

Report To

#305

The Mississippi Legislature



A Performance Audit of the Petroleum Products Inspection Program

December 14, 1993

The Mississippi Department of Agriculture and Commerce inspects fuel outlets for pump accuracy and fuel quality. DAC uses no outcome measures to gauge program achievement. The Petroleum Laboratory at Mississippi State University, which tests the quality of petroleum products, cannot process fuel samples as efficiently as it should due to outdated equipment.

The Legislature should consider centralizing control of the petroleum products inspection program under one agency, such as the Mississippi Department of Transportation (MDOT). Transferring the program to MDOT would provide special-fund, user-fee financing, put responsibility on the agency that has a vested interest in fuel tax collections, and eliminate \$681,000 in general fund costs.

The PEER Committee

PEER: The Mississippi Legislature's Oversight Agency

The Mississippi Legislature created the Joint Legislative Committee on Performance Evaluation and Expenditure Review (PEER Committee) by statute in 1973. A standing joint committee, the PEER Committee is composed of five members of the House of Representatives appointed by the Speaker and five members of the Senate appointed by the Lieutenant Governor. Appointments are made for four-year terms with one Senator and one Representative appointed from each of the U. S. Congressional Districts. Committee officers are elected by the membership with officers alternating annually between the two houses. All Committee actions by statute require a majority vote of three Representatives and three Senators voting in the affirmative.

Mississippi's constitution gives the Legislature broad power to conduct examinations and investigations. PEER is authorized by law to review any public entity, including contractors supported in whole or in part by public funds, and to address any issues which may require legislative action. PEER has statutory access to all state and local records and has subpoena power to compel testimony or the production of documents.

PEER provides a variety of services to the Legislature, including program evaluations, economy and efficiency reviews, financial audits, limited scope evaluations, fiscal notes, special investigations, briefings to individual legislators, testimony, and other governmental research and assistance. The Committee identifies inefficiency or ineffectiveness or a failure to accomplish legislative objectives, and makes recommendations for redefinition, redirection, redistribution and/or restructuring of Mississippi government. As directed by and subject to the prior approval of the PEER Committee, the Committee's professional staff executes audit and evaluation projects obtaining information and developing options for consideration by the Committee. The PEER Committee releases reports to the Legislature, Governor, Lieutenant Governor, and the agency examined.

The Committee assigns top priority to written requests from individual legislators and legislative committees. The Committee also considers PEER staff proposals and written requests from state officials and others.

**A Performance Audit of the Petroleum Products
Inspection Program**

December 14, 1993

**The PEER Committee
Mississippi Legislature**

The Mississippi Legislature
Joint Committee on Performance Evaluation and Expenditure Review
PEER Committee



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December 14, 1993

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At its meeting of December 14, 1993, the PEER Committee authorized release of the report entitled **A Performance Audit of the Petroleum Products Inspection Program.**



Representative Cecil McCrory, Chairman

**This report does not recommend increased
funding or additional staff.**

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A Performance Audit of the Petroleum Products Inspection Program

December 14, 1993

Executive Summary

Introduction

Authority

The Department of Agriculture and Commerce and the State Chemical Laboratory are responsible for the administration of the petroleum products inspection program. Inspectors test fuel pump calibration and draw fuel samples to be sent to the laboratory for quality testing.

The PEER Committee conducted a performance audit of petroleum products inspection by the Mississippi Department of Agriculture and Commerce based on areas of concern expressed to the Committee. PEER conducted the performance audit in accordance with MISS. CODE ANN. Section 5-3-57 (1972).

Findings

Program Standards and Methods (page 10)

The petroleum products inspection program measures the amount of work done by petroleum inspectors (number of fuel quality inspections and pump calibration tests), but does not collect information needed to determine the program's effectiveness, nor does it maximize deterrence of calibration violations.

DAC determines its current level of inspection effort by resources available, informal customs, and work patterns, rather than by a systematic, scientific program of quality assurance such as is commonly used in private manufacturing. The state does not and cannot inspect every tank and every pump continuously and instead conducts selected inspections purposively (subjectively) at predictable intervals and based upon consumer complaints. DAC does not base its quality inspection program on any standard for determining program effectiveness and does not use scientific sampling methods in monitoring fuel quality. The informal method that inspectors currently use does not generate statistics that estimate the overall rate of quality-related problems (fuel adulteration), nor does it maximize the deter-

rence potential of the calibration inspection program.

Mission and Authority (page 12)

As written, the law lacks clear delineation as to the duties of the Commissioner of Agriculture and Commerce and the State Chemist, the two officers responsible for petroleum products inspections.

Section 75-55-3, MISS. CODE ANN., provides statutory authority for the operation of the petroleum products inspection program. Under that statute, the Commissioner of Agriculture and Commerce (the Commissioner) and the State Chemist are jointly vested with the duty of administering and enforcing the provisions of the law. Although the petroleum products inspection program appears to be running smoothly, vagueness of the language and the lack of statutory delineation of responsibilities for the Commissioner and the State Chemist in this and other related statutes pose a potential threat to the uniform operation of the program as a whole.

Enforcement and Penalties (page 13)

DAC has not been effective in providing strong enforcement of petroleum products inspection, and enforcement efforts have been hampered by meager and insignificant statutory penalties for equipment calibration violations and unclear agency authority related to fuel quality violations.

DAC has not assessed monetary penalties for violations related to pump calibration deficiencies even though statutorily authorized. For enforcement, DAC uses pump lockdown/stop sales, but it does not apply lockdowns to violators in every instance. The department has not vigorously pursued penalties related to violations of the fuel quality standards. Thus, DAC does not maximize its potential for deterrence in dealing with violators of the state petroleum products inspection laws, particularly in the area of quality sampling.

Failure to Utilize Computer System Properly and Lack of Interagency Cooperation (page 16)

Petroleum products inspection data maintained on DAC's computer system is incomplete, inaccurate, and outdated; therefore, the inspectors do not fully and properly utilize computerized data to aid the inspection program.

Although DAC currently maintains equipment and personnel to sustain an information system containing data on state petroleum sales outlets, the system is not being used effectively because:

- inspectors do not give feedback and updated information for printouts;
- the program experiences data entry problems, including occasional shortages of office personnel to enter the data, unexplained loss of data, and inspectors' delays in reporting outlets' name changes or closings;
- much of DAC personnel's computer knowledge is self-taught, with limited training explained as being largely due to heavy workloads and lack of funding for more extensive training.

Because the computerized information is unreliable, inspectors develop their own highly subjective and informal methods of scheduling outlets for inspection. Ultimately, since DAC does not require inspectors to rely on computer-generated information, and because the information in the system is often incorrect or outdated, the computer system is a wasted resource.

DAC's petroleum products inspection program does not collect relevant computerized data from other state agencies to assure inspectors' complete and timely information on all active fuel outlets.

In fulfilling its responsibility for petroleum products inspection, DAC must have knowledge of all outlets in the state selling gasoline or diesel fuel. Any gaps in DAC's information could lead to missed inspections, and, if left unchecked, could result in a lack of consumer confidence in the overall inspection process.

DAC does not consult the State Department of Environmental Quality (DEQ), which maintains a list of all the state's active underground fuel storage tanks. Previously, DEQ exchanged information regularly with DAC, comparing its data on underground tanks with DAC's material on the location of outlets, but this exchange of information has not taken place since 1990.

The result of DAC's lack of communication and exchange of information with DEQ is a missed opportunity to improve the administration and enforcement of petroleum products inspection with only a slight degree of extra effort.

Sources of Funding and Program Structure (page 19)

The petroleum products inspection program is funded almost exclusively through general funds, paid by all taxpayers, while the benefits of the program are derived only by fuel consumers.

DAC presently operates its portion of the petroleum products inspection program on an annual budget of approximately \$381,000 in general fund monies. The Petroleum Laboratory's budget for fiscal year 1993 is approximately \$300,000. Legislative Budget Office figures show that the ratios of general to special funds for the State Chemical Laboratory for fiscal years 1991 and 1992 were 77% to 23% and 81% to 19%, respectively. Thus, almost 90% of the overall \$681,000 petroleum products inspection budget is funded through general fund sources, paid for by all Mississippi taxpayers, while the benefits derived from the petroleum products inspection program accrue exclusively to consumers of petroleum products and retail outlet operators.

DAC's petroleum products inspection program relies on the Petroleum Laboratory to carry out its program goals, yet has no funding or administrative control over the lab's operation.

Despite providing the majority of the program's staff and responsibility for carrying out the majority of the program functions, DAC has no control over funding for the laboratory. The presence of separate funding sources also causes difficulty in attempting to establish an accurate portrait of total program costs.

Deterioration of Lab Equipment and Slow Turnaround Time in Receiving Test Results (page 21)

The validity of DAC's quality testing program is jeopardized by the deterioration of lab equipment used in fuel testing at the Petroleum Products Laboratory.

The laboratory's equipment used to conduct fuel quality tests is designed to detect minute variations between samples. In order to maintain full confidence in the exactness of the test results, the testing equipment must be optimally maintained at all times.

Approximately six months ago, the lab began experiencing problems with some of its equipment. Lab personnel believe much of the blame for the failure to meet tolerances rests with their manual testing equipment; most other labs have converted to automated testing equipment. Also, some of the test engines are fifty years old; none are less than forty-three years old.

Under the law, DAC must rely on the lab's quality testing results to prove quality violations. For full implementation of the law, the program's test results must be able to survive legal challenge; at present, they cannot withstand such scrutiny.

Because of slow turnaround between inspectors' sampling and laboratory testing of fuels, quality testing is not timely, which has weakened DAC's efforts to prevent outlets' distribution of inferior products to the public.

The lab's average turnaround time to receive and test a sample of gasoline and then return the results to DAC is usually two to three days. DAC is aware of the problem presented by this arrangement, namely that by the time it receives notification from the lab that a sample is bad, the inferior product has probably already been distributed to unsuspecting consumers. Furthermore, the lab is presently unable to process any more samples per week. Due to the location of the petroleum laboratory, the lack of other adequately equipped laboratory facilities in the state, and the lack of mobile quality testing facilities, DAC lacks the ability to punish violators promptly.

Recommendations (page 25)

PEER presents the following options for consideration by the Legislature to improve the state's petroleum products inspection program.

Option One

Because this audit was intended to serve as an examination of the Department of Agriculture and Commerce's Petroleum Products Inspection Program, the first (and largest) portion of PEER's recommendations is devoted to improvements within the existing program.

1. The Department of Agriculture should improve precision in determining the rate at which stations introduce faulty or improperly labeled fuel into their fuel holding tanks. (PEER makes specific recommendations on how DAC can improve its precision in determining noncompliance rates on page 25 of the report.)

DAC should use this scientific sampling plan in scheduling fuel quality inspections. DAC policies should ensure that inspectors use the inspection schedule developed through this systematic approach instead of using their own subjective judgement in selecting tanks to be sampled.

2. DAC should establish a fully random system for calibration inspections to ensure unpredictability and maximize deterrence potential. A fully random selection system would improve the program's potential for deterrence without requiring more inspections or use of additional resources. The rate of detection associated with fully random procedures would provide a better basis for policy decisions relative to increasing or decreasing resources used in the pump calibration inspection program.
3. Even if DAC does not begin using scientific sampling methods immediately, petroleum enforcement program managers should change the current system to ensure randomness. In using random selection, DAC should select outlets or tanks to be inspected in a way that ensures efficient use of program personnel. (PEER recommends the use of cluster sampling, described in Appendix E of the report, page 46, to avoid inefficient use of personnel resources in sampling.)

4. Concerning its allocation of resources, DAC should either:

- reduce the amount of resources allocated to fuel quantity monitoring, while maintaining current levels spent on quality monitoring; or,
- explain to the Legislature why it spends the majority of its resources on monitoring fuel quantity even though the quality inspection program has in the past detected a higher rate of noncompliance.

5. DAC should evaluate the costs versus benefits of utilizing on-site fuel quality chemical testing equipment, rather than sending all fuel samples to the Petroleum Products Laboratory. DAC's analyses should consider the potential for strengthened enforcement with immediate lockdowns and collection of directly applied penalties.

6. The Legislature should clarify CODE sections 75-55-3, 75-55-6, and 75-5-22, which comprise the portion of the Petroleum Products Inspection Law of Mississippi which addresses the delineation of program authority between the Commissioner of Agriculture and Commerce and the State Chemist. Appendix B, page 32, includes draft legislation which clearly states the proper function for each of the officers responsible for oversight of the petroleum products inspection program.

7. The Legislature should amend MISS. CODE ANN. Section 75-55-37 (1972) to give DAC more authority and increased penalties in regard to equipment violations, consistent with the increased penalties for petroleum products quality as amended in 1993. Appendix D, page 43, contains proposed legislation providing for penalty amounts ranging from \$1000 to \$3000, consistent with the new law passed by the Legislature during the 1993 session.

DAC should also enforce existing penalty options (lockdowns) on a more consistent basis. The addition of new monetary penalties to the law will have little meaning if DAC's existing penalties are not strictly enforced.

8. DAC should take immediate steps to assure that its computer system and data base are fully functional and utilized. (PEER makes specific suggestions on actions needed and

ways to increase use of data on pages 27 and 28 of the report.)

9. DAC should initiate an exchange of data with the Department of Environmental Quality, including possible establishment of matching data fields in each agency's computer system. Implementation of this exchange of data could greatly enhance DAC's ability to identify new fuel outlets or other changes in outlet tanks and in turn improve petroleum products inspection.

10. The Legislature should consider funding the petroleum products inspection program with special funds, since the program benefits a particular segment of the taxpaying population, rather than the population as a whole.

11. Through the budget request process, the Petroleum Laboratory should communicate to the Legislature its needs for replacing or repairing laboratory equipment used in fuel quality testing. The Legislature can then make informed decisions regarding this equipment, which directly affects the successful implementation of the penalty provisions for violations of the petroleum products inspection laws.

12. The Legislature and the Department of Agriculture and Commerce should consider options to reduce the length of time needed to receive fuel quality sampling test results. Options which should be considered include relocating the laboratory facilities to a more central location, such as Jackson, and possible utilization of mobile testing facilities.

13. DAC should immediately develop a manual of written standard operating procedures for petroleum products inspection. These standard operating procedures should provide inspectors and support personnel with all rules, regulations, policies, and detailed procedures needed to administer and enforce the inspection program effectively and efficiently. Written standard operating procedures are essential in supporting DAC's ability to withstand legal challenges to its sampling process in the future.

DAC should provide inspectors and support personnel with individual copies of the manuals and should update the manual as necessary. The department should initiate immedi-

ate training for current personnel and use the manual to guide the training of new petroleum inspectors.

Option Two

The Legislature should consider centralizing the petroleum products inspection program under the control of one agency. Such a realignment would solve the lack of agency control and funding problems presented by the current arrangement. Due to its role as the central agency for the planning of the state's transportation needs, the State Department of Transportation is a logical candidate to operate the program.

The mission of the petroleum products inspection program would be more closely aligned with that of the Department of Transportation than that of DAC, which is primarily concerned with the welfare of its agricultural constituency. The Department of Transportation also has a laboratory facility in Jackson, although some modification and addi-

tions to equipment would be needed for petroleum testing. The presence of MDOT's laboratory facility in Jackson would help solve another problem, namely the slow turnaround time for receiving quality testing results; this problem is partially attributable to the current lab's location in Starkville. MDOT also already has personnel stationed across the state who could be utilized in various capacities, if needed.

The Department of Transportation has a strong interest in assuring that the proper level of motor fuel taxes is assessed across the state. The shifting of agency program responsibility would make the funding essentially depend on user fees; benefits derived from the regular inspection of retail fuel outlets would be funded only by those taxpayers who regularly consume fuel and the retail outlet operators themselves.

If the Legislature chooses this option, MDOT should implement the recommendations under Option One which apply to the petroleum products inspection program regardless of whether it is located in DAC or MDOT.

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A Performance Audit of the Petroleum Products Inspection Program

Introduction

Authority

The PEER Committee conducted a performance audit of petroleum products inspection by the Mississippi Department of Agriculture and Commerce based on areas of concern expressed to the Committee. PEER conducted the performance audit in accordance with MISS. CODE ANN. Section 5-3-57 (1972).

Scope and Purpose

PEER sought to determine whether the Department of Agriculture and Commerce's regulatory practices assure product quality and whether pumps dispensing fuel are properly calibrated.

