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Audit of inventories : a joint study; Auditing procedure study;

American Institute of Certified Public Accountants

Canadian Institute of Chartered Accountants

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Auditing
Procedure
Study

Audit of Inventories

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Audit of Inventories

A Joint Study by:

American Institute of Certified Public Accountants

Canadian Institute of Chartered Accountants

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Foreword

This study is designed to provide a discussion of suggested auditing procedures and the problems auditors may encounter in obtaining satisfaction about their clients' representations regarding the physical existence, completeness, ownership, valuation and condition, and financial presentation and disclosure of inventories.

The study is part of the Auditing Procedure Study series of the American Institute of Certified Public Accountants (AICPA) and the Audit Technique Study series of the Canadian Institute of Chartered Accountants (CICA). It was prepared by a study group consisting of AICPA and CICA members. The study group compared generally accepted auditing standards in the United States and Canada and found them to be similar as they relate to the audit of inventories. This study embodies examination standards contained in the AICPA Statements on Auditing Standards and in the auditing section of the *CICA Handbook* as they apply to the audit of inventories.

It was not part of the study group's mandate to consider the appropriateness of the various methods of inventory accounting permitted under generally accepted accounting principles in the United States and Canada.

Appreciation is expressed to the members of the study group for their efforts in producing this study. The participation of Donald E. Sheehy, CA, CICA Research Manager, who, at the direction of the study group, undertook the research and drafting of the study, is also appreciated.

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Introduction

SIGNIFICANCE OF INVENTORIES

Generally, inventories reflect the characteristics of a business more than any other asset does. Significant to manufacturing, wholesale, and retail organizations, inventories frequently are also material to the financial statements of service organizations. It has been estimated that, for some types of businesses, inventories constitute 20 to 25 percent of total assets¹ and represent the largest current asset.

A material inventory misstatement usually has a direct effect on current assets, working capital, total assets, cost of sales, gross margin, and net income. It can also have an indirect effect on items such as profit sharing and income taxes.

Many complex and significant problems in an audit are related to inventories. Inventories, production, and cost of sales constitute perhaps the most pervasive, significant, and difficult subject in accounting and auditing and, indeed, in business management generally.²

PURPOSE OF STUDY

Except for some general guidance on physical inspection, little authoritative guidance exists for auditing inventories. This study discusses the circumstances that might be encountered and the types of procedures that an auditor considers in obtaining assurance about client representations regarding existence, completeness, ownership, valuation (including condition), and financial statement presentation and disclosure of inventories. The study emphasizes the need for proper planning, including a proper assessment of audit risk, to ensure that sufficient appropriate audit evidence about inventories is obtained.

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1. James Carty, "Ask The Right Questions About Inventory Control," *World Accounting Report* (January 1984): 20.
 2. Jerry D. Sullivan, Richard A. Gnospelius, Philip L. Defliese, and Henry R. Jaenicke, *Montgomery's Auditing*, 10th ed. (New York: John Wiley & Sons, 1985), 599.

SELECTION OF AUDIT PROCEDURES

The study suggests various audit procedures to corroborate management assertions. The auditor's choice of procedures depends on the circumstances of the engagement and the nature of the client's operations. Accordingly, no proposed procedures can be designed to suit all circumstances. The auditor should exercise professional judgment in determining good practice in a particular case.

DEFINITION OF INVENTORIES

For the purposes of this study, the term *inventories* refers to the aggregate items of property that are —

1. Held for sale as part of the company's normal operations (finished goods).
2. In process of production or assembly for sale (work in process).
3. To be incorporated into, or consumed in the production of, goods and services for sale (raw materials and supplies).

In general, inventories represent an accumulation of costs that are ultimately expected, in a normal business cycle, to generate and be matched against future revenues by a charge to cost of sales or an equivalent account.

The costs associated with spare parts for the items sold by an entity are usually included as part of the company's finished goods or, occasionally, are expensed. The costs associated with spare parts and items, such as tools and dies, for the entity's own machinery are occasionally included in inventories but are usually shown elsewhere in the balance sheet (such as in equipment) or, sometimes, are expensed.

Inventories range from items that are easily audited to those that present significant audit difficulty. Factors that affect the level of difficulty include —

- *The complexity of the manufacturing process.* Manufactured items, especially those consisting of many component parts and significant labor and overhead, are inherently difficult to value.
- *The ability to identify product components.* Items that are harder to identify are usually harder to audit, especially for existence and valuation.
- *Susceptibility to obsolescence, whether physical or technical.*
- *Susceptibility to spoilage.* Highly perishable products often present more audit problems than do nonperishable ones.

EMPHASIS OF STUDY

This study concentrates on auditing physical items, particularly manufactured inventories because of their inherent complexities. Assets other than physical

items have occasionally been described as inventories. Examples include unbilled services, broadcasting and programming costs, and book and magazine prepublication costs. In addition, significant costs (for example, design engineering) are often accumulated in inventory before a physical product associated with such costs is produced. Although nonphysical items are not the focus of this study, much of the study can be applied to them. The main difference between nonphysical and physical items, from an auditing perspective, is that evidence regarding existence normally is obtained by means other than physical observation.

Auditor's Objective And Initial Planning Considerations

This chapter reviews important initial planning considerations for the audit of inventories, including the auditor's objective and the concepts of materiality and audit risk. It also discusses the importance and effect of internal controls and the use of sampling, computer-assisted audit techniques, and specialists. Chapters that follow discuss additional planning and other considerations and procedures that relate to the corroboration of specific assertions. Procedures relating to more than one assertion are discussed separately in chapter 5.

AUDITOR'S OBJECTIVE

Although it is management's responsibility to determine and present inventories accurately in accordance with generally accepted accounting principles, it is the auditor's objective to obtain sufficient appropriate audit evidence to corroborate management's assertions regarding the following:

- Existence—that all recorded inventories exist
- Completeness—that all inventories are recorded
- Ownership—that all recorded inventories are owned
- Valuation—that the stated basis of valuation is appropriate, properly applied, and consistent with previous periods, and that the condition of inventories is recognized in the valuation
- Presentation and disclosure—that all inventories are properly classified, described, and disclosed in the financial statements.

Existence

The existence assertion deals with whether assets or liabilities exist at a given date. For example, management asserts that raw materials are available to be put into production or that finished goods are available for sale. The auditor's objective is to obtain evidence that the inventories, represented by the client to exist at the balance sheet date, do in fact exist.

Completeness

The completeness assertion deals with whether all transactions and accounts that should be presented in the financial statements are so included. For example, management asserts that all inventories have been recorded and are included in the financial statements, and the auditor's objective is to obtain evidence that this is so at the balance sheet date.

Ownership

The ownership assertion deals with whether the assets are owned by the entity at the balance sheet date. For example, management asserts that all inventories recorded are the legal property of the entity, free from liens or other security interests, or, if not, that such liens, pledges, or other security interests are disclosed. The auditor's objective is to obtain evidence that the inventories are, in fact, owned at the balance sheet date and that, in conjunction with the presentation and disclosure assertion, all necessary disclosures are made.

Valuation (Including Condition)

The valuation assertion deals with whether the assets have been included in the financial statements at an appropriate amount. For example, management may assert that all raw materials have been recorded at the lower of cost and market value following the first-in, first-out (FIFO) method. Condition is not a separate assertion, but part of the valuation assertion. Management also asserts that all obsolete, nonsalable, or slow-moving inventory has been properly identified and valued. The auditor's objective is to obtain evidence that inventories are appropriately recorded at the described carrying value on a consistent basis.

Presentation and Disclosure

Presentation and disclosure assertions deal with whether components of financial statements are properly classified, described, and disclosed. For example, management asserts that inventories are properly disclosed in accordance with generally accepted accounting principles (or another appropriate basis of accounting). The auditor's objective is to obtain satisfaction about the appropriateness of the presentation and disclosure.

INITIAL PLANNING CONSIDERATIONS

General Familiarization

When planning the examination, the auditor normally reviews the prior year's working papers to identify problems with prior-year inventories. The auditor may also obtain preliminary financial data from the client to perform analytical review procedures, such as those set out under "Analytical Review Procedures" in chapter 5. By performing some financial comparisons with

prior years, the auditor may be able to isolate potential problem areas. The comparisons also aid in the consideration of materiality and audit risk, both of which are important to the auditor in planning the audit, designing and conducting auditing procedures, and evaluating whether the financial statements are presented fairly in conformity with generally accepted accounting principles.

Materiality

For each audit engagement, the auditor considers appropriate materiality levels. This consideration guides both audit planning and evaluation of the audit results. In planning the audit of inventories, the auditor should keep in mind relationships such as—

- The relative amounts of inventory, net income, and other assets.
- The relative amounts of each type of inventory (raw materials, work in process, and finished goods) as they would apply to each financial statement assertion. The auditor would not focus undue attention on any portion of the inventories if any potential errors, when aggregated with other errors, would not be material to the financial statements.
- The relative amounts of the inventory contained at each location. The auditor would not focus undue attention on locations at which any potential errors, when aggregated with other errors, would not be material to the financial statements.

Audit Risk

In general, the nature, timing, and extent of audit testing depend not only on the materiality of the inventory item in question but also on the audit risk¹ associated with it. Audit risk is the risk that the auditor will unknowingly fail to modify the audit opinion on financial statements that are materially misstated. The three components of audit risk are inherent risk, control risk, and detection risk.

The number of phases or procedures, both physical and clerical, often required to produce a final inventory amount makes the final amount greatly susceptible to inadvertent error or manipulation. Therefore, an auditor frequently will assess inventories as having a high *inherent risk*. Inherent risk is the susceptibility of an account to an error that could be material, when aggregated with other errors, to the financial statements. The following are factors that influence the degree of inherent risk:

- Number and variety of items
- Difficulties of costing the items

1. Adapted from *Audit Risk and Materiality in Conducting an Audit*, Statement on Auditing Standards (SAS) No. 47 (New York: AICPA, 1983), paragraphs 17–20, and R.J. Anderson, *The External Audit*, 2nd ed. (Toronto: Copp Clark Pitman, 1984), 147–48.

- Transportability of the items
- Potential for rapid obsolescence or spoilage of the items
- Potential for pilferage

As a result of the inherent risk, the auditor will usually want to assess the *control risk*—that is, the risk that the internal control system will fail to prevent or detect such errors. In designing the audit procedures for inventories, the auditor must consider the potential *detection risk*—that is, the risk that the auditor will fail to identify a material error that does exist.

Inherent Risk

A manufacturing operation's inventories often have a higher inherent risk and produce greater complexities for the auditor than do inventories of another business—for example, a wholesale operation—because of the nature of the manufacturing process and costing systems. External factors also influence inherent risk. For example, technological developments might make a particular product obsolete, thereby causing inventory to be more susceptible to overstatement.

The following illustrate situations in which additional audit complexities and increased inherent risk can arise.

- *Long-term manufacturing processes.* Audit issues related to long-term manufacturing processes (for example, aircraft manufacturing and alcoholic beverage processing) include obtaining satisfaction about deferred costs, costs to be incurred, and the ultimate profit or loss, which may be affected by future market fluctuations or spoilage.
- *Fixed price contracts.* Significant audit issues relate to uncertainties about costs to be incurred.
- *Commodity inventories.* Valuation is a significant audit issue, as commodities are subject to extreme and rapid market fluctuations. Many companies try to reduce this risk by hedging against future price changes.
- *Clothing and other fashion-related industries.* Potential obsolescence is a significant audit issue because of changes in consumer preferences for styles and colors.
- *Inventories of perishable goods.* The risk of deterioration can be high because of the physical characteristics and shelf life of the goods.
- *High-technology inventories.* Obsolescence can occur because of technological advances.
- *High unit-value inventories.* Jewelry inventory often has a higher inherent risk than an inventory consisting of, for example, manufactured metal fasteners.

Control Risk

Control risk is the risk that errors that could occur will not be prevented or detected on a timely basis by the system of internal control. The high inherent risk for inventories prompts many companies to implement detailed control procedures. Good internal control is a means of safeguarding phys-

ical quantities and providing accurate quantity and cost data. However, an audit can be conducted in the absence of a good overall internal control system. In addition, an auditor may be able to rely on specific effective internal controls even in the absence of a good overall internal control system. For example, an auditor might rely on a control ensuring that all goods received have been recorded by using prenumbered receiving reports agreed to recorded vendors' invoices, although weaknesses might exist in other elements of the controls over the purchases/payables function. Reliance on such a control could reduce the amount of cutoff testing that might otherwise be performed.

More sophisticated systems are likely to have controls that enable the auditor to rely on those systems in determining the nature, timing, and extent of substantive audit procedures. The assessment of the specific impact of internal controls is identified in the study according to the effect on the inventory assertions.

