

<b>Executive Summary</b>	<b>1</b>
<b>Tests Performed and Detailed Issues</b>	<b>3</b>
<b>Lottery Personnel Security</b>	<b>3</b>
<b>Sales Agent Security</b>	<b>5</b>
<b>Texas Lottery Operator Security (GTECH)</b>	<b>6</b>
Austin Office and Data Center	6
Austin and Irving Warehouse	7
Computer Operations	7
<b>Texas Lottery Vendor Security (BABN)</b>	<b>9</b>
Physical Security Issues	9
Ticket Production and Destruction Issues	10
Computer Operations	10
<b>Security against Ticket Counterfeiting and Fraudulent Winning</b>	<b>12</b>
<b>Security of Lottery Drawings</b>	<b>12</b>
GTECH Issues and Recommendations	13
Studio 501 Issues and Recommendations	13
Overall Issues and Recommendations	14
<b>Lottery Computer, Data Communication, Database, and Systems Security</b>	<b>15</b>
<b>Lottery Premises and Warehouse Security</b>	<b>17</b>
Lottery Premises Security Issues and Recommendations	17
Claim Center Security Issues and Recommendations	17
Security Identification Issues and Recommendations	18
<b>Security of Distribution of Tickets</b>	<b>19</b>
<b>Security of Validation and Payment Procedures</b>	<b>20</b>
<b>Specific Game Security</b>	<b>22</b>
Game Testing and Reports	22
Lone Star Millionaire	22
<b>Review of SAS#70 Control Objectives for GTECH</b>	<b>24</b>

## Executive Summary

This document represents the report of the security audit performed by PricewaterhouseCoopers LLP, as identified under Section 5.6 of the Request for Proposal (RFP) to provide Lottery Security Audit Services issued by The Texas Lottery Commission on April 27, 1998. The RFP laid out the requirements to evaluate the security surrounding the Lottery Operator, Lottery Vendor, Lottery Commission, claim centers, and the fairness of the Lottery games currently active. This report contains an identification of control and security weaknesses and recommendations made during our review of the Texas Lottery, the Lottery Operator (GTECH) and Lottery Vendor (BABN).

During our review we interviewed various key individuals at the Lottery Operator (GTECH), Lottery Vendor (BABN), claim centers and the Lottery Commission. We conducted on-site visits to the GTECH office, data center and warehouse in Austin; the GTECH data center and warehouse in Irving; BABN's printing facility in San Antonio; claim centers in Austin, Dallas, Houston, El Paso, and San Antonio. In addition, we were on-site at the Lottery Commission Headquarters for a period of eight weeks. We also reviewed selected draws for the following Lottery games: Lotto, Cash 5, Texas Millions, Pick 3, and Lone Star Millionaire.

Our review procedures constituted a review of the controls and procedures implemented by Lottery, GTECH and BABN management. These procedures were not designed to specifically detect illegalities, fraudulent acts, errors or other irregularities and as such, should not be relied upon for those purposes. Our procedures and this report cover only those controls defined and identified by the Lottery, BABN and GTECH management and in place during the time of our review. Our procedures were designed to test high-risk areas based on the scope of the RFP and may not detect every security weakness.

BABN is in the process of implementing an Internet-based WAN infrastructure. While this is not in the scope of our review, we noted a pre-implementation review was not performed and a post-implementation review is not currently planned. Due to the risk associated with an Internet-based WAN, we recommend that a post-implementation security review be performed before it used to transmit sensitive information.

During the course of our review, we did not witness or discover any procedures or actions that would materially impact the fairness of the Lottery's currently active games. However, we found numerous issues and risks ranging from minimal to moderate and have

noted all of these in this report. The issues listed are organized by categories as delineated in the RFP. **While it is up to Lottery Management to determine the cost/benefit of mitigating any risks raised in this report, PricewaterhouseCoopers does not recommend the implementation of any recommendation that cannot be cost-justified.**

## Tests Performed and Detailed Issues

### Lottery Personnel Security

Our review consisted of reviewing the controls identified by management and in place at the Lottery relating to:

1. Standards of Conduct
2. Pre-employment procedures and background investigations
3. Job descriptions and maintenance
4. Training and indoctrination programs
5. Terminations
6. Threats to employees
7. Organization and Staffing of the Security sections

The Lottery should strengthen controls over their hiring practices to include procedures for ensuring that all required pre-hire information for Lottery and vendor employees is documented and periodic reviews of personnel files are performed to ensure compliance with their hiring policies. In addition, job positions at the Lottery should contain only one job description to prevent discrepancies between actual and perceived job duties. Change and version control procedures should be developed and used by the Lottery to ensure that changes to job descriptions are properly authorized, implemented and controlled.