Method

PEER performed the following tasks:

- reviewed applicable state and federal statutes;
- reviewed background material on the petroleum industry;
- observed inspection procedures in the field; and,
- interviewed appropriate staff and obtained information from:
 - Department of Agriculture and Commerce (DAC), petroleum Products Inspection Division;
 - State Chemist and Mississippi State University, Petroleum Products Laboratory;
 - State Tax Commission;
 - Public Service Commission;
 - Department of Environmental Quality (DEQ);
 - private organizations in the petroleum industry;
 - various persons authorized by DAC to calibrate fuel pumps;

- other states' petroleum programs; and,
- other chemical laboratories in the state.

Overview

The Department of Agriculture and Commerce and the State Chemical Laboratory are responsible for the administration of the petroleum products inspection program, which includes fuel quality testing and pump calibration inspections.

The program's administrators have not estimated the overall frequency of occurrence of inferior product quality and inaccurate pump calibration, and thus the program measures the quantity of work done (number of fuel quality inspections and pump calibration tests) but does not determine what influence, if any, enforcement has in reducing or eliminating bad fuel or pumps that cheat the customer.

The program also experiences other problems:

- Lack of clear statutory delineation as to the duties of the Commissioner of Agriculture and Commerce and the State Chemist, the two separate officers responsible for petroleum products inspections.
- Lack of consistent methods and policies for selection of fuel outlets for quality testing.
- Lack of strong and consistent enforcement for violations of petroleum products laws.
- Incomplete, inaccurate, and outdated inspection data maintained on DAC's computer system. Inspectors are not fully and properly utilizing the computerized data to aid the inspection program.
- Failure to collect relevant data from other state agencies to assure timely information on outlets across the state.
- Financing of the program through general funds, paid by all taxpayers, while benefits are derived only by consumers of fuel.
- Confusion in tracking program costs because the inspection program is funded through general funds appropriated to the Department of Agriculture and Commerce while the Chemical Laboratory at Mississippi State University receives funding through a separate appropriation made to the Institutions of Higher Learning.
- Potential for jeopardizing enforcement efforts due to faulty testing equipment at the Petroleum Products Laboratory.
- Slow turnaround time for receiving results of quality testing from the lab.

Background

Authority for Petroleum Products Inspection

From 1980 to 1986, petroleum products inspection in Mississippi was the responsibility of the State Tax Commission. In 1986, the Legislature deleted certain CODE provisions which had given the Tax Commission the authority to take samples of motor fuel or oil for analysis and transferred to the State Chemist the authority to set specifications for petroleum products, analyze samples, and operate the petroleum products laboratory.

During the 1988 legislative session, the Legislature shifted responsibility for the program to the State Department of Agriculture and Commerce (DAC) and the State Chemist. The *Petroleum Products Inspection Law of Mississippi* went into effect on July 1, 1988. MISS. CODE ANN. Section 75-55-3 (1972) gives the Commissioner of Agriculture and Commerce (hereinafter referred to as the Commissioner) and the State Chemist the authority to administer and enforce regulations concerning the state's gasoline and petroleum products industry.

Powers and Duties

Under § 75-55-23, MISS. CODE ANN., the Department of Agriculture's employees have broad inspection authority to test facilities or locations in the state where fuels, lubricating oils, or like products are held for sale. They are also permitted to take samples for testing, which the State Chemist (or agents of the State Chemist) then analyze, under the authority of § 75-55-29.

Petroleum products inspection in Mississippi presently consists of two primary elements: (1) regular inspections of all fuel pumps at retail outlets to determine if they are within calibration tolerances, and (2) the collection of samples from selected outlets for quality testing and analysis by the Petroleum Products Laboratory at Mississippi State University.

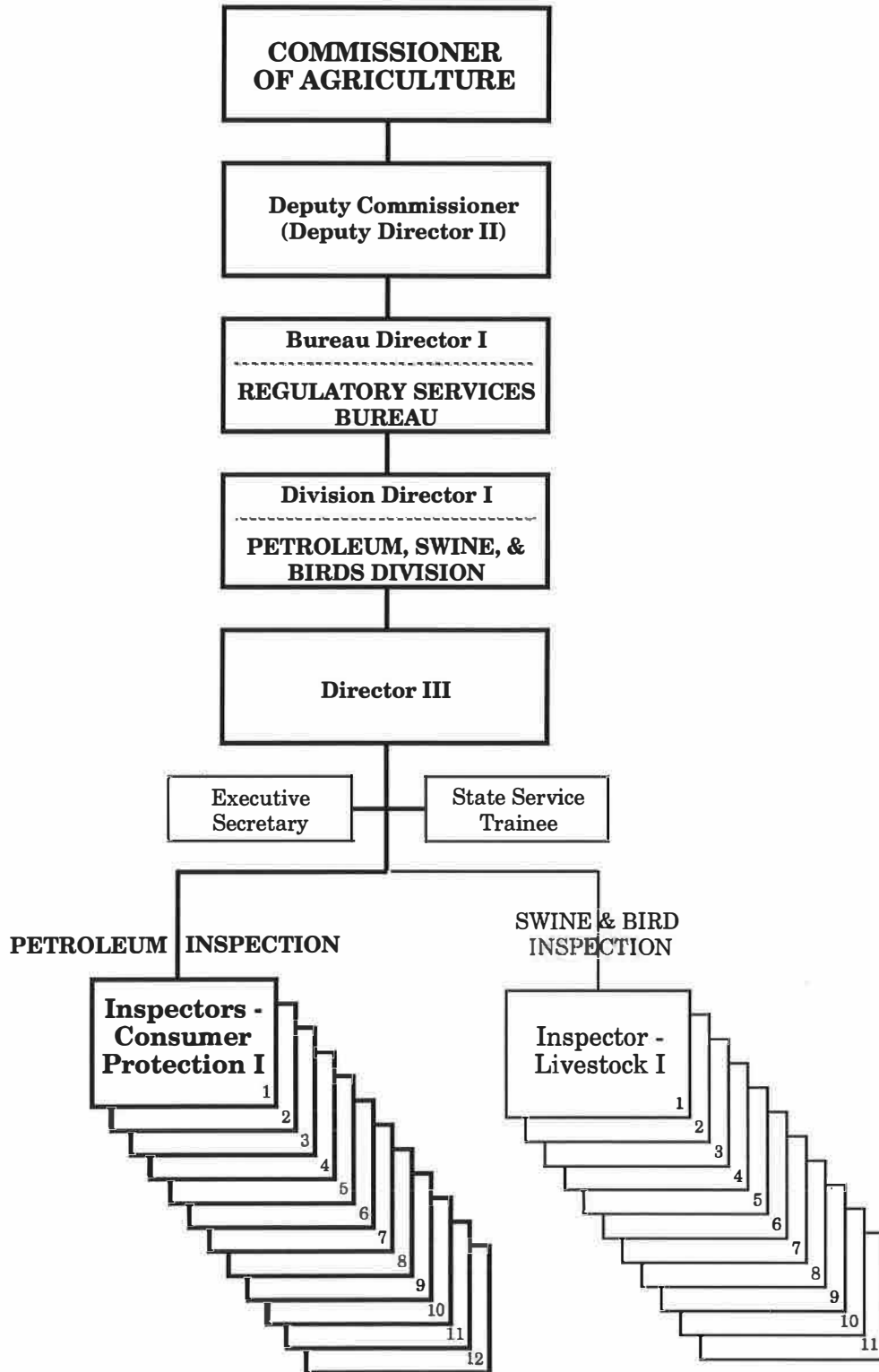
Scope of Petroleum Products Inspection Activities

Petroleum products inspection falls under DAC's Bureau of Regulatory Services, Division of Petroleum, Swine and Bird Inspection. (See Exhibit 1, page 4, for an organization chart.) This program is currently implemented by eleven full-time inspectors who work exclusively in petroleum products inspection. These eleven inspectors are responsible for carrying out petroleum products inspections and related fieldwork in specific areas of the state. Currently there are eleven areas or regions, one per inspector (see Exhibit 2, page 5, for a map representing inspection areas).

The agency's goal for pump calibration inspection is to inspect all retail outlets (approximately 5,900) in the state at least twice annually. Currently,

Exhibit 1

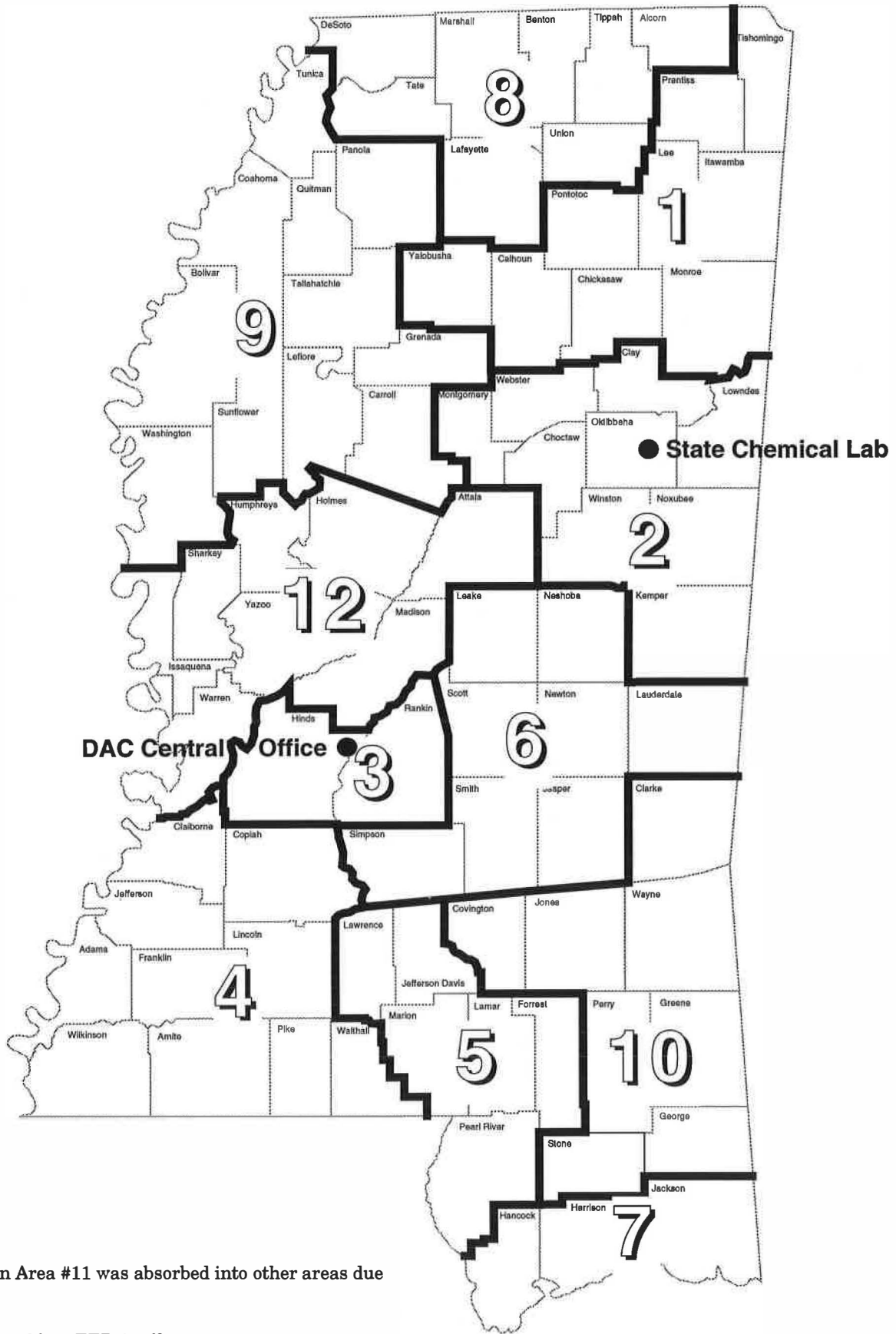
**Department of Agriculture and Commerce's Petroleum, Swine and Birds Division
Organization Chart**



NOTE: Due to organizational modifications twelve Consumer Protection inspector positions are shown but only eleven are currently filled.

SOURCE: Mississippi Department of Agriculture and Commerce.

Exhibit 2 State Petroleum Inspection Areas



NOTE: Inspection Area #11 was absorbed into other areas due to budget cuts.

SOURCE: Compiled by PEER Staff.

inspectors' individual preferences and practices determine quality sampling frequency and selection.

Standards and Procedures for Inspection and Quality Sampling

Pump Calibration Inspections

When conducting inspections, DAC follows inspection standards enumerated in the *National Conference on Weights and Measures' Handbook 44 for Liquid Measuring Devices*. (NCWM), sponsored by the *National Institute of Standards and Technology* (1993 edition). The tolerance allowed by Handbook 44 for each five gallons of fuel drawn is six cubic inches, plus or minus. A reading between six and 25 cubic inches is considered a violation, with the outlet given a notice of violation for those pumps. The outlet has forty-eight hours to have the pump calibrated correctly by a DAC-approved repairman. Pumps which are more than twenty-five cubic inches out of calibration are immediately locked down, using a woven wire strand with a lead plug attached. (See finding, page 13.) The pump remains locked down until the inspector has verified that it is once again in calibration. Each inspector spends approximately four and one-half days of a typical workweek performing pump calibration inspections. During fiscal year 1993 inspectors visited an average of almost four outlets each per day, with an average of almost eighteen pumps, or nozzles, checked for calibration inspection over the course of the day.

Fuel Quality Sampling

Quality sampling absorbs approximately a half day of each inspector's normal workweek. To test quality of petroleum products, inspectors draw a specified number of half-gallon samples from outlets' underground fuel storage tanks. The samples drawn by the inspectors are not taken from the same outlets they inspect for calibration purposes during the week. The inspectors forward the petroleum samples to the Petroleum Products Laboratory for chemical analysis.

The Petroleum Products Laboratory is one of the four divisions of the State Chemical Laboratory and is located on the campus of Mississippi State University in Starkville. It is presently staffed by a director (who is also a research chemist), three other chemists, one octane engine operator, and one lab technician (40% time). The lab tests gasoline, diesel fuel, and kerosene samples, although approximately 83% of the samples are gasoline. The lab staff performs a series of tests established by the American Society for Testing and Materials (ASTM) on the fuel samples.

The specific tests conducted by the lab are found under ASTM's Standard Specifications for Automotive Spark-Ignition Engine Fuel. Designation D4814 is the standard used by most quality testing programs across the country for gasolines, including alcohol-blended gasolines. Designation D 975 is used for diesel fuels, while D 3699 is used for kerosene samples. Each of the quality tests performed by the lab is listed in Section 75-55-5, MISS. CODE ANN. A full listing of the tests performed, along with a brief definition, can be found in Appendix A,

page 31. The average turnaround time is two to three days for the lab's return of the results to DAC. When lab tests show that samples are defective/faulty (not meeting ASTM's specifications), the lab immediately calls DAC with the results in order to reduce the length of time needed to act on the information.

The information is then relayed to the inspector responsible for the region where the faulty sample was found, who pulls another sample from the suspect tank. If the results on the second sample are unfavorable, the inspector locks down all affected pumps. Locking down a pump involves placing a woven wire strand with a lead plug around the nozzle, which prevents the pump from dispensing fuel. The pump remains locked down until the outlet calls DAC to report that new fuel is in the tank. The inspector then checks the tank again and removes the seal only after the lab certifies that the test results are satisfactory.

Response to Complaints

The final component of DAC's inspection and sampling program involves responding to specific consumer complaints received by DAC at its main offices. DAC personnel record all pertinent information relating to the complaint and contact the inspector responsible via pager. The inspector then assesses the situation and takes the appropriate action, which may involve collecting a fuel sample, and telephones the main office to report. DAC mails a copy of the complaint form, with documentation of DAC's corrective action, to complainants if they leave a mailing address when they call in their complaint.

Inspection Records

DAC attempts to maintain a computerized data base listing all fuel outlets across the state. DAC assigns each outlet an identification number and the system maintains outlets' names and addresses. The data base also contains inspectors' codes, owners' names and addresses, the dates of the last inspections, status codes, memo fields for recording enforcement information (i.e., lockdown/stop sales), and other miscellaneous information. After completing each inspection, inspectors are directed to mail to DAC headquarters pump inspection certificates showing the results of inspection of each pump. DAC's computer system is to maintain records of inspectors' cumulative annual inspection data, combining this data with the lab's sample results when compiling the annual report.

