

The Mississippi Legislature



An Analysis of Attendance at Mississippi Veterans Memorial Stadium During the 1991 Mississippi Valley State University -vs- Jackson State University Football Game

March 30, 1992

In response to a legislative request, the PEER Committee reviewed the Veterans Memorial Stadium official attendance count during the September 29, 1991, Mississippi Valley State University (MVSU) versus Jackson State University (JSU) football game. Based upon statistical correlation between food sales and attendance, PEER confirmed the stadium's estimate of 32,459. The 51,233 figure estimated by MVSU was based upon an unscientific sportswriters' poll.

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.

An extension of the Mississippi Legislature's constitutional prerogative to conduct examinations and investigations, PEER is authorized by law to review any 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.

As an integral part of the Legislature, PEER provides a variety of services, 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 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.

**An Analysis of Attendance at Mississippi Veterans
Memorial Stadium during the 1991 Mississippi
Valley State University -vs- Jackson State
University Football Game**

March 30, 1992

**The PEER Committee
Mississippi Legislature**

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



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March 30, 1992

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At its meeting of March 30, 1992, the PEER Committee authorized release of the report entitled **An Analysis of Attendance at Mississippi Veterans Memorial Stadium During the 1991 Mississippi Valley State University vs. Jackson State University Football Game.**

A handwritten signature in cursive script that reads "Bill Canon".

Senator Bill Canon, Chairman

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

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An Analysis of Attendance at Mississippi Veterans Memorial Stadium During the 1991 Mississippi Valley State University -vs- Jackson State University Football Game

March 30, 1992

Executive Summary

Introduction

At its meeting of November 7, 1991, the PEER Committee, in response to a legislative request, began a limited review of the accuracy of the Mississippi Veterans Memorial Stadium attendance count during the Mississippi Valley State University (MVSU) versus Jackson State University (JSU) football game held on September 29, 1991.

PEER sought to determine which of two attendance estimates most accurately represented actual attendance. PEER also examined controls over admission, accuracy of turnstiles, and other indicators of attendance. PEER sought comparable information about operational procedures from five similar stadiums in southeastern states, but received only one response to a written survey.

Background

As a state owned, operated and supported facility, Mississippi's Veterans Memorial Stadium accommodated eight athletic events during calendar year 1991. The events included five Southwestern Athletic Conference (SWAC) football games, two Southeastern Conference (SEC) football games and one high school football game. The MVSU -vs- JSU game was the second SWAC event held at the stadium during the 1991 season, occurring the day following an SEC game (Ole Miss -vs- Arkansas).

During the game, MVSU officials announced that an estimated 51,233 persons were in attendance. Subsequent reports that only 30,595 tickets had been issued raised MVSU officials' concerns that unpaid or unauthorized admissions to the stadium may have resulted in a loss of revenue for the university.

Overview: Attendance of 32,459 More Likely than the 51,233 MVSU Estimated

PEER found that although some inherent error is contained in the stadium's method of estimating

attendance, the method yields a reasonable measure of crowd size at events. Based on gate counts at the MVSU -vs- JSU game, ticket audits, and concession receipts and concession items sold, MVSU's estimate of 51,233, which was announced during the game and publicized thereafter, appears greatly exaggerated. The stadium's attendance estimate of 32,459 is the best-documented attendance count available, and is supported by ticket audit findings, concession receipts, and the number of concession food units sold at the event.

Analysis of Stadium and MVSU Methods of Deriving Attendance Estimates for the Game

Since stadium estimates are based on empirical data generated by turnstiles and recorded by gate keepers, PEER concentrated on the validity of the stadium's method in yielding an accurate count. PEER examined the basis and reliability of MVSU's method.

Stadium Commission's 32,459 Estimate was Based on Turnstile Readings and Audited Data

PEER reviewed turnstile accuracy, reading procedures and accuracy of calculations, finding that none of these components of the process would have produced a significant underestimate. PEER also assessed the accuracy of non-turnstile gate estimates and their impact on the overall attendance estimate.

The Stadium Commission's estimate of 32,495 is documented by turnstile readings and non-turnstile gate count information collected by the stadium. Actual admissions may have been slightly higher because certain groups (e.g., Mississippi Mass Choir members, stadium workers, MVSU students, and band and football team members) entered through non-turnstile gates where gate keepers made a general estimate of their number. Several persons were reportedly admitted free at Gate 11 by

dishonest turnstile workers, who were subsequently caught and dismissed, but the number admitted was not large. Also, the stadium and/or the host team authorized about 300 law enforcement, medical, electrical, or other service personnel to be admitted free. Some degree of error in the total count is possible because an accurate count of members of these groups is not available.

An attendance count by a private inventory firm supports the accuracy of the stadium's counting method. RGIS Inventory Specialists, Inc., conducted an inventory of persons admitted to the stadium at the JSU -vs- Southern, TX, game which followed the MVSU -vs- JSU game. The private firm's count did not differ significantly from the stadium's estimate of attendance for that game; therefore, the stadium's count for the MVSU -vs- JSU game could be expected to have a similar degree of accuracy.

MVSU's Estimate of 51,233 Was Based on a Sportswriters' Poll

According to MVSU officials, the source of their 51,233 estimate was an informal poll of sports writers attending the game. The officials explained that they polled the writers and computed an average for the announced attendance estimate.

These estimates, which are based on visual observation of a stadium crowd, are highly subjective, depending on the experience of the estimator and physical factors which may affect the density of the stadium crowd. According to the stadium manager, crowds of less than full capacity tend to spread out as the game progresses. Also the game was general admission, so ticket holders did not have to sit in assigned seats. These two factors could contribute to overestimates of attendance. For example, if a less than capacity crowd of 30,000 (each assigned to an eighteen-inch bench seat) spreads out as much as nine additional inches as the game progresses, the crowd would appear to occupy a space equivalent to a crowd of 45,000.

Conclusion Regarding Estimate Methods

PEER concludes that the MVSU estimate method is weak because of its inherent subjectivity and the possible effects that crowd density may have on visual observation techniques. PEER found the stadium method to be more sound. However, because stadium personnel made general estimates of

freely admitted groups, their estimate may also include a slight amount of error. Considering all merits and weaknesses in the estimate methods of both the stadium and MVSU, PEER believes that less than 1,000 additional persons could have been admitted to the stadium above the number reported by the Stadium Commission.

Examination of Information Associated with Game Attendance

PEER's review of ticket audit findings, concession receipts, and concession items sold at the game confirms that the Commission's 32,459 attendance estimate may have been slightly low, but an attendance number of 51,233 cannot be supported.

Ticket Audit Findings

An October 19, 1991, audit (performed by Curtis W. Lindsey, CPA) of the tickets sold and distribution of proceeds attests to the issuance of 30,595 tickets. Although this 30,595 figure is 1,864 lower than the stadium's estimate, the difference can be attributed to the number of persons admitted by pass or special authorization through non-turnstile gates.