**Lottery Management's Response:** The Texas Lottery Commission utilizes an extensive pre-employment background investigation process in order to reduce the risk of hiring unacceptable employees. Comprehensive pre-employment background investigations were initiated 12 months ago, replacing the background investigation process that occurred post-employment. The Texas Lottery Commission believes that the current comprehensive background process includes an appropriate level of scrutiny that minimizes the risk of hiring an unsuitable or unacceptable employee. In addition, the Security Division follows the Lottery Act in checking the backgrounds on vendors and their employees. We will continue to work with all vendors to assure that complete background checks are done.

In certain divisions the working job title and responsibilities are not the same as the payroll job title and description. The Texas Lottery Commission has positions that are unique both in the technical responsibilities and work responsibilities to the lottery. These positions are

sometimes not accurately described in the State payroll job titles and descriptions. This would account for the different job descriptions.

## **Sales Agent Security**

Our review consisted of the documentation and testing of selected sales agent controls, covering the areas of:

1. Standards of conduct reviews
2. Agent screening and licensing
3. Sales agent training
4. Termination of agents

In addition, our review documented and tested controls located at selected, large- volume, Sales Agent outlets.

During our review, we noted no weaknesses in sales agent security.

## **Texas Lottery Operator Security (GTECH)**

Our review consisted of procedures to identify and test critical control components at the Texas Lottery Operator (GTECH) facility. These procedures included a detailed review of:

1. Personnel security
2. Computer security over both the mainframe and local area network
3. Database and application specific security
4. Systems security
5. Data communications security
6. Physical security

Our review procedures identified control exceptions, weaknesses and recommendations amongst a variety of different areas. These items are subdivided into issues regarding the Austin Office and Data Center, Austin and Irving Warehouses, and Computer Operations.

### **Austin Office and Data Center**

All visitors should be required to sign in as they enter the GTECH offices, be given an identification badge denoting them as visitors, and be escorted by GTECH employees at all times. GTECH management should foster a security-conscious environment by educating their employees in physical and logical security and requiring all employees to question individuals or alert a supervisor to individuals who do not appear to belong on the GTECH premises.

Security cameras should be placed in areas where they will not have to be rotated to constantly monitor and videotape sensitive areas outside of GTECH's complex. The videotapes used for the security cameras should be kept for 30 days. These tapes should be rotated off-site on a daily basis and stored in a fireproof cabinet while on-site.

GTECH should install a gas-based fire suppression system in their primary and backup data centers. The current water-based fire suppression systems should be used as a last resort in the data centers in the event the fire becomes too large for gas-based suppression.

**Management's Response:** In response to the above audit finding regarding visitor and unauthorized access to GTECH's facility's, the GTECH security staff, managers and their staff were aware of the PricewaterhouseCoopers employee's visits to GTECH's facility's as they were prepared to be interviewed by them. For this reason, there was no question

regarding their identity, nor any reason to believe they would not sign as requested. PricewaterhouseCoopers was allowed to use the restroom and break room without being escorted, with that exception they were with a GTECH employee at all time, to my knowledge.

During the remodeling of our facility we added an additional security camera covering the sensitive areas outside of our complex. We feel rotating the security tapes off-site is a good business practice and we are currently in the process of implementing this.

GTECH addresses the gas-based fire suppression issue with our unique system configuration. In addition, the choice we made to use dry-pipe pre-action sprinkler systems was a business decision, and a good one in our opinion. We also feel that had we installed a gas-based fire suppression system, it would have incorrectly activated during a 1993 incident causing an interruption to our business.

### **Austin and Irving Warehouse**

The Lottery stores a large amount of property at the GTECH warehouse. Due to this, we recommend that gas-based fire suppression should be implemented to reduce the risk that this property may be damaged by the sprinkler system in the event of a fire.