Internal controls can encompass nearly all functions involved in producing and selling the entity's products—purchasing, receiving, storing, processing, and shipping. The perpetual inventory records and cost accounting procedures, interrelated with the purchasing and sales systems, affect the control over inventory quantities and values. The specific internal controls contained within each of the functions are not addressed in this study as there are a number of publications that deal with these matters. However, examples of controls are set out in the list that follows. In smaller enterprises, all functions described in the list can be performed by individuals rather than by departments. The major concern is that the general objectives of the functions are achieved. Control risk generally increases if individuals perform incompatible functions—that is, functions that place any person in a position to perpetrate and conceal errors or irregularities in the ordinary performance of that person's duties. Anyone having access to both the assets and the related accounting records could be in such a position.

An internal control system comprises numerous internal controls. Some controls are interdependent; others function independently. To be effective and useful to the auditor, each internal control should be designed well, operating properly, and capable of being tested. There are various types of internal controls over inventories that result in varying degrees of effectiveness. These are set out as Appendix A.

The following are examples of internal controls for inventories.

- **Purchasing.** A general objective for purchasing is that all transactions be properly authorized. The use of purchase orders provides a basic level of internal control. More effective internal control would be present with the use of prenumbered, priced, and approved purchase orders that are periodically accounted for.
- **Receiving.** A general objective for receiving is that all goods received be recorded. The use of receiving reports provides a basic level of internal control. More effective internal control would be present if all goods were received by an independent department responsible for physical inspection, determination of quantities recorded, preparation of receiving reports, forwarding of reports to the accounting department, and transmittal of goods to stores.

- *Storing.* A general objective is that access to inventories be permitted only in accordance with management's instructions. The use of a fence provides a basic level of internal control. More effective internal control would be present with the use of sophisticated security measures to protect the inventory from accidental destruction or theft, and with proper storage facilities to protect against accidental destruction or spoilage.
- *Issuing.* A general objective is that all inventory issues be authorized. The use of departmental requisitions to control factory issues provides a basic level of internal control. More effective internal control would be present if such requisitions were accounted for.
- *Processing (Production).* A general objective is that all production be appropriately recorded. The use of production reports provides a basic level of internal control. More effective internal control would be present if reports on defective goods and reports that identify and measure scrap materials were used.
- *Shipping.* A general objective is that all shipments be recorded. The use of shipping documents provides a basic level of internal control. More effective internal control would be present if all shipments required authorization by the sales department and if prenumbered forms that are periodically accounted for and that will later form the basis for billing were used.

Internal control is a tool used by management in operating the business; it is not established primarily to help the auditor conduct the audit. Formal documentation may not be a required feature of an internal control system. Control may be achieved by informal procedures, depending on matters such as regularity in conducting the informal procedures and the persons conducting them. Informal procedures often leave some form of evidence of performance, such as an informal reconciliation or listing, that the auditor can examine. When there is no evidence of performance, the control procedures typically are tested by using inquiry, observation, or reperformance procedures. For example, an accounting clerk might check all additions and extensions on a supplier's invoice, but if the invoice is not initialed to document the checking, different and more extensive audit procedures, such as reperformance, might be required for an auditor to rely on the control.

The type of internal controls used are closely related to the sophistication of the entity's inventory accounting system. There are various types of inventory accounting systems, such as the following:

- *Periodic inventory system.* Inventory is determined through a physical count and valuation. As a result, there are usually no inventory recording procedures other than the basic recording of purchases and sales.
- *Cost accounting system without perpetual inventory records.* This system produces total inventory dollar-value information on a continuous basis, using, for example, a standard cost, actual cost, process

cost, job cost system, or a retail inventory system. Although there is no item or quantity information available, some controls may exist, such as comparison and reconciliation of book and physical totals, provided that all overages and shortages are properly identified and investigated.

- *Cost accounting system with perpetual inventory records.* This system produces dollar-value information using a cost accounting system supported by a perpetual system that produces quantity and dollar information for each inventory item or group of items. The comparison and reconciliation of the results produced by both systems add one more element of internal control.

If perpetual inventory records are present, they can contain quantities, values, or both. In addition, perpetual records may or may not be used in conjunction with a cost accounting system. With perpetual inventory records, quantity information is maintained on a continuing basis. This can be an important control because on-hand quantities data are readily available to monitor purchasing, sales, and production. Such records may also discourage theft and waste.

In a computerized system, there may be additional information processing controls, such as system log and application program controls, on which the auditor may wish to rely. The auditor may want to refer to any of the current publications on computer controls for appropriate guidance in identifying, evaluating, and, where appropriate, testing the procedures.²

Detection Risk

Detection risk is the risk that auditing procedures will lead the auditor to conclude that an error that could be material when aggregated with other errors does not exist, when in fact it does. The auditor can reduce the risk of failing to detect material errors by increasing the extent of substantive procedures (tests of detail and analytical review procedures), moving the date of the balance tested closer to the balance sheet date, or choosing more effective procedures. Detection risk and audit procedures are discussed in the remaining sections of this study.

SAMPLING

As addressed in the following chapters, there are various audit sampling applications available for testing inventories. They include, for example, selecting items for inventory price testing and clerical accuracy, selecting test counts, and agreeing inventory quantities to final listings. Although specific

2. See, for example, *Computer Audit Guidelines* (Toronto: CICA, 1975), and Gordon B. Davis, Donald L. Adams, and Carol A. Schaller, *Auditing & EDP*, 2nd ed. (New York: AICPA, 1983).

types of sampling techniques are not discussed in this study, a number of publications deal extensively with the topic.³

USE OF COMPUTER-ASSISTED AUDIT TECHNIQUES

Audit objectives and the relationship between internal controls and compliance and substantive tests are the same for both manual and computerized systems. The manner in which the tests are performed may differ, however. If records supporting inventory balances and the related income and expense accounts are maintained on a computer, it is often appropriate for the auditor to analyze the data using computer audit software. Audit programs can help in—

- Testing clerical accuracy by reperforming the entity's procedures (for example, calculations, totals, and analyses, such as aged trial balances, prepared by the client).
- Selecting samples for physical inspection and price testing.
- Identifying large or unusual items.
- Performing price tests.
- Isolating products for particular audit analysis (such as items in excess of current and forecast demand), and accumulation of such items.
- Analytical review procedures.
- Testing quantity aggregations.

Applications are discussed in more detail in Appendix G.

If a client's files are not computerized, the auditor nonetheless may be able to use a computer in the audit. The auditor often can perform computer-assisted procedures relating to general ledger and financial statement preparation, analytical review procedures, and sampling applications.

USE OF SPECIALISTS

The auditor is not expected to possess the expertise of a specialist trained or qualified in another profession or occupation. The auditor may not have the expertise to evaluate the existence and valuation of a particular inventory. In such a situation, the auditor may conclude that reliance on the expertise of a specialist is needed on matters potentially material to the financial statements. Those situations are addressed in the appropriate sections of this

3. See, for example, Donald A. Leslie, Albert D. Teitlebaum, and Rodney J. Anderson, *Dollar-unit Sampling* (Toronto, Ont.: Copp Clark Pitman, 1979); R.J. Anderson, *The External Audit*, 2nd ed., 458–516; Alvin A. Arens and James K. Loebbecke, *Application of Statistical Sampling to Auditing* (Englewood Cliffs, N.J.: Prentice-Hall, 1981); Donald M. Roberts, *Statistical Auditing* (New York: AICPA, 1978); and Statistical Sampling Subcommittee, *Audit Sampling* (New York: AICPA, 1983).

study. Auditors should also refer to authoritative guidance on using specialists.⁴

USE OF INTERNAL AUDITORS

There may be situations in which it is appropriate to use the work of an internal auditor. Internal auditors routinely study and evaluate the internal control systems and perform substantive tests. Their work can sometimes be relied on by the independent auditor to reduce the extent of his tests. Although the internal auditor's work cannot be substituted for the external auditor's, the external auditor should consider the procedures that the internal auditor can perform in determining the nature, extent, and timing of the inventory audit procedures. Internal auditor assistance might be beneficial in tasks such as (1) testing valuations, (2) testing internal control systems, (3) testing cutoff, and (4) inventory counting. The external auditor should be familiar with related authoritative guidance⁵ when it is decided that the work performed by an internal auditor will affect the nature, extent, and timing of the audit procedures to be performed.

CONCLUSION

To obtain sufficient audit evidence to corroborate management's assertions for inventories, the auditor should consider the following:

1. The financial statement assertions that apply to the client's inventories
2. The three components of audit risk that pertain to the engagement and how overall risk might be minimized
3. The appropriate materiality levels for audit planning and evaluation (keeping in mind the relationships between inventory, net income, and other assets), and the relative importance of each inventory component

4. SAS No. 11, *Using The Work of a Specialist* (New York: AICPA, 1975), and "Using The Work of a Specialist," *CICA Handbook* (Toronto: CICA), Section 5360.

5. SAS No. 9, *The Effect of an Internal Audit Function on the Scope of the Independent Auditor's Examination* (New York: AICPA, 1975); and "Internal Control," *CICA Handbook* (Toronto: CICA), paragraphs 5215.17–5215.21.

Existence, Ownership, and Completeness— Planning Considerations

Procedures used to satisfy the audit objectives for existence, ownership, and completeness often are closely interrelated and, because they depend on the physical count attendance as a central focal point, overlap in a number of instances. Therefore, to avoid redundancy in this study, these three assertions are addressed together. The remaining assertions are discussed separately.

AUDITOR'S OBJECTIVE

The auditor's objective concerning existence, ownership, and completeness is to obtain assurance that all inventories represented and recorded by the client do in fact exist, are the legal property of the client, and include all inventories owned.

HISTORICAL PERSPECTIVE

Until the end of the 1930s, it was customary to limit the audit work for inventories to an examination of records only. The standards of the era did not require observation, physical count attendance, or actual contact with the inventories. Auditors avoided taking responsibility for verifying the accuracy of quantities and physical existence, arguing that they were not qualified to identify and measure the great variety of their clients' inventories.

This situation changed with the McKesson and Robbins, Inc. investigation in the United States. The 1939 Securities and Exchange Commission (SEC) hearings disclosed that the audited financial statements of that company, listed on the New York Stock Exchange, contained \$19 million in fictitious

assets—about 25 percent of total assets. Fictitious inventories amounted to approximately \$10 million. Because of that investigation, the public accounting profession was faced with the necessity of accepting responsibility for verifying the physical existence of inventories—or being challenged that its audit function offered no real protection to investors or other users of financial statements. As a result, the profession required auditors to observe the counting of the physical inventory in most cases.

Generally accepted auditing procedures require that the auditor normally observe the physical inventories count unless the amounts are immaterial. In some instances, however, when goods are stored at a public warehouse or when it is not practicable to attend, confirmation and other procedures may be sufficient. Such procedures are discussed in detail in “Inventories Held by or for Others” and “Using the Work of a Specialist” in this chapter and in “Following up Confirmations” in chapter 3.

INTERRELATIONSHIP OF ASSERTIONS

The potential interrelationship of the assertions can be illustrated as follows:

1. The auditor usually will find that the existence and ownership assertions can be corroborated substantially at the count attendance. Depending on the planning and test results, goods observed at the client's location (to obtain satisfaction with respect to the existence assertion) may be presumed to be owned by the client (and, thus, provide some evidence for the ownership assertion) unless something comes to the auditor's attention that indicates otherwise. The auditor should consider, however, investigating the existence of goods out on consignment that might be included in the client's count.
2. During the count attendance, the auditor probably will obtain evidence supporting both the existence and completeness assertions. For example, at the count attendance, the auditor may check the count tags attached to the goods for proper description and quantity, satisfying the existence and completeness assertions. The auditor also checks whether all items are tagged, thereby obtaining evidence supporting the completeness assertion.

In addition, the auditor usually observes and inquires about the condition of the inventories at the count attendance. As discussed in “Testing Condition of the Inventory” in chapter 4, the auditor also uses this information to assess valuation.

The procedural considerations involved in obtaining satisfaction for existence, ownership, and completeness are quite extensive and can be generally classified into (1) planning, (2) inventory count attendance considerations, and (3) postinventory count attendance considerations. Planning and other background matters are discussed in this chapter; the other two matters are discussed in chapter 3.

PLANNING

Introduction

An effective and efficient inventory count observation requires careful planning. The auditor and the client usually agree on procedures to prevent confusion and to help obtain a complete and well-controlled inventory count. As a result, the auditor should consider obtaining, reviewing, evaluating, and commenting on the client's intended procedures. This is important because of the high inherent risk associated with the existence and completeness of inventories and because the auditor normally has only one chance to obtain satisfaction regarding those assertions through physical count attendance. Also, based on the information gathered in the planning process, the auditor can determine the locations to be attended and the extent of test counts to be performed. The following paragraphs discuss matters that the auditor considers when planning for attendance at the physical count.