Financing and Staffing

As discussed at page 3, the Petroleum Products Inspection Program is a sub-function of the Division of Petroleum, Swine and Bird Inspection. (See Exhibit 1, page 4.) Petroleum products inspection is budgeted as a subprogram of DAC's Inspection and Licensure Program; therefore, the specific costs of this function are not easily identifiable. Nevertheless, Exhibit 3, page 8, presents DAC's compilation of extracted costs for these inspection functions since fiscal year 1990 (the earliest year for which DAC could retrieve data). Petroleum products

Exhibit 3
Inspection and Quality Sampling Results
Fiscal Years 1989 to 1993

	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
DAC's Total Program Costs (As Calculated by DAC) (1)(4)	*(3)	\$348,517	\$365,992	\$353,014	\$380,671
Number of Full-Time Equivalent Employees (FTEs)	9.3	15.3	15.3	14.3	14.3
Inspection/Calibration					
Outlets	*(3)	*(3)	*(3)	5886	*(3)
Total Visits	*(3)	*(3)	*(3)	*(3)	9965
Pumps Inspected	24,407	33,163	32,791	36,122	46,745
Pump Violations	2,517	*(3)	*(3)	493	920
Stop Sale-Calibration	132	102	76	59	46
Ratio of Stop Sales to Violations	5.24%	*(3)	*(3)	11.97%	5.00%
Ratio of Violations to Inspections	10.31%	*(3)	*(3)	1.36%	1.97%
Costs for Inspection Program (2)	*(3)	\$313,665	\$329,393	\$317,713	\$342,604
Ratio of Cost per Pump Inspected	*(3)	\$9.46	\$10.05	\$8.80	\$7.33
Ratio of Cost per Pump Violation	*(3)	*(3)	*(3)	\$644.45	\$372.40
Ratio of Cost per Stop Sale	*(3)	\$3,075.15	\$4,334.12	\$5,384.96	\$7,447.91
Quality Sampling					
Total Fuels Sampled	2856	4366	4071	3568	3824
Faulty Samples	459	585	357	199	229
Lockdowns/Stop Sales-Faulty Samples	65	89	124	74	77
Ratio of Lockdowns to Faulty Samples	14.16%	15.21%	34.73%	37.19%	33.62%
Ratio of Faulty Samples to Total Samples	16.07%	13.40%	8.77%	5.58%	5.99%
Costs for Quality Sampling Program (2)	*(3)	\$34,852	\$36,599	\$35,301	\$38,067
Ratio of Cost per Sample	*(3)	\$7.98	\$8.99	\$9.89	\$9.95
Ratio of Cost per Faulty Sample	*(3)	\$59.58	\$102.52	\$177.39	\$166.23
Ratio of Cost per Stop Sale	*(3)	\$391.60	\$295.15	\$477.05	\$494.38

(1) DAC does not maintain direct cost data for petroleum products inspection. DAC calculated estimated costs from % FTEs of Division of Petroleum, Swine and Birds Inspection. Costs do not include gasoline/maintenance for state owned cars used by inspectors.

(2) PEER subdivided estimated costs between inspection and quality sampling using DAC's estimate of inspectors' actual time in each aspect.

(3) DAC did not maintain this historical data.

(4) Funding for the State Chemical Laboratory is a separately appropriated item under the IHL budget.

SOURCE: PEER Compilation and Analysis of Available DAC Data.

inspection is budgeted and funded through DAC's support budget with general treasury account fund appropriations.

When DAC became responsible for petroleum products inspection in fiscal year 1989, the program operated with six full-time inspectors. The number of authorized inspector positions increased to twelve in fiscal year 1990, but was reduced to eleven in fiscal year 1992, due to budget cuts. All other support positions have remained stable since DAC took over the program.

Findings

Program Standards and Methods

The petroleum products inspection program measures the amount of work done by petroleum inspectors (number of fuel quality inspections and pump calibration tests), but does not collect information needed to determine the program's effectiveness, nor does it maximize deterrence of calibration violations.

DAC determines its current level of inspection effort by resources available, informal customs, and work patterns, rather than by a systematic, scientific program of quality assurance commonly used in private manufacturing. The state does not and cannot inspect every tank and every pump continuously and instead conducts selected inspections purposively (subjectively) at predictable intervals and based upon consumer complaints.

The informal method that inspectors currently use does not generate statistics that estimate the overall rate of quality-related problems (fuel adulteration) or maximize the deterrence potential of the calibration inspection program.

- *DAC does not base its quality inspection program on any standard for determining program effectiveness and does not use scientific sampling methods in monitoring fuel quality.*

Before DAC's inspection program can yield the information needed to determine and improve program effectiveness, DAC must first establish performance standards and measures. To do this, the state (by law or policy) should declare what level of non-compliance (1%? 5%?) is acceptable for the petroleum quality inspection program. Some level of noncompliance must be tolerated, for practical purposes, because nothing short of 100% monitoring would provide absolute assurance of compliance. This would be similar to the tolerance level method used by the federal government in overseeing state speed limit enforcement.

If the state used a formal quality assurance system for the fuel quality inspection program, components would include:

- Description of the population or universe, which would be the bulk storage tanks at each station and each individual pump.
- A scientific sample methodology for inspections that would provide a satisfactory level of assurance (confidence level) that inspections would reflect the actual rate of consumer problems. If properly designed, the state could inform consumers that if the methodology was designed to provide, for example, a 95% level of confidence, that the actual rate of consumer problems would be detected within a 1% error range. Approximately 3,500 samples per year would be necessary to achieve that degree of confidence at that error rate. The State

Chemical Laboratory currently tests approximately that number of fuel samples annually. **All outlets would have equal probability of being selected for inspection.**

- A program of work including staff assignments and support resources sufficient to execute the random inspection methodology at the stated level of confidence.
- A communications and feedback system to adjust the methodology based upon changes in rate of occurrence or confidence levels.

Examples and models of such quality assurance systems are common in the Mississippi manufacturing community.

All of these components are missing from the state's current fuel quality inspection program. Although the state has data on tank locations and could develop an estimate of the "universe of deliveries," DAC has not used scientific sampling and inspection methodology to determine precisely the extent of fuel quality problems. Individual inspectors determine DAC's current methods of selecting stations to be inspected. Inspectors' methods are not uniform, nor are they included in the department's written policies.

While the state operates under the assumption that the informal testing and inspection will deter potential violations, without a scientific methodology and a tolerance level (acceptable level of non-compliance), no information exists to determine whether the fuel quality inspection program is either "over-" or "under-" inspecting.

- *DAC has not maximized the deterrence potential of the calibration inspection program.*

Although the above criteria apply to the quality inspection program, DAC could not, as a practical matter, apply the same criteria to the calibration inspection program because the average amount by which the typical pump would be out of calibration would be too small to be a meaningful measure.

However, DAC should be using random selection, one element of scientific sampling, in its calibration inspection program. Randomness (i.e., lack of predictability) is desirable because it enhances deterrence and permits inspectors to detect problems in a way that better represents occurrence of noncompliance with calibration standards.

DAC's calibration inspection program currently does not maximize its potential for deterrence because no policy prohibits inspectors from repeating the same inspection sequence during each inspection cycle. The effect of DAC's failure to use a fully random system in its calibration inspection program is that consumers do not receive maximum benefit of the enforcement program.

Mission and Authority

As written, the law lacks clear delineation as to the duties of the Commissioner of Agriculture and Commerce and the State Chemist, the two officers responsible for petroleum products inspections.

Section 75-55-3, MISS. CODE ANN., provides statutory authority for the operation of the petroleum products inspection program. Under that statute, the Commissioner of Agriculture and Commerce (the Commissioner) and the State Chemist are jointly vested with the duty of administering and enforcing the provisions of the law. The relevant portion of the statute reads:

The Commissioner of Agriculture and Commerce, hereinafter referred to as the "commissioner," and the State Chemist are hereby vested with power and authority and are charged with the duty of administering and enforcing the provisions of this chapter which pertain to signs and which set specifications of petroleum products; the labeling of pumps, tanks and other packages and containers; to trade names; and to scales, pumps and measuring equipment, and they shall have the authority to establish rules and regulations not inconsistent herewith in connection with its enforcement.

The administration and enforcement of the provisions of this chapter which authorize the analysis of samples, and the operation of the petroleum products laboratory are to be administered by the State Chemist. The State Chemist and the commissioner shall have joint authority to establish rules and regulations necessary for the enforcement of the aforesaid provisions of this chapter.

The language of the statute grants to the commissioner and the State Chemist joint authority and responsibility for the overall administration of the petroleum products inspection program. The State Chemist is given equal authority for administering and enforcing the program, for establishing rules and regulations necessary for enforcement of the chapter's provisions, and is given sole responsibility for the analysis of samples and control of the petroleum products laboratory. Consistent with this granting of joint authority for administration of the petroleum products inspection program, the State Chemist is also mentioned, along with the Commissioner of Agriculture and Commerce, in Sections 75-55-6 and 75-55-22. The State Chemist is also listed individually in Sections 75-55-29, 75-55-31, and 75-55-33 regarding the responsibilities for analysis of quality samples and for staffing the petroleum products laboratory.

Despite the appearance of joint program authority, the State Chemist (or the State Chemist's agents and employees) as a practical matter is responsible only for the testing of samples and management of the petroleum products laboratory. Thus, although possessing technical (but unclear) authority for co-administering the entire program, the State Chemist only manages that segment of the program which falls under the petroleum laboratory. Therefore, the references to the State Chemist's authority or duties in Sections 75-55-3, 75-55-6, and 75-55-22 are questionable.

Although the petroleum products inspection program appears to be running smoothly, vagueness of the language and the lack of statutory delineation of responsibilities for the Commissioner and the State Chemist in Section 75-55-3 and other related statutes pose a potential threat to the uniform operation of the program as a whole. The construction of these statutes, Section 75-55-3 in particular, leaves only two possible conclusions, namely that the State Chemist is free to assume a more active role in the administration and enforcement of the entire petroleum products inspection program or that the statute grants the State Chemist more authority than necessary.

After reviewing the program, PEER concluded that the language of Sections 75-55-3, 75-55-6, and 75-55-22 is unduly broad in its granting of program authority and responsibility to the State Chemist. Appendix B, page 32, proposes legislation which omits overly broad references to the State Chemist.

Enforcement and Penalties

DAC has not been effective in providing strong enforcement of petroleum products inspection, and enforcement efforts have been hampered by meager and insignificant statutory penalties for equipment calibration violations and unclear agency authority related to fuel quality violations.

DAC has not assessed monetary penalties for violations related to pump calibration deficiencies even though statutorily authorized. The department also has not vigorously pursued penalties related to violations of the fuel quality standards. DAC's enforcement policies have been weak. Specifically, the policies have three primary shortcomings:

- Monetary penalties, although statutorily authorized as described at page 15, are minimal and DAC has not pursued their collection.
- DAC uses pump lockdown/stop sales for enforcement, but it does not apply lockdowns to violators in every situation.
- DAC's statutory authority for penalizing fuel quality violations is unclear.

Thus, DAC does not maximize its potential for deterrence in dealing with violators of the state petroleum products inspection laws, particularly in the area of quality sampling.

Equipment Inspections--DAC inspectors perform calibration inspections of equipment as guided by statute and DAC regulations, supported by NCWM Handbook 44 specifications. Gasoline pumps are considered to be within calibration tolerances if measurements are plus or minus six cubic inches per five gallons of fuel. For variances of six to twenty-five cubic inches, DAC issues written notices of violation and allows outlets forty-eight hours for deficiency correction.

As authorized by MISS. CODE ANN. Section 75-55-37, DAC performs immediate lockdowns of defective pumps for variances in excess of twenty-five cubic inches per five-gallon measurement. DAC has seldom assessed related monetary penalties (of up to \$200). DAC officials assert that:

- authorized penalty amounts are too low to be effective, and
- it is extremely difficult to pursue court proceedings for conviction of violators.

Petroleum Products Quality--DAC inspectors also perform certain procedures related to control and enforcement of fuel quality, even though not guided previously by statute. Up until July 1, 1993, Section 75-55-37 did not address penalties for violations of fuel quality; consequently, DAC has not assessed penalties against fuel quality violators, but has used lockdowns alone as enforcement.

As discussed at page 7, when sample results indicate inferior or defective fuel, area inspectors initiate immediate lockdowns on those pumps supplied by the “faulty” tank so long as the same batch of fuel is still in the tank. (DAC defines “faulty” as not meeting specific established standards.) If the fuel in a faulty tank has already been replaced before DAC receives the test results, the inspector draws a second sample as a backup measure. If the results of the second test are unfavorable, all affected pumps are locked down until the tank is refilled with uncontaminated fuel.

PEER found that nearby states use the lockdown/stop sale as a popular enforcement mechanism for both inspection and quality violations. They indicate that a fundamental reason for the use of lockdowns is its ease, and because they find it to be the most effective form of enforcement. A March 1993 report on states’ fuel quality sampling programs (from *Buyers Up*, a division of Public Citizen) stated that 76% of sanctions assessed in the twenty-eight states with quality testing programs were lockdowns.

Exhibit 3, page 8, presents results since fiscal year 1989 of DAC’s petroleum products inspection efforts. As shown on that exhibit, the ratio of lockdowns to violations is poor. Cumulative totals for the last five years show that DAC imposed lockdowns (the only form of penalty utilized) in less than twenty-five percent of the instances where violations were found. This demonstrates that even if lockdowns are as effective as their proponents claim them to be, DAC seldom makes use of them.

DAC reports two primary reasons for low ratios of lockdowns to quality violations:

- Outlets distribute defective fuel and replace it with adequate fuel by the time DAC receives the lab’s results.

- Some octane violations are not significantly inaccurate; therefore, DAC inspectors have allowed outlet operators to correct and replace pump octane labels rather than lock down pumps.

DAC's procedures do not provide strong deterrents and controls over the quality of petroleum products. One of the principal reasons for the petroleum products inspection law should be the deterrence of offenses and protection of consumers. Because DAC has not been levying penalties, the system does not function adequately.

Also, DAC's failure to make full use of its computer resources (see finding, page 16) makes it almost impossible for the department to verify and utilize information on repeat offenders. Complete historical information on outlets' past violations is imperative for effective management of the program. DAC has experienced significant delays in receiving laboratory quality test results that have greatly affected its ability to act promptly and effectively on violations.

Effect of Related Statute: Until July 1, 1993, MISS. CODE ANN. Section 75-55-37 contained penalty provisions only related to equipment (i.e., pumps, trucks) and the measurement of fuel from that equipment (i.e., calibration). Effective July 1, 1993, this section was amended to add penalties for violations explicitly concerning petroleum products (e.g., fuels, oils) in addition to the earlier penalties for equipment violations.

Specifically, the 1993 statutory amendment added Subsection (2) to Section 75-55-37 to provide for penalties related entirely to petroleum products such as quality and other violations of law or regulation. Per that subsection, the Commissioner is authorized to adjudge petroleum products violations and assess penalties, as follows:

In the event subsequent violations of the foregoing provisions are detected in the product within a twelve (12) month period of time between such violations, the commissioner may assess a civil penalty in an amount not less than One Thousand Dollars (\$1,000.00) and not more than Three Thousand Dollars (\$3,000.00) for each petroleum product determined to be in violation.

The statutory amendment also increases the Commissioner's authority to suspend, revoke, and/or permanently deny licenses and, in lieu of or in addition to penalties, may institute court proceedings to enforce the Petroleum Products Inspection Law.

However, the 1993 statutory amendment did not change the penalty assessments authorized for violations related to equipment (i.e., calibration of pumps). Section 75-55-37, Subsection (1), remains unchanged, as follows:

Any person or officer, agent or employee thereof who shall violate any provision of this chapter shall be guilty of a misdemeanor and, upon conviction, shall be punished by a fine not exceeding One Hundred Dollars (\$100.00) for the first offense and not more than

Two Hundred Dollars (\$200.00) for each subsequent offense or imprisonment in the county jail for a period not to exceed ninety (90) days or both.

To implement the recent law changes, DAC has documented written general rules of procedure and new violation penalties and filed same with the Secretary of State in accordance with the Mississippi Administrative Procedures Law (CODE Sections 25-43-1, et. seq.) These procedures became law on October 20, 1993 (after a mandated sixty-day delay). Appendix C, page 35, provides a copy of these procedures and proposed penalties.