All areas where instant tickets are returned, should have a card access reader and security camera protecting these areas from unauthorized access.

**GTECH Management's Response:** Again, the use of a sprinkler system is based on a business decision made by GTECH. There is some questions as to how effective a gas-based system would be in a warehouse of this size and the cost would be tremendous.

We have installed card access readers and security cameras in the instant ticket return areas as suggested by PricewaterhouseCoopers.

### **Computer Operations**

GTECH should implement procedures to ensure that access to the computer systems for active and terminated users is reviewed periodically and is reflective of the user's job





responsibilities. Only authorized GTECH employees should have system administrator access to GTECH's computer systems. If someone outside a GTECH's organization needs this level of access for a valid purpose, it should be documented, monitored, and approved by GTECH's Security Administrator and Director of Operations. In addition, GTECH should implement controls to strengthen security and account access on the Local Area Network.

A new process for determining the eligibility of GTECH active and terminated employees when validating Lottery tickets should be developed and used in place of the current process. This process should allow all user accounts to be completely removed at the time a user leaves GTECH and ensure the timeline for eligibility is strictly adhered to.

During the implementation of the PRO:SYS application, a process that does not require user intervention should be implemented alerting the Lottery and GTECH to all code changes in the production system. This process should also force a code comparison each time changes are made to the production environment, reducing the risk of unauthorized code being migrated into the production environment.

At GTECH's primary and backup data center, GTECH should use and review on a regular basis maintenance and test logs for the backup generators. The fireproof cabinets where the backup data tapes are kept should remain closed at all times.

Because PRO:SYS was not installed at the time of our audit, we were unable to assess the security features of the new gaming application for the Year 2000. GTECH and the Lottery should ensure the gaming system in use at GTECH is fully Year 2000 compliant and will have no security issues related to the Year 2000 problem.

Firewalls should be implemented to help prevent unauthorized access to GTECH's computer and gaming systems.

**GTECH Management's Response:** We agree with the above audit findings and are in the process of evaluating and implementing new procedures as suggested by the PricewaterhouseCoopers Auditors.

Regarding year 2000 compliance of the gaming systems, the PRO:SYS application will be Y2K compliant. In the unlikely event PRO:SYS does not go into production as scheduled a contingency plan is in place to modify the existing applications to make them Y2K compliant.

## **Texas Lottery Vendor Security (BABN)**

Our review consisted of procedures to identify and test critical control components at the Texas Lottery Vendor (BABN) facility in San Antonio. These procedures included a detailed review of:

1. Personnel security
2. Computer security over both the mainframe and local area network
3. Database and application specific security
4. Systems security
5. Data communications security
6. Physical security

Our review procedures identified control exceptions, weaknesses and recommendations amongst a variety of different areas. These items are subdivided into issues regarding the Physical Security, Ticket Production and Destruction, and Computer Operations.

### **Physical Security Issues**

Several changes should be implemented in BABN's physical security practices to enhance physical security at BABN. The security system should notify the monitoring stations when secured doors are propped open. A curtain or similar cover should be installed on the glass wall in the computer room along with a glass-break sensor tied to the security. The manual override for the mantrap at the BABN's entrance should not be used if either of the doors are open.

The current practice for keeping and rotating security videotapes should be improved. Thirty days of these videotapes should be kept and a schedule for rotating these tapes off-site on a daily basis should be developed and implemented. In addition, these videotapes should be stored in a fireproof cabinet rated for recordable media while they are on-site.

**BABN Management's Response:** BABN is currently evaluating the need to move or conceal equipment in the computer room to further restrict any potential view to sensitive information. In addition, BABN agrees with the above remaining audit findings and is in the process of correcting these weaknesses.

## **Ticket Production and Destruction Issues**

There is an adequate process in place for destroying rejected instant tickets, however these procedures are not always followed. BABN should follow the procedures for destroying rejected instant ticket packs, including ensuring they are drilled in the correct area immediately upon the determination that these tickets should be rejected. BABN should also make sure the instant tickets are stored in sealed bins in a secured area while they are waiting to be destroyed.

The process for sending the seal numbers, attached to the instant ticket validation tape, to the Lottery Commission could be improved.

