Evaluation of Internal Control from a Control Objective Narrative

Mary B. Curtis
University of North Texas

A. Faye Borthick
Georgia State University

ABSTRACT: Many accounting firms have changed the way their auditors evaluate internal control. Instead of preparing flowcharts documenting transaction flows, they only document the controls that have a bearing on specific financial statement assertions. This shift in documentation marks a change in the structure of the internal control evaluation task from transaction flow to control objective. This case presents documentation organized by control objective for internal control of a company’s purchasing cycle. The case includes discussion and objective format questions and is relatively short, which means it can be used as an in-class or out-of-class exercise or an in-class testing or assessment device on internal control evaluation.

Key Words: Control objective, Instructional case, Internal control evaluation, Knowledge structure, Transaction flow.

I. THE CASE

In the narrative that follows about Apex Corporation, you will find:

a. A short description of the company’s business
b. A discussion of the various computer centers (the general computing environment)
c. A description of the control environment for computer-based processing
d. An explanation of the purchasing system by the control objectives for the system

About Apex

Apex is a multi-national distributor of electronic parts, headquartered in New York City (NYC). The company sells 24 classes of products, some of which are considered high tech and some of which rely on mature technology. Apex owns warehouses in different locations in the U.S. and one in Bolivia. Apex also has local sales offices in most states and in several foreign countries. The warehouse distribution offices and sales offices (local offices) report to regional offices in seven locations worldwide. A staff of three computer auditors is responsible for the review and audit of the worldwide operations of Apex.

Both the local and regional offices operate with minimal staffing, typically with one person performing all accounting and administrative functions in each local office and two or three people
performing those functions in the regional office. The managers in each office are production oriented, spending most of their time with the sales force or in the warehouse.

**General Computing Environment**

Each regional office is responsible for the accounting functions for all sales and distribution offices in its area. Each region has its own computer, which performs all accounting-related data entry and some accounting processing. Payroll and Cost Accounting are processed at the regional office with summarized information transmitted to the NYC central computing center (NYCCC) for company-wide consolidation. Revenue/Accounts Receivable and Purchases/Accounts Payable transactions are entered at the regional offices and transmitted to NYCCC for processing. The data that are transmitted daily for these two applications include all filled customer sales orders (ready to be billed) for the revenue system and all invoices for the purchasing system.

Approximately 70 people work in the Information Systems (IS) department at NYCCC, including the Input-Output Control (IOC) group. The Director of IS reports to the Vice-President for Corporate Information. Company policy requires that users be included in every aspect of the management and budgeting of the IS department.

Users and IS personnel are involved in the selection of all mainframe software purchased from software vendors. Microcomputer software that does not generate data for other departments is selected independently by the user departments.

**The Control Environment for Computer-Based Processing**

**Computer Audit**

Because the majority of processing occurs at NYCCC and few controls exist in the regional offices, Apex’s three computer auditors spend most of their time at NYCCC. It is the Director of Internal Audit’s policy that both internal and external auditors maintain their independence by not becoming involved with system development projects. Therefore, application reviews are performed only for fully implemented systems.

Computer controls at NYCCC have been reviewed and tested by the external auditor’s staff. Because computer controls in the regional offices are considered to be extremely weak, the external auditor has not reviewed controls on the regional computers.

**Program Change Control**

Programming for both NYCCC and regional offices is performed by NYCCC programming personnel. NYCCC users participate in the evaluation and prioritization of change requests and the design and testing of all software modifications. Systems development life cycle (SDLC) procedures are standardized and are bypassed only in emergencies. Company and external computer auditors are offered the opportunity to review the design of internal controls before development continues.

Program changes are tested on the production system by the programmer responsible for making the modification. Users and programming supervisors review test results and sign off on an implementation authorization form. This form is given to the Software Change Control Group, which copies the source program from the programmer’s disk area to the read-only source code library. Software Change Control personnel then compile the program and place it in the secure production library.

The Software Change Control Group is also responsible for scheduling implementation and for sending program changes to the regional offices. A manual is consulted to determine which regional offices should receive a modified or new program. A diskette containing the compiled version of the program is mailed to the regional office, where a designated person loads the program. A specific date is sometimes scheduled for loading program changes.

Mainframe software is tested by IS personnel with the involvement of users. When source code is available, the transfer into the source code library proceeds as described above. When source code is not available, Software Change Control personnel transfer the compiled version directly from the diskette provided by the vendor into the production library.