PEER determined that DAC's proposed penalty structure, as presented in Appendix C, does not coincide with the current statutory provisions. As described above, the current amendment to Section 75-55-37 does not expand penalty amounts for violations related to equipment. However, DAC has included equipment violations in the proposed rate structure presented to the Secretary of State. Thus, DAC's enforcement of penalties for equipment violations will not be legal, unless the Legislature enacts additional amendments to that law. Appendix D, page 43, provides draft legislation to correct this problem.

DAC's enforcement efforts have been hampered both by factors within and beyond its control. The recent passage of legislation and the further statutory changes suggested by PEER will help correct the problems DAC previously could not control. However, the agency must take further needed steps on its own to provide a higher degree of punishment for wrongdoers and to aid future efforts at deterrence.

Failure to Utilize Computer System Properly and Lack of Interagency Cooperation

Petroleum products inspection data maintained on DAC's computer system is incomplete, inaccurate, and outdated; therefore, the inspectors do not fully and properly utilize computerized data to aid the inspection program.

Although DAC currently maintains equipment and personnel to sustain an information system containing data on state petroleum sales outlets, the system is not being consistently used to record initial data nor is it updated with follow-up inspections of pump calibrations and fuel quality; as a result, inspectors have not used the system to verify the status of outlets that appear to have not been inspected in over a year.

Even though inspectors are provided computer lists of area outlets, they seldom rely on the lists. Because DAC does not update computerized records, the computerized information is often inaccurate. For example, outlets are listed in the data base that have not been inspected in more than a year, while others are listed as not having been inspected in over a year, but have in fact been inspected since then. Also, outlets have changed names or gone out of business altogether, but are still listed as being active. Exhibit 4, page 17, presents PEER's compilation of computer data as of July 31, 1993, which demonstrates these inaccuracies. For

Exhibit 4

Analysis of DAC Computer Weaknesses (As of May 28, 1993)

		Percentage
DAC Computer Totals of Outlets in State of Mississippi	3903	100.00%
Outlets Last Inspected In FY 93 (through 5/28/93)	3548	90.90%
Outlets Last Inspected In FY 92	271	6.90%
Outlets Last Inspected In FY 91	78	2.00%
Outlets Last Inspected in FY 90	6	0.10%

*Analysis of Computer Data**

Outlets Listed With Inspection Dates Before FY 93:

Out of Business, but remained in computer	155	
Duplicate Names	11	
Distributor (not an outlet)	3	
Outlets not inspected	2	
Outlets inspected in last twelve months, but not in computer	35	
Actual Status of Outlet/Inspection	206	
Inspected by DAC in 6/93	89	
Inspected by DAC in 7/93	81	
Outlets Inspected by DAC After PEER Inquiry	170	
TOTAL	376	

Comparison of DAC's Manual Tabulation of Total Outlets and Computer Listing of Total Outlets

DAC Manual Tabulation of Total Outlets in State of Mississippi	5886	
DAC Computer Totals of Outlets In State of Mississippi	3903	
Less Outlets In Computer But No Longer In Business	(155)	
Corrected Computer Total of Outlets In State of Mississippi	3748	
Number of Outlets In State Not Appearing In Computer	2138	
Percentage of Outlets In State Not Appearing In Computer	36.32%	

* This portion of the chart shows those outlets that, as of May 28, 1993, were listed on DAC's computer data base as having not been inspected during the previous twelve months. The list was given to DAC on July 16, 1993, and was returned to PEER in early August. This accounts for the outlets that were inspected in June and July of 1993.

SOURCE: PEER Analysis of DAC Data

example, 155 outlets that were out of business were still listed on DAC's data base as being active.

Many of these errors and omissions are the result of inspectors' failure to give feedback and updated information for printouts. Although each inspector is directed to keep a printout in his vehicle, DAC does not require that inspectors actually make use of them for inspections and quality sampling. DAC also does not require that inspectors routinely review printouts for errors and submit corrections to the Jackson office. Inspectors' uniform, consistent consultation and review of the printouts would help in detecting and correcting these errors.

Because the computerized information is unreliable, inspectors develop their own highly subjective and informal methods of scheduling outlets for inspection. Ultimately, since DAC does not require inspectors to rely on computer-generated information, and because the information in the system is often incorrect or outdated, the computer system is a wasted resource.

Also, petroleum products inspection support personnel noted problems with successfully entering data once received from the inspectors. These problems included occasional shortages of office personnel to enter the data, unexplained loss of data, and inspectors' delays in reporting outlets' name changes or closings.

PEER noted that much of DAC personnel's computer knowledge is self-taught, with limited training explained as being largely due to heavy workloads and lack of funding for more extensive training. DAC personnel readily acknowledged lack of comprehension of the full capabilities and benefits of the computer system as related to petroleum products inspection.

DAC's failure to utilize fully the potential of its computer system causes inconsistencies in the scope and depth of inspectors' knowledge and casts doubt on the overall accuracy of the information stored in the system. The agency does not properly use its data processing equipment and related resources to maintain a complete, accurate, and up-to-date record of the number of outlets to be inspected or inspection report findings. DAC's failure to implement fully all appropriate uses of its computer system demonstrates a critical shortcoming of the program.

DAC's petroleum products inspection program does not collect relevant computerized data from other state agencies to assure inspectors' complete and timely information on all active fuel outlets.

In fulfilling its responsibility for petroleum products inspection, DAC must have knowledge of all outlets in the state selling gasoline or diesel fuel. Any gaps in DAC's information could lead to missed inspections, and, if left unchecked, could result in a lack of consumer confidence in the overall inspection process.

The program's computerized data base includes outlet identification numbers, lists the outlets by name, city and county, and shows the last dates of inspections, along with other pertinent information. Although this data base

purports to be a complete listing of all outlets across the state of Mississippi, DAC cannot be certain that the list includes all new outlet locations because it does not interact with other state agencies in order to cross-reference its information. This lack of a cross-referencing mechanism also casts doubt on the accuracy of information already in the computer system.

A potentially valuable source of information DAC does not contact is the State Department of Environmental Quality (DEQ). DEQ maintains a list of all active underground fuel storage tanks across the state. Furthermore, outlets report new tank information to DEQ when they apply for permits. Previously, DEQ exchanged information regularly with DAC, comparing its data on underground tanks with DAC's material on the location of outlets. However, this exchange of information has not taken place since 1990. Over time, DAC has allowed the lines of communication and exchange of information with DEQ to terminate.

The data fields currently used by DAC and DEQ to track outlet and underground tank information have few data items in common, making it difficult to merge the two sets of information. However, this need not serve as an insurmountable obstacle to a future exchange of data, particularly if the two agencies establish information sharing as a program goal.

The result of DAC's lack of communication and exchange of information with DEQ is a missed opportunity to improve the administration and enforcement of petroleum products inspection with only a slight degree of extra effort. Also, DAC's failure to utilize data from other agencies, in conjunction with its previously discussed computer problems (page 16), has resulted in a master list of incomplete and inaccurate data.

Prudent management and information gathering techniques demand that DAC use all possible sources of data for compiling a master list of outlet locations. DAC's failure to do so has hindered the program's ability to operate at maximum efficiency. Cooperation between state agencies is a worthy and beneficial goal and would greatly enhance the overall efficiency of petroleum products inspection program at little or no cost.

Sources of Funding and Program Structure

The petroleum products inspection program is funded almost exclusively through general funds, paid by all taxpayers, while the benefits of the program are derived only by fuel consumers.

DAC presently operates its portion of the petroleum products inspection program on an annual budget of approximately \$381,000. Since the program was placed under DAC's control, overall program costs have remained approximately the same. (See Exhibit 3, page 8.) DAC's portion of the petroleum products inspection program has consistently been funded through general fund monies.

The Petroleum Laboratory's budget for fiscal year 1993 is approximately \$300,000. PEER was not able to determine a specific ratio of general to special

funds for the Petroleum Laboratory or the State Chemical Lab for fiscal year 1993 because the information is not yet available, but Legislative Budget Office figures show that the ratios of general to special funds for the State Chemical Laboratory for fiscal years 1991 and 1992 were 77% to 23% and 81% to 19%, respectively.

Thus, almost 90% of the overall \$681,000 petroleum products inspection budget, including all of DAC's allocation, is funded through general fund sources. This is particularly significant because general fund programs are paid for by all Mississippi taxpayers, while the benefits derived from the petroleum products inspection program accrue exclusively to consumers of petroleum products.

The purpose of regular fuel inspections is to insure that fuel consumers receive the correct amount of fuel from retail pumps and to insure that they receive fuel of proper quality as well. An organized system of inspections benefits the entire petroleum industry in the state of Mississippi by penalizing unscrupulous operators and providing a much-needed regulatory element. However, because of the present funding arrangement, every taxpayer in the state pays for a benefit that only a certain portion of the population utilizes.

DAC's petroleum products inspection program relies on the Petroleum Laboratory to carry out its program goals, yet has no funding or administrative control over the lab's operation.

DAC and the State Chemist are given dual responsibility for the petroleum products inspection program. Section 75-55-3, MISS. CODE ANN. (1972) vests control of the sample analysis program and of the petroleum products laboratory itself in the hands of the State Chemist. As a practical matter, the lab's sole function within the program is to test quality samples. Approximately 96% of all quality testing performed by the Petroleum Laboratory is done for DAC.

As previously noted, the petroleum products inspection program as a whole is funded through the Department of Agriculture and Commerce. However, the Petroleum Products Laboratory is one of the four divisions of the State Chemical Laboratory, and the Chemical Laboratory is a separately funded budget item under the Institutions of Higher Learning's (IHL) budget.

Thus, despite providing the majority of the program's staff and responsibility for carrying out the majority of the program functions, DAC has no control over funding for the laboratory. The potential for problems with this arrangement becomes apparent when considering the lab's equipment problems (see subsequent finding). Problems exist which may be serious enough to jeopardize DAC's efforts at enforcement, yet the agency can do nothing to find a solution for the predicament due to the separate funding sources for the program as a whole and for the laboratory. The presence of separate funding sources also causes difficulty in attempting to establish an accurate portrait of total program costs. The distinct nature of the two components even extends to geography--DAC is headquartered in Jackson, while the Petroleum Products Laboratory is located in Starkville.

In order to operate an interdependent program such as petroleum products inspection as capably as possible, the two main components of the program should be located in the same city under the operational and funding control of only one agency. The present arrangement is inefficient and poses a threat to the overall productivity of the program.

Deterioration of Lab Equipment and Slow Turnaround Time in Receiving Test Results

The validity of DAC's quality testing program is jeopardized by the deterioration of lab equipment used in fuel testing at the Petroleum Products Laboratory.

The quality tests conducted by the petroleum laboratory are intricate in nature and must be carried out in accordance with the specifications of ASTM D 4814 (gasoline), D 975 (diesel fuel), and D 3699 (kerosene). The equipment used to conduct these tests is designed to detect minute variations between samples. In order to maintain full confidence in the exactness of the test results, the testing equipment must be optimally maintained at all times. Replacing malfunctioning equipment is not a simple process, due to the high costs involved.

As part of its internal quality maintenance procedures, the lab routinely sends portions of samples to other labs and compares their results with readings obtained in Mississippi's lab. Approximately six months ago, the lab began experiencing problems with its equipment in two areas: vapor pressure testing and motor octane testing.

Lab personnel have tried several approaches to the vapor pressure reading problem, but their efforts to improve the accuracy of the results have been fruitless. At present, the readings obtained by the lab with the vapor pressure unit are consistently outside acceptable tolerance levels. Lab personnel believe much of the blame for the failure to meet tolerances rests with their manual testing equipment; most other labs have converted to automated testing equipment. Furthermore, ASTM studies have shown that the automated equipment is significantly more accurate.

The lab also experiences regular problems with its octane testing engines. The lab has three specially designed one-cylinder engines for conducting research octane testing and one specially designed motor octane testing engine. Within the last two years, the lab's accuracy in octane testing, as measured by comparative testing, has fallen from very acceptable to marginally acceptable. Lab personnel believe that, if left unchecked, the accuracy of their octane test results will fall below acceptable levels.

For example, the tolerances for research octane testing results are usually .2 to .4 of an octane number; in 1992, the lab's results (for the three research octane testing engines) were outside this tolerance 29% of the time and, for the first half of 1993, fell outside of tolerance 35% of the time. The numbers for tests on the motor octane testing engine are even more disturbing. The usual tolerance level on motor octane tests is .4 to .6 of an octane number. The lab's engine

exceeded this level 56% of the time in 1992 and, for the first half of 1993, has fallen outside of tolerance 45% of the time.

Much of the blame for the decline in test result quality appears to rest with the age of the test engines. Some of the engines are fifty years old; none are less than forty-three years old. They all need overhaul or eventual replacement.

As noted previously, much of the Petroleum Laboratory's testing equipment must be manually operated, in contrast to other states which utilize automated equipment. The presence of this manual equipment means that it takes longer to run the needed quality tests, creating further delays for DAC to take punitive action.

As discussed in the finding on page 15, the Legislature recently passed stiffer penalties for violations of the petroleum products inspection laws. Under this new law, DAC must rely on the lab's quality testing results to prove quality violations. The equipment problems outlined above imperil the success of the new law. For full implementation of the new law, the program's test results must be able to survive legal challenge; at present, they cannot withstand such scrutiny. The octane testing flaws are particularly significant because low octane numbers represent the largest statistical group of faults the lab discovers on an annual basis.

DAC's quality testing program depends on accurate, defensible lab results. If the state cannot accurately test quality, DAC cannot defend itself against legal challenges to fines or lockdowns it implements, placing in jeopardy the entire enforcement and penalty portions of the petroleum products inspection program.

Because of slow turnaround between inspectors' sampling and laboratory testing of fuels, quality testing is not timely, which has weakened DAC's efforts to prevent outlets' distribution of inferior products to the public.

As discussed at page 7, inspectors sample fuels for quality testing by the petroleum laboratory. The lab conducts a series of tests on each fuel sample. These laboratory fuel tests include such quality tests as fuel distillation, vapor pressure, and water content; Appendix A, page 31, provides a summary of the specific quality tests performed. The lab's most frequently discovered deficiency in fuel samples is the presence of low (87) or mid-level (89) octane gasoline in premium (92 or 93) pumps.

Four inspectors draw twelve samples each week for quality sampling; the remaining seven draw six samples each, for a cumulative total of ninety samples per week. This sampling schedule was designed to accommodate the petroleum lab, because of the lab's inability to process any more samples per week. When the program began in 1988, there were six inspectors, who drew twelve quality samples each; the expansion in the number of inspectors compelled the laboratory to request that some inspectors draw only six samples.

When laboratory personnel discover inferior samples of fuel, they telephone DAC immediately with the results. The inspectors return to the offending outlet

and lock down the pumps supplied by the tank in question immediately if the bad fuel is still in the tank. If new fuel is in the tank, the inspector resamples the tank; if the lab results show that the new product is faulty as well, DAC locks down all pumps supplied by the tank in question. The pumps then remain locked down until a sample taken from the tank passes the lab's quality testing procedures.

The lab's average turnaround time to receive and test a sample of gasoline and then return the results to DAC is usually two to three days. DAC is aware of the problem presented by this arrangement, namely that by the time it receives notification from the lab that a sample is bad, the inferior product has probably already been distributed to unsuspecting consumers. Furthermore, PEER found no evidence that DAC and the Petroleum Laboratory had ever attempted to agree on an acceptable turnaround time for receiving sampling results. As a consequence, no system is in place for tracking how long it takes for fuel samples to be transported to the lab, processed, and the results transmitted to DAC.

Other states have experimented with mobile fuel testing facilities. North Carolina has equipped eleven vans to travel the state conducting quality sampling tests. The cost of each van, including equipment, is approximately \$30,000. Other optional equipment, which North Carolina has chosen not to utilize, could push total costs as high as \$135,000. However, North Carolina's vans are not equipped to perform octane testing, which is the area of fault found most frequently by Mississippi's central testing facility. Nonetheless, a mobile testing facility may be worth consideration for Mississippi.

DAC's inability to receive quality testing results quickly is largely due to three factors:

- The petroleum laboratory's location in the northeastern portion of Mississippi renders it not readily accessible to inspectors in the southernmost parts of the state.
- No other laboratory in the state, private or otherwise, is presently capable of providing all of the quality tests needed for the petroleum products inspection program.
- No mobile testing facilities exist to aid in reducing the time needed to receive test results.

