its options for domestically-produced fuels. One of those options is biodiesel, which has become a particularly attractive option for producers in South Carolina. Already the state has two large biodiesel producers with a third plant coming online in 2008.

Because the state is a soybean-deficit state – meaning we import more soybeans than produce – soy oil is not as attractive of an option for producers here due to the high cost of shipping in the beans. Finding locally produced feedstocks would obviously be a much more attractive option. The purpose of this report was to document the potential for using waste restaurant grease as a feedstock, to locate where the grease was located, and how much was available in South Carolina. Currently one facility, Southeast Biodiesel, plans to produce some of its biodiesel from waste grease and will go through an extensive cleaning process to ensure the feedstock is as pure as possible. This technique is best utilized on a smaller scale, optimizing the potential for small-scale producers and increasing small business and economic opportunities in rural parts of the state.

Based on a state-wide survey of all known waste grease collectors, with the exception of one major company, 7.9 million gallons of grease was collected per year. Based on data collected from the South Carolina Department of Health and Environmental Control of licensed restaurant businesses that amount could be as high as 27 million gallons.

Where documented it was found that 100 percent of the used waste grease was sold to the feed industry for between 12 – 15 cents per pound.

INTRODUCTION

Biodiesel is a clean burning alternative fuel, produced from domestic, renewable resources. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend. It can be used in compression-ignition (diesel) engines with little or no modifications. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics. In comparison to petroleum diesel, biodiesel is better for the environment because it is made from renewable resources and produces lower emissions. It is less toxic than table salt and biodegrades as fast as sugar. Since it is made in the United States from renewable resources, its use decreases our dependence on foreign oil and contributes to our own economy.

One of the main issues facing the biodiesel industry is the identification of feedstocks to support production. While making biodiesel from a wide variety of fat products is possible, the technology for processing soybean oil has received the most attention in the United States. Animal or recycled fats cost considerably less than soybean oil and therefore represent an attractive option to increase the supply of biodiesel. As a result, some producers are now using restaurant waste grease to fulfill their feedstock needs. Although its use requires some additional processing, the prospect of converting one industry's waste into another industry's product is promising.

Based on data collected, it is estimated that the food service and hospitality industry produce between eight million and twenty-seven million gallons of waste grease per year in South Carolina. This grease creates a substantial burden on waste water infrastructure and water treatment facilities throughout the state. This burden makes it important for waste grease to be collected and disposed of properly. In addition, with the rise of biodiesel, waste restaurant grease may soon come into higher demand. Proper management of this waste is in the best interest of the waste producer, water treatment facilities, and the State of South Carolina as a whole. The purpose of this report is to analyze the current condition of the restaurant waste grease industry in South Carolina, identify the companies who are collecting it, examine how this competitive industry is being regulated, and determine how the emergence of biodiesel may affect the industry as a whole.

METHODOLOGY

In order to gain a better understanding of the current state of restaurant grease collection in South Carolina, the SC Energy Office felt it was necessary to conduct a survey of the waste grease collectors operating within the state. The first step was to identify the commercial collectors. Next, a five-question survey was created and distributed to the identified companies. The survey questions included: 1) How many gallons of waste grease do you collect a week? 2) How many restaurants do you currently collect from? 3) Do you collect from other locations besides restaurants? If so, how many? What type? 4) What counties do you collect from? Approximately how many gallons from each county? 5) What do you do with the waste grease? What percentage is sold? Who do you sell it to? Over the course of four weeks the surveys were returned. Six

out of the seven commercial collectors identified responded to the survey.

RESULTS

Based on information provided by the six commercial collectors, 132,857 gallons of grease are collected each week in South Carolina. This total includes the servicing of 8,957 restaurants and 1,148 institutions (including public and private schools, prisons, and any other state institution that is licensed to prepare food). As a result of incomplete collection data, an average number of gallons for each restaurant was required. It was determined that, on average, each restaurant produced 44 gallons per week. In another brief survey of restaurants, most managers reported using between 35 and 50 gallons per week. Since not all restaurants utilize oil in food preparation, it was assumed approximately 20% did not produce waste grease. Out of 14,851 restaurants licensed by the Department of Health and Environmental Control, it was estimated approximately 11,881 restaurants produce yellow grease. Multiplying this number by 44 gallons a week and 52 weeks a year, the high end of the estimate was found to be 27,183,728 gallons of waste grease produced a year. However, based on the data provided, the SC Energy Office is only able to account for 7,908,564 gallons a year.

BACKGROUND AND TERMINOLOGY OF GREASES, FATS AND OILS.¹

In some industry discussions, the word *grease* may refer to yellow grease, choice white grease, or combinations of fat and oil products. A reference to grease by the general population may refer to yellow grease, choice white grease, edible or inedible tallow, lard, trap grease, poultry fat, hydrogenated vegetable oil or other items. In general terms, all greases and oils are classified as fats. Fats are described in Webster's Dictionary as energy-rich esters that occur naturally in animal fats and in plants and are soluble in organic solvents (as ether) but not in water. Chemically, fats are classified as *triglycerides*.

Oils are generally considered to be liquids, while greases are solid. Many animal fats and hydrogenated vegetable oils (Crisco®-type products) tend to be solid at room temperature. Fresh vegetable oils are generally liquid at room temperature and are sometimes referred to as *virgin oils*. Many consider the consumption of non-hydrogenated vegetable oils more favorably than hydrogenated products. Hydrogenated vegetable oils are more stable at cooking temperatures and last longer in frying equipment. For these reasons, both hydrogenated and non-hydrogenated vegetable oils are used in commercial food cooking (frying) operations.

Recycled grease products are sometimes referred to as *waste grease*, *byproduct grease*, *recycled grease* or *animal fats*. These greases are generally low in cost, well adapted to certain industrial markets and widely used in livestock feed or pet food markets. Greases are generally placed into one of three categories:

¹ This general information section was adapted from a report entitled *The Feasibility of Biodiesel from Waste/Recycled Greases and Animal Fats* prepared for the Legislative Commission on Minnesota Resources.

- 1) Animal fats are primarily derived as byproducts from animal meat processing facilities. The primary animal fats include edible and inedible tallow from processing cattle, lard and choice white grease from swine processing, and poultry fat from the processing of chicken, turkey or other birds. Since the supply source is fairly concentrated and the markets are well established, animal fat may be collected and sold by rendering companies or by the animal processors themselves.

Another source of animal fats is the collection and processing of animal mortalities by rendering companies around the country. Collecting these waste byproducts not only provides valuable products for industrial uses, but also reduces the amount of material that might otherwise end up in landfills, posing pollution problems or a threat to the public health through the spread of disease. Livestock producers not serviced by a renderer may have to compost or bury animal mortalities. The increased demand for animal fats used in the production of biodiesel may help to increase the number of animal mortalities processed by renderers.

The infrastructure for animal fats collection and distribution is well established. Less expensive animal fat products including inedible tallow, choice white grease and poultry fat are promising candidates for biodiesel production.

- 2) Yellow grease is manufactured from *spent cooking oil* and other fats and oils collected from commercial or industrial cooking operations. Other fats may include grease rendered from hamburger, bacon or cooked meat entrees. For purposes of this discussion we will call this unprocessed mix of oils and grease products *restaurant grease*. Spent cooking oil may be vegetable oil or animal fat that has been heated and used for cooking a wide variety of meat, fish or vegetable products. After a period of time, the cooking oil is replaced with fresh product. At that time, the spent cooking oil may be collected by a rendering company or discarded.