Because of the wide dispersion of regional offices, personnel in each office conduct computer
training. When program changes occur that may affect current procedures or report usage by regional personnel, detailed documentation accompanies the diskette.

Control Objectives for Purchasing

Authorization

At NYCCC, the computer equipment is housed in a locked suite of rooms with one main door, which is secured by keypad access. Approximately 50 people have authority to enter the facility.

Access control software on the mainframe computer at NYCCC allows security levels to be specified for each program and data file, as well as classes of files. Sensitive system management files are restricted to only those specifically identified for access, while access to all other files is restricted to particular user departments (indicated by userid.) Quarterly reviews are performed by the IS Director of Security to evaluate each user’s need to access data and programs. Internal audit performs a similar review annually.

Access to the regional office computers, which are located beside the administrator’s desk, is controlled by passwords on the main system menu. Passwords are given only to authorized personnel.

Any office in the company can complete a Purchase Order (PO) and send it (mail or fax) to a pre-approved vendor. The ordering office must send a copy of the PO to the accounts payable clerk at the regional office.

Checks are printed at NYCCC every weekday evening. The IOC Supervisor runs the signature machine and monitors the mailing of checks.

Accuracy

Upon receiving a PO, the accounts payable clerk in the regional office enters it into a PO database maintained at the regional office. Each time the clerk enters a vendor number, inventory item number, and expected receipt date, the system retrieves the vendor name and item description. When a vendor number or an inventory item number does not exist in the database, the clerk enters it.

All vendors mail their invoices to the regional office. Upon receiving a vendor’s invoice, the accounts payable clerk locates the PO in the PO database, compares the quantity billed on the invoice to the quantity recorded as received, and compares the price to the PO unit price. Discrepancies are investigated and corrected through a telephone call or fax to the administrative person in the local office. The payment due date is entered into the PO database only after all discrepancies are cleared.

Validity

When shipments arrive at the local office that ordered the material, a warehouse receiving clerk or the administrative employee in the front office receives them. The person receiving the material marks the packing slip as received, and notes any changes in quantity based on inspection of the goods.

Local offices send each packing slip, serving as a receiving report, to the regional office. When a receiving report arrives at the regional office, the accounts payable clerk finds the purchase order in the PO database and records the quantity received for each line item in the online PO record. Discrepancies are corrected via telephone or fax communication with the local office.

Daily, an extraction program searches the PO database for untransmitted invoices for which payment due dates have been recorded. These newly completed records are transmitted to NYCCC and are marked in the PO database to prevent retransmission. From this point, the regional offices have no further responsibility for the invoices unless problems arise at NYCCC.

Completeness

At NYCCC, backups are performed daily for all data and program files modified that day. The previous two days’ backups are kept in the computing center while the prior three days’ backups are kept in remote storage. Complete system backups are performed monthly and the latest generation is kept in remote storage.

At each regional office, the administrator performs cassette tape backups at the end of every business day. The backup tapes are kept in the administrator’s desk.
At NYCCC, the Input/Output Control (IOC) Group is responsible for company-wide Accounts Payable processing and check printing. The Accounts Payable system identifies the invoices to be paid on the next business day and prints a list of these for the IOC Group to review. If it is decided that any particular invoice should not be paid, IOC electronically marks the invoice as suspended and follows up with the regional office to resolve any problems. When discrepancies have been cleared for an invoice, the IOC Supervisor turns the transaction record’s suspension flag off, releasing the record for the next day’s processing. The list of suspended invoices is reviewed monthly by the IOC Supervisor to determine if any suspended invoices have failed to be released for payment.

Part I: Discussion Questions

Required: Based on the Apex case, prepare answers to the following questions.

1. **Physical and logical access.** What weaknesses are there in physical and logical access to information resources and what are their likely effects? What new or improved control procedures would reduce or eliminate these weaknesses?

2. **Program development.** What weaknesses are there in program development and change control and what are their likely effects? What new or improved control procedures would reduce or eliminate these weaknesses?

3. **Transaction processing.** What weaknesses are there in the processing of purchasing transactions and what are their likely effects? What new or improved control procedures would reduce or eliminate these weaknesses?

4. **Potential misstatements.** What intentional and unintentional misstatements could occur in Apex’s financial statements and what weaknesses in internal control would permit them?