Due to the location of the petroleum laboratory, the lack of other adequately equipped laboratory facilities in the state, and the lack of mobile quality testing facilities, DAC lacks the ability to punish violators promptly. The only penalty currently utilized by DAC for sampling violations is the lockdown of all pumps supplied by the affected underground tank. For the aforementioned reasons, lockdowns cannot be applied quickly, and often, because of the delay in receiving test results, cannot be used at all.

Conclusion

Weaknesses in administration and enforcement of petroleum products inspection stem from several causes:

- The state has not determined the full extent of fuel quality and calibration problems. No effort has been made to assess the amount of benefit provided by current enforcement actions. Until such measures are taken, the program will not operate at an optimum level.
- DAC has not adequately explained why it spends 90 percent of its resources on monitoring the quantity of fuel dispensed and only 10 percent on monitoring fuel quality. This allocation of resources cannot be justified by the extent of noncompliance in each program, because the quality inspection program has, in the past, detected a higher rate of noncompliance than the calibration inspection program.
- DAC has no formal written operating procedures to use in managing petroleum products inspection. This lack of guidelines is particularly detrimental to the area of inspector field operations and the frequency/documentation of fuel outlet inspections and sampling. DAC has no meaningful procedures in place, other than informal and “word of mouth,” for training personnel.
- DAC’s failure to maintain sufficient inspection and historical data to assist inspectors in effective and efficient management and direction of the program greatly hinders its abilities.
- The petroleum products inspection program is hampered by the dual nature of its structure and funding sources; this results in a lack of agency control over resources.

DAC’s failure to utilize program resources efficiently has significantly affected its efforts to protect consumers by insuring that quality petroleum products are provided in accurate quantities. Likewise, DAC uses no program outcome measures to gauge program achievement or upon which to base program corrective actions.

Recommendations

PEER presents the following options for consideration by the Legislature to improve the state's petroleum products inspection program.

Option One

Because this audit was intended to serve as an examination of the Department of Agriculture and Commerce's Petroleum Products Inspection Program, the first (and largest) portion of PEER's recommendations is devoted to improvements within the existing program.

Program Standards and Methods

1. The Department of Agriculture should improve precision in determining the rate at which stations introduce faulty or improperly labeled fuel into their fuel holding tanks. DAC can improve its precision in determining noncompliance rates by:
 - identifying the universe to be sampled,
 - sampling an adequate number of items (in this case, fuel deliveries) from that universe,
 - selecting items from the universe of fuel deliveries in a fully random manner,
 - sending samples to be tested for octane level, vapor pressure, etc. (as is currently done), and
 - using lab reports on the number of faulty and good samples to arrive at a precise rate of noncompliance, which can be compared to the tolerance level established as recommended above.

DAC should identify the universe to be sampled by determining or estimating the total number of deliveries of fuel that typically are made to outlets in the state each year. DAC then should determine the sample size needed for a universe of the size determined above. The sample should be large enough to permit DAC to arrive at a rate of noncompliance at an acceptable level of precision and confidence.

Having determined the sample size, DAC should develop a sampling plan to be used during the ensuing twelve-month period. This plan should indicate on a weekly basis the deliveries to be sampled (i.e., the tanks whose contents are to be sampled that week). The plan should ensure that sampling is fully random (i.e., that each delivery has the same chance of selection for quality sampling as any other tank during a given year). To achieve randomness,

DAC should ensure that the sampling plan reflects seasonal fluctuations in gasoline sales. That is, DAC cannot assume total deliveries to be distributed evenly across the months during a given year. More deliveries per month will be made in the summer, when gasoline sales are high, than in the winter. After distributing the total number of deliveries that will be sampled in a way that reflects seasonal variations in sales, DAC should develop a sampling plan showing deliveries (tank contents) from which DAC should draw samples each week.

DAC should use this sampling plan in scheduling fuel quality inspections. DAC policies should ensure that inspectors use the inspection schedule developed through this systematic approach instead of using their own subjective judgement in selecting tanks to be sampled.

2. DAC should establish a fully random system for calibration inspections to ensure unpredictability and maximize deterrence potential. A fully random selection system would improve the program's potential for deterrence without requiring more inspections or use of additional resources. The rate of detection associated with fully random procedures would provide a better basis for policy decisions relative to increasing or decreasing resources used in the pump calibration inspection program.
3. Even if DAC does not begin using scientific sampling methods immediately, petroleum enforcement program managers should change the current system to ensure randomness. In using random selection, DAC should select outlets or tanks to be inspected in a way that ensures efficient use of program personnel. A totally random method for selecting outlets to sample would require that each inspector drive to multiple counties to inspect pumps or collect samples. To avoid this inefficient use of personnel resources, PEER recommends the use of cluster sampling. This method involves selecting a particular county at random for inspection, then picking outlets at random from within that county. See Appendix E, page 46, for additional information on cluster sampling.
4. Concerning its allocation of resources, DAC should either:
 - reduce the amount of resources allocated to fuel quantity monitoring, while maintaining current levels spent on quality monitoring; or,
 - explain to the Legislature why it spends the majority of its resources on monitoring fuel quantity even though the quality inspection program has in the past detected a higher rate of noncompliance.
5. DAC should evaluate the costs versus benefits of utilizing on-site fuel quality chemical testing equipment, rather than sending all fuel samples to the Petroleum Products Laboratory. DAC's analyses should consider the potential for strengthened enforcement with immediate lockdowns and collection of directly applied penalties. The department should report the results of its study to the Legislature by January 1, 1995.

Clarification of Program Mission and Authority

6. The Legislature should clarify MISS. CODE ANN. sections 75-55-3, 75-55-6, and 75-5-22, which comprise the portion of the Petroleum Products Inspection Law of Mississippi which addresses the delineation of program authority between the Commissioner of Agriculture and Commerce and the State Chemist. Appendix B, page 32, includes draft legislation which clearly states the proper function for each of the officers responsible for oversight of the petroleum products inspection program.

Enforcement and Penalties

7. The Legislature should amend MISS. CODE ANN. Section 75-55-37 (1972) to give DAC more authority and increased penalties in regard to equipment violations, consistent with the increased penalties for petroleum products quality as amended in 1993. Appendix D, page 43, contains proposed legislation providing for penalty amounts ranging from \$1000 to \$3000, consistent with the new law passed by the Legislature during the 1993 session.

DAC should also enforce existing penalty options (lockdowns) on a more consistent basis. The addition of new monetary penalties to the law will have little meaning if DAC's existing penalties are not strictly enforced.

Data Processing System and Interagency Cooperation

8. DAC should take immediate steps to assure that its computer system and data base are fully functional and utilized.
 - a. *Actions needed:* DAC should promptly implement the necessary actions to:
 - make the successful and complete utilization of the computer system for petroleum products inspection a top priority toward more effective operation of petroleum products inspection;
 - correct defects in the computer system and make improvements in the data base structure/abilities to accompany all aspects of its statutory duties (whether amended or not);
 - provide direct training, accompanied by complete and updated instruction manuals, to inspectors and support personnel to assist in efficient use of the system;
 - establish a formal system in which inspectors correct and update inaccurate outlet/inspection information;

- implement controls and strict requirements to assure that the system is used for vital fuel outlet data and kept current for all changes (administrative and enforcement); and,
 - create and maintain an inspectors' special task force or group to meet at least quarterly and discuss problems or special needs with the data base and make plans for future needs/changes. This group should in turn meet with DAC computer personnel to express data, analytical, and other special needs of petroleum products inspection.
- b. *Increased use of data:* DAC should make maximum use of its data processing resources by :
- generating samples of outlets for monthly quality sampling and requiring inspectors' use of the samples;
 - identifying outlets that have not been recently inspected; and,
 - identifying outlets in need of more intensive inspections or quality sampling because of such problems as high recidivism or serious violations.
9. DAC should initiate an exchange of data with the Department of Environmental Quality, including possible establishment of matching data fields in each agency's computer system. Implementation of this exchange of data could greatly enhance DAC's ability to identify new fuel outlets or other changes in outlet tanks and in turn improve petroleum products inspection.

Sources of Funding and Program Structure

10. The Legislature should consider funding the petroleum products inspection program with special funds, since the program benefits a particular segment of the taxpaying population, rather than the population as a whole.

Deterioration of Lab Equipment and Slow Turnaround Time for Receiving Test Results

11. Through the budget request process, the Petroleum Laboratory should communicate to the Legislature its needs for replacing or repairing laboratory equipment used in fuel quality testing. The Legislature can then make informed decisions regarding this equipment, which directly affects the successful implementation of the penalty provisions for violations of the petroleum products inspection laws.
12. The Legislature and the Department of Agriculture and Commerce should consider options to reduce the length of time needed to receive fuel quality sampling test results. Options which should be considered include

relocating the laboratory facilities to a more central location, such as Jackson, and possible utilization of mobile testing facilities.

Uniform Procedures

13. DAC should immediately develop a manual of written standard operating procedures for petroleum products inspection. These standard operating procedures should provide inspectors and support personnel with all rules, regulations, policies, and detailed procedures needed to administer and enforce the inspection program effectively and efficiently. Written standard operating procedures are essential in supporting DAC's ability to withstand legal challenges to its sampling process in the future.

DAC should provide inspectors and support personnel with individual copies of the manuals and should update the manual as necessary. The department should initiate immediate training for current personnel and use the manual to guide the training of new petroleum inspectors.

Option Two

The Legislature should consider centralizing the petroleum products inspection program under the control of one agency. Such a realignment would solve the lack of agency control and funding problems presented by the current arrangement. Due to its role as the central agency for the planning of the state's transportation needs, the State Department of Transportation is a logical candidate to operate the program.

The mission of the petroleum products inspection program would be more closely aligned with that of the Department of Transportation than that of DAC, which is primarily concerned with the welfare of its agricultural constituency. The Department of Transportation also has a laboratory facility in Jackson, although some modification and additions to equipment would be needed for petroleum testing. The presence of MDOT's laboratory facility in Jackson would help solve another problem, namely the slow turnaround time for receiving quality testing results; this problem is partially attributable to the current lab's location in Starkville. MDOT also already has personnel stationed across the state who could be utilized in various capacities, if needed.

The Department of Transportation has a strong interest in assuring that the proper level of motor fuel taxes is assessed across the state. The shifting of agency program responsibility would make the funding essentially depend on user fees; benefits derived from the regular inspection of retail fuel outlets would be funded only by those taxpayers who regularly consume fuel and the retail outlet operators themselves.

If the Legislature chooses this option, MDOT should implement the recommendations under Option One which apply to the petroleum products inspection program regardless of whether it is located in DAC or MDOT.

Appendix A

Quality Tests Performed by the Petroleum Products Laboratory

Gravity, API--Term used to denote density of petroleum products. API stands for American Petroleum Institute. The API gravity test is used for petroleum products, instead of specific gravity. There are no state specifications for this test. It is used as a rough gauge of the type of product being tested. **(Gasoline/Alcohol Blend, Diesel, Kerosene)**

Distillation-A measure of the volatility of fuels. Measures boiling range of petroleum products. Specifications for automobile gasoline vary with the season to provide optimum compromise among vehicle performance features that depend upon fuel vaporization behavior. **(Gasoline/Alcohol Blend, Diesel, Kerosene)**

Research Octane Number-Determined by a method that measures fuel anti-knock level in a single-cylinder engine under mild operating conditions; namely, at a moderate inlet mixture temperature and a low engine speed. Research octane number tends to indicate fuel anti-knock performance in engines at wide-open throttle and low-to-medium engine speeds. (highway driving) **(Gasoline/Alcohol Blend)**

Motor Octane Number-Determined by a method that measures fuel antiknock level in a single-cylinder engine under more severe operating conditions than those employed in the Research method; namely, at a higher inlet mixture temperature and at a higher engine speed. It indicates fuel antiknock performances in engines operating at wide-open throttle and high engine speeds. Also, Motor octane number tends to indicate fuel antiknock performance under part-throttle, road-load conditions. **(Gasoline/Alcohol Blend)**

Road Octane-Average of Research and Motor Number (R+M/2). Number that appears on gasoline pumps. **(Gasoline/Alcohol Blend)**

Alcohol-Determines percentage of ethanol, methanol and other alcohols used as blending agent in gasolines. **(Gasoline/Alcohol Blend)**

Reid Vapor Pressure-Determines volatility of a gasoline or alcohol blend (tendency to vaporize). Related to distillation. **(Gasoline/Alcohol Blend)**

Cetane Number-A measure of the ignition performance of a diesel fuel. The number is obtained by testing the fuel in a standardized engine testing unit, which consists of a high compression self-ignition diesel engine. **(Diesel)**

Cetane Index-A means of estimating the cetane number of diesel fuel from API gravity and the 50% distillation point. **(Diesel)**

Flash Point-The temperature to which a fuel must be heated to produce an ignitable (flammable) vapor/air mixture above the liquid fuel when it is exposed to an open air flame. The specification is for safety purposes, not product quality purposes. **(Diesel, Kerosene)**

Appendix B

*Proposed Legislation Concerning the Petroleum
Products Inspection Program:
Role of the State Chemist*

MISSISSIPPI LEGISLATURE

REGULAR SESSION, 1994

BY:

BILL

AN ACT TO AMEND SECTIONS 75-55-3, 75-55-6, AND 75-55-22, MISSISSIPPI CODE OF 1972, BY DELETING CERTAIN REFERENCES TO THE STATE CHEMIST IN THE TEXT OF THOSE STATUTES; AND FOR RELATED PURPOSES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MISSISSIPPI:

Section 1. Section 75-55-3, Mississippi Code of 1972, is amended as follows:

§ 75-55-3. Administration and enforcement of chapter.

The Commissioner of Agriculture and Commerce, hereinafter referred to as the "Commissioner," is hereby vested with power and authority and is charged with the duty of administering and enforcing the provisions of this chapter which pertain to signs; the labeling of pumps, tanks and other packages and containers; to trade names; and to scales, pumps and measuring equipment and shall have the authority to establish rules and regulations not inconsistent herewith in connection with its enforcement.

The State Chemist is hereby vested with power and authority and is charged with the duty of administering the provisions of this chapter which authorize the analysis of samples, and the operation of the petroleum products laboratory and shall have the authority to establish rules and regulations not inconsistent herewith in connection with its enforcement.

The Commissioner and the State Chemist shall have joint authority for setting specifications of petroleum products and shall have the authority to establish rules and regulations not inconsistent herewith in connection with its enforcement.

Section 2. Section 75-55-6, Mississippi Code of 1972, is amended as follows:

§ 75-55-6. Name and/or brand name; registration; octane rating; forms; motor fuel pumps; appeal from denial of registration; termination of registration; prohibitions.

(1) Products regulated under terms of the Petroleum Products Inspection Law or regulations sold in this state shall have a name and/or brand name and such name shall be registered with the Mississippi Department of Agriculture and Commerce. The octane rating or antiknock index (R + M)/2 of applicable motor fuels, covered by the Federal Trade Commission Octane Posting and Certification Rule, shall be included in the registration. The name of the establishment, address, city, state, zip code, county and telephone number shall also be included in the registration. Registration forms shall be provided by the Mississippi Department of Agriculture and Commerce.

(2) The commissioner or his agent shall refuse the registration of any product under a name that is misleading to the purchaser of such a product.

The commissioner or his agent, in his discretion, may refuse to permit any name or brand of gasoline where a similar name or brand has already been permitted. The sale of any product under any brand name that is not registered with the department or does not meet the standards of the registration form shall not be permitted. Pumps shall be locked down until the product or products have been duly registered or brought up to specifications.

(3) Every pump dispensing motor fuel at retail shall conspicuously display the name and/or brand name being sold therefrom exactly as such name and/or brand name that is registered with the department. Each pump shall conspicuously display the octane number of the product. The octane number designation shall be changed whenever the product is changed. Each diesel pump dispensing those products at retail shall display the words "No. 1 Diesel" or "No. 2 Diesel." Each kerosene pump or fuel oil pump dispensing those products at retail shall display the words "No. 1-K Kerosene" or "No. 2-K Kerosene" or indicate the proper grade of fuel oil depending on the product dispensed.