Concession Receipts and Food Units Sold

PEER reviewed concession receipts and the number of concession items sold (e.g., individual items such as a drink or an order of roasted peanuts) for the MVSU -vs- JSU game in comparison to other games held during the same season. While both of these indicators vary depending on the size of the crowd, the number of food units sold at an event is a reliable indicator of crowd size. The actual dollars of concession receipts can be affected by changes in unit prices of food items as well as changing patterns of consumption which may result because of changing weather conditions as the season progresses.

PEER found drink sales to be volatile depending upon weather conditions and the influences of souvenir drink cup sales, therefore further analysis of this variable did not appear to be warranted. Since food sales for the majority of SWAC games (four of the five) appeared to be relatively stable and uniform, (ranging from \$0.77 to \$0.84 per person), PEER chose to further examine the relationship between food units sold and the stadium attendance count.

Food Units Sold

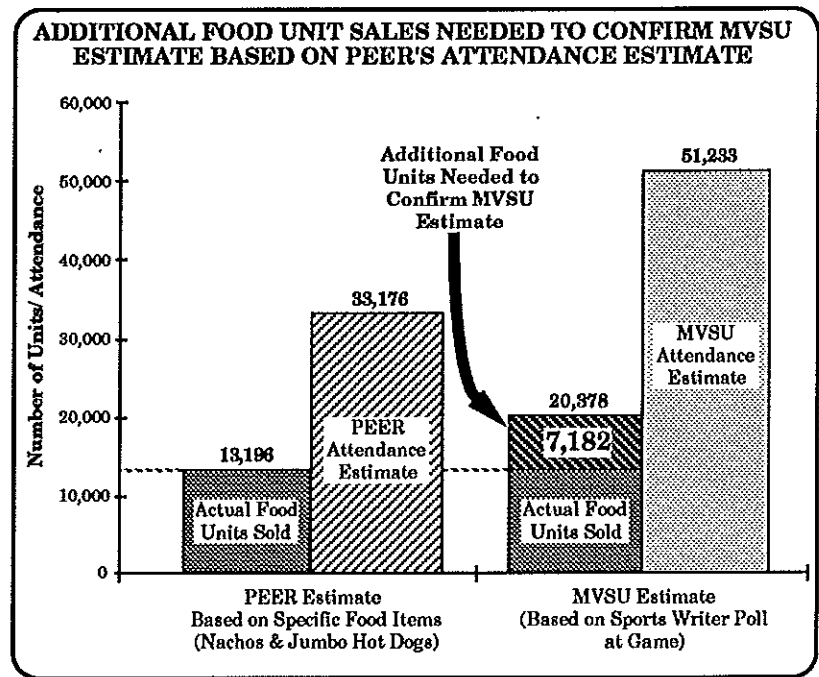
PEER analyzed the relationship between stadium attendance and food units sold (e.g., individual food items such as a bag of roasted peanuts), finding that as the number of total food units sold increases, attendance increases proportionately.

By analyzing eighteen types of food items sold, PEER identified two items (nachos and jumbo hotdogs) whose unit sales were highly correlated to the stadium's attendance estimate. The unit sales of the two items when taken together yield an extremely precise predictor of attendance. Based on the number of units of nachos and jumbo hotdogs sold, PEER estimated attendance at 33,176, some 717 greater than the stadium's 32,459 estimate.

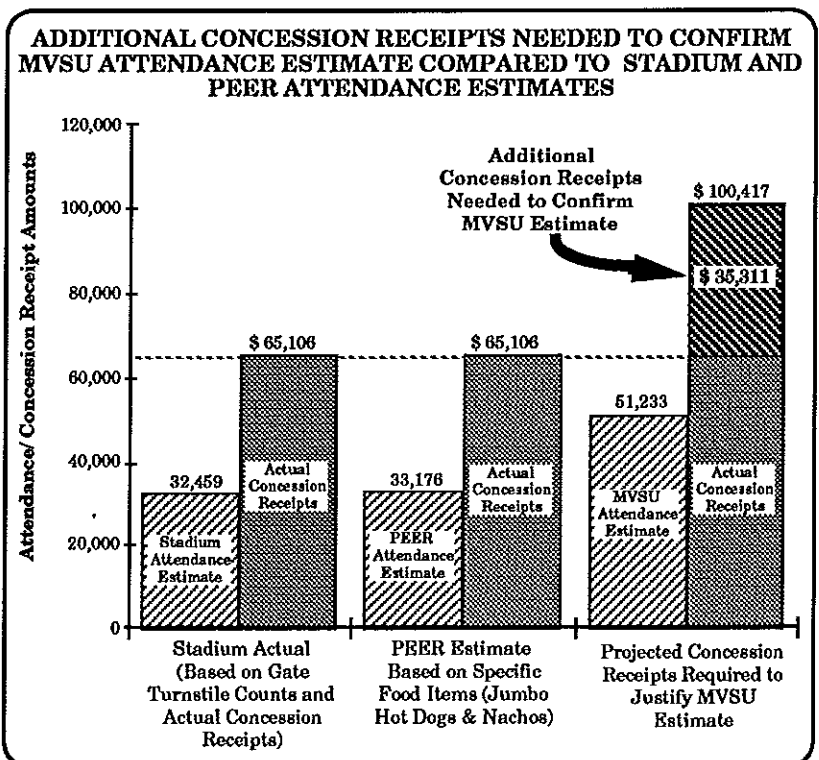
Based upon the actual number of food units sold in proportion to PEER's predicted attendance number, PEER estimated the number of food units and the amount of concession receipts necessary to justify MVSU's 51,233 estimate. PEER projected that about 7,182 additional food units (or a total of 20,378 units) would be needed to confirm MVSU's 51,233 estimate (see chart, upper right). PEER estimated that an additional \$35,311 (or a total of \$100,417) of concession receipts would be needed in order to confirm MVSU's 51,233 attendance estimate, (see chart, bottom right).

Admission Policies and Controls at Similar Stadiums

Gator Bowl Stadium (Jacksonville, Florida) responded that, although the stadium has no written policy governing admissions, all persons admitted to the stadium are generally required to possess a ticket or a pass. Like Mississippi Veterans Memorial Stadium, Gator Bowl management responded that the lessee is allowed discretion over the admissions policy for an event. The lessee (i.e., the promoter or host team) is also responsible for developing and reporting attendance estimates and stadium man-



agement does not play a role. Contrary to Mississippi Veterans Memorial Stadium, Gator Bowl Stadium does not use turnstiles or other mechanical devices to record attendance; therefore, if an actual count is needed, tickets and passes are hand-counted.



Conclusions

Based on a review of stadium practices in collecting gate count information and the method by which stadium management derives attendance estimates, PEER concludes that the current method yields a reasonably accurate measure of crowd size at events. Analysis of other information associated with stadium attendance (concession receipts and food units sold) supports an attendance estimate slightly, but not significantly, greater than the stadium's 32,459. Due to weaknesses found in MVSU's estimate method

and the absence of supporting evidence, PEER is unable to confirm MVSU's 51,233 attendance estimate.