5. **Financial statement assertions.** List the control objectives that apply to Apex’s purchasing system. For each control objective, indicate the control activities that Apex conducts and the financial statement assertion(s) to which each control activity applies. Explain whether an auditor would be likely to test control activities for each financial statement assertion. Organize your response in the following format:

   **Relationship of Apex’ Control Activities to Financial Statement Assertions**

<table>
<thead>
<tr>
<th>Financial Statement Assertions</th>
<th>Presentation</th>
<th>Valuation/ Allocation</th>
<th>Rights and Obligations</th>
<th>Completeness</th>
<th>Existence/ Occurrence</th>
<th>Control Objective</th>
</tr>
</thead>
</table>

   Part II: Multiple-Choice Questions

Required: Based on the Apex case, select the best answer to each of the following questions.

1. The fact that no purchase requisitions are used at the local office results in a weakness in:
   a. authorization of purchases
   b. completeness of processing
   c. accuracy of cash disbursements
   d. validity of payments

2. The procedure that gives the most assurance that payments to vendors are valid is:
   a. only authorized vendors are permitted
   b. quantity discrepancies are resolved
   c. receiving reports are matched to POs
   d. questionable invoices are suspended

3. Failure of NYCCC to coordinate with the regions on program installation dates could result in:
   a. invalid checks being printed
b. inaccurate purchase orders being prepared  
c. inconsistent processing between regions  
d. incomplete receiving reports  

4. An important control over authorization of transactions is the assurance that accounts payable programs perform according to their specifications. One way to strengthen this assurance would be to:  
a. increase the frequency of creating backup files  
b. improve computer training at the regional offices  
c. increase microcomputer security at NYCCC  
d. improve manager review of modified programs  

5. The large number of people authorized to enter the NYCCC computer room creates problems with access security, which increases the risk of:  
a. widespread access to computer equipment leading to unauthorized processing  
b. inadequate or incomplete backup of data files leading to loss of company data  
c. the IOC Supervisor, who is responsible for payments, printing unauthorized checks  
d. POs, receiving reports, or other data being lost at the regional office  

6. An important control objective is that purchases be authorized. Control for this objective could be strengthened at Apex by:  
a. local offices having the complete list of pre-approved vendors and being required to adhere to it  
b. the program that adds POs to the database rejecting POs for unauthorized vendors  
c. regional accounts payable clerks identifying purchase orders for unauthorized vendors  
d. journal entries for unauthorized vendors being flagged or rejected  

7. Not having separate purchasing and receiving functions could result in:  
a. incomplete invoice processing  
b. unauthorized purchase orders  
c. invalid receiving report quantities  
d. errors during data entry  

8. An objective of the purchasing/payables cycle is to ensure that payments are made only for resources actually received. Control for this objective could be strengthened at Apex by:  
a. improving the controls over program testing at NYCCC  
b. separating the receiving and purchase order functions  
c. setting pre-authorized purchasing limits  
d. developing a regional office disaster recovery plan  

9. Because the receiving department uses the vendor’s packing slip as its receiving report, the regional office:  
a. may be unable to determine if all purchases were authorized  
b. may be unable to determine if all receiving reports were inputted  
c. could receive and input a packing slip sent directly from the vendor  
d. may not accurately enter the payment due date in the database  

10. The best way to improve control over accuracy of transactions would be to:  
a. have vendors send their invoices directly to NYCCC for input and processing  
b. improve data editing and validation by the regional computer software  
c. review record counts for the transactions transmitted from the region to NYCCC  
d. increase the frequency of creating backup files at the regional offices  

11. A control weakness in the transmission of invoices from the region to NYCCC is:  
a. NYCCC can decide which invoices to pay and which should be placed in suspense for later payment
b. the local office does not explicitly authorize payments to vendors because invoices are sent directly to the region

c. there is no procedure for detecting or resending incomplete transmissions from the regional offices to NYCCC

d. the audit staff does not review controls at local or regional offices and is not involved with software development

12. Accounts payable data at NYCCC are most vulnerable to:
   a. the uncoordinated purchase of microcomputer packages across the company
   b. the lack of documentation for computer source code prepared by programmers
   c. programmers having read-access (but not write-access) to source code libraries
   d. programmers having unsupervised access to modified programs prior to installation

13. At Apex, the IOC Supervisor both signs checks and mails them. This weakness introduces the possibility of:
   a. theft of valid checks by the supervisor
   b. invalid checks being printed and mailed
   c. inaccurate check dollar amounts
   d. valid checks written to unauthorized vendors