Less is known about the amount of yellow grease collected from low-level grease users or in rural areas where restaurants may be smaller or more remote. If the price of yellow grease were to increase, more small businesses might take advantage of the additional income available through renderers. Yellow grease is a relatively low value byproduct, often half the price of soybean oil. This low cost, well-developed collection system makes yellow grease a prime candidate for biodiesel production. Most of the biodiesel not made from soybean oil in the U.S. is produced from yellow grease.

- 3) Trap grease, sometimes referred to as *brown grease*, is collected from grease traps that are installed in commercial, industrial or municipal sewage facilities

to separate grease and oil from waste water. Grease traps are sealed containers installed in sewer lines in a manner that allows the lighter grease and oil that is flushed down a drain to float to the top of the trap. These traps allow the water to flow under the grease and through to the main sewer or water treatment area. Grease traps are installed so that the top of the container can be opened, allowing the grease and oil to be removed. If traps are not periodically emptied, they become full, allowing grease and oil to flow directly into sewer systems.

Given the potential for contamination from soaps and other chemicals, trap grease is not likely to command a premium for use in animal feed products. The water content of trap grease is also very high, resulting in a low yield-per-pound collected. In many locations, water treatment facilities are large enough to process trap grease. In some areas like California, however, policymakers have considered requiring that trap grease be processed in rendering plants.

(4)

Uncertainty exists regarding the amount of treatment that would be required to make trap grease suitable for conversion into biodiesel. If it could be collected and processed, however, trap grease's relatively low market value could make it a strong candidate for biodiesel production. Moreover, the prospect of a new market could raise the price of trap grease, thereby providing an incentive for increased collection and use. It is estimated that in the U.S., 13 pounds of trap grease is produced per capita, but less than one-third of that amount is actually collected. All of these waste or recycled grease products have potential for use in the growing biodiesel market.

THE HAULERS AND RENDERERS

It is important to make a distinction between haulers/collectors and renderers. (This distinction will have particular importance later in the report when examining the regulations and laws governing the industry.) Haulers/collectors simply have agreements with restaurants and other food service components to pick-up yellow grease, and sometimes brown grease. Some do this for free, while others actually buy the restaurant grease from the restaurant. They then take it to a central collection point and sell it in bulk from there.

Renderers, on the other hand, can also be haulers/collectors, but in addition to collecting and transporting the grease they also process it. Renderers filter out the solids and heat the spent cooking oil to drive out moisture until it meets industry specifications for yellow grease. Yellow grease, which may already contain some animal fat from cooked food, may be sold as is or blended with other grease products to meet the specific needs of various customers. As mentioned above, collecting and recycling restaurant grease is not a new industry. For years collectors have collected and hauled off waste

grease from restaurants and transported it to rendering plants. Yellow grease is often sold to livestock feed and pet food manufacturers. All of the six collectors who completed the survey answered that they sell 100 percent of their restaurant grease to the feed industry. Currently, processed restaurant grease sells for approximately 12¢ per pound, but can climb to 15¢ per pound in the winter because of the increased demand for feed to keep the livestock warm.²

As a result of this demand by the feed industry, the infrastructure for the collection of yellow grease is well established. It is estimated that 70 to 95 percent of the available yellow grease is now being collected in metropolitan areas.³ According to the Institute of Shortening and Oils and the National Renderers Association, previous attempts to establish the economic impact of yellow grease and other grease products have met with significant difficulty. The reason cited for this difficulty was the inability of analysts to collect sufficient data on industry income, expenses, employment, and product output to conduct such a study. One possible reason for the lack of data is that the industry is so competitive that company representatives are reluctant to divulge information that might compromise their ability to compete. Most of the companies the South Carolina Energy Office contacted were hesitant to provide any information. All but one of the companies released their information on the condition that no particularized or company specific data would be published for public release. As one company representative stated, "This restaurant grease is a cut-throat business and we can't take a chance of letting this information out". The South Carolina Energy Office has identified seven commercial yellow grease haulers operating in South Carolina. Of these seven, only one appears to be only a hauler while the other six maintain rendering plants both inside and outside the state. As a result of the information they provided, the South Carolina Energy Office believes these seven haulers collect at minimum a total of approximately eight million gallons of restaurant grease a year.

REGULATING THE INDUSTRY

An examination of the South Carolina Code of Laws and the Department of Health and Environmental Control (DHEC) regulations shows that there is little to no regulation of this competitive industry. By looking at the actual text of the regulations and the applicable laws, it becomes apparent that waste grease collectors have simply been overlooked.

A full text search of the South Carolina Code of Regulations reveals that DHEC does not regulate, license, or issue permits to the grease haulers in the yellow grease industry. In addition, the regulations pertaining to brown grease do not regulate the haulers themselves. The regulations simply state that "commercial food preparation establishments shall be required to have a grease trap on the kitchen wasteline preceding the individual sewage treatment and disposal system. The grease trap shall be designed in accordance with standards established by the Health Authority."⁴ This regulation obviously demonstrates the Department's concern with the condition of the waste water infrastructure, but this concern does not extend to the disposal methods of the waste

producers or their haulers.

² Telephone Interview with Terry Arant, Owner, Orangeburg Milling (August 2006).

³ Correction of Dietary Fat Availability Estimates for Wastage of Food Service Deep-Frying Fats. Hunter and Applewhite, (JAOCS, Vol. 70, no. 6) June 1993.

After being unable to locate any regulations pertaining to the collection, transportation, or disposal of restaurant waste grease, DHEC was contacted and asked to explain the extent of their involvement in the waste grease collection industry. A representative of the Solid Waste Reduction and Recycling Division of DHEC stated that there was “no regulation of restaurant waste oils or greases” by his division, and suggested that the Food Protection Division be contacted because of their involvement with restaurant inspections. A representative of the Food Protection Division referenced the applicable regulations for their inspections, but stated that they “are not involved with the waste grease once it is disposed of into the collection container.”⁵ The regulations the representative referenced only mention grease collection once in the 74-page document. The Regulation states that:

Outside storage areas or enclosures shall be large enough to store the garbage and refuse containers and shall be kept clean. Garbage and refuse containers located outside, excluding dumpsters and grease containers, shall be stored on a rack or on concrete or asphalt that is kept clean and maintained in good repair.⁶

After reviewing the South Carolina Code of Regulations and speaking with representatives in two separate divisions at DHEC, it is apparent that DHEC does not regulate the restaurant grease collection industry. If there is any regulation of the industry, it is not codified in the Code of Regulations. Therefore, the search must be extended into the South Carolina Code of Laws.

A search of the Code of Laws immediately returned the applicable act: The South Carolina Rendering Act of 1998. The Rendering Act was passed to establish certain guidelines in the rendering industry, and to grant authority in the State Livestock-Poultry Health Commission to administer and enforce the duties provided in the Act. The Act also gives the commission the authority to promulgate new regulations in order to carry out the purposes of the new law. Before analyzing the body of the Act itself, it is important to understand some of the definitions set forth at the beginning of the Act. The Act defines ‘raw material’ as “livestock or poultry carcasses and inedible parts thereof, fats, oils, and other inedible animal byproducts, and *used fats and oils collected from restaurants*.”⁷ (emphasis added). The Act goes on to define ‘rendering operations’ as “the processing of all or part of the inedible portions of livestock or poultry carcasses and other raw material, and includes the collection and transportation of raw material for the purpose of processing”⁸ (emphasis added).

⁴ S.C. Code Ann. Regs. 61-56 section IX.

⁵ Telephone Interview with Carnice Johnson, Food Protection Division, Department of Health and Environmental Control (August 3, 2006).

⁶ S.C. Code Ann. Regs. 61-25-6 Paragraph F(2).

⁷ S.C. Code Ann. Regs. 47-22-20.