**BABN Management's Response:** BABN agrees with the above audit findings and has taken the following action: Security procedures have been re-enforced with all personnel and routine audits have been put in place to ensure procedures are followed; All rejected tickets are now stored in highly secured areas while awaiting shredding; and BABN's Security Director will work with the Texas Lottery Commission to improve the process for sending validation tape seal number to the Lottery Commission.

## **Computer Operations**

The systems administration function should be performed in-house at BABN in San Antonio instead of in Montreal. Moving this function to San Antonio may help mitigate security weaknesses in the operation of BABN's computer systems. Procedures should also be developed for notifying the system administrator of changes in a user's job function or if a user has been terminated. In addition, BABN in San Antonio should develop enhanced procedures to ensure that application changes to the ILS application are authorized and approved by the San Antonio office. BABN should implement and follow a schedule for keeping 30 days of backup tapes and rotating these tapes off-site on a daily basis.

**BABN Management's Response:** BABN is implementing the following changes in response to the above audit findings: System administration is being moved to San Antonio; All personnel changes are now being routed through computer operations to ensure timely access updates are being performed; and a revised data backup process is

being designed which will address the need to rotate data backups to a secured location on a daily basis.

## **Security against Ticket Counterfeiting and Fraudulent Winning**

Our review over the security against Ticket Counterfeiting and Fraudulent Winning consisted of an overall evaluation of the controls in place at the Lottery regarding these areas, as well as specific reviews over the controls established to prevent alteration of claim forms and the entry of fictitious or false information.

During our review we noted that the ticket validation information should be printed in different locations of the play area within each specific instant ticket game and that the back of the tickets should be tested when performing the security test of the instant tickets.

**Lottery Management's Response:** The ticket validation number is placed on a ticket for the ease and readability of the retailer for validation purposes. Due to the size of the play area on some of the tickets and the limited amount of space that can be used to print these numbers, printing the ticket validation numbers in different locations is not feasible.

We have identified several and submitted a purchase request for a piece of equipment that will aid in testing the back of the instant lottery tickets.

## Security of Lottery Drawings

Our review consisted of the evaluation and assessment of controls over the security of the various Lottery drawings. This consisted of, but was not limited to, an on-site review of current Texas Lottery games, including Lotto Texas, Pick 3, Cash 5, Texas Millions, and the Lone Star Millionaire game. In addition, we documented and evaluated the control infrastructure ensuring an appropriate segregation of duties for these drawings, along with controls over the validation of tickets played during these drawings.

Because of the multiple parties involved in Lottery Drawings, the issues and weaknesses identified below are divided between the Lottery Operator (GTECH) items specific to the primary drawing studio (“Studio 501”) and overall issues for the Lottery’s consideration.

### GTECH Issues and Recommendations

At GTECH, we noted two procedures that should be implemented to mitigate the weaknesses we found during the draw process. First, a backup camera should be used in the computer room at GTECH in the event the primary camera is not working correctly during the draw. This will help ensure that access to the computers during the draw is recorded. Secondly, the Lottery’s draw materials, including the tape seals and draw manuals, kept at GTECH should be stored in a locked cabinet or taken off-site to Lottery Headquarters after the draw.

**Lottery Management’s Response:** We agree with the above audit findings and will evaluate the procedures necessary to make the above changes.

### Studio Issues and Recommendations

Procedures for loading and unloading balls into the Lottery draw machines should be enhanced. In addition when draw procedures are changed, such as the loading of the Lottery machines, the procedure manuals should be updated accordingly. These procedure manuals should also include a revision date, version number, and be reviewed quarterly to ensure the latest manuals are being used and that these manuals outline the current draw processes.

The Lottery drawings should be moved to a studio that can be under the direct control of the Lottery Commission, allowing the Lottery Commission to use all necessary measures in securing the Lotto machines during the day. The backup draw machines should be stored in a location far enough away from the studio to help prevent them from being affected by the same disaster as the studio should one occur. During our review, we noted the Lottery might purchase new machines to replace the current machines. The replaced machines should be used as backup machines instead of the manual machines currently in place to help prevent the appearance of an unfair Lottery drawing if the manual machines need to be used.

Formal procedures for transporting videotapes recorded during the draw from the studio and GTECH to the Lottery Commission the night of the draw should be implemented and followed.