Although stadium admission policies and controls could be made more restrictive, PEER found in its survey of similar stadiums in southeastern states that admission policies and controls at the one stadium that responded are basically the same. Contrary to Mississippi Veterans Memorial Stadium practices, Gator Bowl Stadium neither uses turnstile or other mechanical counters nor participates in developing attendance estimates.

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An Analysis of Attendance at Mississippi Veterans Memorial Stadium During the 1991 Mississippi Valley State University -vs- Jackson State University Football Game

INTRODUCTION

Authority

At its meeting of November 7, 1991, the PEER Committee, in response to a legislative request, authorized a limited review of the accuracy of the Mississippi Veterans Memorial Stadium attendance count during the Mississippi Valley State University (MVSU) versus Jackson State University (JSU) football game held on September 29, 1991. The Committee conducted the review pursuant to MISS. CODE ANN. Section 5-3-57 (1972).

Purpose and Scope

PEER sought to determine which of two attendance estimates (MVSU's 51,233 person estimate or the Stadium Commission's 32,459 person estimate) most accurately represented actual attendance at the event. Additionally, PEER examined controls over stadium admission, accuracy of turnstile readings, and other indicators of attendance which would substantiate either of the two estimates. PEER also sought to gather comparable information about operational procedures from five similar stadiums in southeastern states, but received only one response to the written survey.

Methodology

In conducting this review, PEER:

- reviewed Mississippi statutes and regulations governing the operation and management of the stadium;
- conducted an on-site examination of turnstile equipment;
- examined attendance and financial records maintained by the Stadium Commission office;
- examined ticket audits, concession receipts and parking receipts for events held in 1990 and 1991;
- interviewed the Stadium Commission personnel, university officials and others; and,
- surveyed similar stadiums in southeastern states.

Overview

PEER analyzed the discrepancy in attendance estimates developed by the Stadium Commission and MVSU officials to determine which most accurately represented the actual crowd size attending the September 29, 1991, event. Although some inherent error is contained in the stadium's method of estimating attendance, the method yields a reasonable measure of crowd size at events. Based on gate counts at the MVSU -vs- JSU game, ticket audits, and concession receipts and concession items sold, MVSU's 51,233 person estimate, which was announced during the game and publicized thereafter, appears greatly exaggerated. The stadium's attendance estimate of 32,459 is the best-documented attendance count available, and is supported by ticket audit findings, concession receipts, and the number of concession food units sold at the event.

At Gator Bowl Stadium (the one southeastern stadium that responded to PEER's survey), admission policies and controls are similar to those at Mississippi Veterans Memorial Stadium, yet Gator Bowl Stadium does not record the number admitted or estimate crowd size. For example, the respondent indicated that the lessee (or host team) is allowed some discretion over the admissions policy for an event; however, all persons must possess a pass or a ticket to enter. Contrary to Mississippi Veterans Memorial Stadium practices, Gator Bowl Stadium neither uses turnstile or other mechanical counters nor participates in developing attendance estimates.

BACKGROUND

As a state owned, operated and supported facility, Mississippi's Veterans Memorial Stadium accommodated eight athletic events during calendar year 1991. The events included five Southwestern Athletic Conference (SWAC) football games, two Southeastern Conference (SEC) football games and one high school football game. The MVSU -vs- JSU game was the second SWAC event held at the stadium during the 1991 season, occurring the day following an SEC game (Ole Miss -vs- Arkansas). The two events were the cornerstones of the "Autumnfest" and "Magnolia Classic" promotional efforts which occurred over the weekend of September 28-29, 1991. These promotional efforts were mounted to increase attendance at the scheduled events and to promote continued use of the Jackson-based stadium by state universities.

Event attendance numbers serve as a promotional tool for both the stadium and the participating universities involved. According to the Stadium Manager, officials of the host team university normally develop and announce an estimate of attendance during the event. Host team officials follow no recognized standard for making estimates and may employ any method they choose. The basis of estimates can range from a wild guess to one based on empirical data, utilizing the gate count information generated by stadium management.

During the game, MVSU officials announced that an estimated 51,233 persons were in attendance. Subsequent reports that only 30,595 tickets had been issued raised MVSU officials' concerns that unpaid or unauthorized admissions to the stadium may have resulted in a loss of revenue for the university.

Although event income is related to the number of persons attending, the amount of revenue which participating teams derive from an event hinges primarily upon the number of tickets sold. The host team at events is responsible for printing and distribution of tickets and is recipient of proceeds (after expenses) from ticket sales. Actual game attendance may vary from tickets sold depending on the number of paid ticket holders attending and the number of complimentary tickets and free passes issued.

Stadium support funds are derived primarily from stadium rental and other fees (paid by the host team), parking fees and concession sales; therefore, the stadium has no incentive for inflating attendance estimates. The stadium does not receive a portion of ticket sales receipts or collect a commission on the tickets sold by the stadium ticket office.

**ANALYSIS OF STADIUM AND MVSU METHODS OF DERIVING
ATTENDANCE ESTIMATES FOR THE
SEPTEMBER 29, 1991, GAME**

PEER examined methods used by both the stadium and MVSU in deriving attendance estimates for the September 29, 1991, game. Since stadium estimates are based on empirical data generated by turnstiles and recorded by gate keepers, PEER's analysis concentrated on the validity of the stadium's method in yielding an accurate count. PEER also reviewed the estimate method used by MVSU in order to determine its basis and assess whether it was founded on reliable data.

Stadium Commission's Attendance Estimate

The stadium's method of estimating attendance is based on actual turnstile readings and non-turnstile gate counts taken at the game. PEER reviewed turnstile accuracy, reading procedures and accuracy of calculations finding that none of these components of the process would have produced a significant underestimate. PEER also reviewed stadium procedures for counting persons entering through gates with no turnstiles, (i.e., pass gates and walk-in gates). PEER assessed the accuracy of non-turnstile gate estimates and their impact on the overall attendance estimate.

The 32,495 person Stadium Commission estimate, while inherent with a small degree of possible error, is documented by turnstile readings and non-turnstile gate count information collected by the stadium. While no hard evidence exists that significantly more persons were admitted to the stadium than were counted, actual admissions may have been slightly higher than the stadium estimate because certain groups (e.g., Mississippi Mass Choir members, stadium workers and band and football team members) entered through non-turnstile gates. Gate keepers made a general estimate of the number of persons in these groups but made no actual count. Also, persons were reportedly admitted free at Gate 11 by dishonest turnstile workers, who were subsequently caught and dismissed, but the number admitted was not large.

In addition to PEER's review, a private inventory firm conducted an inventory of persons admitted to the stadium at the JSU -vs- Southern, TX game which followed the MVSU -vs- JSU game. The private firm's count did not differ significantly from the stadium's estimate of attendance for that game.

Accuracy of Stadium Turnstile Counts

PEER examined turnstiles after the MVSU -vs- JSU game (and prior to any other event) and found that they operated properly. Further review of turnstile readings, which are collected prior to a game and again in the

fourth quarter, verified that accurate numbers were being recorded by stadium workers. Turnstile readings taken during PEER's inspection did not differ significantly from final readings taken by stadium workers the day of the game. Also, PEER verified that differences between beginning and ending counts for each turnstile were accurately calculated by stadium clerical staff. The 30,459 turnstile count recorded by the stadium did accurately reflect the number of persons admitted through turnstile gates.