General Familiarization

Typically, the auditor reviews the prior year's working papers to become familiar with the client's inventory, the inventory count procedures, and any significant problems encountered in the prior year's audit. Any problems, such as inventory count timing, slow-moving stock identification, cutoff, count teams, and multilocations should be noted. The auditor might then consider discussing with management the prior year's problems, as well as current matters such as production and other cutoff, expected inventory levels, types of inventory, anticipated movement of stock during the count, and anticipated time required for the count. Depending on the familiarity with the inventory and whether significant changes have occurred between years, the auditor may conduct a preliminary tour of the client's premises to confirm the discussions with management and to identify potential problems or hard-to-count areas. As part of the initial planning, the auditor considers the anticipated timing for all departments and locations, the estimated dollar values for each location, and any inventories that might require specialized knowledge by the auditor or the use of a specialist (refer to the section "Using the Work of a Specialist" in this chapter).

Potential Errors

In determining the audit plan, the auditor considers the errors that can occur in inventories. The following are examples of errors that can affect the existence, ownership, and completeness assertions.

Count-date errors. Misstatements of inventories at the count date are usually caused by any of the following:

- Omission of items from counting
- Incorrect counts
- Incorrect weights or measurements
- Conversion errors
- Subsequent alteration of count sheets

- Cutoff errors
- Errors relating to consignment or customer-owned stock
- Errors in in-transit shipments and branch shipments
- Improper recording of the results of the count

Count-date errors normally misstate inventories and gross profit by equal amounts. Therefore, the auditor is generally more concerned with detection and evaluation of this type of error than with intervening-period errors.

Intervening-period errors. If a count date differs from the financial statement date, intervening-period errors are usually caused by any of the following:

- Unrecorded receipts, shipments, or production during the intervening period
- Shipping cutoff errors
- Receiving cutoff errors
- Unrecorded wastage and pilferage
- Fictitious sales and cost of sales entries

Except for unrecorded wastage, such errors will misstate year-end inventories but have less of an impact on income than do count-date errors. That is because such errors either generally affect both sales and cost of sales, or, in the case of errors such as receiving cutoff errors, will not affect income at all. Such errors could, however, cause a significant distortion in the current ratio and might cause other financial difficulties, such as inadvertent defaults on debt covenants.

The effects of the aforementioned errors are shown in table 2.1. Most of the auditing procedures described in this chapter and in chapter 3 are designed to detect one or more of these errors.

Compliance Approach vs. Substantive Approach

Test counts can take the form of either compliance or substantive tests. The auditor determines whether the testing of the client's physical inventory counts will be compliance- or substantive-oriented and which approach will be the most efficient. If a few items constitute most of the inventory, or if the auditor can develop a sophisticated sampling plan that allows for overall estimation of the inventory total, the auditor will usually find that a substantive-based approach is the most efficient way to obtain satisfaction for existence. In such limited circumstances, it may be more efficient to test the higher value items substantively 100 percent and, to the extent deemed appropriate, to test some portion of the remainder. In most audit situations, however, the auditor may find a compliance-based approach more efficient.

If the auditor uses a compliance-based approach and relies on the client's controls and procedures for the physical count, the audit procedures are, for the most part, restricted to inquiry, observation, and test counts in determining that the client's instructions are actually carried out.

To rely on the client's procedures for physical inventory determination, the auditor needs to be satisfied that the client's count procedures and controls are adequate and are in effect for the entire physical count. To

Table 2.1
Effects of Errors

Error Type	Effect on				
	Inventory	Accounts Receivable	Accounts Payable	Sales	Cost of Sales
Count-date errors					
Omission	U				O
Counts	U/O				O/U
Weights	U/O				O/U
Conversion	U/O				O/U
Alteration	U/O				O/U
Sales cutoff *		O/U		O/U	
Purchases cutoff *			O/U		O/U
Consignment stock	U/O				O/U
In-transit	U/O				O/U
Improper recording	U/O				O/U
Intervening-period errors					
Unrecorded shipments	O	U		U	U
Unrecorded receipts	U		U		
Unrecorded production	U				O
Shipping cutoff	O/U	U/O		U/O	U/O
Receiving cutoff	O/U		O/U		
Unrecorded wastage	O				U
Fictitious entries	U/O	O/U		O/U	O/U

U = understatement; O = overstatement.
*Assuming that the physical count reflected all items on hand.

determine the controls and procedures that might be present for the physical count, the auditor initially obtains and reviews a copy of the written procedures for the count, cutoff, and summarization procedures. If no written procedures exist, the auditor ordinarily contacts the client representative in charge of the count to discuss proposed procedures. In general, the procedures should be adequate to obtain assurance that a proper determination of the quantity and quality of the goods on hand will be carried out. The auditor may find it useful to use a checklist or questionnaire to assist in the evaluation of the controls over the physical count (refer to Appendix B for an example).

Matters such as the following may influence the auditor's decision to rely on client count controls:

- *Competence of count personnel.* The inventory should be identified and counted by persons familiar with the items. Preferably, a person who does not ordinarily have access to the inventory should also be

involved in the count. This is often achieved by using two-member count teams—composed of one counter and one recorder—in which one person is familiar with the goods and the other is independent. In small businesses where this is not possible, a single employee could perform the function, as long as another individual, perhaps the owner–manager, test-checks the counts.

- *Stock identification procedures.* Procedures should be adequate for subsequent pricing of the items. These procedures include identification of the stage of work in process, condition of goods (damaged or obsolete), and quality of goods, as in the case of lumber grading and steel.
- *Procedures to reduce the potential for double-counting or missing items.* A good method is the use of duplicate prenumbered inventory tags or some similar system or procedure that provides the same controls. In many situations, items are tagged before the count by persons familiar with the inventory. One copy of the tag remains with each lot of goods counted, and another is retained by the counters and returned to the supervisor. A separate control of tag numbers issued and returned is maintained by the supervisor. When the tags are not prenumbered, the client writes a number on each tag for control purposes. When count tags are not used, the auditor determines how the client identifies inventory that has been counted and considers whether the method minimizes the possibility of double-counted or missed items.
- *Stock organization.* Stock should be organized and laid out in an orderly fashion to facilitate the count.
- *Identification and segregation of consignment or other customer stock.* Consignment or other customer stock should be identified and segregated so that such stock is not included as part of the client's inventory.
- *Procedures to check counts.* Procedures to check counts may include having a second, independent count team checking and initialing the original counts or, if perpetual inventory records are used, having a second team investigate significant fluctuations. In a small entity, such procedures might be performed by two individuals who can check each other's counts.
- *Procedures to control the movement of goods.* Ideally, there should be no movement of goods during the inventory count. On occasion, however, it may be necessary for the client to continue production, receiving, or shipping operations during the count. In such circumstances, it is essential that the client have procedures adequate for identifying and recording such goods in the appropriate period. There should be cutoff procedures to identify goods received and shipped before and after inventory count and goods in transit between departments.
- *Procedures to check calculations.* There should be procedures to prevent undetected errors in conversion (such as from pounds to pieces for weight counts), extensions, additions, and summarization.
- *Procedures to check work in process.* There should be procedures

to determine properly the stage of completion of work in process. It is preferable that production be shut down during the count. When that is not possible, there should be procedures that segregate the production into precount and postcount periods and that allow the auditor to be satisfied about the count of the work in process.

In general, if the count controls are good, it may be possible to reduce the number of compliance test counts. The auditor should recognize, however, that count conditions may not be consistent throughout the physical inventory and that some areas may be more prone to count error, such as high shelves or “dirty areas” that may be hard to count. In addition, the auditor may wish to count items of a high dollar value that may exist in the inventory to reduce the detection risk of material errors.

The auditor should be satisfied that the client’s instructions are being carried out properly throughout the entire count. That may not require the auditor to be present for the entire count, provided the auditor can be satisfied—by alternative means such as subsequent inquiry or inspection—that the controls existed throughout. For example, the auditor may not find it necessary to attend a count being done on a continuous basis over a three-day period. Instead, the auditor might decide to attend one shift each day (morning, afternoon, or night), and to emphasize alternative procedures, such as discussions, subsequent inspections, and use of internal audit staff, to determine that the instructions were carried out during the auditor’s absence.

Conversely, if client procedures are not adequate or if a number of errors are found during compliance testing, the auditor determines the quantity of items to be counted for assurance that no material error exists. In such a situation, the audit procedures are substantive in nature and it is likely that more extensive test counts will be required. When testing on a substantive basis, the auditor should select the test counts using a sampling technique that will allow an overall estimation of the count errors in the inventory population sampled at the count date. Here, the observation of client counting is less important, and thus the auditor can vary the timing of test counts and need not be there throughout the duration of the count.

In some cases, the auditor may determine that it is impracticable to test-count a sufficient quantity of items to obtain the necessary assurances. If the client is unable to overcome the count deficiencies by, for example, a complete recount in the appropriate areas and there is no back-up support for the inventory amount (for example, perpetual inventory records), there may be a limitation in the scope of examination and the auditor should consider the effect on the auditor’s report.

Other Client Routines and Internal Control Considerations

In addition to considering the nature of the inventory and the controls that the auditor might rely on for the physical count, the auditor should consider problems that could result from the timing of the count (relative to year-end) and from lack of supporting accounting systems. The following paragraphs discuss examples of situations that the auditor could encounter. The

examples also compare the relative extent of test counting or other procedures that the auditor might perform.

Situation 1—Counts Performed at or a Few Days From Year-End

In this type of situation, because of the timing of the count, the individual items are valued at year-end. It is usually most efficient to put primary reliance on the client's year-end routines and only minimal reliance on other internal controls. Most internal controls, other than those surrounding the count itself, will have little or no relevance to year-end procedures. The nature and extent of the auditor's year-end procedures will be influenced not by the internal controls in place but by an assessment of client year-end routines. Compliance or substantive procedures generally are not performed at an interim date with respect to the inventory records.

Example 1—Inventory is determined solely by year-end count; no perpetual inventory records and no cost accounting system for inventories exist. Often there are no back-up records for quantities when cost of sales is also determined solely by the year-end count. In such a situation, it is likely that the auditor will want a higher level of assurance from the count and therefore will perform more test counts than in other situations. It is also likely that the auditor will expand other procedures (for example, cutoff) to obtain the necessary satisfaction.

Example 2—Inventory, determined solely by year-end count, is supported by a cost accounting system for inventories; no perpetual inventory records exist. In this situation, some limited assurance might be derived from the supporting cost accounting system. However, such assurance probably would not be significant, because of the estimates necessary. (Estimates would be needed, for example, in generating cost of sales entries to relieve the accounts.) As a result, it is likely that the auditor would perform test counts and other procedures to the same extent as outlined in example 1.

Example 3—Inventory is determined solely by year-end count but supported by perpetual inventory records; no cost accounting system for inventories exists. Because of the existence of perpetual records, the auditor may not require as much assurance from the count and thus may perform fewer test counts than in example 1. The extent of cutoff testing might also be less, depending on the circumstances. The auditor might reduce the extent of these tests if the entity compares the counts with the perpetual records and reconciles any significant differences. The auditor would compare the test counts performed with the perpetual records to determine that the count was conducted accurately and that a proper comparison was made to the perpetual records. The timing of this comparison is important. It is preferable that the counts be compared as soon after their completion as possible, as the comparison might influence the extent of test counts to be performed.

Example 4—Inventory, determined solely by year-end count, is supported by a cost accounting system for inventories and perpetual inventory records. The existence of the perpetual records and a supporting general ledger system (which may or may not be integrated with the perpetual system) may

allow the auditor to reduce reliance on the count and thus perform fewer test counts than in the prior examples, assuming the entity compares the counts with the perpetual records and reconciles any significant differences. As discussed in the previous paragraph, the timing of the comparison is important.

Situation 2—Pre-Year-End Counts

If counts are done before year-end, roll-forward calculations or book records (cost accounting system or perpetual records) are used to determine the year-end totals. As illustrated by the examples that follow, the extent of audit procedures that may be required for an auditor to be satisfied with the physical count and the year-end determinations normally increases. The extent of the increase varies according to the book records that exist and the strength of the related internal controls.