14. The best way for Apex to ensure completeness during transmission between the regional offices and NYCCC would be to:
   a. fax batch control totals from the region to NYCCC for comparison to totals computed at NYCCC
   b. have the NYCCC system perform field editing on each invoice received from the regions
   c. fax batch control totals of purchase orders from the local to the regional office for comparison
   d. generate batch control totals at NYCCC for comparison to the total of checks printed

15. Regional software changes are not tested on the regional computers. Incorrect logic in these programs could cause errors in the:
   a. authorization of purchase orders
   b. accuracy of invoices received from vendors
   c. completeness of accounts payable processing
   d. validity of cash disbursements mailed by IOC

16. At Apex, authorization to pay a particular invoice is communicated to the regional office by:
   a. the local office sending a purchase order and a matching receiving report
   b. express statements made as a part of the discrepancy resolution process
   c. the region’s receipt of an invoice, from an authorized vendor, for common inventory items
   d. transmission of the invoice to NYCCC for payment by IOC on the due date

17. Entering an invoice due date prior to resolving discrepancies could result in transmission of an erroneous invoice to NYCCC, which could lead to:
   a. vendors being paid for goods not received
   b. invoices being lost during data transmission
   c. a valid invoice not being paid by NYCCC
   d. purchase orders not being recorded

18. The potential weakness of programmers being able to test program changes on the production system could be alleviated through:
   a. closer review of modified source code and test results by managers prior to implementation
   b. more involvement of users in program testing, such as user review and sign-off of test results
   c. changing security policies to prevent programmers from entering the computer room
   d. creation of a facility separate from the production data to isolate programs being tested

19. The backup practices at the regional office threaten the:
   a. completeness of transactions transmitted to NYCCC
b. authorization of purchase orders sent to vendors  
c. authorization of payments made by IOC at NYCCC  
d. validity of transactions processed by Accounts Payable

20. The best approach to strengthening the authorization of purchase orders would be for:  
a. the local office clerks to initial or sign each purchase order placed by their office  
b. local offices to limit purchases to a certain dollar amount by breaking large orders into smaller ones  
c. the regional offices to check each purchase order for the local office clerk’s signature  
d. the regional offices to require a manager’s signature on purchase orders over a certain dollar amount

21. Having both accounts payable and cash disbursement functions in IOC could result in:  
a. erroneous processing of accounts payable  
b. unauthorized invoices transmitted to NYCCC  
c. IOC employees writing checks to themselves  
d. purchase orders issued to unauthorized vendors

22. The best approach to improving control over the validity of transactions transmitted from the regions office to NYCCC would be to:  
a. permit less access to NYCCC computer hardware and software  
b. enter payment due dates only after all discrepancies are resolved  
c. improve data accuracy checking by the regional computer software  
d. permit less access to regional computer hardware and software

23. The most significant risk from persons who are not Apex employees gaining access to the NYCCC computer is that they could:  
a. enter purchase orders  
b. enter invoice records  
c. create receiving reports  
d. delete purchase orders

24. The procedure that gives the most assurance that payments to vendors are accurate is:  
a. transmitted invoices are marked to prevent retransmission  
b. invoice information is compared to purchasing records  
c. suspended invoices are reviewed monthly to ensure payment  
d. backups are performed daily at NYCCC and at the regions
II. TEACHING NOTES

Introduction and Purpose

Beginning with SAS No. 55 (AICPA 1988), financial auditors have been organizing their internal control judgments by audit objective to enable risk-based audits. This means auditors obtain a sufficient understanding of the state of the client’s internal control to permit them to assess control risk in terms of financial statement assertions (AICPA 1996). Risk-based auditing is consistent with effective auditing in an environment with increasing public demands for greater accountability from companies and their auditors and increasing use of information technology in accounting information systems (AIS). As the level of AIS automation continues and real-time access to corporate databases becomes a reality (Wallman 1997), the evaluation of control risk in risk-based auditing will likely become even more important.

In the past, public accounting firms generally prepared extensive flowcharts of their clients’ financial systems as a means of documenting internal control. The switch to risk-based auditing with its emphasis on assessing control risk has, however, prompted auditors to replace flowcharts with more easily prepared narratives organized by control objectives corresponding to financial statement assertions (Bierstaker 1996). Not only does this approach focus on control objectives directly, but it also helps the auditor be more efficient because it avoids the need to prepare time-intensive flowcharts.