Impact of Free Admissions on the Stadium's Estimate

On the day of the MVSU -vs- JSU game, stadium gatekeepers permitted several groups to enter the stadium through non-turnstile gates. The freely admitted groups included members of the Mississippi Mass Choir and their chaperones, MVSU and JSU bands, MVSU students, and law enforcement, service, medical, and electrician personnel. The stadium estimated that about 2,000 persons entered upon special authority of school or stadium officials or by holding a gate pass, and incorporated this estimate of non-turnstile admissions into the overall attendance estimate. Since non-turnstile admissions made up only a small portion of overall attendance, any estimating error associated with the groups would not have contributed significantly to an underestimate by the stadium.

MVSU officials authorized the stadium to grant free admissions to members of the Mississippi Mass Choir (and their chaperones), which was scheduled to perform prior to the game. Mass Choir members (250 to 300 according to the Stadium Manager) were admitted on the basis of whether they were wearing a Mass Choir T-shirt. About fifty clergy members accompanying the Mass Choir were also granted free admittance. In addition, bands from each of the universities were admitted based on being in uniform. Because there was no turnstile count for these groups, the Commission made a general estimate that 1500 were admitted. Some degree of error is possible because an accurate count of members of these groups is not available.

The stadium also admitted 874 MVSU students on the basis of holding a student identification card. MVSU gatekeepers initially checked off student names from a student listing but abandoned the task because of excessive delay. MVSU officials who were responsible for student admissions authorized stadium workers to allow the students to enter through a gate with no turnstiles.

On the day of the game, several law enforcement, service, medical, and electrician personnel were admitted through Gate 8, the pass gate. The stadium maintains a policy of allowing City of Jackson and Hinds County law enforcement personnel free admission to events based on their credentials. The stadium and the host team provides lists of persons authorized to be admitted free (medical, electrical, or other service personnel) to gatekeepers prior to the game. Sign-in sheets verify that about 300 persons may have entered through Gate 8.

Unauthorized Admissions

Unauthorized admissions to the stadium were allowed by dishonest gatekeepers, but these admissions would have been accounted for in the turnstile count. Early in the game, two ticket-takers at Gate 11 were observed allowing persons to enter without tickets and were immediately dismissed and the gate was closed. PEER examined the turnstile readings for Gate 11 and found they were not significantly higher than other gates. PEER therefore believes that unauthorized admissions through the gate were minimal and did not amount to a significant loss of revenue for MVSU.

Inventory of Game Attendance by an Outside Firm

The accuracy of the Commission's method of measuring attendance was also supported by findings of an independent inventory firm. The Commission contracted for the services of a professional inventory firm (RGIS Inventory Specialists, a Jackson-based company), to inventory attendance at the JSU -vs- Southern University, Texas, football game on October 19, 1991. This game was the next stadium event following the MVSU -vs- JSU game. RGIS conducted an independent inventory by stationing its employees at all stadium entrances with hand counters. RGIS employees counted all persons entering the stadium, including ticket holders entering through turnstiles, stadium workers, persons entering through pass gates, and school officials, band and team members. The Commission's estimate of attendance (43,234) did not differ significantly from the actual inventory count performed by RGIS (45,014). Thus, the stadium's count for the MVSU -vs- JSU game could be expected to have a similar degree of accuracy.

MVSU Attendance Estimate

According to MVSU officials, the source of their 51,233 estimate was an informal poll of sports writers attending the game. The officials explained that they polled the writers and computed an average for the announced attendance estimate.

These estimates, which are based on visual observation of a stadium crowd, are highly subjective depending on the experience of the estimator and physical factors which may affect the density of the stadium crowd. According to the stadium manager, crowds of less than full capacity tend to spread out as the game progresses. Also the game was general admission, so ticket holders did not have to sit in assigned seats. These two factors could contribute to overestimates of attendance. For example, if a less than capacity crowd of 30,000 (each assigned to an eighteen-inch bench seat) spreads out as much as nine additional inches as the game progresses, the crowd would appear to occupy a space equivalent to a crowd of 45,000.

Conclusion Regarding Estimate Methods

PEER concludes that the MVSU estimate method is weak because of its inherent subjectivity and the possible effects that crowd density may have on visual observation techniques. PEER found the stadium method to be more sound. However, because stadium personnel made general estimates of freely admitted groups, their estimate may also include a slight amount of error. Considering all merits and weaknesses in the estimate methods of both the stadium and MVSU, PEER believes that less than 1,000 additional persons could have been admitted to the stadium above the number reported by the Stadium Commission. However, this would account for only a small portion of the nearly 19,000 difference between Commission and MVSU estimates.

Because of the wide disparity in the estimates of the two entities, PEER sought to determine if a more precise estimate of crowd size could be derived by analyzing information associated with game attendance.

EXAMINATION OF INFORMATION ASSOCIATED WITH GAME ATTENDANCE

PEER reviewed additional information which would help clarify the game attendance estimate. Examination of ticket audit findings, concession receipts, and concession items sold at the game confirm that the Commission's 32,459 attendance estimate may have been slightly low, but an attendance number of 51,233 cannot be supported.

Ticket Audit Findings

An October 19, 1991, audit (performed by Curtis W. Lindsey, CPA) of the tickets sold and distribution of proceeds attests to the issuance of 30,595 tickets (including sold, complimentary and student tickets) for the September 29, 1991, event. The Lindsey ticket audit found no discrepancy in ticket distributions to any of the parties involved or the documentation maintained by the stadium office. Although this 30,595 figure is 1,864 lower than the stadium's estimate, the difference can be attributed to the number of persons admitted by pass or special authorization through non-turnstile gates.

Concession Receipts and Food Units Sold

PEER reviewed concession receipts and the number of concession items sold (e.g., individual items such as a drink or an order of roasted peanuts) for the MVSU -vs- JSU game in comparison to other games held during the same season. While both of these indicators vary depending on the size of the crowd, the number of food units sold at an event is a reliable indicator of crowd size. The actual dollars of concession receipts can be affected by changes in unit prices of food items as well as changing patterns of consumption which may result because of changing weather conditions as the season progresses.

Concession Receipts

PEER examined concession receipts for all SWAC events held at the stadium in 1991 and found a wide variation in the amount spent per person (see Exhibit 1, below).