Example 1—Year-end inventory is determined using roll-forward calculations of physical count; neither perpetual inventory records nor a cost accounting system exists. This situation is undesirable because the auditor may not be able to attain satisfaction about the transactions for the remaining period. A higher level of assurance is desired from the count because of the nonexistence of perpetual records or of a cost accounting system. It is also likely that the auditor will perform other more extensive procedures (on cutoff, for example) to obtain the necessary satisfaction with the physical count. The auditor may wish to review the internal control conclusions on items such as purchases, accounts payable, and sales costing to determine if reliance on such controls during the remaining period is warranted or desirable. There may be situations in which a lack of controls will necessitate significant substantive testing of the roll-forward transactions. If the auditor does not intend to rely on internal controls, consideration should be given to whether certain of the substantive tests on the period from count date to year-end will be effective without such reliance. In this situation, it is likely that more extensive audit procedures will be required.

Example 2—Year-end inventories and cost of sales are determined from cost accounting system; no supporting perpetual inventory records exist. As discussed previously, if the inventory is to be counted and valued at a before-year-end date, the auditor may wish to review the internal control conclusions with respect to items such as purchases, accounts payable, sales costing, inventory transfers, and recording of labor and overhead costs to determine if reliance on such controls during the remaining period is warranted or desirable. The auditor would need to decide whether the roll-forward will be tested using the compliance or the substantive approach. The extent of test counts will vary, though it is likely that the number of test counts performed will be less than in example 1. The extent of cutoff testing may be greater, however, because of the importance of obtaining satisfaction with the general ledger balance at the count date.

Example 3—Year-end inventories are determined from perpetual inventory records; no supporting cost accounting system exists. If a pre-year-end count is performed, the perpetual inventory records (either in units or in dollar

values) usually are adjusted to reflect the count. Such records are then used in determining the year-end inventory value. The auditor may wish to rely on the controls over the perpetual inventory records when determining the nature and extent of the roll-forward procedures or to attain satisfaction, through substantive procedures, about the transactions during the roll-forward period. If the auditor does not intend to rely on internal controls, consideration should be given to whether certain of the substantive tests for the period from count date to year-end will be effective. The number of test counts traced to the perpetual inventory records will probably be higher than in example 4. Substantial cutoff testing generally will also be needed to substantiate the accuracy of the perpetual inventory records.

Example 4—Year-end inventories are determined from cost accounting system supported by perpetual inventory records. As discussed in example 2, if the inventory is to be counted and valued at a pre-year-end date, the auditor may wish to review the internal control conclusions on items such as purchases, accounts payable, sales costing, inventory transfers, and recording of labor and overhead costs to determine if reliance on such controls during the remaining period is warranted or desirable. The auditor would need to decide whether the roll-forward is to be tested using the compliance or the substantive approach. The extent of test counts may vary, however, depending on the controls over the perpetual inventory records. It is likely that the number of test counts performed will be smaller than in the prior examples. The auditor probably will not require as much assurance from the count, and thus will perform fewer test counts, assuming that the entity compares the counts to the perpetual inventory records and reconciles any significant differences.

Counts at Differing Dates

If the inventory counts are to be done at varying dates or if cycle counts are performed, the need for a proper sales, purchases, and transfers cutoff is especially important to avoid errors such as double-counted or missed goods. The auditor may also consider the existence and strength of the related internal controls over the flow of inventory information. Without accurate cutoff information, the auditor will not be able to rely on the count. If the auditor is not able to rely on the results of the count, alternative procedures, such as extension of cutoff testing at the count date and performance of procedures, ordinarily will be necessary.

Identification of Responsible Client Personnel

The auditor may wish to contact persons before or during the count to coordinate the audit effort and to allow for timely checking. At minimum, the auditor should be aware of the identity, location, and duties both of the persons having overall responsibility for counts and those having departmental responsibilities.

Tour of Client Premises

A tour immediately before the count date may be useful to allow the auditor to become familiar with the inventory on hand and with the way it is orga-

nized. It may also enable precount identification of potential problems, such as hard-to-count, slow-moving, obsolete, and defective material or consignment stock.

Multilocation Inventories

It is important that the auditor be aware of all inventory locations to prevent the possible exclusion of any areas from either the client's or the auditor's consideration. It may be useful—but not always necessary—for the auditor or the auditor's representative to attend each location at which a significant value of inventories is held. The auditor's determination ordinarily depends on matters such as—

- Audit risk assessment.
- Internal controls, including those in place for the count.
- Count history.
- Existence and use of internal audit staff.
- Feasibility of alternative procedures (see “Alternative Procedures When Attendance Is Not Practicable” in chapter 3).

For example, an auditor does not usually attend the physical count of every store of a retail chain, as hundreds of stores may be involved. The auditor usually restricts attendance to a number of the stores and uses alternative means, such as analytical review procedures and the work of internal auditors, to assess the accuracy of the inventory counts of the other stores.

Inventories Held by or for Others

If the client stores goods at a third party location—at an independent warehouse, for example—the auditor ordinarily obtains from the custodian written confirmation of the goods held. The client may or may not maintain an independent accounting record of such goods that could be compared with the confirmation. If such goods represent a significant portion of the inventory, the auditor might apply supplemental procedures, such as—

- Discussion with the owner about the owner's control procedures in investigating the warehouseman and in obtaining evidence.
- Review of the owner's control procedures concerning compliance tests and performance of the warehouseman.
- Observation of physical counts.
- Confirmation from lenders about the pertinent details of the pledged receipts if warehouse receipts have been pledged as collateral.

The auditor might confirm and carry out such supplemental procedures as appropriate for significant amounts of goods held by a customer on consignment. In addition, the auditor might confirm with the supplier goods held on consignment by the client that belong to the supplier, especially if the goods are not readily identifiable. Examples of confirmations are set out as Appendices C and D.

Using the Work of a Specialist

An auditor may consider using the work of a specialist in situations such as the following:

- When determining quantities or the physical condition of assets—as, for example, with stockpiled minerals
- When gathering evidence on specialized types of inventories, such as works of art, precious stones, real estate, electronic components, engineering, or construction in progress

In such situations, the auditor should consider the complexity of the item, the materiality and audit risk, and the availability of other sources of audit evidence.

When planning to use the work of a specialist, the auditor should consider the specialist's reputation for competence. The auditor should also obtain from the specialist information on matters such as—

- The nature and purpose of the specialist's report.
- The specialist's relationship, if any, to the client.
- Any assumptions, the methods used by the specialist, and the consistency of these methods with those used in the preceding period.

The auditor should consider whether the specialist's findings support management's representation.¹ The auditor should also obtain reasonable assurance that any accounting data provided by the client to the specialist are appropriate.

Precount Finalization

Making recommendations to the client. Reviewing the prior year's working papers and count instructions and drafting audit plans often highlight areas where improved controls or efficiencies may be achieved. Ordinarily suggestions for improvement should be communicated to the client immediately so that remedial action might be taken prior to the count.

Planning summarization. The auditor's documentation of the planning process and the client's instructions generally are retained as evidence of planning and rationale for the scope of examination.

Summary of Planning Procedures

Based on the information obtained, the auditor plans the audit procedures to be performed at the inventory count by—

- Deciding between compliance and substantive approaches according to the client's intended count routines and count controls.

1. In Canada, the auditor should obtain satisfaction that the findings appear to be reasonable. In the United States, SAS No. 11 does not specifically require that the auditor obtain satisfaction in this regard. The auditor ordinarily can use the work of a specialist unless the auditor's procedures lead to a belief that the findings are unreasonable in the circumstances.

- Determining the extent of test counts to be performed.
- Reviewing other client routines and internal control considerations to assess the impact on count planning.
- Identifying responsible client personnel.
- Considering a tour of the client's premises before the count.
- Determining if confirmation or other procedures are to be performed for inventories held by third parties.
- Assessing the need, if any, for specialists to aid in the identification or valuation of certain types of inventories.

Existence, Ownership, and Completeness— Count Attendance and Postattendance Considerations

Audit considerations regarding the existence, ownership, and completeness assertions for inventories are addressed in this chapter under "Inventory Count Attendance Considerations" and "Postinventory Count Attendance Considerations." Planning and other background matters are discussed in chapter 2.

INVENTORY COUNT ATTENDANCE CONSIDERATIONS

Auditor attendance at the physical count is a standard practice except when it is not practicable. It is normally the best method of testing client procedures.

Observing the Count

The auditor often uses a compliance approach to test the client's inventory count. Observation of the counting process is an example of a dual-purpose test. Although it is primarily a compliance test, substantive audit evidence is also obtained when test counts are made during the observation. The purpose of this observation is to establish whether the client's procedures are being carried out satisfactorily and can be relied upon to produce an accurate physical inventory count rather than merely to perform test counts. During the count, the auditor accompanies client personnel to observe that the count instructions previously reviewed and agreed upon are followed. When the auditor uses a substantive approach, observation of the counting process may not be necessary.

Performance of Test Counts

The purpose of test counts is either to obtain satisfaction that the client's procedures are being properly followed (compliance approach) or to substantiate the client's physical totals (substantive approach). If the observation procedures have confirmed that the client is well organized and that adequate instructions for counting, supervision, and checking are in effect, the auditor may decide to limit the number of test counts to be performed. When a substantive approach is being used, the extent of test count performance will vary according to the nature of the inventory or the sample selection method. An auditor often can obtain additional satisfaction from a substantive test, even when a compliance approach is used, if the higher dollar value items are test-counted. The auditor should consider selecting additional items from the client's count records. Test selection usually encompasses all count teams and the hard-to-count or "dirty" areas. When the client's procedures are not satisfactory, or when there is a substantial portion of the count that is not observed, the auditor should perform substantive count procedures. To the extent possible, the client should not be aware of the items tested by the auditor.

The following procedures are often applied for test counts:

1. For the items selected, the auditor verifies the item description, agrees the count to the client's count and, if it is available, with the perpetual inventory records. The auditor records the test count for subsequent follow-up. Count discrepancies should be corrected as soon as possible.
2. The auditor records details or obtains photocopies of a selection of uncounted items for subsequent checking against the final inventory to check for the final inventory listing's completeness.

In conducting test counts and performing an observation, the auditor ordinarily—

- Performs test counts from the inventory to count tags or listings to test that all items are being counted and recorded properly.
- Performs test counts from tags or listings to the inventory to test whether the listed items exist.
- Checks for items not counted. If tags or other count indicators have been attached to the inventory, the auditor usually looks for items not tagged.
- Considers, when tags or other count indicators are not attached to the inventory, extending a comparison of the inventory items with the documents on which the count is being recorded.
- Checks for empty containers and "hollow squares" (empty spaces between stacks of boxes). The auditor ordinarily requests that some containers be opened and inventory moved, but such requests are normally done on a limited basis.
- Scans for reasonableness the quantities and descriptions of some items not test counted.
- Checks that consignment goods appear to be properly segregated

and that any obsolete or slow-moving goods appear to have been properly identified.

- Is alert for indications that the goods are not owned (for example, if a supplier's shipping label indicates that the goods are the property of another entity) and looks for evidence of the client's ownership, such as trademarks on machinery and registration numbers on automobiles.

If errors are encountered, it is unlikely that such errors represent the total error in the count; thus, it is not sufficient that the client correct only the errors discovered. The auditor should consider the potential magnitude and significance of the errors and, if possible, increase the extent of counts to isolate the location of the errors. The auditor should also ask the client to perform recounts. It may be appropriate to restrict recounts to one particular area or to a particular count team.

In general, the auditor is concerned with whether control is maintained over the physical inventory count. Frequently, the client will use count tags for recording and control purposes to facilitate count checking and to prevent count duplication. In a number of industries, however, such means are not practicable for controlling counts. Examples of such industries, their method of counting, count control procedures, potential problems, and possible audit procedures are listed in table 3.1. In such situations, the auditor uses professional judgment to develop procedures to obtain satisfaction about existence, completeness, ownership, condition, and any other appropriate matters. For example, the auditor may decide to have samples of inventory items that are difficult to identify analyzed by an independent specialist. The nature of the auditor's procedures depends on the particular circumstances.

Work-in-Process Considerations

When work-in-process inventory is material, the auditor may experience problems in assessing the stage of completion. Initially, the auditor should review the client's count procedures. If the items' stage of completion is not evident, information such as parts listings, standard cost sheets, job cost sheets, discussion with factory personnel, and the use of professional judgment may be helpful in evaluating the recorded stage of completion. In addition, depending on the complexities involved, the auditor might also consider using a specialist.

Cutoff Procedures

The auditor's objective is to obtain assurance that the book records, which are compared with the physical count, properly reflect the physical flow of the goods. In most situations the auditor is concerned that—

1. All items received prior to the cutoff date and none received afterward were included in the count and reflected in the books of account.