After reviewing these two statutory definitions it appears that all restaurant grease haulers fall within the scope of the Act. This Act is applicable because the haulers are all transporting raw material for the purpose of processing. The law does not distinguish between those haulers who process it themselves or sell it to another entity that processes it. In addition, Section 47-22-40 mandates that every person who engages in rendering operations must possess a valid and current permit issued by the division. As of 1 August 2006 there were only two companies in the state that have applied for and been issued this required permit. After contacting the Senior Compliance Officer for the commission, he stated that the commission's main concern was the quality of the food for the livestock population.⁹ Therefore, they concentrate their attention on haulers who are actually renderers too. However, a short investigation has shown that several of the haulers are actually renderers and do not have the required permit to conduct rendering operations. (This list of companies was forwarded to the Senior Compliance Officer for the commission.)

It appears from the language of the South Carolina Rendering Act of 1998 that both haulers and renderers are supposed to be issued a permit by the State Livestock-Poultry Health Commission. However, after speaking with the commission and talking to various haulers and renderers, it appears that for all intents and purposes the industry as a whole is not being regulated. While one renderer was required to make \$10,000 worth of improvements on his facility in order to receive his permit, other haulers and renderers were not even identified by the commission as part of the industry. This lack of regulation could have significant consequences with the emergence of biodiesel and the resulting demand for restaurant grease.

EMERGENCE OF BIODIESEL

Even before the advent of biodiesel, the waste grease collection industry was very competitive. Haulers are continually trying to find new customers and to convince their competitors' customers to switch to their service. Every hauler spoken to by the Energy Office expressed concern for the security of their product. Many grease containers are robbed of their grease before the service provider can empty the container. Some haulers believe this theft is committed by commercial competitors, while others believe private citizens are taking the grease to fuel their own biodiesel cars. The July 13, 2006 edition of the *Charleston Post and Courier* ran an article about a Columbia man who "goes around to restaurants filling a 275-gallon vat on the back of a trailer" to fuel his Volkswagen Passat.¹⁰ It is unclear from the article whether or not these restaurants were

aware that he was taking the grease, or whether the restaurants already had agreements with commercial haulers. Either way, this situation clearly shows how the emergence of biodiesel has the potential to cause tension within the already competitive waste grease collection industry.

⁸
⁹ Ibid.

Telephone Interview with Terry Dempsey, Senior Compliance Officer, S.C. Meat and Poultry Commission (July 27, 2005).

¹⁰ Dave Munday, *French Fry One Chevy cookin' without gas*, Post and Courier, July 13, 2006.

As a result of the increased demand for restaurant waste grease, and the continued effort to protect the waste water infrastructure, some states have enacted stricter regulations on the restaurant waste grease collection industry. Georgia, for example, passed a law in 2004 that requires waste grease haulers to register with the Georgia Environmental Protection Division or the local governing authority.¹¹ The law also requires that the truck be inspected and permitted annually by the same authority where it is registered (i.e. county government). This registration and permit is valid for operation across the entire state. In addition, the law also authorizes certain facilities to receive the waste grease and requires the haulers to maintain a 30-day manifest that certifies that the waste grease was disposed of in accordance with the law. These manifests must be kept in each truck and available for inspection by the local authorities. Violations of these provisions can result in a civil penalty not to exceed \$2,500, and are to be enforced through the Magistrate Court system.¹²

In 2006, a Georgia Senate Bill was introduced that would have amended the commercial waste (grease) manifest law, allowing a local health department to inspect and issue permits for trucks hauling grease. Presently, only local government authorities are allowed to issue these permits. A permit issued by any local government authority or health department is good throughout the state. Concerns were raised that this bill would have allowed haulers to avoid paying the statutory permit fees, avoid having to be bonded, and that the bill blurred the issues of hauling waste and hauling septage. Governor Perdue vetoed this bill in May 2006.

Georgia has taken a proactive approach to regulating the restaurant grease industry. This regulation allows the state to track the amounts of waste grease being generated, ensure its proper disposal, and monitor its demand. If South Carolina were to enact similar regulations, or more strictly enforce the current regulations, this would not be a significant additional burden on the industry. Many of the commercial collecting companies are already collecting from consumers in Georgia and are already having to comply with their laws.¹³

In addition to the lack of regulation in the collection industry, there is also a lack of regulation in the production of biodiesel in South Carolina. The National Biodiesel Board's fuel quality policy states that biodiesel should meet the specifications of the American Society of Testing Materials (ASTM). The ASTM is the recognized standard-setting body for fuels and additives in the United States. The ASTM has adopted a

specification for pure biodiesel (ASTM D 6751) that is to be used in blends up to 20% with diesel fuel which meets its respective specification (ASTM D 975). When biodiesel that meets its specification is properly blended into diesel fuel which meets its specification, and is handled according to proper fuel management techniques, the resulting fuel is a high quality, premium diesel fuel which has been shown to perform well in virtually any unmodified diesel engine.¹⁴ The National Biodiesel Board also urges every level of government to adopt this standard. However, South Carolina has not adopted any standard for biodiesel production in the state.

¹¹ GA. Code Ann. § 12-15-21 (2005).

¹² GA. Code Ann. § 12-15-21 (2005).

¹³ Telephone Interview with Diane Wonik, North Georgia Processing (August 1, 2006).

Traditional petroleum-based diesel and gasoline are currently regulated by the Department of Agriculture. Section 39-40-70 of the South Carolina Code states that “All petroleum products sold or offered for sale in this State...shall be subject to inspection and testing to determine their safety and value.” The statute defines petroleum product to mean “gasoline, gasohol, kerosene, diesel fuels, jet fuels, fuel oil no.1 through 4, or *a similar product of petroleum or a product which may be acceptable for use as a petroleum product...*”(emphasis added). Biodiesel clearly falls within the legal definition of a petroleum product. However, after contacting the South Carolina Department of Agriculture, the Energy Office learned that the Department is not currently testing any biodiesel being produced or sold in the state. The Department representative stated that their lab does not have the required equipment to conduct the proper tests. The Energy Office then contacted the Departments of Agriculture for North Carolina and Georgia.¹⁵ Georgia, like South Carolina, is also not testing any biodiesel sold in their state.¹⁵ North Carolina, on the other hand, has made some of the initial upgrades to their fuel testing lab¹⁶ and is currently testing biodiesel to ensure that it meets the D 6751 standard.

As the National Biodiesel Fuel Quality Policy states “use of any fuel that does not meet its quality specifications could cause performance problems or equipment damage, and this includes biodiesel. The National Biodiesel Board (NBB) believes strongly that rigorous adherence to D 6751 is important in order to protect consumers from unknowingly purchasing substandard fuel, in order to maintain the integrity of the nation’s fuel supply, and in order to protect the reputation of biodiesel as a high quality, high performance fuel.”¹⁷ As biodiesel production grows within South Carolina steps must be taken to in ensure the quality of the fuel supply. One publicized problem resulting from the use of substandard biodiesel could have a tremendous impact on the reputation of this fledgling industry and severely frustrate its acceptance in the marketplace.

CONCLUSION

The alternative transportation fuels movement has reached South Carolina.

Citizens have demonstrated that they are willing to try alternative fuels, and production facilities and infrastructure are starting to take shape. The policymakers have given their support for this new biodiesel industry by creating production incentives and tax credits for producers and end users. While this possible shift from a solely petroleum-based transportation fuel economy is exciting and potentially beneficial for the state, policymakers must also consider the economic ramifications of such a shift. How will a higher demand for restaurant grease affect the livestock feed markets? How will an already competitive and unregulated industry react to the strains and pressures of increased demand? At what point will commercial collectors stop tolerating the theft of their product and start taking actions to prevent it? What is the state's role in all of this? These are the types of questions that must be addressed by policymakers. It is important for the success of the biodiesel industry that these questions be answered, and that adequate steps are taken to confront these issues before they develop into problems.