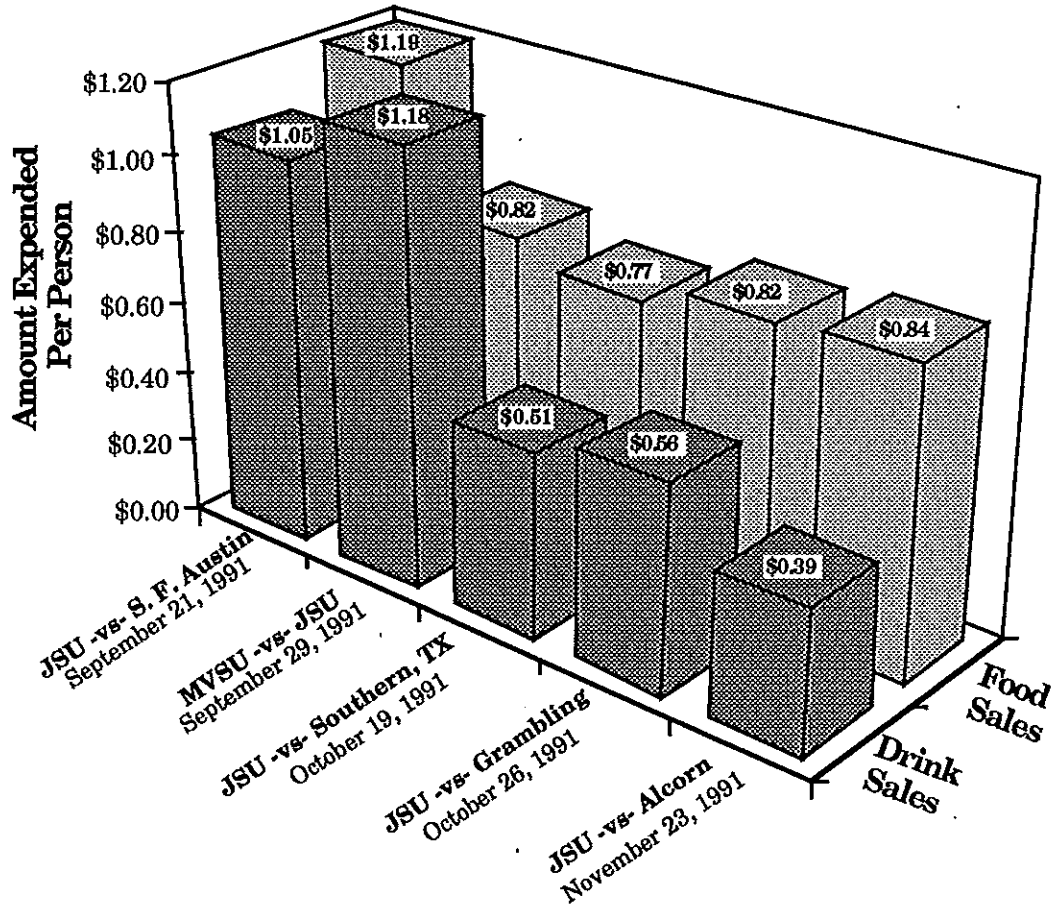
EXHIBIT 1
CONCESSION RECEIPTS PER PERSON
(For 1991 Southwestern Athletic Conference Games
Held at Mississippi Veterans Memorial Stadium)

<u>Date</u>	<u>Game</u>	<u>Gate Count</u>	<u>Concession Receipts</u>	<u>Concession Receipts Per Person</u>
9/21/91	JSU -v- S.F. Austin	11,024	\$ 24,739	\$2.24
9/29/91	MVSU -v- JSU	32,459	\$ 65,106	\$2.01
10/19/91	JSU -v- Southern, TX	42,660	\$ 54,318	\$1.27
10/26/91	JSU -v- Grambling	11,835	\$ 16,400	\$1.39
11/23/91	JSU -v- Alcorn	21,678	\$ 26,682	\$1.23

Source: Compiled by PEER Staff from information provided by the Mississippi Memorial Stadium Commission.

In investigating this variation further, PEER found that gross concession sales are heavily influenced by drink sales (see Exhibit 2, page 10). PEER observed that as the season progressed, and weather conditions became more harsh, drink sales dropped markedly in comparison to food sales. Drink sales per person reach a season low with the JSU -vs- Alcorn State University game on November 23, 1991. Because the day was characterized by cold and rainy weather conditions, drink sales showed marked decline in comparison to drink sales at the first two games of the season. In addition, souvenir drinks (having a higher cost per unit) were sold at some games and not at others, which would contribute to some variation in drink receipts.

EXHIBIT 2
DRINK VERSUS FOOD SALES PER PERSON
 (For 1991 Southwestern Athletic Conference Games
 Held at Mississippi Veterans Memorial Stadium)