Table 3.1
Examples of Other Count Methods

<u>Inventory Type</u>	<u>Count Procedures and Potential Problems</u>	<u>Possible Audit Procedures</u>
Lumber, steel coils, tubes	Usually not tagged, but marked or chalked when counted Possible problems in identifying quality or grade of items	Check for marking Possibly use specialist or experienced client personnel
Pile inventories (e.g., sugar, coal, scrap steel)	Usually not tagged or marked Quantity estimation problems	Possibly use engineering estimates, geometric computation, aerial surveys, and reliance on detailed inventory records Physically count when pile is low or eliminated through the use of pile rotation
Items weighed on scales	Quantity estimation problems	Check scales for accuracy before and during counts and watch movement of scales and rebalancing procedures Use a combination of inspection and reweighing procedures Check conversion factors
Bulk materials (e.g., storage, tanks, grains, liquids)	Usually not identified as counted Quantity estimation problems Quality determination problems	Use tank counts or pre-numbered lists for identification Use dipping, measuring sticks, engineering reports, and perpetual inventory records Select samples for assay or analysis, or use specialists
Precious metals, stones, works of art, collectibles	Potential identification and quality determination problems	Select samples for assay or analysis or use specialists
Pulp wood, livestock	Identification and quantity estimation Movement may not be controllable	Use aerial photographs for existence and comparison purposes and rely on perpetual inventories

2. All items shipped prior to the cutoff date and none shipped afterward were excluded from the count and the books of account.
3. Any goods recorded as sales, but not shipped, were excluded from the count and the books of account.
4. Any goods recorded as purchased, but not received, were included in the count and the books of account.
5. Goods in transit and direct customer shipments are properly accounted for.

During the physical count, the auditor should obtain receiving, shipping, and internal transfer cutoff information that will be traced to the company's accounting records at a later date.

The auditor usually visits both the receiving and shipping areas to observe the cutoff procedures. When consecutively numbered receiving or shipping tickets are used, the last number preceding the cutoff should be noted, as should any unused numbers. If such tickets are not used, information on several shipments and receipts prior to the cutoff should be listed. If the company uses freight cars or trailers for storage, shipping, or receiving, a listing of full and empty units on the premises and notes on their inventory status should be made.

Occasionally, a client may have goods on the premises that are considered sold—for example, if the client manufactures private-brand labels for retail customers. In these situations the auditor should obtain satisfaction that (1) a sale has occurred and has been recorded in the proper period, and (2) the items sold are not reflected in the physical count. By listing or obtaining details on the items, the auditor can compare them subsequently with the final inventory listing to determine that the goods are not included. The information can also be compared with invoices, purchase orders, sales contracts, and customer purchase documentation or similar items to determine that the sales are legitimate. The auditor may find it efficient to coordinate these procedures with those for accounts receivable. The auditor might also use the information for subsequent valuation testing. If unshipped sales are in dispute or if a sale has not been finalized, the product may well be worthless unless the sale is consummated. For example, it would not usually be worthwhile, or physically possible, for a producer of private-brand dairy products to unwrap and subsequently rewrap the product in a different label if the original customer did not purchase the specifically labelled product.

The auditor should also check for inventory movement during the count. Although it is preferable that there be no movement of goods, it is unavoidable in some situations. If production, receiving, or shipping is not shut down during the count, the auditor should be satisfied (for example, through extensive cutoff testing) that the client has procedures adequate for identifying and recording such goods in the proper period.

Confirmation Procedures

Ordinarily the auditor confirms inventories held by third parties, including consignment stock and stock kept in public warehouses. Additional procedures can be performed if third parties hold a significant number of goods.

Documentation

Test counts generally represent a very small portion of the inventory and the final listing is not usually completed until days or weeks after the count. Therefore, ordinarily the auditor gathers and records additional information during the attendance to obtain satisfaction that the final listing is not inflated or deflated by the deliberate or accidental inclusion of fictitious or duplicate items or reduced by the exclusion of bona fide items. Although the nature and amount of information obtained vary, the following may be appropriate:

- Description and quantity of items test-counted for subsequent checking to the final listing. Such information could include page listings, tag numbers, condition of the goods, and the location (such as bin number).
- Details of slow-moving, excess, or obsolete stock.
- Cutoff information.

In addition, the auditor often tests for completeness by obtaining photocopies or details of some additional items not counted so that they can be checked against the final listing.

To help avoid inclusion of fictitious items and to ensure that all appropriate items are included in the final listing, the auditor usually maintains control over the count documentation. The auditor should consider the following:

When tags are used:

- Obtaining details of numbers used if tags are prenumbered
- Having the client consecutively number the tags if they are not prenumbered

When count sheets are used:

- Obtaining the number of count sheets used if they are not prenumbered (consideration should be given to the client's ruling out unused space on the count sheets)
- Obtaining photocopies of the count sheets (if this is not practicable, the auditor should consider putting an identifying mark on each count sheet and either listing selected items or photocopying some of the sheets for subsequent follow-up)

At the conclusion of the inventory observation, many auditors prepare (or fill out, if the form is preprinted) a memorandum outlining the results of the attendance and any suggestions for improving the client's procedures.

Alternative Procedures When Attendance Is Not Practicable

Some circumstances that may prevent the auditor from attending a physical count are listed below.

- Inaccessibility—the auditor cannot attend because the location is inaccessible.

- Climate—the auditor cannot attend because of unfavorable weather, or, because of climate, cannot view the inventory (for example, logs covered by snow).
- Confidentiality—for example, goods are produced through the use of special formulas or processes, or confidential government contracts are involved.
- Hazardous substances—for example, radioactive chemicals or gases present a physical risk to the auditor.
- Items are in transit.
- The auditor is appointed after the year-end.

In each situation, the auditor should assess the audit risk involved and the procedures possible. Table 3.2 provides some suggestions on alternative procedures the auditor might perform. If the auditor cannot be satisfied by alternative procedures, consideration would be given to whether there is a scope limitation on the examination.

POSTINVENTORY COUNT ATTENDANCE CONSIDERATIONS

After the count is completed, the client usually tabulates the physical quantities and prepares the final inventory listing that will be used for valuation. In some cases, such as cycle counts, tabulations for pricing are done months after the count, usually using items different from those originally counted.

The auditor determines if the final inventory has been properly completed by (1) testing quantities on final inventory listings, (2) following up confirmations, (3) testing cutoff, and (4) testing the clerical accuracy and summarizations of inventory listings and of the reconciliation to the book amount.

If counts are done before year-end, the client may use perpetual inventory records for year-end inventory determination. In such cases, the perpetual inventory records should be adjusted to reflect the physical count. Thus, the auditor would test the accuracy of the perpetual inventory records by agreeing some physical counts to the records.

Testing Quantities on Final Inventory Listings

In general, the auditor should consider performing the following procedures using the data documented at the count:

1. Agreeing the test counts recorded during the count attendance to the final inventory listings to the extent deemed necessary to determine that those items have been completely and properly recorded on the listings (both quantities and item description).
2. Checking for evidence of subsequent additions to (or deletions from) the original inventory count sheets (or tags) by comparing selected details thereon to the photocopies taken or extracts noted during count attendance. If the client has recorded inventory counts on count sheets, check to see that unfilled spaces ruled out

Table 3.2
Possible Alternative Procedures

<u>Circumstance</u>	<u>Possible Alternative Procedures</u>
Inaccessibility	If internal control is good, consider test counts at another date and test intervening transactions. Consider having representatives attend on the auditor's behalf.
Climate	If internal control is good, consider test counts at another date and test intervening transactions.
Confidentiality	It is desirable that internal controls be relied on. Confirm with third-party inspectors who have access to the items. Review purchase, production, and sales records to obtain corroborating evidence.
Hazardous substances	It is desirable that internal controls be relied on. If official reports are required to show the production, use, or disposal of such items, the existence of the hazardous materials could be traced to such reports. Confirm with third-party inspectors who have access to the items. Review purchase, production, and sales records to obtain corroborating evidence.
Items in transit	Because normally these represent only a small portion of the inventory, they generally are verified by examining documentary evidence. Goods held in independent warehouses can be verified by confirmation.
Auditor appointed after year-end	It is possible to rely on internal control systems. Consider tests of prior transactions, reviews of records of prior counts, physical count to book adjustments, and analytical review procedures.

at the count date have not been erased and filled with additional items.

3. Testing the final listings against the client's original count sheets (or tags) and against photocopies or extracts of details noted but not test-counted during the count attendance. This is to obtain assurance that all items originally noted (both quantities and description) are included in the final inventory listing.
4. Testing, by using the data taken at the physical attendance, that all inventory tags and count sheets used to record the physical count are accounted for in the final listings.

5. Testing, by using the data taken at the physical attendance, that no inventory tags and count sheets have been added subsequent to the count.
6. Comparing, on a test basis, the final inventory listings with the original count sheets for assurance that additional items have not been added to the final listing.
7. Comparing quantities of larger dollar-value items with quantities on hand in previous years and vice versa to obtain explanations for unusual fluctuations. This procedure may be facilitated by the use of carry-forward schedules incorporating details of quantities, cost, sales value, margins, and so on for major inventory items.
8. Comparing, on a test basis, the final inventory listings with perpetual inventory records and vice versa if perpetual records are used in the preparation of the final inventory listing. This procedure is especially appropriate if perpetual records are to be relied on at year-end. If there are large unexplained count differences, additional audit procedures might be necessary.

Following up Confirmations

When confirmations are returned by third parties holding inventories or for whom the client is holding inventories, the replies should be agreed with or reconciled to the client's perpetual inventory or consignment records and, if they are to be included in the physical count totals, the final inventory listing. If replies are not received, follow-up requests should be sent. If replies are still not received, alternative procedures (such as visiting the location or inspecting shipping documents, receiving reports, or warehouse receipts) should be performed.

Testing Cutoff

The inventory account included in the general ledger should include all transactions that affect the status of the physical inventory. The potential effects of cutoff errors are shown in table 2.1.

In Canada, where presently an income tax deduction is based on the opening inventory balance, a cutoff error that does not impact on earnings before income taxes can result in an income tax error that will not reverse in the subsequent year. Similarly, in the United States such errors could misstate LIFO layers for income tax purposes and forestall tax payments on the earnings resulting from layer liquidations.

The extent of cutoff testing depends on the cutoff procedures used, the auditor's professional judgment, and the circumstances involved, including the auditor's assessment of internal control. In most cases, cutoff testing includes (1) purchases cutoff, (2) sales cutoff, (3) in-transit inventory (between branches and related companies), and (4) interdepartmental transfers. If the count and year-end dates differ, it is usually necessary to perform cutoff testing at each date, unless the intervening period is quite short.

To test purchases cutoff, the auditor examines at least the last few receiving reports prior to the cutoff point and at least the first ones after it. They

should be compared with the cutoff information obtained during inventory count attendance (refer to "Cutoff Procedures" earlier in this chapter) to obtain assurance that receipts before the cutoff point are included in inventory and accounts payable and that receipts after are excluded. For larger inventory receipts, the auditor might compare reports to the final listings to obtain assurance that the items are included or excluded as appropriate. The receiving reports should also be checked to general accounting records (purchases and payables records) to obtain assurance that an accurate cutoff has been made in the general ledger. If perpetual inventory records are to be relied upon at the year-end, the auditor selects receiving reports to compare with the perpetual inventory records. In addition, suppliers' invoices can be agreed to receiving reports in conjunction with the liability cutoff testing to determine if purchases have been properly included.

To test sales cutoff, at least the last few shipping documents before the cutoff point and at least the first ones after it should be examined. These shipping documents should be compared with cutoff information obtained during inventory count attendance for assurance that shipments before the cutoff point are excluded from inventory and shipments after are included (unless bona fide precount sales were not shipped). For larger shipments, the auditor might compare shipping documents with the final inventory listing for assurance that the items are included or excluded as appropriate. The shipping documents might also be agreed to general accounting records (cost of sales, inventory, sales, and accounts receivable) to obtain assurance that an accurate cutoff has been made in the general ledger. If perpetual inventory records are to be relied on at year-end, the auditor might compare shipping documents to the perpetual inventory records.

To test in-transit goods cutoff and departmental transfers, the auditor examines supporting documents for inventory transfers for an appropriate period on either side of the cutoff point. The length of the period will depend on the distance between the branches or related companies and the means of transportation. These documents might be agreed to the cutoff information obtained at the count. For large transfers, the auditor might go directly to the final inventory listing to obtain assurance about proper inclusion and exclusion.