¹⁴ http://www.biodiesel.org/pdf_files/fuelfactsheets/20060621_TAB_11_Fuel_Quality_Policy.pdf

¹⁵ Telephone Interview with a representative of the Fuel Quality Lab, G.A. Department of Agriculture (August 11, 2006).

¹⁶ Telephone Interview with Art Rupard, Motor Fuel Laboratory, N.C. Department of Agriculture (August 11, 2006).

¹⁷ http://www.biodiesel.org/pdf_files/fuelfactsheets/20060621_TAB_11_Fuel_Quality_Policy.pdf

REFERENCES

Groschen, Ralph (October 2002). *The Feasibility of Biodiesel from Waste/Recycled Greases and Animal Fats*. Marketing Services Division Minnesota Department of Agriculture.

Dave Munday, *French Fry One Chevy cookin' without gas*, Post and Courier, July 13, 2006.

Correction of Dietary Fat Availability Estimates for Wastage of Food Service Deep-Frying Fats. Hunter and Applewhite, (JAOCS, Vol. 70, no. 6) June 1993.

South Carolina Energy Office. (April 2006). *Biomass Energy Potential in South Carolina: A Conspectus of Relevant Information*.

http://www.energy.sc.gov/PDFs/Biomass%20Potential%20in%20SC_A%20Conspectus%207-7-06.pdf

National Biodiesel Board's Fuel Quality Policy. (June 2006)

http://www.biodiesel.org/pdf_files/fuelfactsheets/20060621_TAB_11_Fuel_Quality_Policy.pdf

Georgia FOG Alliance: Promoting a Cleaner Environment by Controlling Fats, Oils, and Grease. <http://www.georgiafog.com>

Telephone Interview with Jeff McDermott, Owner, Palmetto Biofuels (July 2006).

Telephone Interview with Trey Dausey, Owner, Dausey By-Products (July 2006).

Telephone Interview with Terry Dempsey, Senior Compliance Officer, S.C. Meat and Poultry Commission (July 27, 2005).

Telephone Interview with Roger Vlieg, Director of Rendering Division, Allied Proteins/Brown Packing (July 28, 2006).

Telephone Interview with Diane Wonik, North Georgia Processing (August 1, 2006).

Telephone Interview with Terry Arant, Owner, Orangeburg Milling (August 2006).

Telephone Interview with Chris Griffin, Chief of Legal Affairs, Griffin Industries Inc. (August 7, 2005).

Telephone Interview with Carnice Johnson, Food Protection Division, Department of Health and Environmental Control (August 3, 2006).

Telephone Interview with a representative of the Solid Waste and Reduction and Recycling Division, Department of Health and Environmental Control (August 3, 2006).

Telephone Interview with Wally Sheridan, Restaurant Licensing, Department of Health and Environmental Control (August 3, 2006).

Telephone Interview with Carol Fulmer, Fuel Accuracy/Quality, S.C. Department of Agriculture (August 7, 2006).

Telephone Interview with Art Rupard, Motor Fuel Laboratory, N.C. Department of Agriculture (August 11, 2006).

Telephone Interview with a representative of the Fuel Quality Lab, G.A. Department of Agriculture (August 11, 2006).

Appendix A:

DHEC Retail Food Establishments Regulation 61-25, Chapter 6, Paragraph F

F. Garbage and Refuse.

1. Containers.

- a. Garbage and refuse shall be kept in durable, easily cleanable, insect-proof, and rodent-proof containers that do not leak and do not absorb liquids. Plastic bags and wet-strength paper bags may be used to line these containers. The containers may be used for storage inside the retail food establishment.
- b. Containers used in food preparation, food processing, equipment-washing, and utensil-

washing areas shall be kept covered when filled or stored or when not in continuous use.

c. Containers, other than dumpsters, stored outside the establishment shall be cleanable, provided with lids, doors, or covers, and shall be kept covered.

d. There shall be a sufficient number of containers to hold all the garbage and refuse that accumulates.

e. Soiled containers shall be cleaned at a frequency to prevent insect and rodent attraction. Each container shall be thoroughly cleaned on the inside and outside in a way that does not contaminate food, equipment, utensils, or food preparation areas. Liquid waste from compacting or cleaning operations shall not create a nuisance.

2. Storage.

a. Garbage and refuse shall be stored in a manner that does not create a nuisance. Cardboard or other packaging material not containing garbage or food wastes need not be stored in covered containers.

b. Garbage or refuse storage rooms, if used, shall be kept clean, and shall be insect-proof and rodent-proof.

c. Outside storage areas or enclosures shall be large enough to store the garbage and refuse containers and shall be kept clean. Garbage and refuse containers located outside, excluding dumpsters and grease containers, shall be stored on a rack or on concrete or asphalt that is kept clean and maintained in good repair.

3. Disposal.

a. Garbage and refuse shall be disposed of often enough to prevent the development of odor and the attraction of insects and rodents.

b. Where garbage or refuse is burned on the premises, it shall be done in such a manner that does not create a nuisance. Areas around incineration facilities shall be kept clean.

4. Returnables and recyclables.

Storage areas, enclosures, and containers for returnables and recyclables shall be clean and maintained in good repair.

Appendix B:

The South Carolina Rendering Act of 1998

TITLE 47. ANIMALS, LIVESTOCK AND POULTRY

CHAPTER 22. RENDERING OF LIVESTOCK AND POULTRY RAW MATERIAL

SECTION 47-22-10. Short title. [SC ST SEC 47-22-10] This chapter may be cited as the "South Carolina Rendering Act of 1998". **SECTION 47-22-20.** Definitions. [SC ST SEC 47-22-20] As used in this chapter, the term: (1) "Transfer center" means a facility where raw materials are collected for loading into approved vehicles for delivery to a rendering plant. (2) "Commission" means the State Livestock-Poultry Health Commission. (3) "Director" means the Director, Division of Livestock-Poultry Health

Programs, Clemson University. (4) "Division" means the Division of Livestock-Poultry Health Programs at Clemson University and its agents, employees, and officials. (5) "Inspector" means an employee or official of the division authorized by the director to carry out inspections or investigations required or authorized by law. (6) "Livestock" means all classes and breeds of animals, domesticated or feral. (7) "Permit" means official authorization to engage in a specified activity. (8) "Poultry" means all avian species including wildfowl and domestic fowl. (9) "Raw material" means livestock or poultry carcasses and inedible parts thereof, fats, oils, and other inedible animal byproducts, and used fats and oils collected from restaurants. (10) "Rendering operation" means the processing of all or part of the inedible portions of livestock or poultry carcasses and other raw material, and includes the collection and transportation of raw material for the purpose of processing. (11) "Rendering plant" means a building or buildings in which raw material is processed, and includes the premises upon which buildings used in connection with processing are located. (12) "State Veterinarian" means the Director, Division of Livestock-Poultry Health Programs, Clemson University.