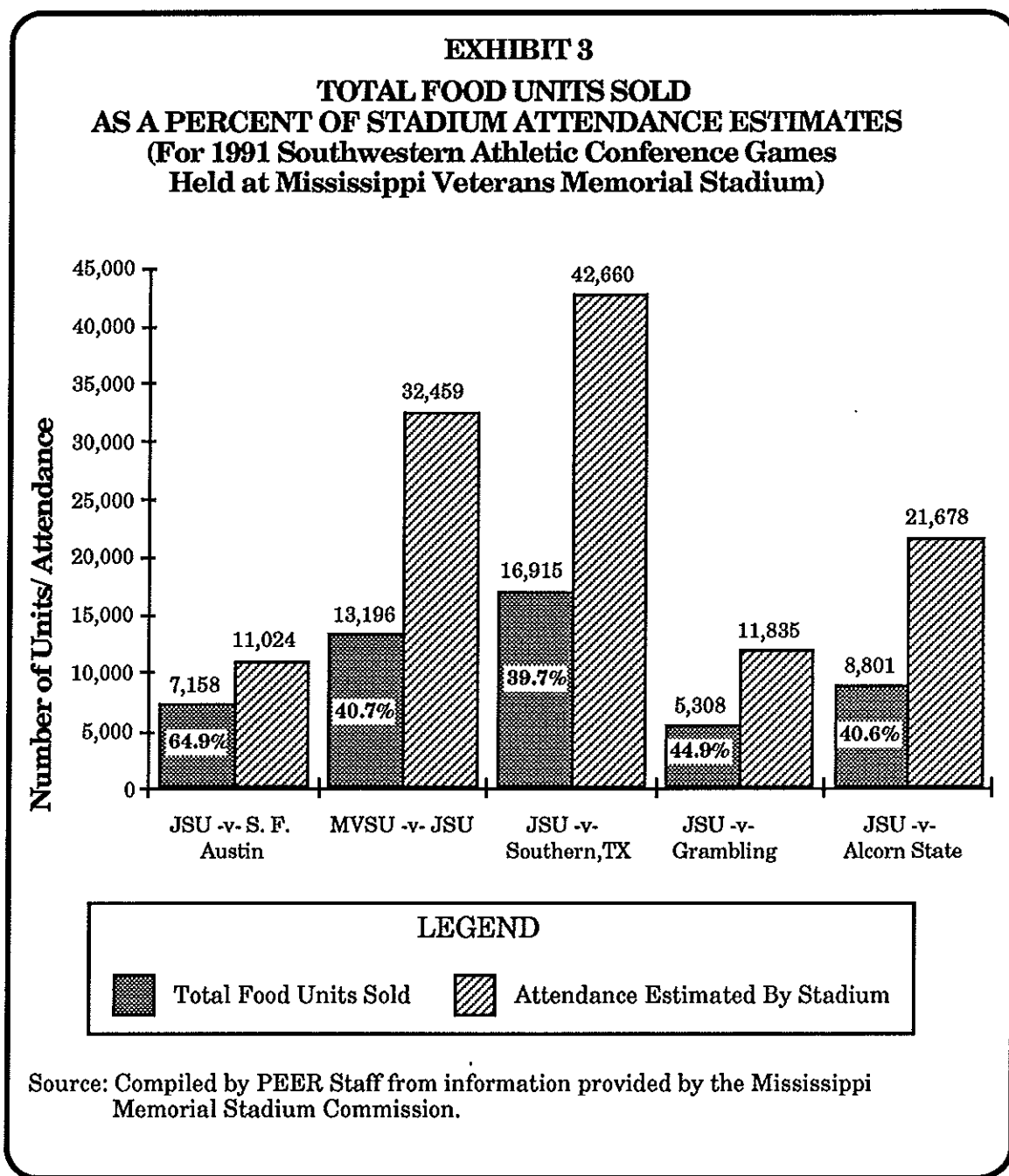


Source: Compiled by PEER Staff from information provided by the Mississippi Memorial Stadium Commission.

Since drink sales are volatile depending upon weather conditions and the influences of souvenir drink cup sales, further analysis of this variable did not appear to be warranted. On the other hand, food sales for the majority of SWAC games (four of the five) appeared to be relatively stable, ranging from \$0.77 to \$0.84 per person. Due to the uniformity in food sales, PEER chose to further examine the relationship between food units sold and the stadium attendance count.

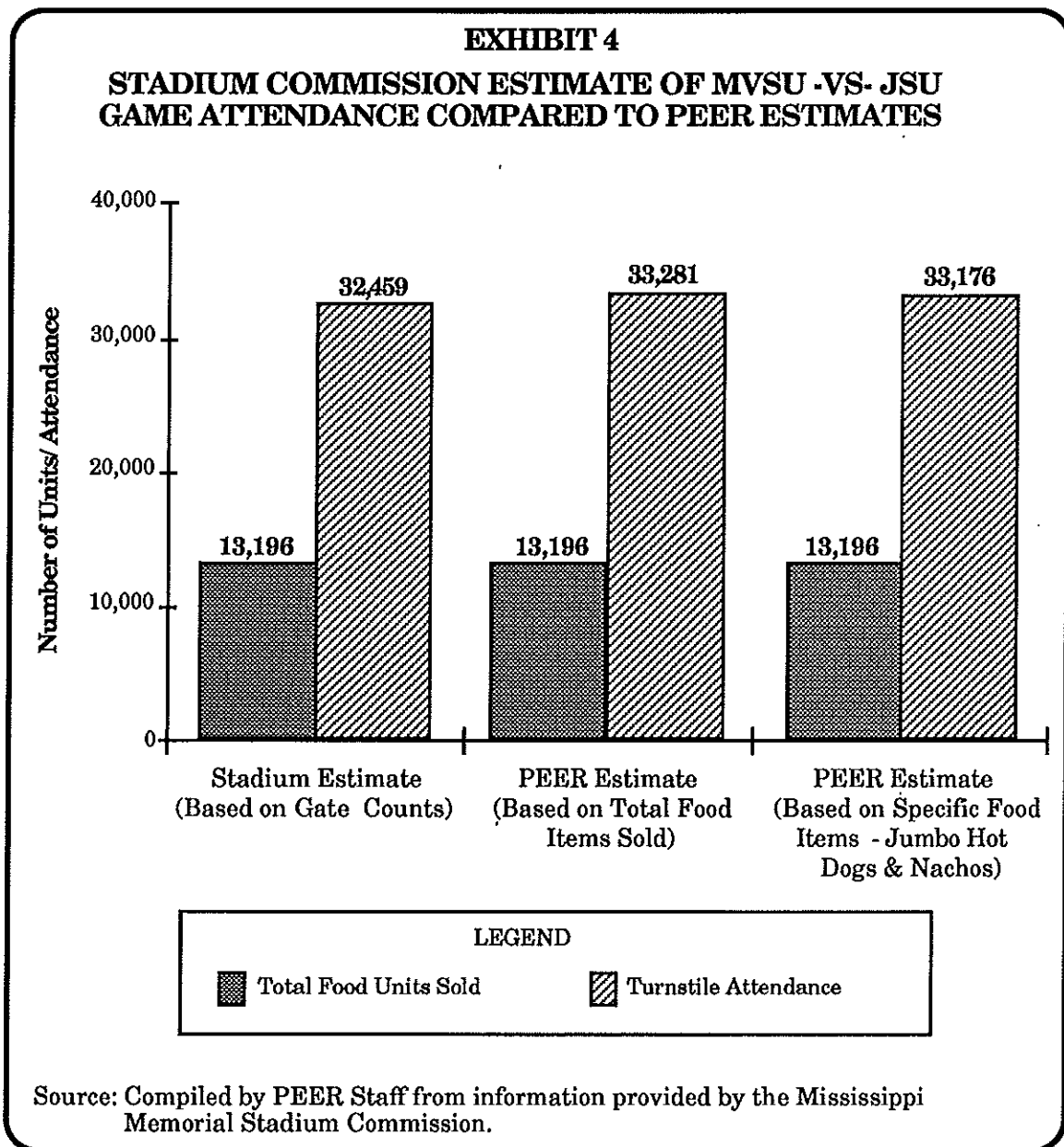
Food Units Sold

PEER analyzed the relationship between stadium attendance and food units sold (e.g., individual food items such as a bag of roasted peanuts) finding that as the number of total food units sold increases, attendance increases proportionately. Analyzing food units sold for all SWAC games played at the stadium, PEER determined that the number of total food units sold ranged from 39.7 to 64.9 percent of commission-estimated attendance (see Exhibit 3, below).



Using the smallest number of food units sold as a proportion of attendance (39.7%) as a conservative divisor, PEER estimates that actual attendance at the MVSU -vs- JSU game could have been as high as 33,281 (see Exhibit 4, below), some 822 greater than the stadium estimate. Because of the wide variability in total food units sold as a proportion of the stadium count, PEER sought to further refine the estimate method by examining individual types of food units sold.