(4) The labeling of all petroleum products on pumps shall be on both sides of the dispensing device which faces the vehicle and shall be in a clear and conspicuous place in type of at least one-half (1/2) inch in height, and one-sixteenths (1/16) inch stroke (width of type).

(5) Any application for registration that is denied may be appealed to the commissioner within thirty (30) days from the date of denial of such application.

(6) Any person who registered a brand name for a motor fuel and fails or discontinues to sell or deliver a registered product shall notify the commissioner within sixty (60) days after date of registration or date of last invoice or delivery ticket. Failure to notify the commissioner shall automatically terminate and cancel the registration of the brand name and the quality specification.

The commissioner is further authorized and empowered following the terms of the Mississippi Administrative Procedures Act to make such reasonable rules and regulations, particularly in emergency situations, which, in his judgment, will contribute to a more efficient administration of this article. Such rules and regulations, when made, shall have the same binding force and effect as if incorporated in this article; provided further, that such rules and regulations made during the said emergency periods shall be withdrawn following cessation of any such emergencies.

The commissioner is hereby authorized to prohibit the sale of any taxable petroleum product which is not in compliance with the provisions of this chapter.

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es.

Section 3. Section 75-55-22, Mississippi Code of 1972, is amended as follows:

§ 75-55-22. Permit authorizing engaging in business as producer of alcohol blended fuel.

Any person located in Mississippi, except the holder of a refiner or a processor's permit, who blends or mixes alcohol blended fuel for sale, delivery, exchange or use in Mississippi shall obtain from the commissioner a permit authorizing him to engage in business as a producer of alcohol blended fuel. Each producer of alcohol blended fuel shall have the necessary equipment to insure a complete and homogeneous mixture. The finished product shall meet all of the state's standards and specifications and shall not be transferred, sold, exchanged, delivered, used or disposed of by any other means until approved by the commissioner and the State Chemist.

All alcohol blended fuel transported or imported into the State of Mississippi shall comply with all specifications and standards adopted by this state for such use.

All gasoline, leaded or unleaded, kept, offered, or exposed for sale, or sold, at retail containing one percent (1%) or more by volume of ethanol, methanol or an ethanol/methanol mixture, shall be identified as "with" or "containing" (or similar wording) "ethanol," "methanol" or "ethanol/methanol" on the upper fifty percent (50%) of the dispenser front panels in a position clear and conspicuous from the driver's position, in a type at least one-half ($\frac{1}{2}$) inch in height, and one-sixteenth ($\frac{1}{16}$) inch stroke (width of type). All letters shall be black with a contrasting background.

All distributors, processors, refiners, and any other persons receiving, storing, selling, distributing or transporting gasoline that contains one percent (1%) by volume or more of methanol, ethanol or other alcohol shall identify the type or chemical name and percentage of such alcohol on any invoice, bill of lading, shipping paper or on any other type of documentation which is used in normal and customary practice in the petroleum industry.

SOURCES: Laws, 1990, ch. 450, § 9, eff from and after passage (approved March 20, 1990).

Section 4. This act shall take effect and be in force from and after July 1, 1994.

Appendix C

**DAC's Rules of Procedure (Including New Violation Penalties) for the
Petroleum Products Inspection Program, Effective October 20, 1993**

ADMINISTRATIVE PROCEDURES FILING NOTICE

MS Department of Agriculture & Commerce
 Agency Bureau of Regulatory Services Person to contact Mr. Tommy Harrell
 Address 500 Greymont Avenue, Suite F Address 500 Greymont Avenue, Suite F
Jackson, MS 39215-1609 Jackson, MS 39215-1609
 Phone 354-6202 Transmittal date 08-20-93

Copy attached: Yes No

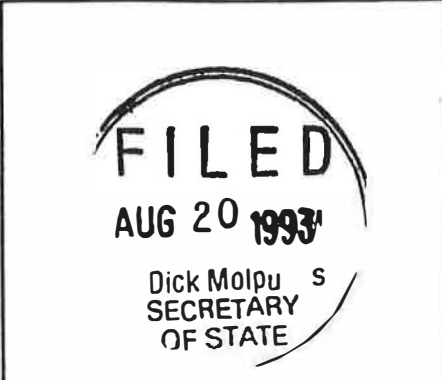

Name or number of rule(s) General Rules of Procedure

Terms or substance of the actions or description of the subject and issues: The attached, incorporated herein by reference, is a proposed "General Rules of Procedure" to be adopted in accordance with House Bill 2859 of the 1993 Session of the Mississippi Legislature and upon adoption shall control hearings conducted by the Mississippi Department of Agriculture and Commerce, Bureau of Regulatory Services, as set forth therein.

Printed name and title of person authorized to file rules: Joe M. Ragland, Special Assistant Attorney General

Name Joe M. Ragland Title _____
 Signature _____

<p>EMERGENCY RULES <input type="checkbox"/> Original filing <input type="checkbox"/> Renewal of effectiveness To be in effect _____ days Effective date: <input type="checkbox"/> Immediately on <input type="checkbox"/> Other (specify): _____</p>	<p>PROPOSED ACTION ON RULES Action proposed: <input checked="" type="checkbox"/> New rule(s) <input type="checkbox"/> Amendment to existing rule(s) <input type="checkbox"/> Repeal of existing rule(s) <input type="checkbox"/> Adoption by reference Proposed date of adoption: <input checked="" type="checkbox"/> 30 days after filing <input type="checkbox"/> Other (specify): _____</p>	<p>FINAL ACTION ON RULES Action taken: <input type="checkbox"/> Adopted with no changes in text <input checked="" type="checkbox"/> Adopted with changes <input type="checkbox"/> Adopted by reference <input type="checkbox"/> Withdrawn Date action taken <u>09-20-93</u> Effective date <input checked="" type="checkbox"/> 30 days after filing <input type="checkbox"/> Other (specify): _____</p>
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<p align="center">OFFICIAL FILING STAMP</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div> <p>Accepted for filing by _____</p>	<p align="center">DO NOT WRITE BELOW THIS LINE OFFICIAL FILING STAMP</p> <div style="border: 1px solid black; padding: 10px; text-align: center;">  </div> <p>Accepted for filing by <u>Renee Bold</u></p>	<p align="center">OFFICIAL FILING STAMP</p> <div style="border: 1px solid black; padding: 10px; text-align: center;">  </div> <p>Accepted for filing by <u>Renee Bold</u></p>
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**THE STATE OF MISSISSIPPI
DEPARTMENT OF AGRICULTURE AND COMMERCE
BUREAU OF REGULATORY SERVICES
Jackson, Mississippi 39205**

GENERAL RULES OF PROCEDURE

1. PURPOSE

The following rules are adopted in accordance with Senate Bill 2859 of the 1993 Session of the Mississippi Legislature and shall control hearings conducted by the Mississippi Department of Agriculture and Commerce, Bureau of Regulatory Services, hereinafter referred to as the "Bureau", resulting from violations of title 69, chapter 55, section 37 et seq. of the Mississippi Code of 1972 or any rules or regulations promulgated thereunder.

2. DESIGNATED REVIEWING OFFICER

The Chief of the Bureau of Regulatory Services or his designated employee shall act as a reviewing officer.

3. COMPLAINT

When a complaint is received, either from an individual or from Department personnel pursuant to an investigation, the reviewing officer shall:

(a) Cause the complaint to be in writing and signed by the inspector making the charge;

(b) Insure that the complaint is filed in the office of the Bureau of Regulatory Services; and

(c) Send a copy of the complaint and any supporting documents to the person accused along with a request for the accused to respond to the allegations within thirty (30) days from receipt of such notice. Failure to file an answer to or plead specifically to any allegation of fact in the complaint may constitute an admission of such allegation. Said complaint and supporting documentation shall be served on the accused by registered mail, return receipt requested, or by any method allowed by Rule 4 of the Mississippi Rules of Civil Procedure.

4. REVIEWING OFFICER'S RECOMMENDATION

Upon receipt of the response and any supporting documents from the accused, the Reviewing Officer shall screen all information on file to determine the merit of the complaint or lack thereof. Based on the evidence, the Reviewing Officer may:

(1) Meet with the accused to discuss the alleged violation; or

(2) Recommend to the Commissioner of Agriculture and Commerce, hereinafter referred to as "Commissioner", that the complaint be dismissed; or

(3) Recommend to the Commissioner that an appropriate penalty, be levied in accordance with the attached Penalty Assessment Guidelines.

5. REQUEST FOR HEARING

The accused shall have thirty days (30) from receipt of the Reviewing Officer's decision within which to file, with the Reviewing Officer, a written request for a hearing.

6. REPRESENTATION

All parties may represent themselves or be represented by counsel.

7. FAILURE TO APPEAR

The failure of any party to appear at any administrative proceeding created under this regulation shall be deemed to be a waiver of such right.

8. HEARING

The Reviewing Officer shall within thirty (30) days of receipt of a written request from the accused, schedule a hearing. The hearing shall be before an Appeals Committee comprised of the Commissioner of Agriculture and Commerce, or his designee, the President of the Petroleum Marketer's Association, or his designee and a representative of the Attorney General. The Reviewing Officer shall have the authority to grant continuances, in his discretion, for good cause. Written notice of the date, time and place of such hearing shall be mailed to the accused by registered mail, return receipt requested, not less than fifteen (15) days prior to the commencing of the hearing. The hearing shall be closed unless the accused shall request a public hearing. The Reviewing Officer shall impose necessary restrictions to ensure an orderly and impartial proceeding.

9. EVIDENCE

(A) The testimony of witnesses at a hearing shall be upon oath or affirmation and subject to cross-examination. Any witness may, in the discretion of the Appeals Committee, be examined separately and apart from all other witnesses except those who may be parties to the proceeding.

(B) All relevant evidence that is not unduly repetitious shall be admitted. Hearsay, as defined by the Mississippi Rules of Evidence, shall be admissible only to the extent that it corroborates other evidence.

(C) If a party objects to the admission or rejection of any evidence or to the limitation of the scope or any examination or cross-examination, such party shall state briefly the grounds for such objection, whereupon an automatic exception will follow if the objection is overruled by the Appeals Committee.

(D) A true copy of every written entry in the records of the Department, made by an officer or employee thereof in the course of official duties and relevant to the issues involved in the hearing, shall be admissible as prima facie evidence of the facts stated therein, without the production of such officer or employee.

(E) Except where the Appeals Committee finds that the furnishing of copies is impracticable, copies of each exhibit, in addition to the original, shall be filed with the Appeals Committee, for the use of the other parties to the proceeding. Provided that a true copy of an exhibit may be substituted for an original.

(F) Whenever evidence is excluded from the record, the party offering such evidence may make an offer of proof, which shall be included in the transcript. The offer of proof shall consist of a brief statement describing the evidence to be offered. If the evidence consists of a brief oral statement or an exhibit, it shall be inserted into the transcript in its entirety.

(G) At the request of the Appeals Committee, each party may file proposed findings of facts and conclusions of law, and a brief in support thereof, within such time as the Appeals Committee may proscribe. The Appeals Committee may request that such proposed findings of facts and conclusions of law be filed before, during or after the hearing.

10. FILING

All documents or papers required or authorized to be filed shall be filed with the Reviewing Officer and copies served on

all parties with a certificate of service which states the date of service and who was served.

11. COMPUTATION OF TIME

Computation of time shall be the same as required in the Mississippi Rules of Civil Procedure.

12. EXTENSIONS OF TIME

The time for filing any document or paper required or authorized by these rules can only be extended by the Reviewing Officer, if the request for extensions is made prior to the expiration of the final date allowed for such filing, and if in the judgement of the Appeals Committee there is good reason for the extension and the opposing party will not be prejudiced.

13. FINDINGS OF FACT AND CONCLUSIONS OF LAW

At the conclusion of the hearing, the Appeals Committee shall prepare a written final opinion incorporating its findings of facts and conclusions of law.

14. POWERS OF THE APPEALS COMMITTEE

(A) The Appeals Committee is delegated authority and empowered by the Commissioner of Agriculture and Commerce to:

- (1) Rule upon motions and requests;
- (2) Set the time and place of the hearing or conference, adjourn the hearing from time to time, and change the time and place of the hearing;
- (3) Examine witnesses;
- (4) Admit or exclude evidence;
- (5) Hear oral argument of facts and law;
- (6) Do all acts and take all measures necessary for the maintenance of order at the hearing and for the efficient, fair and impartial conduct of the proceeding;
- (7) Issue the final decision of the Department.

15. NOTICE AND WAIVER

Failure of the accused to request a hearing or respond to the complaint within thirty (30) days shall constitute a waiver of

the right to a hearing.

16. PENALTIES

The Appeals Committee shall notify the accused of his final decision. Any penalties assessed by the Appeals Committee shall be due and payable within forty five (45) days of the notification of the decision. The Appeals Committee, in their discretion, may grant additional time within which penalties may be paid.

17. RECONSIDERATION

Within twenty (20) days after receiving the final decision the accused may allege in writing a request for reconsideration based upon a clear error of fact or law. The Appeals Committee may upon reviewing same, modify or review its previously issued final decision. The accused should view a request for reconsideration as an exceptional process, not merely as another progressive step in the proceeding.

18. PENALTY ASSESSMENT GUIDELINES

The foregoing General Rules of Procedure for the Bureau of Regulatory Services, Mississippi Department of Agriculture and Commerce were adopted by the Commissioner on this the 20th day of September, 1993.

Signed,



Jim Buck Ross
Commissioner

**MISSISSIPPI DEPARTMENT OF AGRICULTURE AND COMMERCE
PETROLEUM PRODUCTS INSPECTION DIVISION**

PENALTIES

CLASS I

\$1,000 - \$1,500

3RD OFFENSE CALIBRATION VIOLATION

Per:

Section 10 (75-55-19)

Section 21 (75-55-37)

Regulation No. 1

Regulation No. 2

2ND OFFENSE STOP SALE +3" WATER

Per:

Section 3 (75-55-5)

Regulation No. 4

2ND OFFENSE REFUSAL TO ALLOW INSPECTOR TO CALIBRATE

Per:

Section 14 (75-55-23)

Section 16 (75-55-27)

2ND OFFENSE REFUSAL TO ALLOW INSPECTOR TO COLLECT SAMPLES

Per:

Section 14 (75-55-23)

Section 16 (75-55-27)

2ND OFFENSE FAILURE TO REGISTER RETAIL OUTLETS

Per:

Section 3 (75-55-5)

Section 3 (75-55-6)

**2ND OFFENSE TO POST CERTIFICATE OF REGISTRATION ISSUED BY
COMMISSION IN A PROMINENT AND ACCESSIBLE PLACE IN EACH BUSINESS
WHERE PRODUCT IS SOLD**

Per:

Section 3 (75-55-6)

Regulation No. 6

2ND OFFENSE BLENDING VIOLATION

Per:

Section 3 (75-55-5)

Section 8 (75-55-15)

Section 13 (75-55-22)

Regulation No. 8

Regulation No. 10

Regulation No. 11

CLASS II

\$1,500 - \$2,000

2ND OFFENSE STOP SALE CALIBRATION -25 OR MORE

Per:

Section 21 (75-55-27)
Regulation No. 1
Regulation No. 2

CLASS III

\$2,000 - \$2,500

2ND OFFENSE SIGN VIOLATION

Per:

Section 3 (75-55-5)
Section 3 (75-55-6)
Section 5 (75-55-9)
Section 6 (75-55-11)
Section 7 (75-55-13)
Section 8 (75-55-15)
Section 9 (75-55-17)
Section 12 (75-55-21)
Section 13 (75-55-22)
Section 16 (75-55-27)
Regulation No. 2
Regulation No. 7
Regulation No. 9

2ND OFFENSE OF PETROLEUM PRODUCT NOT MEETING STATE SPECIFICATIONS

Per:

Section 3 (75-55-5)
Section 6 (75-55-11)
Section 7 (75-55-13)
Regulation No. 8
Regulation No. 9
Regulation No. 10

CLASS IV

\$2,500 - \$3,000

2ND OFFENSE OF A CLASS I, A CLASS II, A CLASS III, OR A COMBINATION OF ALL CLASSES CONSTITUTES A CLASS IV VIOLATION

Appendix D

*Proposed Legislation Concerning the Petroleum
Products Inspection Program:
New Penalties*

MISSISSIPPI LEGISLATURE

REGULAR SESSION 1994

BY:

BILL

AN ACT TO AMEND SECTION 75-55-37, MISSISSIPPI CODE OF 1972, TO ENACT NEW PENALTIES FOR VIOLATIONS OF THE PETROLEUM PRODUCTS INSPECTION LAWS BY LEVYING MONETARY FINES; AND FOR RELATED PURPOSES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MISSISSIPPI:

Section 1. Section 75-55-37, Mississippi Code of 1972, is amended as follows;

§ 75-55-37. Penalty.