While flowcharts portray systems as a chronological sequence of processing steps representing transaction flows, control objective narratives are organized by controls pertaining to specific financial statement assertions and tend to be less inclusive. Because the shift to narratives has occurred recently, the text of many existing cases for internal control evaluation is organized by transaction flow rather than by control objective. For example, the widely used Dermaceutics case presents its cycle documentation (Coopers & Lybrand 1998, purchasing, 147–153; revenue, 185–190) in the form of flowcharts and accompanying explanations of the flowcharted steps in chronological order. The Dermaceutics case does, indeed, prompt students to organize their internal control evaluation by audit assertion, but they begin their evaluation with client system documentation organized by transaction flow rather than by control objective.

Because its text is organized by control objective, the internal control case presented here is consistent with the firms’ shift to control objective narratives for internal control evaluation. It is readily usable in a classroom environment in a single class session, as an outside-of-class assignment, or as an assessment device.

But more important than the form of internal control documentation is the fact that the shift from flowcharts to narratives implies the need for a corresponding shift in auditor knowledge structure: from transaction flow to control objective. Research has found that auditors employing a knowledge structure different from that of the task structure exhibit diminished performance (Nelson et al. 1995). Flowcharts imply a transaction flow knowledge structure, i.e., the organizing categories are the sequential subprocesses in a transaction cycle such as purchase order preparation and receiving in a purchasing cycle; narratives imply a control objective knowledge structure, i.e., the organizing categories are control objectives such as authorization or completeness of transactions as they apply to financial account balance assertions (Frederick 1991). Less experienced auditors, however, exhibit weak control objective knowledge structure (Frederick et al. 1994), and auditors appear to develop a control objective knowledge structure with experience (Libby and Frederick 1990; Tubbs 1992; Frederick et al. 1994; Curtis and Viator 1999).

There is no reason why auditors should have to wait for experience to acquire a control objective knowledge structure. Conceivably, students could acquire this form of knowledge structure, which might help them develop audit expertise faster than they do now. Thus, accounting educators might be able to help their students become better auditors faster if they had more internal control cases organized by control objective to reinforce the control objective approach of audit textbooks (e.g., Arens and Loebbecke 1998; Robertson and Louwers 1999). This case, Apex, is an example of this approach. Its narrative about the company’s purchasing system is organized by control objectives, i.e., all information that pertains to the same control objective appears together.
Teaching Approaches

The case can be used in the following ways:

1. As an in-class or out-of-class exercise in understanding purchasing functions or evaluating internal control in a purchasing cycle
2. As a testing or assessment device for ascertaining students’ proficiency in evaluating internal control

The case is suitable for use in courses in accounting information systems, computer auditing, and auditing. It can be used as the stimulus for answering the discussion questions, the multiple-choice questions, or both. Depending on the course, it might be appropriate to use subsets of the questions. A flowchart is included in the appendix for instructor reference or, at instructor discretion, for student use.

Suggested Solution

Part I: Discussion Questions

1. **Physical and logical access.** What weaknesses are there in physical and logical access to information resources and what are their likely effects?

   **Physical Access**
   Control over physical access to regional computers is very weak, which means that the information resources are vulnerable to removal or destruction. Because backup tapes are stored on-site only, regional staff might not be able to recover programs and data from intentional, accidental, or catastrophic damage. There is no backup/recovery plan, a significant weakness, which increases the likelihood of processing interruptions when the systems fail.

   Physical access is somewhat more controlled at NYCCC, although too many people (50) have access to the computer room. Backup procedures are better too, although the number of days retained (two days on-site and five days at a remote location) is insufficient to allow staff to recover from some kinds of program and data damage. There is no backup/recovery plan, a significant weakness, which increases the likelihood of processing interruptions when the system fails.

   **Logical Access**
   Because there is only one password for all functions for a regional system and there is no password change control, almost anyone determined to do so could gain access to the system. This is a significant weakness.

   Logical access control at NYCCC is much stronger because password control can be implemented independently for each program and data file on an individual or a departmental basis. Quarterly and annual reviews of access privileges ensure that access control is maintained, although some provision should be made for terminating access rights immediately for employees who leave the company. The case is silent on how well access control is implemented on a daily basis. In most companies this size, there would be a corporate security officer who enters passwords and designates file access privileges.