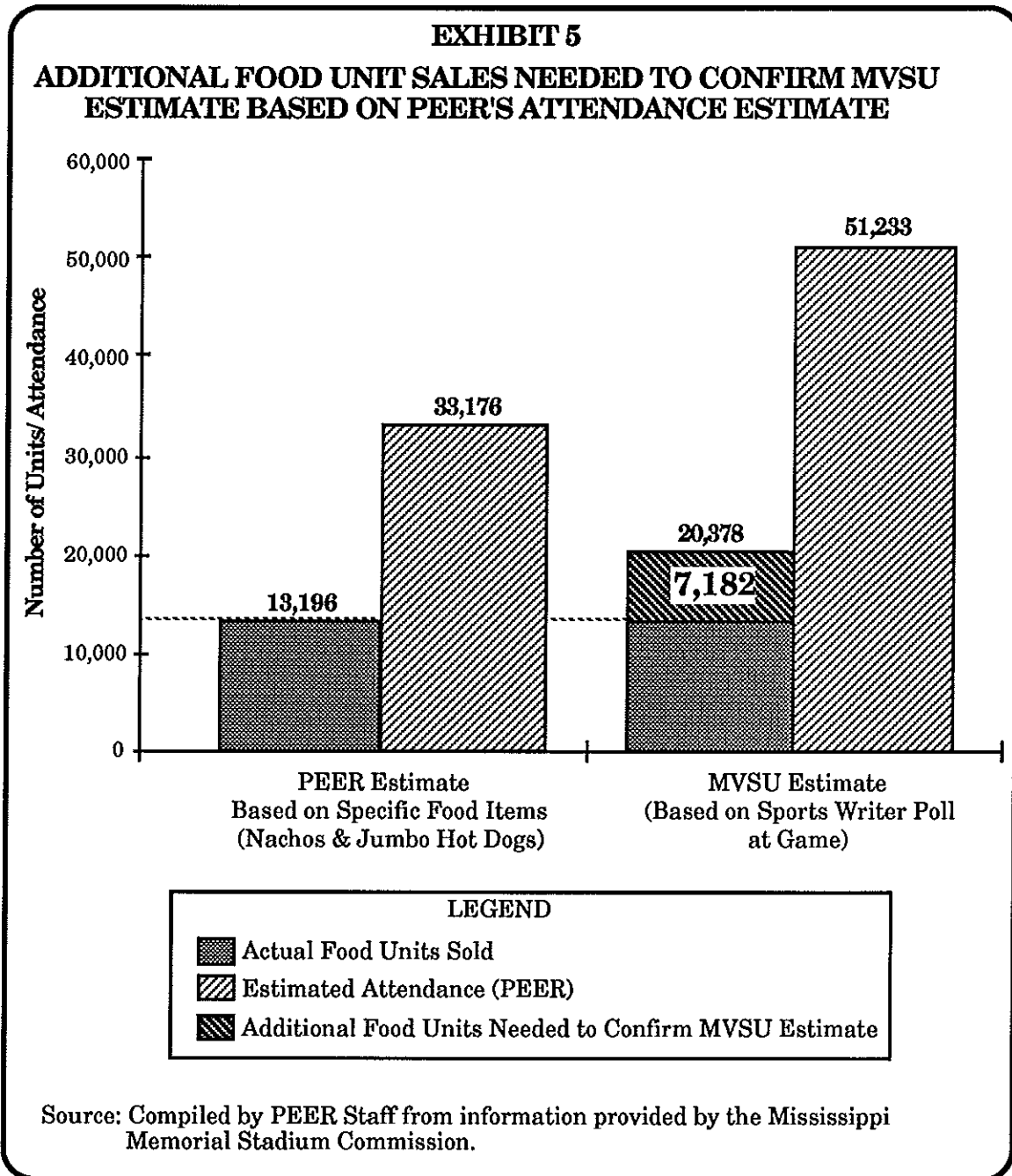
Through further analysis of eighteen types of food items sold, PEER was able to identify two items (nachos and jumbo hotdogs) whose unit sales were highly correlated to the stadium's attendance estimate. The unit



sales of the two items when taken together yield an extremely precise predictor of attendance. Based on the number of units of nachos and jumbo

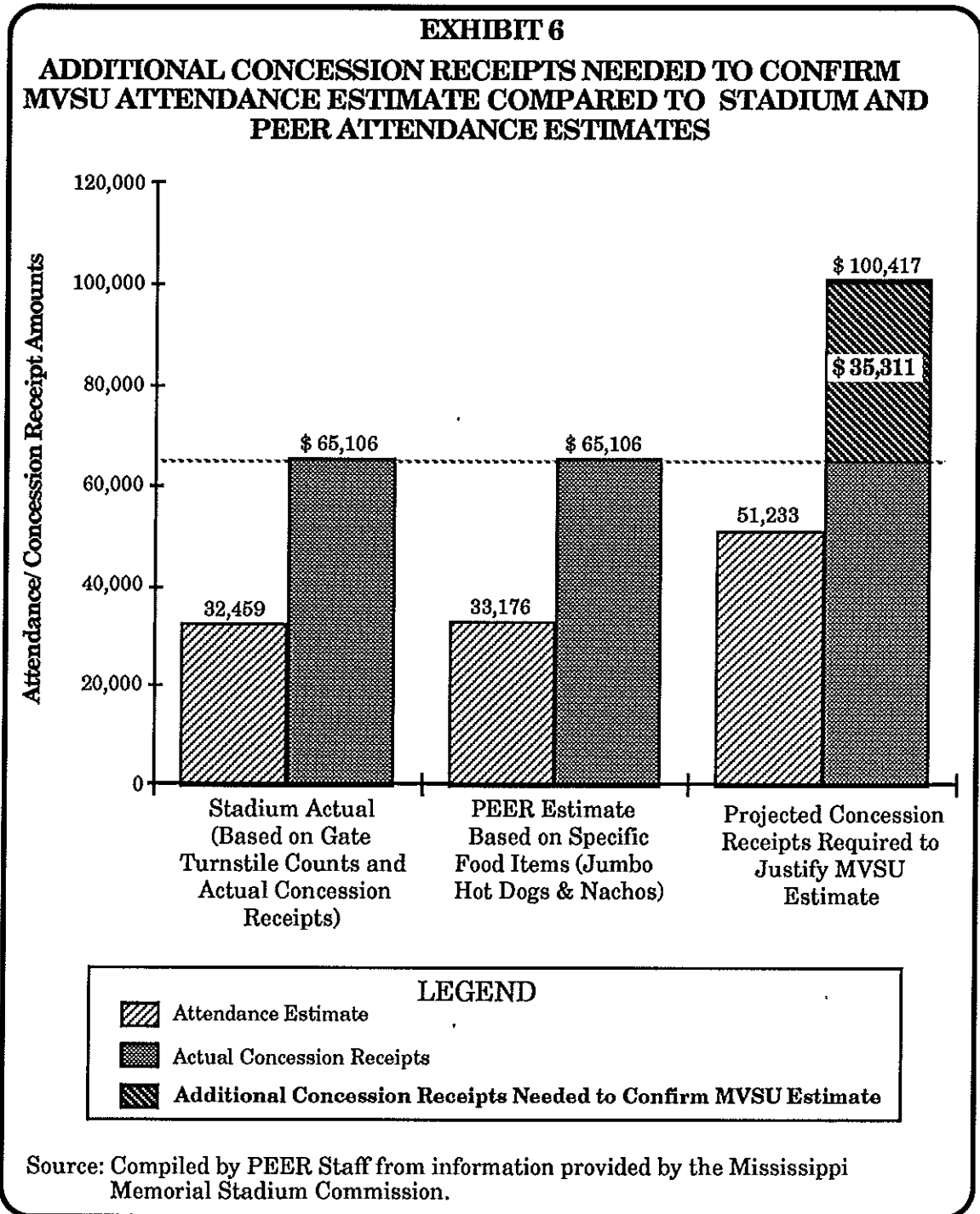
hotdogs sold, PEER was able to refine the 33,281 attendance estimate to 33,176, some 717 greater than the stadium's estimate of 32,459 (see Exhibit 4, page 12).