(1) The commissioner or his duly appointed representatives shall have the right to request an inspection of any pump, truck, or other equipment, and if upon such inspection any such pump, truck, or other equipment is found to be inaccurate to the extent that a test thereof shows a deficiency of more than twenty-five (25) cubic inches on a five (5) gallon measurement, or if the right to inspect any such pump, truck, or other equipment is refused or denied the commissioner, or his duly authorized representatives, he or they shall have the right to immediately close and lock said pump and other equipment or to seal same with the commissioner's seal. If such pump, truck, or other equipment is found to be inaccurate but the deficiency is twenty-five (25) cubic inches or less on a five (5) gallon measurement, then the commissioner or his representative shall give the owner or operator thereof forty-eight (48) hours within which to correct such inaccuracy and if such person fails or refuses to correct same within said period then the commissioner or his representative shall have the right to lock and seal such pump or other equipment in the same manner as provided above.

It shall be prima facie presumed upon any refusal to allow the right to inspect that the pump, truck, or other equipment sought to be inspected is inaccurate to the extent set forth above, or is operating in violation of this chapter. When any such pump or other equipment is locked or sealed, it may not be unlocked or the seal thereon broken except in the presence of a mechanic or other person called for the purpose of repairing the inaccuracy in the machinery of such pump or other equipment, and such inaccuracy shall be immediately thereafter repaired, and the pump or other equipment properly regulated. The commissioner may, in his discretion, require an affidavit from the mechanic repairing such pump or other equipment, or any other proof which he may deem advisable to the effect that said pump was unlocked or the seal thereon broken in the presence of such mechanic, and that the inaccuracies therein were thereupon completely repaired or regulated.

When a state or factory seal is broken on the measuring adjustment device on a retail pump, it shall be the duty of the station operator to notify the commissioner by United States mail, within twenty-four (24) hours, after the breaking of said seal. After the commissioner has received written notice as herein provided and he or his agent has resealed the measuring adjustment device on the pump or pumps at this station, it shall be unlawful for the owner or operator of the station or any of his employees to break a state or factory seal on the measuring adjustment device on any pump at the station during the ensuing ninety (90) days without the prior approval of the commissioner or his agent.

The State of Mississippi shall have a lien on all pumps trucks, and other equipment used by any distributor, or other person, in the operation of his business for any tax or penalty due the State of Mississippi because of any violation of this chapter. Such lien shall be paramount to any and all private liens and all the provisions set out in Chapter 7 of Title 85 of the Mississippi Code of 1972, shall be applicable herein for the purpose of securing the enforcement of said lien, and particularly the right to secure the issuance of a writ of summons and seizure and proceedings had and done after the issuance of said writ shall be applicable. Provided, however, that the commissioner shall not be required to give any bond in any such case.

Any person or officer, agent or employee thereof who shall violate any provision of this chapter shall be guilty of a misdemeanor and, upon conviction, shall be punished by a fine not exceeding One Hundred Dollars (\$100.00) for the first offense and not less than One Hundred Dollars (\$100.00) nor more than Two Hundred Dollars (\$200.00) for each subsequent offense or imprisonment in the county jail for a period not to exceed ninety (90) days or both.

(2) If any petroleum product manufactured, distributed, stored, offered for sale or sold by any person, manufacturer, distributor, jobber or retailer in the State of Mississippi shall be adjudged by the commissioner to be in violation of the provisions of the Petroleum Products Inspection Law of Mississippi or any regulation adopted for the enforcement and administration of such law, he shall immediately issue an order of stop sale on such petroleum products. In the event subsequent violations of the foregoing provisions are detected in the product within a twelve (12) month period of time between such violations, the commissioner may assess a civil penalty in an amount not less than One Thousand Dollars (\$1,000.00) and not more than Three Thousand Dollars (\$3,000.00) for each petroleum product determined to be in violation.

(3) Any fuel dispensing equipment found to be in violation of subsection one (1) of this section may be subjected to further penalty by the Commissioner or his duly authorized representatives. These subsequent violations, if detected within a twelve (12) month period of time between such violations, may result in the assessment of a civil penalty in an amount not less than one thousand dollars (\$1,000.00) and not more than three thousand dollars (\$3,000.00) for each violation determined to have taken place. Any penalty provided for in this subsection shall be supplemental to any other civil or criminal penalties provided for by law.

(4) The commissioner is authorized to suspend, revoke and/or permanently deny a license under the Petroleum Products Inspection Law of Mississippi

to any person, firm, corporation or other organization determined to be guilty of two (2) or more violations per location, per year, of the Petroleum Products Inspection Law of Mississippi and the rules and regulations in force pursuant thereto.

(5) In lieu of, or in addition to, the penalties provided above, the commissioner and the State Chemist shall have the power to institute and maintain in the name of the state any and all proceedings necessary or appropriate to enforce the provisions of the Petroleum Products Inspection Law of Mississippi and the rules and regulations in force pursuant thereto, in the appropriate circuit, chancery, county or justice court in which venue may lie. The commissioner and the State Chemist may obtain mandatory or prohibitory injunctive relief, whether temporary or permanent, and it shall not be necessary for the state to post a bond or prove that no adequate remedy is available at law.

(6) All penalties assessed by the commissioner under this section shall be deposited in the State General Fund.

Section 2. This act shall take effect and be in force from and after July 1, 1994.

Appendix E

Method for Ensuring Randomness in Selecting Outlets for Inspection

Randomness in selecting outlets for inspection would ensure that each outlet has the same chance of selection as any other outlet during a given year. Random selection, together with confidentiality in handling sampling plans, would reduce any predictability in selecting outlets to be inspected and would ensure fairness. Eliminating predictability can be expected to deter station operators from violating calibration and quality regulations.

The steps listed below suggest a method that DAC could use to ensure randomness. These steps address the issue of random selection of outlets (stations). This method would not be sufficient for a sampling procedure whose objective is to precisely determine the *rate* of noncompliance with fuel quality regulations. For example, if DAC wanted to arrive at a precise rate of noncompliance with quality standards, its managers would have to identify fuel deliveries, not outlets, as the universe to be sampled. They also would have to determine the proper sample size at the desired levels of precision and confidence. The method described below ensures randomness only, not precision of measurement.

Rationale for Cluster Sampling

Sampling on a simple, fully random basis would result in a sampling plan that would require that each inspector drive to outlets in multiple counties each day. The cost of sampling the state on a fully random basis would be high because of the distance that inspectors would have to travel if the outlets selected were broadly scattered across the inspector's area.

To ensure randomness while avoiding inefficient use of staff resources, the Department of Agriculture should consider using a cluster sampling method instead of a simple random sampling procedure. That is, the department should randomly select a county to be inspected on a given work day, then randomly select outlets within that county.

Overview

The method described below would distribute the days available for sampling among the counties in the area on the basis of the number of outlets in a county. Having selected the county to be sampled, the inspector would randomly select outlets whose pumps or tanks are to be inspected. This method is based on the assumption that each area (subdivision of the state as determined by DAC) has approximately the same number of outlets

and that the department knows how many work periods (e.g., days or half-days) will be devoted to inspection (pump calibration or quality sampling) within a given period (e.g., year). This method also assumes that, in the case of quality sampling, one sample of gasoline will be drawn a randomly selected tank at each outlet chosen for inclusion in the sample.

Random Selection of the Counties to Be Sampled

The number of outlets in counties varies considerably. For example, Warren County has 108 stations, but neighboring Issaquena County has only 8 stations. To ensure that no outlet has a higher likelihood of selection than any other outlet (e.g., because it happens to be located in a county with very few outlets), the frequency with which a county is selected for inspecting should depend on the number of outlets in that county. The time spent in inspecting can be allocated equitably by using the number of outlets in each county as a basis for distributing the time available for inspecting among the counties.

Use the Number of Stations in Each County As a Basis for Distributing the Time Available for Sampling. To distribute properly the time available for inspecting among the counties in a given area, the department should determine the proportion of the area's outlets that are located in each county. For example, 108 (24%) of the 452 outlets in Area 12 are in Warren County, so approximately 24% of the days available for inspecting should be spent in Warren County. If 50 days per year are available for quality sampling, twelve days (24% X 50 days) should be spent drawing samples in Warren County. By contrast, only 2% of the outlets in Area 12 are in Issaquena County, so only one day (2% X 50 days) should be spent there. Exhibit E-1 illustrates the distribution of time available among counties, based on the number of outlets in each county.

Select the County to Be Checked on A Given Day. The schedule for inspecting should be random to eliminate predictability in the general location of inspection activities. To ensure randomness, the department should list each county in the area one time for each work period (day or half-day) to be spent there. For example, in the case of Area 12, Warren County should be listed twelve times (one time for each day to be spent there, as determined above) and Issaquena County should be listed once. The number of entries in the resulting list will be equal to the number of days available for inspection. This list should be numbered consecutively (e.g., from 1 to 50). (See Exhibit E-2 for an example of such a list.)

The department should use a random number table, such as the first table in Exhibit E-3, to select the county to be checked on the first day on which inspections are to be conducted, the second day, the third day, etc. This can be accomplished by beginning at a randomly chosen point on a random number table, such as the first number in the third row of Exhibit E-3 (Random Numbers Between 1 and 100). This number is 34. Item 34 of

Exhibit E-2 is Warren County, which is the county that should be checked on the first day. Moving to the right on the random number table, the second number is 5, which corresponds to Attala County, the county to be inspected on the second day. This process should be repeated until each item in Exhibit E-3 has been chosen. No item in Exhibit E-3 should be chosen more than once. The result will be comparable to Exhibit E-4, a list of work periods (days or half-days) and the county whose outlets are to be inspected in each work period.

Random Selection of the Stations to Be Checked

After choosing a county for inspection on a given day, the department should list the outlets in the county and assign a number to each outlet, beginning with "1" and ending with the number of outlets in that county. Using this list and the random number table on the right side of Exhibit E-3, the department should select outlets to be inspected. For example, if six outlets are to be inspected, the department should begin at a random point on the random number table (e.g., the second column in the fourth row of the table of numbers from 1 to 500, which is the number 408) and designate the corresponding outlet as the first member of the group to be inspected. The 408th outlet on the list should be one of the outlets to be inspected on that day. If the county has fewer than 408 outlets, the number 408 should be skipped and the next number to the right, 388, should be chosen and the corresponding outlet included in the day's inspections. If that number (388) is outside the desired range (i.e., is higher than the number of outlets in the county), the department should keep moving systematically through the random number table until it reaches a number that is within the desired range. If six inspections are to be conducted, this process should be continued until six outlets have been selected.

Conclusion

If the department uses a selection procedure like the one described above and maintains full confidentiality of the resulting sampling plans, the selection process will be fully random and will be unpredictable on the part of the outlets monitored by the department. This randomness and lack of predictability should maximize the system's value in enforcement and deterrence.

This general approach to selection can be applied regardless of the number of inspectors or the number of work periods devoted to quality sampling or calibration inspection. For example, if a specified number of inspectors performed quality sampling on a full-time basis, the department would divide the state into areas on the basis of the number of inspectors and each inspector would use the method described above to develop a 240-day-per-year sampling plan.

Exhibit E-1

**Example of Use of the Number of Stations in Each County as a Basis
for Distributing the Time Available for Drawing Quality
Samples Among the Counties in an Area**

Area: 12
Days Available: 50

County	Stations	% in Area	Days (or half-days)
Attala	84	18.58%	9
Holmes	50	11.06%	6
Humphreys	31	6.86%	3
Issaquena	8	1.77%	1
Madison	87	19.25%	10
Sharkey	21	4.65%	2
Warren	108	23.89%	12
Yazoo	63	13.94%	7
TOTAL	452	100.00%	50

SOURCE: PEER Analysis of Department of Agriculture Data.

Exhibit E-2

Example of Distribution of Available Work Periods Among Counties In Area 12

1 Attala	26 Madison
2 Attala	27 Madison
3 Attala	28 Madison
4 Attala	29 Madison
5 Attala	30 Sharkey
6 Attala	31 Sharkey
7 Attala	32 Warren
8 Attala	33 Warren
9 Attala	34 Warren
10 Holmes	35 Warren
11 Holmes	36 Warren
12 Holmes	37 Warren
13 Holmes	38 Warren
14 Holmes	39 Warren
15 Holmes	40 Warren
16 Humphreys	41 Warren
17 Humphreys	42 Warren
18 Humphreys	43 Warren
19 Issaquena	44 Yazoo
20 Madison	45 Yazoo
21 Madison	46 Yazoo
22 Madison	47 Yazoo
23 Madison	48 Yazoo
24 Madison	49 Yazoo
25 Madison	50 Yazoo

The number of times counties are listed corresponds to the number of work periods to be spent in each county. (See Exhibit E-1.)

Exhibit E-3

Examples of Random Number Tables

Random Numbers Between 1 and 100				
76	36	11	4	10
9	6	12	25	13
34	5	16	38	15
48	27	19	2	2
17	48	20	44	12
8	18	26	43	22
17	22	24	17	13
26	4	11	28	40
20	33	44	15	18
48	40	25	28	1
17	25	38	2	4
29	27	33	20	46
22	39	40	43	22
49	47	47	50	6
14	23	16	22	20
16	7	44	38	24
8	46	3	21	15
6	28	3	46	19
16	2	25	43	27
13	32	25	32	27
8	44	26	39	33
49	11	46	43	38
25	28	43	10	5
28	28	32	38	27
17	41	32	44	28

Random Numbers Between 1 and 500				
14	62	474	282	102
114	290	201	137	474
167	225	180	207	438
404	408	388	230	318
138	401	198	122	174
363	330	442	284	258
201	130	238	220	362
138	431	95	103	293
67	447	343	500	369
327	64	173	207	388
37	388	379	489	154
204	94	296	41	283
157	123	29	162	164
255	153	445	224	52
193	393	328	153	286
401	331	230	242	324
427	394	369	114	88
120	175	340	290	294
37	390	45	291	236
229	277	235	69	177
461	424	403	10	106
280	212	139	275	6
62	433	169	219	288
210	349	393	468	325
293	49	106	281	479

These tables are for illustration only and are incomplete.
Random number tables used in sampling should include all
numbers in the desired range.

Exhibit E-4

**Work
Period
(Day)** **County to Be Sampled
(And Identifier from
Exhibit A-2)**

1	Warren (34)
2	Attala (5)
3	Humphreys (16)
4	Warren (38)
5	Holmes (15)
6	Yazoo (48)
7	Madison (27)
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.
17	.
18	.
19	.
.	.
.	.
.	.
50	.

Agency Responses

**MISSISSIPPI
DEPARTMENT OF
AGRICULTURE
AND COMMERCE**

P.O. BOX 1609 JACKSON, MISSISSIPPI 39215-1609

JIM BUCK ROSS
COMMISSIONER



November 16, 1993



Mr. John Turcotte, Director
PEER Committee
P. O. Box 1204
Jackson, MS 39215-1204

RE: RESPONSE TO PEER COMMITTEE'S PERFORMANCE AUDIT OF THE
MISSISSIPPI DEPARTMENT OF AGRICULTURE & COMMERCE'S PETROLEUM
PRODUCTS INSPECTION PROGRAM

Dear Mr. Turcotte:

We have received the draft of the executive summary dated
December 14, 1993 and offer the following comments to your
recommendations:

OPTION 1:

- No. 1 As you are aware, the Petroleum Products Inspection Program has experienced difficulties in its data processing due to budget constraints and the limited training of its computer personnel. We are currently in the process of upgrading our computer capabilities. We have contracted with CDPA to assure that the computer system is fully functional and utilized. The department agrees with the recommendation and will move toward implementing a scientific sampling schedule on fuel quality inspections.
- No. 2 We agree that a fully random selection system for calibration inspections could improve the program. You are aware of the budget constraints in the department and this program. A fully random inspection program may not be feasible due to limited funds for inspection travel and vehicle expenses. We will explore a random selection with a smaller universe than a fully random program. Our goal is to ensure that every pump is inspected twice each year.
- No. 3 We concur with your recommendations. It is the intent of the Department of Agriculture and Commerce to fully utilize program personnel.