SECTION 47-22-30. Duties of commission and director. [SC ST SEC 47-22-30] The commission is the governing and policymaking body for the department, and is authorized to promulgate regulations that are necessary and proper to carry out the purpose and provisions of this chapter. The commission must delegate the administrative and enforcement duties provided for in this chapter to the director. The director, acting through the division, must administer the provisions of this chapter, enforce the required minimum standards set forth in Section 47-22-60, and all other laws pertaining to rendering livestock, poultry, and raw material in this State. **SECTION 47-22-40.** Permit required for operation of transfer center and rendering processes. [SC ST SEC 47-22-40] No person shall operate a transfer center or rendering plant, or engage in rendering operations, unless he possesses a valid and current permit issued by the division. **SECTION 47-22-50.** Permit applications; information required; permit valid until revoked, relinquished, or abandoned. [SC ST SEC 47-22-50] Application for a permit required by this chapter must be made to the director on forms provided by the division. The application must set forth the name and address of the applicant, the present or proposed place of business, the particular method used or to be used in the collection, transportation, processing, disposition, and disposal of raw material, and all other information as the director may require. Plant flow diagrams of any existing or proposed rendering plant and of equipment used in rendering operations must be available at the plant for review by division inspectors. A permit is valid until revoked pursuant to Section 47-4-130, or until relinquished or abandoned by the person to whom the permit was issued. **SECTION 47-22-60.** Location and equipment requirements for transfer centers, rendering plants, and vehicles used to transfer raw materials. [SC ST SEC 47-22-60] (A) Transfer centers must: (1) be located on a site in compliance with local zoning ordinances and have a potable water supply, wastewater and solid disposal, and air pollution facilities as required by any governmental authority having jurisdiction over the site; (2) be covered by a metal roof or other permanent type covering with sufficient screened ventilators to allow air flow, yet preventing the entrance of rodents, birds, and insects; (3) have walls, floors, and ceilings made of durable, nonabsorbent materials that can be cleaned and maintained in a sanitary condition; (4) have adequate drains in an impervious floor with a supply of hot water sufficient to thoroughly clean the transfer

center's building, equipment, and all vehicles transporting raw material to the transfer center; (5) be cleaned and sanitized at the end of each daily operation; (6) hold inedible materials no longer than allowed by good manufacturing practices, and dispose of all product and unused raw material in a lawful manner; (7) be operated in such a manner that objectionable odors are not detected off site of the transfer center. (B) Rendering plants must: (1) be located on a site in compliance with local zoning ordinances and have a potable water supply, wastewater and solid disposal, and air pollution facilities as required by any governmental authority having jurisdiction over the site; (2) utilize buildings of sufficient size and shape to accommodate all phases of actual processing, with partitions installed therein sufficient to prevent any contact between raw materials and finished product, and to prevent contamination of finished product; (3) utilize buildings constructed with materials and in a manner that will ensure adequate drainage and sanitation in all phases of operation, and that contain walls, floors, and ceilings constructed with durable, nonabsorbent materials that can be cleaned and maintained in a sanitary manner; (4) have a supply of hot water and cleaning agents sufficient to facilitate cleaning of the building, equipment, and vehicles used to move and handle raw material and product in a sanitary manner; (5) be operated using reasonable precautions while handling, storing, or preparing raw material to prevent objectionable odors from being discharged beyond the boundaries of the permittee's property, to ensure that raw material does not remain on site any longer than allowed by good manufacturing practice, and to dispose of all product and unused raw material in a lawful manner; (6) be operated using appropriate and properly-functioning rendering equipment including, but not limited to, working, efficient, and effective odor-control systems to prevent the emission of objectionable odors; (7) diligently practice rodent and vermin control in buildings and keep surrounding grounds clean and free of refuse, trash, and manure; (8) mark all barrels used for transportation and storage of raw materials with the word "inedible" in letters clearly visible and not less than two inches in height; and (9) have a control and recontamination program, as approved by the director, that specifically provides for the prevention of cross-contamination between raw material and finished product. (C) Vehicles used to transport raw materials must: (1) be so constructed and maintained as to prevent any dripping, seeping, discharge, or escape of raw material from the truck, and have body sides of such height that no portion of the raw material transported therein is subject to spillage under normal circumstances; provided, on a case-by-case basis, the director may require the complete covering of a load of raw material for biosecurity purposes. (2) after unloading, be cleaned with hot water and a suitable cleansing agent to prevent a buildup of grease, solids, or other raw material residue, and no vehicle used to transport raw material may be taken out or operated on a public road or highway without first being thoroughly cleaned. (3) be licensed by the division as suitable for the purpose of transporting raw material. **SECTION 47-22-70.** Inspections; hours; information required to be available. [SC ST SEC 47-22-70] Every transfer center, rendering plant, rendering operation and vehicle used to transport raw material is subject to inspection by the division inspectors during normal operating hours and at such other times as the director may deem necessary for the enforcement of this chapter. Each rendering plant must keep and furnish the director information required by law concerning the collection, transportation, processing, distribution, disposition, and disposal of raw material. **SECTION 47-22-80.** Violations; penalties. [SC ST SEC 47-

22-80] Any person who violates any provision of this chapter or any regulation promulgated hereunder shall be subject to the criminal and/or civil penalties as provided by Section 47-4-130 of this title.

Appendix C:

Georgia's 2004 Law Regulating Grease Haulers

Georgia Code 12-15-21

(a)(1) Removal of commercial waste from any grease interceptor, sand trap, oil-water separator, or grit trap that is not connected to an on-site sewage management system for the purpose of transporting such waste to a disposal site shall be accomplished in a clean and sanitary manner by means of a vacuum hose or pump that shall remove the entire contents of the holding tank or pretreatment system being serviced; and such waste removed shall be received, unmingled with any hazardous waste or septic waste, into a leakproof tank truck approved and permitted for such service as provided by paragraph (2) of this subsection. Any commercial waste spilled, leaked, discharged, or otherwise released or removed from a grease interceptor, sand trap, oil-water separator, or grit trap that is not connected to an on-site sewage management system to any location other than a licensed leakproof tank truck shall be deemed a violation of this Code section.

(2) Any transporter shall register with the division or the local governing authority or its designee of any county or municipality in this state in which the transporter receives or disposes of commercial waste, and registration with the division or any such local governing authority shall be valid for operation throughout the state. Such registration shall be made on a standard form prescribed by rule or regulation of the department.

(3) Any commercial waste tank truck which receives or disposes of commercial waste in this state shall be inspected and permitted annually for purposes of compliance with the requirements of this subsection by the local governing authority or its designee of any county or municipality in this state in which the tank truck receives or disposes of commercial waste, and a single permit issued by any such local governing authority shall be valid for operation of such truck throughout the state. Such permit shall be on a standard form prescribed by rule or regulation of the department. The permit applicant shall be required to identify the facilities at which waste carried by such truck will be disposed, and such facilities shall be identified on and be a condition of such permit. For any transporter, the amount of such annual permit fee shall be \$250.00 for the first truck and \$100.00 for each additional truck.

(b) Commercial waste vacuumed or pumped from any grease interceptor, sand trap, oil-water separator, or grit trap that is not connected to an on-site sewage management system and which waste is carried by tank trucks and disposed therefrom in this state shall be disposed only at a facility which is authorized by law to receive and process such waste. No person shall dispose of commercial waste from a tank truck at any location in this state other than the place inside the property boundaries designated for such waste by the authorized facility's owner.

(c) Any originator in this state, transporter, or disposal site operator in this state of any

load of commercial waste vacuumed or pumped from any grease interceptor, sand trap, oil-water separator, or grit trap that is not connected to an on-site sewage management system shall be each responsible for maintaining a manifest system for such load of commercial waste, and the transporter shall certify on its manifest that such load of commercial waste is disposed in accordance with subsection (b) of this Code section or in accordance with the law of such other state in which it is disposed. The forms for such manifests shall be prescribed by rule or regulation of the department. Such manifests shall be maintained at the principal places of business of the originator, transporter, and disposal site operator for not less than three years from the date of waste removal, transport, or disposal; except that the transporters manifests covering not less than the immediately preceding 30 day period for a particular truck shall be kept in the transporters tank truck at all times when operating in this state. Such manifests shall be made available at any time for inspection by the division or any local governing authority or the designee thereof.