There are also instances when shipments are made from the client's supplier directly to the client's customer. The client does not take physical possession of the goods at any time. Depending on the supplier's terms of shipment and the customer's terms of receipt, there may be an intervening period when the client actually has ownership of the goods. This could present receiving and shipping cutoff problems when such goods are in transit at year-end. To be satisfied that such transactions have been identified and properly accounted for, the auditor should be aware of the suppliers that undertake such transactions on behalf of the client. In conjunction with accounts payable testing, such suppliers might be requested to forward itemized statements directly to the auditor for subsequent agreement to the client's accounting records. The auditor might then agree the statement to the client's sales invoice and accounts receivable records or to the inventory, depending on the client's terms of shipment.

Documentation

Details of quantities testing and cutoff procedures ordinarily are noted in the auditor's working papers, together with conclusions about the final inventory listings. Those procedures and conclusions may be in narrative form or entered on a preprinted form outlining testing of clerical accuracy, summarization, and reconciliations.

Valuation

Various procedures that should be considered by the auditor in obtaining satisfaction with respect to the valuation of a client's inventory are set out in this chapter under the following general headings:

- *Planning*
- *Cost Verification Considerations*
- *Market Verification Considerations*
- *Other Considerations*

AUDITOR'S OBJECTIVE

The auditor's objective concerning valuation is to obtain evidence that inventories have been valued in accordance with generally accepted accounting principles or another appropriate basis of accounting, properly and consistently applied, and that inventories are reduced, when appropriate, to replacement cost or net realizable value.

PLANNING

Introduction

Testing for the existence, completeness, and ownership assertions is largely an audit of factual data, whereas an audit of valuation involves these and more subjective factors. Such subjective factors often include assessing the appropriateness and the reasonableness of the cost basis used, alternative measures of market value, methods of applying the "lower of cost and market" rule, and methods of overhead application. As a result, this objective usually requires that the auditor have significant accounting knowledge.

To assess the audit risk for valuation properly, the auditor should know the client's product, the method of valuation of the inventories, and potential problems (for example, rapid obsolescence). The auditor normally reviews the prior year's working papers to become familiar with past problems, in addition to addressing the possible need for specialists.

Another planning matter that the auditor should consider is the coordination of valuations testing with other interim audit work. This might occur, for example, when the inventory is counted and valued at a date prior to year-end or when inventory is valued using some type of unit-costing record. In both situations, reliance on the appropriate internal controls could be considered.

The auditor is usually not expected to possess the expert knowledge that may be necessary to determine inventory deterioration and obsolescence. The auditor should, however, assess the audit risk in each situation. It is important that the auditor know the client's industry and be knowledgeable of the client's methods of obsolescence identification and determination. An awareness of the problem is required so that any evidence for this type of problem is recognized and acted on. A risk potentially important to the auditor is the possibility that obsolete and unsalable items have accumulated to a significant level without detection. Such a situation can become more acute if specialized or high-technology items are involved.

Potential Errors

Errors in valuation include—

- Errors in the costing records (for example, regarding invoice cost, import/export duties, exchange, or freight).
- Improper application of overhead.
- Improper allocation of variances between standard and actual costs.
- Incorrect costs used for extension and accumulation.
- Improper identification of items.
- Incorrect conversion factors.
- Failure to recognize obsolescence.

This list is not exhaustive, as there may be many causes of valuation errors. The effects of errors are illustrated in table 4.1. In general, if the inventory is counted and valued at year-end, errors in valuation cause corresponding errors in cost of sales and, possibly, in other components of net income. When inventory is counted and valued before the year-end, it is important to remember that (1) the effect on inventories and cost of sales depends on whether the error exists at year-end, and (2) intervening period errors can occur. For example, inventory can be overstated because of a failure to record wastage or obsolescence during the intervening period. Such errors overstate inventories and understate cost of sales by equal amounts.

Assessment of Client's Valuation Methods

The auditor initially determines that the valuation method used by the client is in accordance with generally accepted accounting principles or another appropriate basis of accounting and that the assumptions used in preparation of the data are reasonable in the circumstances. The auditor's investigation usually emphasizes the following matters.

Table 4.1
Effects of Errors

Error Type	Effect on				
	Inventory	Accounts Receivable	Accounts Payable	Sales	Cost of Sales
At date of valuation					
Cost record	U/O				O/U
Overhead allocation	U/O				O/U
Variance allocation	U/O				O/U
Wrong cost for extension	U/O				O/U
Item identification	U/O				O/U
Conversion	U/O				O/U
Obsolescence identification	O				U
Intervening-period errors					
Unrecorded shipments	O	U		U	U
Unrecorded receipts	U		U		
Unrecorded production	U				O
Shipping cutoff	O/U	U/O		U/O	U/O
Receiving cutoff	O/U		O/U		
Unrecorded wastage	O				U
Fictitious entries	U/O	O/U		O/U	O/U

U = understatement; O = overstatement.

Method of pricing used. To be able to assess the acceptability of the client's inventory valuation method, the auditor should be aware of the numerous acceptable methods of cost and market determination. Some of the more commonly used cost determination methods are (1) specific item, (2) average cost, (3) FIFO, and (4) LIFO.

Appropriateness, application, and consistency of application of method. Consideration of the appropriateness, application, and consistency of application of the client's inventory valuation method usually requires extensive testing. The auditor wishes to obtain satisfaction that the method of application is both consistent among the periods presented in the financial statements and consistently applied throughout the inventory. The accounting methods a client chooses for cost and market determination will usually affect the audit procedures employed. For example, if standard costs are used, the auditor should determine that such costs approximate actual costs determined under an acceptable method. If actual costs are used, such determination would, of course, not be necessary. In addition, audit procedures used to evaluate

a valuation under a LIFO basis differ from those used under other valuation bases.

Internal controls also influence the extent of testing. When adequate control procedures (for example, independent data comparisons, reliable costing systems, and senior official reviews) exist, the extent of substantive testing of cost and market values may possibly be reduced.

Use of Specialists

To corroborate valuation, the auditor may consider using the findings of a specialist. Such assistance might be needed, for example, in inventories of certain chemicals or semiprecious and precious metals. In determining if a specialist is necessary, the auditor should consider the nature of the item, the materiality and audit risk, and the availability of other sources of audit evidence.

COST VERIFICATION CONSIDERATIONS

Raw Materials and Goods Purchased for Resale

The auditor should consider the following procedures for raw materials (a category that includes supplies and purchased parts) and goods purchased for resale:

- For actual costs, if no cost records¹ exist, testing cost against invoices.
- For actual or standard costs, if cost records exist, testing cost against cost records, testing the accuracy of the cost records, and testing the appropriateness and the accumulation of the costs therein.
- If standard costs are used, additional or alternative procedures that may be needed include a comparison of standard and actual costs and an analysis of variances.

Testing Actual Cost Where No Cost Records Exist

In this situation, the auditor's objective is to obtain satisfaction that the cost used for inventory purposes agrees with the supplier's invoice, adjusted, when appropriate, for delivery, import/export duties, exchange, and the like. If the client does not maintain cost records, inventory might be priced at the most recent cost using a FIFO basis. In such an instance, the auditor compares, on a test basis, the final inventory listing to the most recent supplier and freight invoices (and duty and other forms when appropriate). If the quantities on hand exceed the invoice total and the auditor suspects that a price change has occurred during the period of purchases, the auditor

1. Cost records, as referred to in this study, are any documents that show the accumulation of costs for an inventory item. They can vary in sophistication from those generated by an integrated costing inventory system to those generated on an ad hoc basis to compute the cost of the item on hand in a periodic inventory.

might then agree the excess back to the previous purchases until the quantity on hand has been "built up" from the invoices. That procedure should indicate any overpricing or underpricing. When looking at the inventory items, it is usually helpful for the auditor to note the dates of purchase for each item selected. In this manner the auditor can be alerted to any potential obsolescence or slow-moving goods evidenced by those dates.

The auditor should be alert to client valuations that are based solely on the latest invoice price. This would not be acceptable if, during the period of inventory accumulation, price changes had occurred because latest invoice price would not reflect the actual cost of the inventory.

Testing Actual or Standard Costs Where Cost Records Are Used

When actual cost is used, the auditor's objective is to obtain satisfaction that (1) the cost used for inventory purposes agrees to the cost record, and (2) the cost record accurately reflects the actual costs in accordance with the method of cost determination used by the client. When the client uses a standard cost system, additional or alternative tests may be necessary to determine that the differences between standard cost and the actual cost is not material. This can be evidenced by, for example, insignificant purchase price variances during the inventory accumulation period.

When the client uses cost records to value the inventory, the most efficient approach is usually to agree the final inventory listing to cost records. The auditor should select items from the final inventory listing for testing after considering the materiality and audit risk. This test could be directed to include at least all high-value items and, if necessary, some of the remaining items. The value recorded on the inventory listing should be agreed to the related cost record to ascertain that the listing reflects the cost record. The cost records would also be tested for clerical accuracy.

The auditor would then agree the details on the cost records, on a test basis, to external documentary evidence (such as suppliers' invoices) or vice versa. The manner of testing may vary, but it usually will not be necessary to agree all items on the cost record to such documentation. When examining evidence, it is usually helpful for the auditor to note the dates of purchase for each item selected; in this manner the auditor can be alerted to any potential obsolescence or slow-moving goods evidenced by those dates. The testing of the cost records can often be done at an interim date, depending on the costing system and the internal controls present.

Additional or alternative testing for standard costs. In a standard cost system, the test described above may not be necessary. Rather than testing the standard costs against actual cost for the items selected, the auditor might review the variance analysis when (1) the variance analysis has provided the necessary information and (2) the auditor is satisfied that sufficient controls exist to allow reliance on the costing system producing the data. Ordinarily, the auditor should test the costing system to obtain satisfaction that the variances are computed properly. When the inventory is counted before year-end, such an analysis of variances is best performed at the year-end date because it is the potential amount of misstatement at year-end that is of concern.

Price variance analysis. Entities that use standard cost systems provide price variances for raw materials and purchased finished goods. Price variances measure the extent to which standard and actual costs varied during the period.

How the variance is treated affects the auditor's procedures. If the client charges the entire variance to cost of sales, the auditor considers the amount of the variance that should have been included in inventory and thus whether a material error exists. If the client prorates the variance between cost of sales and the various inventory accounts (raw materials, work in process, and finished goods), the auditor tries to establish whether the allocation is reasonable. If the client allocates the variance to inventories and cost of sales on a specific basis (that is, if year-end inventories have been valued at actual cost), the standard cost and variance analysis will usually be of little or no importance to the auditor.

Variance analysis is best done on as detailed a level as possible (for example, product line). Emphasis should be placed on the latter months in which the inventory is estimated to have accumulated, rather than on the entire year's purchases.

Work in Process and Manufactured Finished Goods

In general, the procedures used in testing costs for work in process and for manufactured finished goods are similar to those used for raw materials. The most significant differences are the additional audit procedures used to assess stage of completion for work in process, as well as the reasonableness of the labor and overhead elements included in the valuation. Procedures commonly used in auditing actual and standard costs have not been differentiated. The term *standard cost* denotes any valuation that is not regarded as actual cost. Audit procedures that apply only to standard cost systems have been segregated. In general, when the client uses a standard cost system, additional or alternative testing is usually required to provide the auditor with assurance that standard cost approximates actual cost. The extent of such testing varies according to the nature of the client's system and the strength of the related internal controls.

The auditor should consider the following procedures to test the cost valuation of work in process and manufactured finished goods:

- Agreeing inventory cost to supporting cost records
- Testing the accuracy of the cost records and the accumulation of the costs (raw materials, labor, and overhead)
- Comparing standard and actual costs and analyzing the raw material, labor, and overhead variances, if standard costs are used

Ordinarily, the client's cost records and costing system for work in process and manufactured finished goods are more formalized than for raw materials and goods purchased for resale. If, however, the client has only rudimentary records to support the valuation, the auditor should refer for additional guidance to "Costing System Lacks Adequate Records" further on in this chapter.

Testing inventory cost to cost records. The auditor agrees, on a test basis, the final inventory listing to the cost records (or vice versa) to see whether the unit costs and descriptions have been carried accurately to the final listing. Details on the cost records are then tested, as discussed in the paragraphs that follow. It should be noted that, like tests performed on raw materials and goods purchased for resale, the testing of the cost records can be done at an interim date, depending on the costing system and the internal controls in place.

Testing of cost records. The extent to which the auditor tests the cost records depends on the nature of the client's costing system. In general, the procedures could be more extensive for the elements reflected at actual costs. To the extent that the final inventory is valued at a standard cost, the auditor can direct the audit effort to a comparison of actual and standard costs for specific items and an overall variance analysis. The testing of the buildup of standard costs is less important because any imperfections in the costing process should be reflected in the variance accounts if the costing system is adequately controlled.

The procedures to test the buildup of cost records might include the following.