The independent auditor should store the seals in a different area. Only the number of seals used for the draws should be brought to the draw site each night and all seals should be in the independent auditor's control the entire night. In addition, the used seals should be kept with the draw checklists to produce an audit trail for the draw.

**Lottery Management's Response:** We agree with the above audit findings, and have already corrected the issues regarding the loading of the Lottery machines and transporting the videotapes. We are in the process of working with the other parties involved to evaluate the feasibility correcting these issues.

## **Overall Issues and Recommendations**

The open line used between GTECH and the studio should be initialized while on speakerphone and should not be muted during any part of the draw process. The passwords used during the draw process should be changed for each draw and used not only when verifying the winning numbers, but also when establishing the open line and verifying the seal information sent from GTECH to the Lottery Commission. In addition, there should also be a backup password or procedure to use if the individuals at GTECH or the studio are under duress.

Confirmation pages should be used for detailing the number of the machine dialed and the machine that answered the fax. A cover page should also be used that includes a disclaimer stating the information sent is meant only for the intended recipient, any

unauthorized individuals who have received the document should destroy it, and any results transmitted are unofficial.

**Lottery Management's Response:** We agree with the above audit findings. We are reviewing these procedures and will make changes as necessary to correct the above findings.



## **Lottery Computer, Data Communication, Database, and Systems Security**

Our review consisted of procedures to identify and test critical control components at the Texas Lottery. These procedures included a detailed review of:

1. Computer security over both the mainframe and local area network
2. Database and application specific security
3. Systems security
4. Data communications security.

Our procedures also consisted of executing and evaluating results from a network analysis tool, Bindview.

While there is a plan in place to implement a hot-site at the Lottery warehouse, formal procedures have not been prepared and tested for switching operations to this site. Procedures for continuing Lottery operations in the event of an emergency should be developed, implemented and tested on a regular basis. These procedures should include, at a minimum, processes to continue holding draws, creating and auditing new instant ticket games, validating tickets, and paying winners.

Security settings for the Lottery Commission's Local Area Network (LAN) are in need of improvement. In addition to these security settings, the Lottery should install a firewall between its internal and external network connections. An initial screen should be implemented before login stating the use of the Lottery Commission's computer systems by unauthorized individuals or unauthorized use of the computer systems by employees and contractors is prohibited. All accounts, including superuser and test accounts, should have the same security settings and access to change an administrator's password should only be given to other administrators.

**Lottery Management's Response:** We agree with the above audit findings and are in the process of evaluating and implementing procedures to correct these audit findings.

## **Lottery Premises and Warehouse Security**

Our review consisted of an evaluation and assessment of controls, both physical and administrative, over the facilities utilized by the Lottery Commission. In addition, we evaluated and tested the controls over the movement of sensitive resources to and from the facilities utilized by the Lottery Commission.

Due to the number of different facilities and circumstances, we have divided our issues and concerns into the following sections: Lottery Premises Security, Claim Center, and Security Identification.

### **Lottery Premises Security Issues and Recommendations**

There are several physical security weaknesses at the Lottery Commission headquarters, which should be corrected. Some of these areas include installing more security cameras, ensuring all visitors enter the main entrance, and ensuring all doors close completely behind employees.

Document shredders should be used when disposing of all sensitive documents at The Texas Lottery Commission. Due to the sensitivity of the issues around shredding documents at the Lottery Commission, secured shred bins could be used that are shredded on a regular schedule and controlled by the Attorney General's Office.

**Lottery Management's Response:** We agree with the above audit findings. We have ordered new equipment and implemented new procedures to correct the physical security weaknesses.

The current policy at the Texas Lottery prohibits the use of shredders. As a result of this recommendation, we will re-evaluate this policy with our commissioners.

### **Claim Center Security Issues and Recommendations**

Where feasible, the computer network equipment should be placed in a locked room or case that is only accessible by authorized individuals. A schedule for keeping 30 days of security videotapes and rotating these off-site on a daily basis should be developed and put into place at all regional claim centers where security cameras are used. In addition, while

these tapes are kept on-site at the claim centers, they should be stored in a fireproof cabinet that is rated for recordable media.

Only employees authorized to access the check stock, signature cards, and claim forms should have access to the key that unlocks the cabinet where they are stored.