(d) Any person who violates any provision of this article, the rules and regulations adopted pursuant to this article, or any permit condition or limitation established pursuant to this article shall be liable for a civil penalty not to exceed \$2,500.00 per violation. For the purpose of enforcing the provisions of this article, notwithstanding any provision in Code Section 36-35-6, any other provision of law, or any municipal charter to the contrary, municipal courts shall have jurisdiction in cases of violations committed within municipalities and shall be authorized to impose a civil penalty not to exceed \$2,500.00 for each violation. Magistrate courts shall have jurisdiction in cases of violations of this article committed within unincorporated areas of counties and shall be authorized to impose a civil penalty not to exceed \$2,500.00 for each violation.

Appendix D:

CHAPTER 41.

GASOLINE, LUBRICATING OILS AND OTHER PETROLEUM PRODUCTS

ARTICLE 1.

PETROLEUM PRODUCTS GENERALLY

SECTION 39-41-5. Short title; purpose.

This chapter is known as the "South Carolina Gasoline, Lubricating Oils, and Other Petroleum Products Act". This chapter promotes and protects the public health, safety, and welfare by ensuring that petroleum products:

- (1) are labeled and posted in a manner consistent with the principal of truth-in-labeling;
- (2) meet or exceed minimum standards of quality as set out in the American Society of Testing and Materials Manual.

SECTION 39-41-10. "Petroleum" and "petroleum product" defined.

"Petroleum" or "petroleum product" as used in this article means gasoline, gasohol,

kerosene, diesel fuels, jet fuels, fuel oil no. 1 through 4, or a similar product of petroleum or a product which may be acceptable for use as a petroleum product or oxygenated compound blends of the products but does not include compressed natural gas or propane when dispensed or sold as a motor vehicle fuel.

SECTION 39-41-20. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-30. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-40. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-50. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-60. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-70. Inspection of petroleum products.

All petroleum products sold or offered for sale in this State and to be used in this State for power, illuminating or heating purposes, shall be subject to inspection and testing to determine their safety and value for power, illuminating or heating purposes. The Department of Agriculture may at any time or place have collected samples of any petroleum product offered for sale and have them tested and analyzed. The inspection of petroleum products as authorized in this article shall be under the direction of the Commissioner of Agriculture, who may make all necessary regulations for the inspection of such petroleum products, employ all necessary chemists and enforce standards as to safety, purity, value for power and heating purposes or absence of objectionable substances and luminosity, when not in conflict with the provisions of this article, and which he may deem necessary to provide the people of the State with satisfactory petroleum products.

SECTION 39-41-80. Promulgation of rules and regulations as to standards and testing methods.

The Commissioner of Agriculture is authorized to promulgate rules and regulations prescribing standards for petroleum products and methods for testing same.

SECTION 39-41-90. Tests of safety and value of petroleum products complained of; sale forbidden of petroleum product found unsafe or of inferior quality.

Whenever a complaint is made to the Department of Agriculture in regard to power, illuminating or heating qualities of any petroleum product sold in this State, the

Commissioner shall cause a sample of such petroleum product complained of to be procured and have it thoroughly analyzed and tested as to safety or value for power or heating purposes or illuminating qualities. If such analysis or other tests shall show that the petroleum product is either unsafe or of inferior quality for power, heating or illuminating purposes, its sale shall be forbidden and reports of the result shall be sent to the person making the complaint and to the manufacturer of such petroleum product.

SECTION 39-41-100. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-110. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-120. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-130. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-140. Repealed by 1995 Act No. 136, Section 4A, eff September 1, 1995.

SECTION 39-41-150. Issuance of rules and regulations.

The Commissioner of Agriculture may issue such rules and regulations as may be necessary for carrying out the provisions of this article and such rules and regulations shall have the effect of law.

SECTION 39-41-160. Penalties for fraudulent violations of article or regulations.

A person who fraudulently commits the following violations is guilty of a misdemeanor and, upon conviction, must be fined not less than one hundred nor more than one thousand dollars or imprisoned not less than thirty nor more than sixty days for each offense:

- (1) brands or labels a package, a barrel, a pump, a tank, or other vessel;
- (2) uses a label a second time;
- (3) keeps a petroleum product used for illuminating, heating, or power purposes not marked and branded in accordance with the regulations of the Commissioner of Agriculture;
- (4) violates this article or a regulation adopted by the Commissioner of Agriculture for its enforcement.

SECTION 39-41-170. Penalties for selling petroleum product without a label.

If any person shall sell or offer for sale any petroleum product used for illuminating, heating or power purposes, before first having it labeled and tagged as required by the regulations adopted by the Commissioner of Agriculture, he shall be guilty of a misdemeanor and, on conviction, be fined not exceeding three hundred dollars and such oils and fluids shall be forfeited and sold and the proceeds thereof shall go to the common school fund of the State.

SECTION 39-41-180. Penalties for altering or erasing labels.

If any manufacturer or dealer of such gasoline, illuminating or heating fluids shall, with intent to deceive or defraud, alter or erase the label or tag to indicate a different flash test, specific gravity or quantity than is indicated by the label or stamp attached to the vessel, he shall, on conviction, be fined not exceeding fifty dollars for every such offense.

SECTION 39-41-185. Labeling of petroleum product dispensers.

(A) A motor fuel retail dealer may not transfer, sell, dispense, or offer petroleum products for sale in South Carolina unless every dispenser is posted clearly with the complete registered brand name for the petroleum products being dispensed including the amount of alcohol, ethanol, and methanol, if any, and the octane number. The dispenser labeling must be in the same size and type lettering for all parts of the brand name including that portion of the brand name disclosing alcohol content and amount.

(B) The labeling must be conspicuous and legible to a customer when viewed from the driver's position of a motor vehicle positioned in front of the dispenser.

(C) Kerosene dispensers must be labeled as either 1-K or 2-K. 2-K dispensers must display the following in lettering at least one inch in height: "Not suitable for use in nonflue-connected heaters".

SECTION 39-41-190. General penalties for violation of article or rules and regulations.

A person who fails to comply with this article for which no other penalty is provided specifically, fails to comply with regulations authorized by Section 39-41-150, or hinders or obstructs the Commissioner of Agriculture or his authorized representative in the enforcement of this article is guilty of a misdemeanor and, upon conviction in a court of competent jurisdiction, must be fined not less than one hundred dollars nor more than one thousand dollars or imprisoned not less than thirty nor more than sixty days.

SECTION 39-41-195. Penalties for conveyance of motor fuel in violation of this chapter.

(A) If a person or his agent or employee conveys, or offers to convey, motor fuel in violation of this chapter, the person is subject to an administrative fine or a stop-sale order, or both, in the discretion of the Commissioner of Agriculture.

(B) An administrative fine must not be assessed for an amount greater than one thousand dollars unless the violation:

- (1) threatens public health or safety;
- (2) is committed knowingly or intentionally; or
- (3) reflects a continuing and repetitive pattern of disregard for the requirements of this article.

(C) An administrative fine fully assessed by the commissioner for an amount greater than one thousand dollars may be assessed for an amount not in excess of ten thousand dollars.

SECTION 39-41-200. Applicability of article to retailers.

The provisions of this article shall not apply to a retail dealer in petroleum products, unless such retail dealer shall sell or offer to sell petroleum products of a manufacturer, wholesaler or jobber who refuses to comply with the provisions of this article.

SECTION 39-41-210. Reports.

The Commissioner of Agriculture shall include in his report to the General Assembly an account of the operations and expense under this article.

SECTION 39-41-220. Inspection of alcohol sold as motor fuel or sold for purpose of producing motor fuel.