Materials:

- Agreeing standard material usage to engineering specifications
- Agreeing actual material usage to production reports
- Agreeing actual costs to supplier's invoices, freight bills, and other evidence (for actual cost system or, where appropriate, for standard cost system)

Labor:

- Agreeing actual and standard direct-labor hours to time studies, production reports, and labor tickets
- Agreeing actual labor rates to payroll records
- Performing a labor analysis (refer to "Analysis of labor" later in this chapter)

Overhead:

- Testing the application base and rates against appropriate documentation
- Performing an overhead analysis (refer to "Analysis of overhead cost variances" later in this chapter)

If work in process and finished goods are valued at standard cost, the auditor selects items and compares actual and standard costs to estimate the difference between the two for the year-end inventory. The difference is then adjusted by the client if it is material, or aggregated by the auditor with other unadjusted errors.

The auditor might choose to test the cost buildup of all high-value items and of some of the remaining items. The test may not be required when a variance analysis (as discussed in "Analysis of raw material variance" later

in this chapter) has provided the necessary information if the auditor can rely on the costing system producing the variance. The auditor may, however, decide to test material items. The detailed comparison of standard and actual costs is easier to accomplish if combined with the test of cost records.

When inventory is counted before year-end, the comparison is best performed at the year-end date, as misstatement at year-end concerns the auditor.

When analyzing variances, the auditor should be alert to possible differences in product mix between cost of sales and year-end inventories. If significant differences exist, overall analysis of variances may be a poor indicator of the error in year-end inventories. In such situations, departmental or product-line analyses may be necessary.

Analysis of raw material variance. If the raw material variance reflects avoidable waste, pilferage, or other loss, it is properly charged to cost of sales in the financial statements. If, however, it reflects inaccurate or out-of-date pricing or quantity standards, the auditor will have to be satisfied that the variance has been properly allocated between cost of sales and inventory.

Analysis of labor. Alternative methods of allocating direct labor to inventory include the following:

- Actual hours at actual rate
- Actual hours at standard rate
- Standard hours at actual rate
- Standard hours at standard rate

The latter three methods are acceptable only if they approximate actual cost associated with the year-end inventories. The auditor's objective with regard to labor is to establish whether recorded labor costs in inventory reflect actual labor costs. The following procedures may be appropriate.

1. Reviewing the methods and procedures used by the client to allocate labor to inventory
2. Comparing actual and standard labor rates by department or production process
3. Comparing standard and actual hours
4. Comparing current and prior year results
5. Reviewing the client's analysis of labor variance accounts on a monthly basis and, if available, by department
6. Investigating the causes of the variances to determine if a portion of the variances should be allocated to inventories

Analysis of overhead cost variances. In most manufacturing inventories, overhead (usually both variable and fixed) is included as an element of cost. Overhead normally is allocated based on some measure of production or production costs. A common base for applying overhead is the direct labor hour or cost. Other application bases are machine hour and flat rate by department or plant. The base may be measured at actual or standard.

An application method normally is acceptable if it approximates the actual

overhead costs properly allocated to the year-end inventories. The auditor's objective is, therefore, to obtain assurance that overhead absorbed in inventory approximates actual overhead and that costs included as overhead are properly included. The auditor may do the following to analyze overhead:

- Determine the method and procedure for allocating overhead to inventories and whether that method properly reflects the absorption of overhead costs in the production process.
- Review the costs included in overhead to determine if they are properly included.
- Compare standard and actual overhead rates by department or by production process (on a test basis) and compare current year results with prior year results.
- Analyze overhead variances on a monthly basis and, if possible, by department.
- Make inquiries to determine the reasons for the variances and any unusual fluctuations from the prior year.

Overhead costs include indirect costs associated with the manufacturing process. The following are examples of items often included:

- Indirect salaries and wages, such as repair and inspection departments, factory supervisors, and managers
- Utility costs, such as factory heat, light, power, water, and telephone
- Fire and liability insurance on buildings and machinery
- Real estate and business taxes
- Factory rental costs
- Factory supplies
- Repairs and maintenance
- Depreciation costs of factory buildings and productive machinery

This list is not exhaustive; other costs may be included if appropriate. Direct material and direct labor costs are not considered in overhead.

The auditor should be satisfied that appropriate accounting recognition is given to the overhead variances. For example, quantity variances representing waste or other costs that cannot be inventoried are properly charged to cost of sales. Quantity and price variances that reflect inaccurate or outdated standards may, however, be allocated between cost of sales and inventory. Similar judgments will be required for capacity variances, which are usually more difficult to assess.

As with labor and material variances, attention should be given to possible differences in product mix. When large differences occur, small overhead variances in total may be material to the year-end inventory because over-absorptions and underabsorptions that might have offset each other in the year's production might not offset each other in the year-end inventory. In such a situation, it may be necessary to compare the standard departmental absorption rate used in the year-end inventory with an actual rate, using actual departmental expenses for the year and actual or normal departmental labor.

Other Considerations

Revisions in Standards

Many entities, when revising their standard costs for inventories, will defer the revaluation amount (the difference between the estimated actual cost and the new standard cost) and amortize this balance by charging or crediting cost of sales on a systematic basis. The amortization often is based on estimated turnover of the inventory following the revaluation. When the standard costs are revised before year-end, a certain portion (perhaps all) of the revaluation amount will have been credited or charged to income by the year-end date. To detect possible inventory and income misstatements, the auditor should consider performing either usage and revaluation calculations or a year-end pricing test.

To perform usage and revaluation calculations, the auditor—

1. Reviews usage reports for items in inventory, selected on a test basis, at the date the standard was revised to consider the approximate percentage of each inventory item remaining at the year-end date.
2. Obtains pricing revaluation information at the last standards revision for each item tested.
3. Calculates the pricing revaluation amount that should remain at year-end for each item by referring to the pricing revaluation information obtained in the second step.
4. Accumulates the results obtained for the individual items tested and, using this result, assesses the potential impact on the entire inventory for which the standards were revised.
5. Compares this estimation with the client's deferred revaluation amount to determine if the balance is reasonable or if adjustments might be required.

Instead of performing the above calculations, the auditor can perform a year-end pricing test similar to that performed at the valuation date (the procedures have been set out previously in this chapter according to the stage of inventory and the pricing mechanism used). To determine if an adjustment might be required, the revised client standard for each item, net of any deferred revaluation remaining against it, should be compared with the auditor's estimate of the value of that item. The results for each comparison should then be aggregated. Using the results of the test, the auditor could then assess the potential error that might be present in the entire inventory.

Next Year's Standards Used

In many companies, standards are revised at least annually. Occasionally, to reflect current cost more accurately, the subsequent year's standards are used to value the year-end inventory. Although the use of such standards will overcome the problem of out-of-date values being used, it may also introduce anticipated cost increases that have not yet materialized and therefore are in excess of actual cost. The auditor should be alert to identifying such revaluations and requesting a determination of the amount of any misstatement. Depending on the nature and extent of the adjustments between

the annual standards, the variance analysis described previously may be of limited value. Often testing consists of (1) a review of the methods used to determine the standard costs, and (2) a comparison of standard and actual costs for a sample of specific items.

Costing System Lacks Adequate Records

Occasionally the auditor will encounter situations in which the client does not have documentation or possesses only rudimentary records to support the valuation of the items contained in work in process or of manufactured finished goods. This could occur, for example, if a client values the inventory as a percentage of selling price. When this kind of situation is encountered, the auditor should request that the client attempt to provide adequate cost records that support the valuation. If the client is unable or unwilling to satisfy this request, the auditor often will need to be innovative in designing an audit approach. It may be necessary for the auditor to discuss with the client how the inventory item is produced (for example, what types and quantities of materials were used, or approximate time required for manufacturing) and what assumptions could be used in the valuation. With some basic information and an increased effort using suppliers' invoices and payroll data, and by establishing a reasonable overhead application rate based on costs incurred during the year, it may be possible to estimate a cost that can be compared to the item's inventory value. This may not be possible without the client's adequate and reasonably accurate knowledge concerning the production process. In other situations when such a calculation is not practicable, the auditor should consider the effect on the audit report.

MARKET VERIFICATION CONSIDERATIONS

Although inventories normally are described as being valued at cost or market,² whichever is lower, some clients do not have a systematic process for

2. Accounting Research Bulletin (ARB) No. 43, *Restatement and Revision of Accounting Research Bulletins* (New York: AICPA, 1953) chapter 4, statement 5 states that "Where there is evidence that the utility of goods, in their disposal in the ordinary course of business, will be less than cost, whether due to physical deterioration, obsolescence, changes in price levels, or other causes, the difference should be recognized as a loss of the current period. This is generally accomplished by stating such goods at a lower level commonly designated at market." The bulletin also provides discussion concerning the meaning of market. It states in chapter 4, paragraph 9, that the "term *market* is therefore to be interpreted as indicating utility on the inventory date and may be thought of in terms of the equivalent expenditure which would have been made in the ordinary course at that date to procure corresponding utility. As a general guide, utility is indicated primarily by the current cost of replacement of the goods as they would be obtained by purchase or reproduction. In applying the rule, however, judgment must always be exercised and no loss should be recognized unless the evidence indicates clearly that a loss has been sustained. There are therefore exceptions to such a standard. Replacement or reproduction prices would not be appropriate as a measure of utility when the estimated sales value, reduced by the costs of completion and disposal, is lower, in which case the realizable value so determined more appropriately measures utility." The *CICA Handbook* states in paragraph 3030.11 that "In view of the lack of precision in meaning, it is desirable that the term 'market' not be used in describing the basis of valuation. A term, more descriptive of the method of determining market, such as 'replacement cost', 'net realizable value', or 'net realizable value less normal profit margin', would be preferable."

identifying the effect of market changes on their inventories.³ The market value of an inventory item or class is usually affected by either its physical condition or external factors such as technological and economic changes. A client may have procedures for identifying and valuing slow-moving and obsolete items (often at the physical count date), but may not have a systematic procedure to determine market if there are ordinarily high gross margins. In such situations, the auditor determines, through testing, whether any write-downs might be required, although it is the client who ultimately determines the amount of any such write-downs. In addition, the auditor should be satisfied that any write-downs made by the client are properly supported.

For raw materials and some purchased finished goods, market value is usually replacement cost. For work in process and finished goods (both manufactured and potentially purchased), market value is usually net realizable value. As a result, the testing of market value usually involves the testing of (1) the condition of the inventory, (2) replacement cost, and (3) net realizable value.

Testing Condition of the Inventory

Obsolescence may be detected through physical inspection (at the physical inventory) or by subsequent review and inquiry (when checking, for example, valuation testing). The auditor can do the following when attending the client's physical count:

- Observe whether the client has properly identified all obsolete and slow-moving goods.
- Document details of slow-moving and obsolete stock for subsequent follow-up.

When auditing the cost valuation, the auditor ordinarily obtains from the client a listing of all significant items written down because they have been identified as either slow-moving or obsolete.

In conjunction with procedures to check inventory existence, all inventory that the auditor has identified as slow-moving or obsolete should be traced to the client's listing and to the final inventory listing to determine if it has been properly identified or excluded (where appropriate) from the final listing.

The next step in testing for proper recording of slow-moving or obsolete items can be performed as part of the valuations testing. In the cost valuations testing, all items of significance usually are chosen for price testing (unless the inventory comprises a large number of small-value items). The auditor can also isolate possibly obsolete or slow-moving stock from "building up"

3. It should be noted that ARB No. 43 does not require a write-down "where the evidence indicates that cost will be recovered with an approximately normal profit margin upon sale in the ordinary course of business . . . even though replacement or reproduction costs are lower." ARB No. 43, chapter 4, paragraph 9.

the quantities, on a FIFO basis. The results may provide evidence of a problem for similar items of lesser value that were not chosen for price testing.

Other procedures that the auditor can perform include—

1. Review of perpetual inventory records or, if they do not exist, of purchase, production, and sales records of all significant items in inventory for indications of slow-moving or obsolete items.
2. Inquiry into possible obsolescence of finished goods in discontinued lines and raw materials that might have been previously used for such product lines.
3. Review of imbalances of raw materials and parts required for production items.
4. Review of turnover ratios, gross margins, sales projections, and sales catalogues for all significant product lines and credits issued, for additional evidence of an undetected problem.

The auditor should also consider testing to determine that items written down in the prior year—for example, because of obsolescence—but still on hand have not been written up in value in the current year. This can be accomplished in conjunction with the valuations testing (in which inventory on hand is not all purchased or produced in the current year), supplemented by a comparison of write-down information contained in the previous year's working papers with the current year's final inventory listing. The auditor should also consider whether there is a need for further write-downs for such items.