In addition, PEER computed the number of food unit sales that would be necessary to confirm MVSU's estimate of 51,233. Based upon the actual number of food units sold in proportion to PEER's predicted attendance number, PEER projected that about 7,182 additional food units (or a total of 20,378 units) would be needed to confirm MVSU's 51,233 estimate (see Exhibit 5, below).



PEER also applied this methodology in order to predict the total concession receipts amount necessary to confirm MVSU's 51,233 estimate. If actual concession receipts (\$65,106) are divided by PEER's 33,176 attendance estimate, this amounts to \$1.96 per person.

Using the \$1.96 expenditure per person to compute a projected total (see Exhibit 6, below), PEER found that an additional \$35,311 (or a total of



\$100,417) of concession receipts would be needed in order to be able to confirm MVSU's 51,233 attendance estimate.

***ADMISSION POLICIES AND CONTROLS AT
SIMILAR STADIUMS***

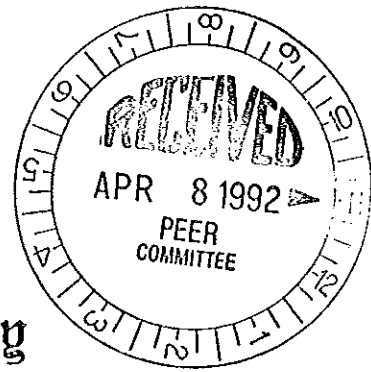
PEER sought to gather information on admission policies and controls from similar stadiums in southeastern states but received only one response from the five stadiums surveyed. Gator Bowl Stadium (Jacksonville, Florida) responded that although the stadium has no written policy governing admissions, all persons admitted to the stadium are generally required to possess a ticket or a pass. However, some exceptions are granted when prior arrangements are made by the lessee (i.e., host team). Like Mississippi Veterans Memorial Stadium, Gator Bowl management responded that the lessee is allowed discretion over the admissions policy for an event. Gator Bowl management also explained that the lessee (i.e., the promoter or host team) is responsible for developing and reporting attendance estimates and stadium management does not play a role. Additionally, Gator Bowl Stadium does not use turnstiles or other mechanical devices to record attendance; therefore, if an actual count is needed, tickets and passes are hand-counted.

CONCLUSIONS

Based on a review of stadium practices in collecting gate count information and the method by which stadium management derives attendance estimates, PEER concludes that the current method yields a reasonably accurate measure of crowd size at events. Analysis of other information associated with stadium attendance (concession receipts, and food units sold) supports an attendance estimate slightly, but not significantly, greater than the stadium's 32,459. Due to weaknesses found in MVSU's estimate method and the absence of supporting evidence, PEER is unable to confirm MVSU's 51,233 attendance estimate.

Although stadium admission policies and controls could be made more restrictive, PEER found in its survey of similar stadiums in southeastern states that admission policies and controls at the one stadium that responded are basically the same. Contrary to Mississippi Veterans Memorial Stadium practices, Gator Bowl Stadium neither uses turnstile or other mechanical counters nor participates in developing attendance estimates.

AGENCY RESPONSE



Mississippi Valley State University

ITTA BENA, MISSISSIPPI 38941

OFFICE OF THE PRESIDENT

(601) 254-9041 Ext. 6406

April 6, 1992

Mr. Sam Dawkins
P.E.E.R. Principal Analyst
259 North West Street
Post Office Box 1204
Jackson, MS 39215-1204

Dear Mr. Dawkins:

This is my response to your report regarding the attendance at the football game between Mississippi Valley State University and Jackson State University held September 29, 1991 at Veterans Memorial Stadium in Jackson, Mississippi. Since the estimated attendance and the attendance reported by the stadium officials differed by approximately 20,000, I trust that my concerns can be fully understood.

Your report indicated that your attendance estimate was based primarily upon a ticket audit, concession receipts and turnstile and non-turnstile gate counts. First, if unauthorized people entered the stadium (as suspected) without tickets, the ticket audit would be of no value in determining the actual attendance. Second, a free meal was served to many people just prior to the game. Further, African Americans may not spend the average amount at such event as might be anticipated with a predominantly white audience. Therefore, we question the validity of using concession receipts at this particular football game to validate attendance.

Finally, since there were gates with turnstiles and gates without turnstiles and there was no indication that counters were used, we do not consider this method to be valid in determining attendance.

Thank you for providing us the opportunity to respond on behalf of Mississippi Valley State University.

Sincerely,

A handwritten signature in cursive script, appearing to read "William W. Sutton".

William W. Sutton
President

**PEER RESPONSE TO MISSISSIPPI VALLEY
STATE UNIVERSITY'S CONCERNS**

MVSU CONCERN	PEER RESPONSE
<p><i>First, if unauthorized people entered the stadium (as suspected) without tickets, the ticket audit would be of no value in determining the actual attendance.</i></p>	<p>PEER's attendance estimate is based on total and specific concession items sold and in no way is based on the ticket audit count (see pages 12 through 13). PEER examined both turnstile and non-turnstile gate counts, finding that no significant unauthorized admissions occurred the day of the game (see pages 4 through 6). PEER presented the ticket audit findings (i.e., 30,595 tickets issued) to address concerns that the number of tickets issued was greater than the 32,495 stadium attendance estimate.</p>
<p><i>Second, a free meal was served to many people just prior to the game.</i></p>	<p>PEER is aware that free meals were served to approximately 150 - 200 members of the Mississippi Mass Choir and others; however, this would not have significantly affected the number of concession items sold to a crowd of more than 32,000.</p>
<p><i>Further, African Americans may not spend the average amount at such event as might be anticipated with a predominantly white audience.</i></p>	<p>PEER analyzed relationships between attendance and concession receipts for Southwestern Athletic Conference (SWAC) games only (see pages 9 - 11). The analysis was confined to 1991 SWAC games in order to avoid the effects of variances in population characteristics (such as the degree of fan interest and patron turnout) and to identify relationships between variables for as homogeneous a group as possible.</p>
<p><i>Therefore, we question the validity of using concession receipts at this particular football game to validate attendance.</i></p>	<p>PEER did not use concession receipts as a basis for validating attendance. Rather, PEER's attendance estimates were based on the number of total food items and specific food items sold.</p>
<p><i>Finally, since there were gates with turnstiles and gates without turnstiles and there was no indication that counters were used, we do not consider this method to be valid in determining attendance.</i></p>	<p>PEER examined both turnstile and non-turnstile gate counts, finding that no significant unauthorized admissions occurred the day of the game (see pages 4 through 6). PEER verified turnstile gate counts to be basically accurate and found non-turnstile gate counts to have only a slightly margin of error. Although the stadium's current method may slightly underestimate attendance, PEER's analysis confirmed that actual attendance is not significantly higher.</p>

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