Ethyl, methyl, and any other alcohol sold or offered for sale as motor fuel or to be blended with gasoline for the purpose of producing motor fuel are subject to inspection, sampling, and testing by the Department of Agriculture. Gasohol is defined as a blend of gasoline and at least ten percent ethyl alcohol. The department may limit the total oxygenates in the motor fuel blends consistent with industry practices and acceptable consumer motoring performance.

SECTION 39-41-230. Regulations as to alcohol used in motor fuels; alcohol to be anhydrous.

The Department of Agriculture shall promulgate regulations under the provision of Sections 1-23-10 et seq. to ensure the quality of methyl or ethyl alcohol used as motor fuels or in blends with other motor fuel. Alcohol blended with gasoline to produce gasohol shall be anhydrous.

SECTION 39-41-240. Standards for testing petroleum products.

Quality and safety standards for testing of gasoline, gasohol, diesel fuel, kerosene, fuel oil and petroleum products shall be the specifications promulgated by the American Society for Testing and Materials unless other standards are promulgated by the Commissioner of Agriculture in accordance with Section 39-41-80.

SECTION 39-41-250. Registration of gasoline, gasohol and alcohol-gasoline mixtures by octane index; forms; use of index; octane standards.

All gasoline, gasohol and alcohol-gasoline mixtures for gasoline type engines that are sold, offered or exposed for sale or distribution in South Carolina shall be registered by each identifying brand name or grade designation and the corresponding minimum guaranteed Octane Index. Prescribed registration forms will be provided by the Department of Agriculture. The Octane Index, the average of the Research Octane Number and the Motor Octane Number, $(R+M)/2$, shall be the designated number for registration, delivery invoices, bills of lading, delivery tickets, posting on dispensing pumps and for advertising purposes, when so stated. The minimum Octane Index

guarantee for premium grade gasoline, gasohol and alcohol-gasoline mixtures shall be ninety-one. The minimum Octane Index guarantee for regular grade gasoline, gasohol and alcohol-gasoline mixtures shall be eighty-seven. Gasoline, gasohol and alcohol-gasoline mixtures having Octane Indices below eighty-seven must be registered and labeled as sub-standard or sub-regular.

SECTION 39-41-255. Retail outlets shall post self-service pump gasoline prices.

Every retail motor fuel outlet shall post in a conspicuous place the self-service pump price for each type of gasoline it has available; provided, that such posted price must include either the cash or the credit price but need not include both such prices. The manner in which the prices are posted must not conflict with any state or local laws or ordinances that regulate the size, use, or placement of billboards or signs. The posting on the pump price mechanism of the price of the type of gasoline available at that pump shall satisfy the requirement of this section.

SECTION 39-41-260. Aboveground storage of flammable and combustible liquids.

(A) The storage, handling, and use of flammable and combustible liquids shall comply with the applicable provisions of the National Fire Protection Association Pamphlet No. 30, 1987 Edition, and all referenced publications in this pamphlet and the National Fire Protection Association Pamphlet No. 30A, 1987 Edition, and all referenced publications in this pamphlet except for the aboveground storage of flammable and combustible liquids at service stations as provided by this section.

(B) A maximum of thirty thousand gallons aggregate capacity of flammable or combustible liquids, or both, may be stored aboveground at service stations. No single storage tank shall exceed twelve thousand gallons liquid capacity. Service stations with an aboveground storage tank in excess of twelve thousand gallons liquid capacity on June 12, 1990 are exempt from this section.

(C) All aboveground storage tanks located at service stations must be enclosed by an eight-foot high industrial type chain link fence with barbed wire barricade with a minimum of two means of emergency access located at opposite ends of the enclosure. Each access must be at least thirty-six inches wide and must be locked at all times except when entering or exiting. There must be a minimum working distance of at least five feet between the tank and the fence. The area inside the fence and diked area must at all times be clear of trash, combustible storage, and vegetation. Existing service stations on the effective date of this provision with aboveground storage tanks that are enclosed with a fence constructed as referenced above are allowed to continue operating with the existing working distance between the tanks and the fence.

(D) All aboveground storage tanks located at service stations with thirty thousand gallons aggregate storage capacity must be located a minimum of fifty feet from the nearest occupied building on the property, a minimum of fifty feet from a dispenser, a minimum of fifty feet from the nearest side of a public way, and a minimum of one hundred feet from a property line which is or can be built upon including the opposite side of a public way. All aboveground storage tanks located at service stations with twelve thousand gallons aggregate storage capacity must be located a minimum of thirty-seven feet from

the nearest occupied building on the property, a minimum of thirty-seven feet from a dispenser, a minimum of thirty-seven feet from the nearest side of a public way, and a minimum of forty feet from a property line which is or can be built upon including the opposite side of a public way. Service stations with twelve thousand gallons aggregate storage capacity shall not have a storage tank in excess of four thousand gallons liquid capacity.

(E) All service stations that have aboveground storage tanks that contain flammable or combustible liquids, or both, shall have a minimum of three hundred thousand dollars of public liability insurance.

(F) Scaled plans for the renovation or construction of a service station that utilizes aboveground storage of flammable or combustible liquids, or both, must be submitted to the State Fire Marshal or his designee by registered receipt mail for approval before beginning construction. The State Fire Marshal or his designee shall approve or deny the plans within sixty calendar days or they are automatically considered approved. The plans must contain the following information:

- (1) site plan;
- (2) spill containment plan;
- (3) piping layout with valves and fitting details;
- (4) normal and emergency ventilation design;
- (5) tank capacity and design standard;
- (6) electrical plan;
- (7) tank and piping support details;
- (8) on site fire protection equipment; and
- (9) tank location with respect to other tanks and dike.

(G) All feeder lines from aboveground tanks to dispensers located at service stations must be located underground and covered with a minimum of three feet of earth cover or eighteen inches of well tamped earth cover plus six inches of reinforced concrete or eight inches of asphaltic concrete.

(H) Piping must be equipped with a fifty-two valve that cuts off the flow of liquid when the dispensing pump is not operating, as well as a quick shut-off device at the tank that will shut off the flow of product.

(I) All horizontal tanks located at service stations must be installed on steel supports welded to the tank not to exceed six inches in height or placed on concrete support cradles, and all vertical tanks must be installed on gravel with a minimum of six inches reinforced concrete footing. Footing is to be larger than the diameter of the tank.

(J) Two single portable tanks of six hundred sixty gallon capacity or less of Class II or Class III combustible liquid are allowed at service stations and are exempt from the requirements of this section.

(K) All aboveground tanks located at service stations must be clearly labeled with appropriate placards as to the contents of volume and kept free of scale and painted.

(L) A means must be provided to enable determination of liquid level in aboveground tanks located at service stations without requiring a person to climb atop the tank. Provisions must be made to either automatically shut off fuel delivery into the aboveground tank when the liquid level in the tank reaches ninety-five percent of capacity or to sound an audible alarm. This provision shall not apply to horizontal tanks of four thousand gallons or less and vertical tanks of two thousand gallons or less which

must be filled with a hand held hose.

(M) Regardless of whether a suction or submersible pump system is used, a listed emergency shut-off valve must be installed in accordance with Section 4-3.6 of the National Fire Protection Association Pamphlet No. 30A, 1987 Edition, at each dispenser connected to an aboveground storage tank located at a service station.