   **Physical and Logical Access.** What new or improved control procedures would reduce or eliminate these weaknesses?

   **Regional Computer Systems.** Regional computer security should be reviewed. It is likely that the review would indicate the need to store backup tapes off-site, to password protect individual applications, to designate a security officer to administer security provisions, and to develop a backup/recovery plan.

   **NYCCC Computer System.** At NYCCC, a security officer should be designated to implement more restrictive access to the computer room, develop procedures for terminating password access for
employees who leave the company, and review individual access privileges. A backup/recovery plan should be implemented at NYCCC.

2. **Program Development.** What weaknesses are there in program development and change control and what are their likely effects?

**Software developed at NYCCC**
For software developed at NYCCC, program development and change controls are strong except for the following:

- a. Although NYCCC users participate in system development during project selection, system design, and testing evaluation, regional users do not. This is a weakness that may lead to programs running on regional systems not being responsive to user needs.
- b. Programmers retain program source code in their personal files until users have signed off on it, which increases the likelihood that it might not be backed up adequately or that crucial portions of it might not be locatable when a programmer is absent.
- c. Programmers may modify software after it has been authorized by users, which increases the likelihood of unauthorized code being run.
- d. Programmers test programs as they see fit, which means that testing may not be adequate to detect errors that affect production systems.
- e. Programs implemented by emergency procedures are not subsequently subjected to standard acceptance procedures.
- f. Vendor-supplied software is loaded directly into the production library without testing, which increases the likelihood of running faulty programs.
- g. No one coordinates acquisition of microcomputer software, which could result in incompatible data files and reports and increase the difficulty of NYCCC providing necessary support to users.

**Software Implemented in the Regions**
For software implemented in the regions, program development and change control are weak because:

- a. Programs are not tested at a regional office prior to implementation, and no parallel testing is performed.
- b. Distribution of new or modified programs is haphazard, which could result in different regions running different versions or a region never implementing a program.
- c. Regional personnel only receive training via written instructions, which may be insufficient for correct use of a program.

**Internal Audit Involvement in System Development**
The failure of internal audit to be involved in system development means that the company is not taking advantage of an opportunity for internal audit to monitor the progress and effectiveness of system development. The implied reason for the hands-off policy is to maintain auditor independence, but auditors can maintain their independence and still conduct audits of system development.

**Program Development.** What new or improved control procedures would reduce or eliminate these weaknesses?

**Software Developed at NYCCC.** Regional users should participate in system development during project selection, system design, and testing evaluation. A program library should be established for systems under development. Change control procedures for program modifications should be
implemented. Program testing should be designed to test all program requirements. Program changes made under emergency conditions should undergo testing and approval within 24 hours of implementation. Vendor-supplied software should be tested before implementation. Acquisition of microcomputer software should be coordinated to the extent necessary to decrease the likelihood of incompatible systems.

**Software Implemented in the Regions.** Programs should be tested in the regional environment before implementation. Version control should be implemented for applications software to ensure that the correct versions of application software are used. The effectiveness of training in the use of new programs should be assured.

**Internal Audit Involvement in System Development.** Internal audit should be involved in system development to monitor the progress and effectiveness of system development.

3. **Transaction Processing.** What weaknesses are there in the processing of purchasing transactions and what are their likely effects?

**At Local Offices**
At local offices, there is less separation of duties than is necessary given the number of employees. Practices may not be consistent across offices, and all employees may not be well trained. Because disbursement transactions originate in local offices, all financial statement assertions regarding inventory, accounts payable, and cost of goods sold are threatened. Because the originating office has no review responsibility, accuracy of transaction entry is threatened.

**At Regional Offices**
At regional offices, the incompatible functions of authorizing and recording of transactions are not well separated. A weakness in authorization is that regions never inform the local offices of invoices paid, which means that local offices do not know whether vendors are paid for goods and could not identify unauthorized payments to vendors. The computer program that accepts transactions does not perform sufficient data validation. A weakness over completeness of transactions sent to regional offices is that purchase orders and receiving reports are faxed or mailed from the local offices with no confirmation of receipt. Completeness of transaction initiation for transmission to NYCCC is also weak because a review of the file for unpaid but received goods is not made often. Completeness of transactions transmitted between the regions and NYCCC is stronger although there is no procedure for detecting and restarting failed transmissions. Additionally, there are no controls regarding the security of transmissions. Discrepancy resolutions are generally undocumented, and there are no standard procedures for resolution. Although the actual practice may be typical, the lack of documentation is inconsistent with strong control.