All seal information should be sent to the Lottery separately from the contents the seal is securing.

Security glass separating claims counter from the winners claim area should be properly secured.

**Lottery Management's Response:** We agree with the above audit findings and have corrected the access to check stock. We are in the process of evaluating the feasibility of the remaining recommendations and, where feasible, we will take corrective action.

### **Security Identification Issues and Recommendations**

The IDs pasted to the electronic badges should be permanently affixed to these badges to prevent the badges from being switched. All electronic badges should also be tagged with an individual's specific name to ensure accountability exists in the event the badge number is not written on the log sheet or an incorrect badge number is used. In addition, there should not be any information on the badges which identifies them as belonging to the Texas Lottery Commission.

**Lottery Management's Response:** We agree with the above audit findings, however we feel that changing the badge design is cost prohibitive at this time. We will change the template used to create the badge to remove any Texas Lottery identifying information. We have also started to require that any person receiving a visitor badge must provide us with a photo ID. We have been tying this ID along with the badge number to the visitor, which will further assist in identifying the specific person to a badge was issued.

## Security of Distribution of Tickets

Our procedures included the review of controls used to prevent disclosure, theft, loss or destruction of sensitive materials; including tickets, in transit and in storage at the Texas Lottery premises, Lottery Operator (GTECH) premises, the Lottery Operator's warehouse, and retailer premises. We also evaluated the controls over the inventory of sensitive materials en route and at the various storage locations. Our procedures noted the following weakness:

The seals used on the trucks that ship the instant tickets from BABN to GTECH should be verified against seal information sent to GTECH separately from the instant tickets. These seals should also be destroyed after they are removed from the trucks.

**Lottery Management's Response:** We concur with the above audit finding and have implemented this recommendation.

## Security of Validation and Payment Procedures

Our review included the documentation, evaluation and testing of administrative, software, and physical controls used to ensure the accuracy, integrity and reliability of the receipt and validation of Texas Lottery claims and payments. From this review, we noted the following exceptions and control weaknesses:

Procedures for validating winning Lottery tickets should be enhanced and, at a minimum, should include the following procedures. Information given by winners, such as proof of the winner's Social Security Number, should be validated when claiming a prize. Procedures for determining if winners are ineligible because they are dependents, household members, and contractors, should be developed. The place of purchase for winning instant tickets and Lottery tickets should be verified. The Lottery should also continue to educate retailers on proper ticket invalidation methods and spot checks should be performed to ensure compliance, with non-compliance penalized.

A review of all checks printed for winning tickets should be performed by someone independent of this process. Daily procedures should also be enhanced to require a match between checks written and tickets/claims made.

Procedures for withholding prize winnings from winners who owe debts to government agencies need to be enhanced. In addition, controls should be strengthened to ensure that all withholding overrides are properly reviewed and documented.

**Lottery Management's Response:** We agree with the above audit findings and are in the process of working with the various parties involved to determine the feasibility of implementing corrective action.

## Security Involving Unclaimed Prizes

Our review of the security controls involving Texas Lottery unclaimed prizes included the documentation, assessment and testing of management's controls over the security and integrity of non-validated tickets, security and integrity of unsold and returned tickets, and the controls over the destruction of expired tickets. From this review, we noted the following control weakness:

Controls over the 180-day window for claiming prizes should be enhanced to require a test of this window. This will help to ensure that winning Lottery tickets are not claimed more than 180-days after the end of the game.

**Lottery Management's Response:** We disagree with the above audit finding. The window was tested before its first use and is tested each time a change to the application is performed. There is no need to retest it for every game because the application is the same for all games.

## Specific Game Security

Our review procedures consisted of evaluating and assessing the controls over specific Texas Lottery instant games. We reviewed the working papers, design, pre-production audit, independent game audit, independent testing report and specific security elements in selected current games. Due to the number of different persons and processes involved during this review, we separated our issues into those pertaining to game testing, and those specific to a selected game.

### Game Testing and Reports

The testing procedures used in the pre-production audit for the instant ticket games could be improved to allow for more efficient and extensive testing. All modifications to game design and game parameters should be authorized and signed off before the pre-production audit begins. The pre-production audit for the instant ticket games could be automated to allow testing a greater number of ticket results for game compliance while reducing human error.