(N) Fill connections located at service stations for tank vehicle unloading operations must be located at least twenty-five feet from aboveground tanks, dispensers, building, and property lines. A check valve, gate valve, and quick connector or a dry break valve must be installed in the piping at a point where connection and disconnection is made for remote tank vehicle unloading. The devices must be protected from tampering and physical damage. Means must be provided to prevent or contain spillage during fuel delivery operations. This provision shall not apply to horizontal tanks of four thousand gallons or less, and vertical tanks of two thousand gallons or less. Fill connections at existing service stations on the effective date of this provision are exempt from the distance requirement referenced above.

(O) Unattended service station installations in accordance with Section 8-5 of the National Fire Protection Association Pamphlet No. 30A, 1987 Edition, are permitted only when the dispensing device is a card lock or key lock type dispenser.

(P) Aboveground storage of flammable or combustible liquids at service stations is prohibited in municipalities with a population of twenty-five thousand persons or greater as determined by the most recent official United States Census, except as otherwise provided in subsection (J) of this section.

SECTION 39-41-270. Application of aboveground storage provisions.

The provisions of Section 39-41-260 of the 1976 Code, as amended by Section 1 of Act No. 582 of 1990, apply to all service stations constructed on or after the effective date of this act (June 12, 1990). Also, all existing service stations on the effective date of this act must comply with the revised provisions of Section 39-41-260 within two years of the effective date of this act, except that existing service stations with aboveground storage tanks are not required to comply with the provisions of Section 39-41-260(D) and existing service stations with an aboveground storage tank in excess of twelve thousand gallons liquid capacity on the effective date of this act are exempt from the provisions of Section 39-41-260(B). An imminent hazard to life shall be addressed immediately as referenced in Section 23-9-150 of the 1976 Code. For the purposes of this section and of Section 39-41-260, the term "service station" does not include any utility storage tank facilities which service utility operations, including vehicles, locomotives, or equipment.

SECTION 39-41-280. Enforcement of aboveground storage provisions.

The Division of State Fire Marshal or his designee shall enforce the provisions of Section 39-41-260 of Act 582 of 1990.

SECTION 39-41-290. Dispensing gasoline to disabled persons at self service gas stations.

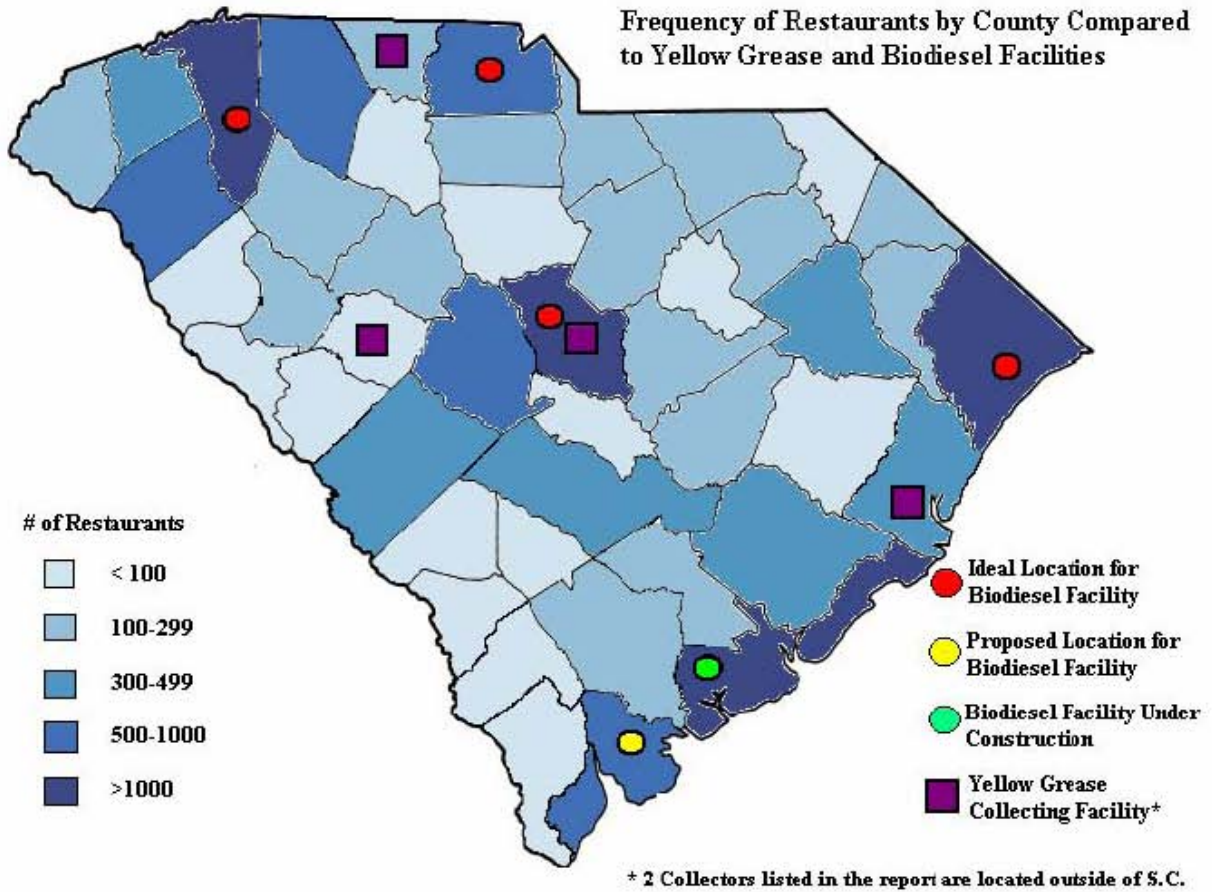
(A) An owner or operator shall conduct the operations of a motor vehicle fuel service station so that the holder of a placard or disabled person's license plate provided for in Section 56-3-1960 shall have, upon request, gasoline or other motor vehicle fuel dispensed by an employee of the station at the self-service pump and be allowed to purchase the gasoline or other fuel at the price otherwise charged for gasoline or other fuel purchased on a self-service basis if the holder of the placard or license plate is driving the motor vehicle into which the gasoline is to be dispensed.

(B) This section applies to an owner or operator of a station which sells gasoline or other fuel at one price when an employee of the station dispenses the gasoline or other fuel into a motor vehicle and at a lower price when the customer dispenses the gasoline or other fuel on a self-service basis.

(C) This section does not apply to any motor vehicle fuel station, convenience store, or other facility that offers gasoline or other fuel for sale to the public solely by means of remotely controlled pumps operated by a cashier and does not offer refueling service or to any such facility during those business hours when the facility does not offer refueling service to the public as a continuing business practice.

(D) An owner or operator who violates this section is guilty of a misdemeanor and, upon conviction, must be punished by a fine of not more than one hundred dollars or imprisoned for a period not to exceed thirty days.

Appendix E:



Appendix F:

Waste Grease Collectors for South Carolina

Allied Premium Protein (A Division of Brown Packaging Co.)

Gaffney, SC

Phone: (864)489-5723

Fax: (864)487-3210

Contact: Roger Vlieg

Carolina By-Products

Ward, SC

Phone: (803)685-2590

Fax: (803)685-2591

Contact: Dale Robertson, Plant Manager

Dausey By-Products

St. George, SC

Phone: (843)563-9005

Fax: (843)563-9005

Contact: Tres Dausey, Owner

Griffin Industries Inc.

Marshville, NC

Phone: (704)624-9140

Fax: (704)624-9143

Contact: Mike Otte

North Georgia Processing

Martin, GA

Phone: 1-800-626-9427

Fax: (706)384-3605

Contact: Andy McLean

Orangeburg Milling

Orangeburg, SC

Phone: (803) 534-3095

Fax: (803) 534-2939

Contact: Terry Arant

Restaurant Technologies Inc.

Columbia, SC

Phone: (803)419-1374

Fax: (803)419-1785

Contact: Marty Cousins