**At NYCCC**
Because there is no automated procedure for preventing duplicate payments, it is possible for a vendor to receive duplicate payments. There is no separation of duties between personnel that authorize invoices for payment, print checks, and disburse them. Because there is only limited review of suspended transactions, some payments may be incomplete or not made timely. Because local office personnel, who know what goods they received, are not involved in payment procedures at NYCCC, transaction entry at NYCCC may be incomplete, inaccurate, or unauthorized. Because neither operations nor users log processing failures, errors in transaction processing could result in data loss, data inaccuracies, or processing inefficiencies.

**Transaction Processing.** What new or improved control procedures would reduce or eliminate these weaknesses?
At Local Offices. More effective separation of duties should be implemented, e.g., the local office manager taking a more active role in supervising the administrative function, particularly in authorizing purchase orders. Local offices should inform the regional office of the numbers of purchase orders and receiving reports they send to the regional office so that the regional office can verify that all of them are received. Local offices should have a means of confirming whether vendors have been paid.

At Regional Offices. The duties of authorizing and recording transactions should be separated more cleanly. Regions should have a means of confirming whether vendors have been paid. To improve data validation, the functions of entering purchase order transactions and entering new vendors and inventory items should be separated. Regions should inform NYCCC of the number of invoices they transmit to NYCCC so that NYCCC can verify that all transmitted invoices are received. Because of the vulnerability of transmissions, hash totals for invoices transmitted should be communicated. Discrepancy resolution procedures should be documented and followed uniformly.

At NYCCC. An automated review for duplicate payments should be implemented. The incompatible functions of authorizing payment, printing checks, and disbursing checks should be separated. The review of suspended transactions should be performed periodically and thoroughly enough to ensure that payments are made timely. Records should be kept sufficient to ensure that transactions involved in processing failures are recovered.

4. Potential Misstatements. What intentional and unintentional misstatements could occur in Apex’s financial statements and what weaknesses in internal control would permit them? See table 1 for the solution.

5. Financial Statement Assertions. List the control objectives that apply to Apex’s purchasing system. For each control objective, indicate the control activities that Apex conducts and the financial statement assertion(s) to which each control activity applies. Explain whether an auditor would be likely to test control activities for each financial statement assertion. See table 2 for the solution.

Part II: Multiple-Choice Questions

1. a 5. a 9. b 13. a 17. a 21. c
3. c 7. c 11. c 15. c 19. a 23. b
TABLE 1

<table>
<thead>
<tr>
<th>Intentional Errors and Misstatements</th>
<th>Enabling Control Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Liabilities may be misstated.</td>
<td>a. Each of the three offices works independently: Regional offices do not inform local offices of transactions processed on their behalf, and NYCCC does not report invoices paid to the regional offices. Therefore, neither local nor regional offices can help control the completeness, authorization, and accuracy of recorded liabilities and subsequent payments.</td>
</tr>
<tr>
<td></td>
<td>b. The procedures for clearing discrepancies are weak. Transactions may be lost and never posted or may be processed with errors.</td>
</tr>
<tr>
<td>2. Liabilities may be understated.</td>
<td>a. Assuming it is the responsibility of NYCCC to determine the amount of accounts payable to be reported on the financial statements, NYCCC can only estimate this amount because there is no provision for reporting liabilities to NYCCC prior to receipt of the invoice.</td>
</tr>
<tr>
<td>3. Liabilities and assets may be misstated.</td>
<td>a. Lack of coordination for the loading of program changes and lack of testing of program changes at regional offices may result in inaccurate processing or processing that is inconsistent between regional offices.</td>
</tr>
<tr>
<td></td>
<td>b. Due to lack of training at the regional and local offices, accounting procedures may be applied erroneously and control procedures may not be applied consistently.</td>
</tr>
<tr>
<td></td>
<td>c. Because control procedures at the regional offices are not reviewed or tested by internal or, presumably, external auditors, those procedures cannot be relied upon for any degree of assurance over any transactions. Therefore, the creation of purchase orders, receiving reports, invoices, and authorization of vendors can only be assessed as not controlled.</td>
</tr>
<tr>
<td>4. Assets may be misstated.</td>
<td>a. Lack of separation of duties at a local office may result in collusion between someone in that office and a vendor. This could result in payment for goods not received or the purchase of goods not needed. Unneeded inventory must often be written down or off.</td>
</tr>
<tr>
<td></td>
<td>b. Local offices do not receive information regarding transactions processed on their behalf. This may result in theft by employees at regional offices, who could enter fictitious purchases. Because they can also presumably enter fictitious vendors, payment addresses may be invalid. Limited access control over regional office computers exacerbates this problem.</td>
</tr>
<tr>
<td></td>
<td>c. NYCCC may have the ability to create fictitious invoices and vendors, resulting in the same type of theft as described above.</td>
</tr>
<tr>
<td>5. Liabilities may be understated.</td>
<td>a. Either local or regional offices may delay reporting of liabilities for significant lengths of time. This may be advantageous to the computation of their performance measures.</td>
</tr>
<tr>
<td>6. Liabilities and assets may be misstated.</td>
<td>a. Programmers have the capability to make program changes without detection. Therefore, unauthorized commands may be inserted in programs that could facilitate theft.</td>
</tr>
</tbody>
</table>
### TABLE 2
Relationship of Apex’s Control Activities to Financial Statement Assertions