The original copy of lab test summary reports should be stored off-site in a fireproof cabinet. All other copies of these reports as well as all of the tickets not used during the testing process should be stored in a fireproof locked cabinet at the Lottery Commission.

**Lottery Management's Response:** The testing for the pre-production audit is performed on a random sample selected by the Manufacturer. The parameters of the game are verified from this sampling. We must then omit this sample from the game for integrity reasons and guaranteed prize structures. Performing this audit on the game would damage the integrity of the game by having knowledge of prize placement.

We agree with the remaining audit issues in the above section and are in the process of evaluating the feasibility of implementing corrective action.

### Lone Star Millionaire

During the preliminary draws for the Lone Star Millionaire and similar future games, all envelopes should be placed in the mail carton in the same orientation to give each envelope in the mail carton an equal chance of being drawn. The person selecting should use some

type of plastic insert when picking envelopes to remove the possibility of an altered envelope providing tactile feedback and affecting the fairness of the draw.

During the final draws for these types of games, the camera used to record the draw should be located in an area where it will not be blocked by spectators. The camera area should also be blocked off with rope or ribbon to keep spectators away from the camera and to help ensure the entire draw process is recorded without interruption.

**Lottery Management's Response:** We will review the above recommendations and will make the necessary changes when or if we have another game like this.



## **Review of SAS#70 Control Objectives for GTECH**

Our review of the 60 control objectives for the GTECH SAS #70 noted four general issues that should be investigated by Lottery Management. These proposed control objective revisions and additions should be used as a framework for revising the 60 control objectives currently utilized by GTECH. These general issues do not represent a complete listing of proposed revisions and additions, but instead represent general issues that should be considered by Lottery and GTECH management.

Many of the control objectives being utilized for GTECH are too specific and as a result, may not provide comprehensive coverage over the objectives desired by SAS #70 users. For example, even if the control objectives are not met, due to the specific nature of the objectives, the reader may not be fully aware of the impact of not achieving these objectives. There are seven individual control objectives regarding Application Systems Development and Maintenance, many of which have some degrees of overlap. The following proposed control objective modification would replace current control objectives 9-16:

**Control structure policies and procedures provide reasonable assurance that applications being developed and maintained are authorized, tested, approved, properly implemented, and documented.**

The general computer control objectives being utilized for GTECH do not specifically or implicitly identify production systems other than the on-line gaming and instant ticket validation systems. For example, the network infrastructure utilized by GTECH (Novell) is not identified or tested under the current set of control objectives. Control Objective 26 states "Access to on-line functions is restricted to authorized system users." The following proposed control objective modification would better provide assurance over all production systems at GTECH:

**Control structure policies and procedures provide reasonable assurance that logical access to production programs and data files is limited to properly authorized individuals.**

Many of the control objectives being utilized by GTECH are limited to specific actions and may not provide the level of assurance desired by report readers. For example, Control Objective 34 states "Appropriate procedures exist to permit continuance of business operations in the event the data center or portions of its operations are disabled by fire,

flood, tornado, electrical power loss, or other catastrophic event.” This control objective does not address overall business continuity for all GTECH departments and activities, only an event regarding the ability of the data center to process. In addition, the control objective does not address non-catastrophic (related to an “act of God”) events such as a loss of critical personnel or intentional data corruption/loss. The following proposed control objective modification would better provide assurance over Business Continuity Planning:

**Control structure policies and procedures provide reasonable assurance that the service organization can provide continuity of operations.**

Our review of the Application Controls objectives appeared to be too high level in the processing cycles and did not include adequate individual transactional controls. For example, our review did not note specific control objectives that ensure that transactions are only processed once. Although compensating controls could be in place over this specific area because of the nature of the transactions involved and the previous history of problems with multiple validations of one ticket, intended readers may want to see this control objective being specifically addressed. The following proposed control objective addition could include:

**Control structure policies and procedures provide reasonable assurance that authorized transactions are processed once and only once.**

**Lottery Management’s Response:** The SAS#70 Control Objectives for GTECH are very specific. PricewaterhouseCoopers’ recommendation to make them more general and encompass an entire functional area makes sense. This is especially true since many of GTECH’s systems and applications will change in the next year.