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- No. 4 The workload of the petroleum division's personnel in monitoring fuel quality is determined by the number of samples of the product that can be analyzed by the Petroleum Laboratory at Mississippi State. We are currently sending them the maximum number of samples which they can handle for us.
- No. 5 The Department of Agriculture and Commerce has explored in the past the possibility of purchasing on-site fuel quality chemical testing equipment. We are aware that this would strengthen the department's enforcement activities as it would allow us immediate lockdowns. Budget constraints have prevented us from using this method of testing.
- No. 6 We concur with your recommendation and will pursue getting amended legislation adopted in the 1994 session.
- No. 7 We concur that the Department of Agriculture and Commerce needs more authority and increased penalties in regard to violators of the Petroleum Productions Inspection Law. We have pursued efforts in the Legislature for the last three years to increase these penalties. We will pursue legislation in the 1994 session for additional penalties on quantity violations. Slow turnaround on quality inspections causes lockdowns on an inconsistent basis.
- No. 8 The Department of Agriculture and Commerce is currently in the process of upgrading the computer system for the Petroleum Products Inspection Division.
- No. 9 The Department of Agriculture and Commerce has exchanged data with the Department of Environmental Quality in the past. We will contact the Department of Environmental Quality to establish a more defined system and time of exchanging information.
- No. 10 The Department of Agriculture and Commerce has furnished information to the Legislature in the past on various ways of funding the Petroleum Products Inspection Program. These revenue sources ranged from licensing fees, inspection fees, and penalties. None of these proposals were well received by the legislative committee or industry personnel.

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- No. 11 The Legislature should take into consideration the length of time needed to receive sampling tests results at the same time it considers upgrading laboratory equipment.
- No. 12 The decision to move the Petroleum Products Laboratory is a legislative decision, however any location selected would still leave certain areas of the state at a considerable distance from the laboratory. The utilization of mobile testing facilities as mentioned in my comments to number 5 would provide immediate results and lockdowns in violations. We will submit to the 1994 Legislature the cost of mobile testing equipment.
- No. 13 The Department of Agriculture and Commerce will develop an employee manual standard operating procedures for the Petroleum Products Inspection Division.

OPTION 2:

We do not concur with this option. Of the 31 states that have a program, 21 are housed in the Department of Agriculture and Commerce and one (1) is housed in the Department of Transportation. The Department of Agriculture has a greater number of regulatory activities. The Department of Transportation is not a regulatory agency, nor are its employees trained in this type of activity.

I appreciate the opportunity to respond to your comments.

Sincerely,



Jim Buck Ross
Commissioner



Mississippi State Chemical Laboratory

MISSISSIPPI STATE CHEMICAL LABORATORY'S RESPONSE TO PEER COMMITTEE AUDIT OF THE PETROLEUM PRODUCTS INSPECTION PROGRAM

The State Chemist and the Department of Agriculture and Commerce are jointly responsible for the administration of the Petroleum Products Inspection Program. The State Chemist wishes to reply to the performance audit report of the PEER Committee's investigation of this program. In the course of his discussion involving several different areas, the reader should refer to Table 1 on page 7 of this report, which contains information about similar programs in the four surrounding states and in several other southern states.

MISSION AND AUTHORITY

The State Chemist agrees that the Petroleum Products Inspection Law of Mississippi needs to be clarified in regard to separation of the duties of the State Chemist and the Commissioner of Agriculture and Commerce. He agrees to the changes proposed in Sections 75-55-6 and 75-55-22 of the draft legislation in Appendix B of the PEER Committee report. However, because the product specifications are complicated and highly technical, the State Chemist should have input into them. The draft legislation in Appendix B removes him from input into specifications and give this authority to the Commissioner alone. The State Chemist believes that the draft of Section 75-55-3 on page 8 of this report would be more appropriate, since it would completely separate his and the Commissioner's duties, except for the joint duty of setting product specifications. Both departments should have input into these specifications because the State Chemist has the technical expertise to determine which properties need to be regulated and the Commissioner must enforce the specifications.

ENFORCEMENT AND PENALTIES

The lockdown has been the only method of enforcement available to DAC prior to FY 1993-94, and the laboratory turnaround times did affect DAC's enforcement ability. Turnaround time problems are experienced by all states with petroleum products regulatory programs, and most states utilize a fine system for violations instead of or in addition to the lockdown. Collecting samples, transporting them to the laboratory, and analyzing them prior to sale is virtually an impossibility, particularly for products sampled at high volume stations which may receive daily shipments of fuels. Locking down a pump which has received a shipment of fuel between sampling and analysis could be grounds for a lawsuit.

Determination of faulty samples is not a simple task. All scientific methods have some degree of tolerance or accepted variation in results in them. Two different analysts or two different laboratories running identical samples will probably not obtain exactly identical results. The acceptable difference is known as method tolerance, and varies with the type of determination. A common occurrence in any testing laboratory is data which falls outside the absolute legal specification, but within the method tolerance. In such cases, the Petroleum Products Laboratory characterizes the product as borderline, rather than faulty, and requests a resample and reanalysis before regulatory action is taken to prevent legal problems. Thus the following three types of results emerge from the laboratory: pass, fail, and borderline but within tolerance. Borderline samples are not classified as faults, but are grounds for a resample. The interpretation of borderline results as faults may have contributed to the low ratio of lockdowns to faults in the PEER Committee report. Borderline results should not be counted in either the pass or fail categories because they are resampled and reanalyzed and are characterized as passing or failing the specification after the second analysis.

Imposition of a fine system will eliminate the turnaround time problems as far as enforcement is concerned but will not solve the problem for the consumer. The delivery of samples from South Mississippi is as much a factor as is analysis time in the turnaround time. These problems could be solved by a commitment of sufficient resources to assure prompt delivery and efficient analysis.

SOURCES OF FUNDING AND PROGRAM STRUCTURE

The State Chemist agrees that separate funding of the petroleum products inspection and testing programs from a special fund would allow for easy determination of total program costs. The monies for inspection under DAC and the analysis under MSCL could be appropriated from special funds to these agencies and separate accounts from the general funding of the agencies kept in order to achieve account totals for these programs.

The State Chemist believes that the reasons for placing the laboratory under MSCL are clearly valid and important. These reasons include the fact that the technical expertise necessary to run this facility is already in place and should not be duplicated. Another reason is the ability of the present location at MSU to attract professional level scientists. Accuracy of the testing results depends greatly on the technical ability of the analyst. The education and experience levels of the present staff are presented in Table 2, page 9 of this report. In the past the location has been a powerful tool in recruiting qualified technical personnel because of the possibility of pursuing a graduate degree while being employed in a fully professional capacity.

At the present time the laboratory's location is affecting timely delivery of samples from South Mississippi. Samples from this area are collected one morning and delivered to DAC in Jackson that afternoon. On the next morning the samples are transported to the laboratory by a DAC employee and usually arrive by midmorning. They must be refrigerated for several hours prior to testing, which is begun in the afternoon. By the beginning of analysis the samples are already over 24-hours old. Samples from the northern part of the state are delivered by each inspector on the day of collection, and analysis is begun within three hours. If the laboratory were moved to Jackson, the samples from South Mississippi could arrive more quickly, but the inspectors in North Mississippi would then have the same problems now experienced by the inspectors in the southern area. In addition, simply moving the laboratory would not decrease the sample analysis time. These problems could be best solved by employing additional resources to improve the time in transit. If funds were available to pay for immediate transport, the samples could be delivered to our laboratory from South Mississippi on the same day they are collected. Providing such funds is a much less expensive alternative than relocation of the laboratory. UPS has been able to provide Louisiana one-day service on shipping about 5,000 samples per year for about \$20,000. Our state would have the additional expense of purchasing sample containers and cases which meet federal regulations for shipping hazardous materials.

DETERIORATION OF LABORATORY EQUIPMENT AND SLOW TURNAROUND TIME IN RECEIVING TEST RESULTS

The laboratory has experienced quality control problems in the recent past in the areas of vapor pressure and octane determinations because of the age of its equipment. Since the audit was performed, the vapor pressure problem appears to have been solved. The high rate of octane faults in the audit report is applicable only to exchange samples, not to regulatory samples. The laboratory receives samples from three different gasoline exchange groups (2 sets monthly and 1 set quarterly). Results from these samples (which are also tested in a large number of industrial, private, and state regulatory laboratories) form the backbone of the octane quality control program. Fault rates in the audit report were based on the exchange group's standard deviation for each sample. The pass/fail status of regulatory samples is not determined in this manner but is determined by the octane testing method tolerance as set by ASTM. This tolerance is greater by a factor of at least two than the standard deviations of the exchange samples. For our report to the PEER Committee the laboratory used the standard deviations as a basis for the octane fault rate to illustrate the need for modernization of the testing equipment without disclosing the actual tolerance to possibly unscrupulous operators when this report becomes public information.

The octane testing engine is a specially designed one-cylinder test unit which runs at a constant speed. Only one company in the

Western Hemisphere manufactures these engines. The unit must meet a number of strict tolerances before it can be operated and must be operated under strictly controlled laboratory conditions to produce accurate octane numbers. The number posted on a gasoline pump is an average of two different methods and is known as (R+M)/2 octane number or antiknock index. The R stands for the Research Method and approximates highway driving. The M represents the Motor Method, which approximates heavy-duty, short-trip driving. Road octane number is a function of each individual vehicle, but the (R+M)/2 number is considered to be an approximation of road octane number. Octane number is currently determined by the bracketing procedure. Conversion of the test units to the compression ratio procedure would increase productivity, but additional funds are necessary for the conversion.

The number of fuel quality samples collected by DAC inspectors is limited by the laboratory's ability to process samples. The use of manual equipment slows the analysis, and the laboratory has no automated equipment. The four chemists work full-time on testing; the director is responsible for sample paperwork and administrative duties; and the part-time technician processes the sample reports and packs sample cases.

Use of automated testers for vapor pressure, distillation, and for flash point determinations plus modernization and computerization of the octane testing equipment would increase the laboratory's productivity and allow for an increase in numbers of samples tested. Tennessee's contract laboratory is automated, and Georgia is able to distill 19,000 gasoline samples because it possesses numerous automatic stills. Tennessee requires its contract laboratory to return sample reports to their DAC within 48 hours after it receives the samples. Two days is probably about the quickest turnaround time in which a laboratory can accomplish the work and produce a written report. Our laboratory's productivity cannot be increased much above present levels without automatic equipment, more technical and clerical staff, and electronic data transfer.

Mobile testing units are used in three of the states surveyed (Table 1, page 7). All these units are staffed by laboratory scientists who collect and test samples because of the need for technically trained staff to perform the tests. A requirement for being hired as a fuels inspector in North Carolina is a B.S. degree in chemistry. Their mobile units processed 28,341 samples last year, and the laboratory processed 26,244 in the same period of time. None of the units are equipped for octane testing because of the impracticability of mobilizing a test unit for octane testing. The octane engine is designed to operate on a special concrete base in a laboratory and would not function well in a mobile unit. The only way that octane can be estimated in the field is with a near infrared-spectral unit which predicts the octane number. This method would require technical staff for operation and is not a standard method. If an apparent octane fault were detected, the product would still have to be carried to the laboratory for

staff size and an additional appropriation for equipment purchase. The laboratory is doing the best that it can with its meager resources. All its staff members have expressed concerns about the lack of equipment and the age of the equipment to the division director and the State Chemist. The laboratory staff is highly qualified, motivated, and desirous of delivering quality results to Mississippi consumers. Conversion of testing equipment from manual to automatic could be performed incrementally. Over a period of several years the laboratory could be modernized so that the regulation of petroleum products would be at a level that citizens of our state expect and deserve. Such an approach would clearly be more cost-effective than a transfer to a new agency and construction of a new laboratory.

TABLE 1. PETROLEUM PRODUCTS INSPECTION AND TESTING INFORMATION¹

State	Budget, Total \$	Total No. of Samples	Number of Inspectors, FTE ²	Number of Laboratory Personnel
Mississippi	681,000	3,714	11	5
Arkansas	642,102	7,577	6	8
Tennessee ³	1,128,118	7,618	25 ⁴	5
Alabama	Unknown	5,520	9 ⁴	4
Louisiana	696,800	4,852	16	5
Missouri ⁵	1,045,999	7,576	19	10
N. Carolina	1,260,000	54,585	13	12
Georgia	1,100,000	19,000	23	5

State	Number of Clerical Staff	Number of Octane Samples	Agency Location	Mobile Units ⁷
Mississippi	3	3,090	DAC ⁶	None
Arkansas	1	1,103	DAC	2
Tennessee	1	5,364	DAC	None
Alabama	Unknown	4,975	DAC	None
Louisiana	0	4,065	DOT	None
Missouri	5	6,092	DAC	1
N. Carolina	1	19,431	DAC	11
Georgia	1	1,200	DAC	None

¹ These figures are for the most recent fiscal year, except for Arkansas (1991-92 figures). Some figures are estimates.

² FTE is full-time equivalent. Personnel positions are described in terms of FTEs.

³ Tennessee contracts with a private testing laboratory and has no state testing facility.

⁴ Number is not FTE because inspectors have duties other than petroleum inspection.

⁵ Number includes annual amortization of a new laboratory and high utility bills because the ventilation system is state of the art.

⁶ DAC is Department of Agriculture and Commerce or its equivalent. DOT is Department of Transportation.

⁷ In all three states with mobile units, these units are staffed by laboratory scientists who procure and test samples.

APPENDIX B

PROPOSED LEGISLATION CONCERNING THE PETROLEUM PRODUCTS INSPECTION
PROGRAM: ROLE OF THE STATE CHEMIST

MISSISSIPPI LEGISLATURE

REGULAR SESSION 1994

BY:

BILL

AN ACT TO AMEND SECTIONS 75-55-3, 75-55-6, AND 75-55-22, MISSISSIPPI
CODE OF 1972, BY DELETING CERTAIN REFERENCES TO THE STATE CHEMIST
IN THE TEXT OF THOSE STATUTES; AND FOR RELATED PURPOSES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MISSISSIPPI:

Section 1. Section 75-55-3, Mississippi Code of 1972 is
amended as follows:

The Commissioner of Agriculture and Commerce hereinafter
referred to as the Commissioner is hereby vested with power and
authority and is charged with the duty of administering and
enforcing the provisions of this chapter which pertain to signs;
the labeling of pumps, tanks and other package and containers; to
trade names; and to scales, pumps and measuring equipment and shall
have the authority to establish rules and regulations not
inconsistent herewith in connection with its enforcement.

The State Chemist is hereby vested with power and authority
and is charged with the duty of administering the provisions of
this chapter which authorize the analysis of samples, and the
operation of the petroleum products laboratory and shall have the
authority to establish rules and regulations not inconsistent
herewith in connection with its enforcement.

The Commissioner and the State Chemist shall have joint
authority for setting specifications of petroleum products and
shall have the authority to establish rules and regulations not
inconsistent herewith in connection with its enforcement.

Table 2. Educational and Experience Levels of Petroleum Products Laboratory Employees

<u>Employee</u>	<u>Education</u>	<u>Experience in Petroleum Testing</u>
Director	B.S., M.S., Chemistry	16 years plus 7.5 years in other areas
Chemist	B.S., Chemical Engineering Pursuing B.S. in Petroleum Engineering	15 years
Test Engine Operator	Post-Secondary Vocational-Technical Training	9 years operating test unit
Chemist	B.S., Chemical Engineering	8 years plus 20 years in other areas
Chemist	B.S., Chemistry Graduate studies in chemistry	4 years

The octane/cetane test unit manufacturer recommends a minimum of 5 years experience to fully qualify a test unit operator.

PEER Staff

Director

John W. Turcotte

Administrative Division

Steve Miller, General Counsel
and Controller

Betty Heggy
Ann Hutcherson
Mary McNeill

Planning and Support Division

Max Arinder, Chief
Analyst

Sam Dawkins
Patty Hassinger
Larry Landrum
Kathleen Sullivan
Linda Triplett
Ava Welborn

Operations Division

James Barber, Chief
Analyst

Ted Booth
Barbara Hamilton
Susan Harris
Wayne Hegwood
Kevin Humphreys
Kelly Lockhart
Helen McFall
Joyce McCants
Danny Miller
Katherine Stark
Larry Whiting