<table>
<thead>
<tr>
<th>Control Objective</th>
<th>Existence/ Occurrence</th>
<th>Completeness</th>
<th>Rights and Obligations*</th>
<th>Valuation/ Allocation</th>
<th>Presentation and Disclosure*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Purchases satisfy management’s criteria.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Purchases are authorized.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Vendors are authorized.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Prices and terms of shipments are authorized.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region: Verifies user passwords</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of approved vendor list</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Material is received for valid purchase orders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region: Compares quantities received and billed; resolves discrepancies with local office</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. All recorded purchases are for material authorized and actually received.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region: Records quantities received by existing purchases records</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. All purchase transactions are recorded (1) timely and (2) correctly with respect to amounts, dates, vendors, accounts, and periods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controls correctness of recording through SDLC and change control procedures applied to regional office input programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The integrity of purchase records is maintained.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region: Makes daily backups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYCCC: Makes daily backups (5 days in cycle) of data and program files</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region: Compares prices authorized and billed; resolves discrepancies with local office</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local: Notes quantities received on packing slip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Continued on next page)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Objective</td>
<td>Financial Statement Assertions</td>
<td>Existence/Occurrence</td>
<td>Completeness</td>
<td>Rights and Obligations*</td>
<td>Valuation/Allocation</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------</td>
<td>----------------------</td>
<td>--------------</td>
<td>-------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>6. Only authorized personnel have access to records of purchases and the programs that update them.</td>
<td></td>
<td>NYCCC: Verifies user passwords; quarterly review of access privileges</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. All payments are for authorized, actual purchases; payments are made for all valid purchases.</td>
<td></td>
<td>—</td>
<td>Region: Clears quantity and price discrepancies before entering payment due date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. All payments made are recorded (1) timely and (2) correctly with respect to amounts, dates, accounts payees, and periods.</td>
<td></td>
<td>—</td>
<td>SDLC and change control procedures</td>
<td></td>
<td>SDLC and change control procedures</td>
</tr>
<tr>
<td>9. The integrity of payables records is maintained.</td>
<td></td>
<td>—</td>
<td>NYCCC: Makes daily backups (5 days in cycle) of data and program files</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>10. Only authorized personnel have access to accounts payable records and the programs that update them.</td>
<td></td>
<td>NYCCC: Verifies user passwords; quarterly review of access privileges</td>
<td>NYCCC: Permits physical entry by keypad access</td>
<td>—</td>
<td>NYCCC: keypad access</td>
</tr>
</tbody>
</table>

(Continued on next page)
### TABLE 2 (Continued)

Relationship of Apex’s Control Activities to Financial Statement Assertions

<table>
<thead>
<tr>
<th>Control Objective</th>
<th>Existence/ Occurrence</th>
<th>Completeness</th>
<th>Rights and Obligations*</th>
<th>Valuation/ Allocation</th>
<th>Presentation and Disclosure*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Purchases and payables are accurately classified, summarized, and reported.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>12. Adjustments to payables are recorded accurately and timely.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

The auditor is unlikely to test control activities for any of the assertions because of weaknesses in internal control pertaining to physical and logical access, program development, and transaction processing as explained in questions 1–3 above.

*No control activities were explained in the Apex narrative that address the assertions of (1) rights and obligations or (2) presentation and disclosure.
REFERENCES