Any concerns arising from those procedures should be discussed with persons familiar with the items. The auditor should obtain evidence on whether the items in question should be written down in value and whether they might be indicative of a large, undetected problem.

When the results of the procedures and discussions indicate that a significant valuation problem exists and the client is unable to provide sufficient appropriate evidence (such as, for example, subsequent orders and sales of the items at prices in excess of carrying value) to satisfy the auditor that an adjustment should not be made, the auditor should consider the impact on the auditor's report if the client is unwilling to adjust the valuation.

The auditor should be satisfied that any material write-downs are properly supported. Therefore, to ascertain if they are slow-moving or obsolete, the auditor checks any other significant items written down by the client that the auditor has not identified. This can be accomplished through a review of purchase records, production records, and sales records and through discussion with knowledgeable client personnel. The auditor's working papers normally document pertinent testing and discussions. The auditor should then check that those items have been properly identified, adjusted, or excluded from the final inventory listing.

Testing Replacement Cost

To check replacement costs for raw materials and purchased finished goods, the following procedures should be considered:

- Making appropriate inquiries of the client. The auditor should be alert to recent changes in items such as sales tax, import/export duties, foreign exchange, prices, and freight. Based on the answers received and the knowledge of the business, the auditor may be able to conclude that any adjustment would not be significant. This is usually appropriate if there is long-term price stability or an upward price trend.
- Checking replacement costs for individually significant items by examining either post-year-end supplier invoices or price lists.
- Scrutinizing supplier price lists before and after year-end to obtain an indication of the general trend of the price movements.

If the above are considered inadequate, the auditor tests additional items by referring to either supplier invoices or price lists.

Testing Net Realizable Value

If net realizable value for finished goods is below cost, a write-down may be required, depending on whether the “lower of cost and market” rule is applied on an individual, group, or global basis. The auditor should be satisfied that, whatever basis is used by the client, it has been applied consistently throughout the inventories and is consistent with the method used in the prior period. To test net realizable value for work-in-process goods, all costs to complete the items should be considered.

The auditor can do the following, as appropriate, to test net realizable value:

- Inquire into and determine the effect of recent changes in factors such as material prices, taxes, duties, and exchange and wage rates on the market.
- Review the client’s product gross margin reports for unprofitable items. This may help in considering whether the net realizable value of certain types of inventory approximates or approaches cost.
- Inquire into discontinued product lines or possible obsolescence due to engineering changes. This procedure is often performed at the same time as the check of slow-moving and obsolete goods observed at the count. Such procedures may identify items requiring write-downs.
- To identify any items that might be overvalued at the year-end date, inquire if any goods have been scrapped after the year-end date.
- Independently calculate net realizable value for the more significant items by reference to sales invoices, price lists, volume discounts, and direct costs to be incurred to realize the revenue from that item.
- Compare quantities on hand for the selected items with quantities noted on the sales invoices and customer orders. The auditor should be alert to the relationship of quantities on hand to the client’s requirements.

If the above procedures are not sufficient or if they indicate that problems exist, the auditor should consider testing other inventory items.

OTHER CONSIDERATIONS

LIFO Inventories

Many companies maintain their inventory records on another accounting basis and make a LIFO reserve calculation at the year-end date. Following are procedures for testing LIFO inventory cost calculations.⁴

- Record in carryforward schedules the various layers of LIFO inventory cost. In addition, record the quantity and unit cost when the dollar-value principle is not used. Record the base-year cost and the indices for conversion to current-year cost when the dollar-value principle is used.
- If unit LIFO is used, review the client's schedules for year-end quantities. If inventories were not counted at year-end, agree year-end quantities to perpetual records. Reconcile unit costs according to the company schedules to the carryforward schedules by layers for quantities not in excess of the preceding year's quantities.
- If dollar-value LIFO is used, price all or a portion of the closing inventory at current-year cost and at base-year cost, and compute an index of aggregate current-year cost to base-year cost. Test prices and clerical accuracy of the final inventory listing at current year cost. Test also the calculation of index used for conversion from current-year cost to base-year cost.
- Agree base-year costs with carryforward LIFO working papers. Agree quantities with the final inventory listing. Test the clerical accuracy of the listing.
- Obtain a statement describing the method used to compute the index and indicate if the method for computing LIFO for income tax purposes has been approved by the Internal Revenue Service. It should be noted that LIFO is not acceptable for taxation purposes in Canada.
- State the closing inventory in terms of base-year cost for each LIFO pool. If base-year costs have not been extended 100%, they may be extended by applying the index to inventory totals at current-year cost.

Retail Inventories

Many retail operations use the retail inventory method to control inventories on an overall, departmental, or product line basis. Many also use this method to value year-end inventory.

The auditor should consider reviewing, testing, and evaluating the inventory system for compliance as a basis for subsequent reliance. Testing could then be directed to obtaining assurance that the amount of selling price has been assigned properly to the inventory and that the appropriate gross margin adjustment has been applied on a specific basis. The auditor would also check whether a proper allowance has been made for impending selling

4. James A. Cashin, *Handbook for Auditors* (New York: McGraw-Hill, 1971), 22–23.

price reductions, especially for seasonal goods. Procedures often performed include—

- Agreeing the total of the retail sections test counted to the client's inventory listing and investigating any differences.
- Comparing departmental or category totals to prior counts and investigating any significant fluctuations between periods.
- Obtaining the cost and retail sales price for selected items and determining the reasonableness of the percentages used to convert from retail to cost.
- Applying analytical review procedures.

Hedged Inventories

The auditor may encounter price-hedged inventories, especially if the client is involved in commodities such as grains and precious metals. In testing the valuation of such items, the auditor obtains satisfaction that the transaction (1) is a bona fide hedge, and (2) has been properly costed. The auditor should consider confirming the position on open contracts with the broker and also performing a comparison with the inventory on hand. The confirmation might also request information about contract gains and losses.

Construction Contracts

The auditing of contracts involves significant audit risks. An innate potential for error lies in the accumulation and allocation of costs among contracts. In addition, fixed fee contracts hold uncertainties about completion costs, causing difficulty in predicting the ultimate profit or loss on a contract. Because of the large number of transactions that affect any particular contract and the various accounting systems that record the transactions (for example, purchases and payables, cash disbursements, payroll), the auditor may find it most efficient to rely on the internal controls. If this is not possible, the auditor will have to apply more extensive substantive tests to the accumulations.

The auditor should be aware of all the client's significant contracts and should consider confirming significant details directly with customers (especially on matters such as contract amount and date, amounts billed and paid to date, holdbacks payable, change orders authorized, and claims accepted). The auditor usually also reviews the client's determination of contract revenues earned under the percentage of completion method, with special attention given to the determination of the stage of completion and the precision of the client's cost estimates. The auditor should be alert to "front end" contracts that may result in the inappropriate recording of higher profits in the early stages of the contract unless the contract costs and revenues are properly adjusted.

The audit of costs to complete is extremely important, as this accounting provision will determine either the gross profit on the contract or the existence of a loss in the case of fixed fee contracts. The auditor should determine that the client has provided for losses as soon as the losses can be

anticipated. This usually requires a good system of cost estimation. In auditing completion costs, the auditor normally would do the following:

- Review management's representations regarding the status of the projects and the estimated costs to complete. The review should be conducted with management, estimating, and engineering personnel. Reference can also be made to mortgage draws and engineering reports. The use of a specialist, such as an independent engineer or construction consultant, might be helpful.
- Review prior contract results to test the reasonableness of client estimation procedures.
- On a test basis, visit the job sites to assess the estimated progress and, through discussion with site personnel, including the project manager, identify any problems in the project. If deemed necessary, the auditor would obtain written representation from the project manager and on-site personnel.
- Document the procedures performed and the results thereof.

In situations where changes are not approved or the billing for such changes is not agreed on, confirmation from the customer may be difficult to obtain. It might then be necessary for the auditor to evaluate the propriety of the accumulated costs by referring to the contract provisions and by reviewing documentation of the additional costs.

Other Procedures

Various procedures relating to more than one assertion are summarized in this chapter. These procedures include—

- *Analytical review procedures.*
- *Testing clerical accuracy.*
- *Reconciling book and physical amounts.*
- *Roll-forward analysis.*
- *Year-end cutoff procedures.*

ANALYTICAL REVIEW PROCEDURES

Various analytical review procedures have been described or referred to throughout this study. It is important that the review begin early in the audit. In summary, the auditor can do the following as part of the audit of inventories:

1. Obtain a comparative summary by major category of inventory (for example, raw materials, work in process, finished goods, supplies).
2. Review the relationship of inventory balances to recent production, purchases, and sales activities.
3. Obtain monthly or quarterly computations for inventory turnover ratios and number of days cost of sales in inventory by inventory category and product line and compare with the prior year's amounts. Review gross margin fluctuations.
4. Obtain costing, production, sales, and gross profit statistics for major product lines on a monthly or quarterly basis.

Explanations should be obtained for major increases and decreases from the prior year's balances and for significant fluctuations in the current year's comparisons and account fluctuations that were expected to occur but did not. In addition, the auditor should review supporting documentary evidence as deemed necessary to support the explanations. Statistics produced for

inventory or production control purposes independent of the accounting department could help provide support.

CLERICAL ACCURACY

In general, the auditor tests—

1. Quantity accumulations when several lots of items have been added together for extension at one price.
2. Conversion accuracy.
3. Extensions and additions.

Such testing cannot be omitted because the calculations and summarization were performed by a computer. The auditor might test clerical accuracy by reperforming a limited number of calculations and summarizations, or test the computer program itself. The auditor might also scan the inventory listing to, for example, test for accurate decimal placements.

The auditor should investigate the cause of errors encountered, especially if a computer report is being tested. Such investigations are useful in considering whether the error is likely to recur in the computer report.

RECONCILING THE PHYSICAL INVENTORY TO THE BOOK AMOUNTS

If the client maintains book records on inventories, the auditor should review the differences between such amounts and the physical inventory values. Large unexplained differences may indicate count or cutoff errors, in which case recounts may have to be performed and reconciled to the year-end, or the cutoff verification may have to be extended. The differences may also indicate actual inventory adjustments resulting from poor physical safeguards or inadequate controls in the shipping/billing process. Unexplained differences might indicate deficiencies in charging and relieving inventory accounts in the general ledger, especially when inventory has been counted and valued before year-end and reliance is to be placed on the book figures for the determination of the year-end inventory total.

Because the consequences of a count difference vary with its cause, it is important for the auditor to obtain some idea about that cause. In addition to ensuring that the book figures have been correctly adjusted, reasons for count differences should be sought through inquiry of the client's personnel. The reasonableness of answers to those inquiries usually can and should be supported by examination of corroborating evidence. If satisfactory explanations and evidence cannot be obtained, the auditor should assess the potential impact on the roll-forward period. In any event, the client's management should be informed of the problem and of the potential consequences of the control's nonexistence or nonfunctioning.

If the client does not have a control figure against which to compare the

inventory on hand, one means of determining the reasonableness of the inventory value is through the application of analytical review procedures such as those set out earlier in this chapter under "Analytical Review Procedures."

ROLL-FORWARD/BACK ANALYSIS

If the physical count, valuation, and summarization are performed at a date other than year-end, the auditor normally will perform a number of procedures for the intervening period to obtain satisfaction about the quantity and value of year-end inventory. The procedures will depend on the timing of the inventory count and the steps used by the client to arrive at a final inventory value. Common situations include these:

- The inventory count is a few days from year-end.
- The inventory count is a longer period from year-end and (1) the year-end inventory is determined from the general ledger balance, or (2) the year-end inventory is determined from perpetual inventory records.

Inventory Count a Few Days From Year-End

The client and auditor have a choice of three courses:

- The inventory quantities can be individually rolled forward or back to year-end and then valued. This would require performing quantity cutoff procedures at the count date and year-end, and the testing of intervening transactions by referring to supporting documentation. These procedures should detect any cutoff errors that might cause items to be included in inventory twice (through the physical count and through subsequent processing of the supplier's invoice in the wrong period).
- The quantities can be valued at the count date and the entire inventory rolled forward or back. In this case, cutoff procedures need be performed only at the count date, with the amounts for purchases and cost of sales for the intervening period checked on some test basis against source documents.
- If the intervening purchases, sales, and other transactions are not material, the count date inventory value might be used. In such circumstances, the auditor determines that the effect of the intervening transactions is not material and notes the transactions as unadjusted errors.

Inventory Count Is a Longer Period From Year-End

Inventory determined by cost accounting system. When the year-end inventory is determined by a cost accounting system, the controls over the system are important in determining the nature and extent of roll-forward proce-

dures. Based on the evaluation of the controls, the auditor can do the following to the extent deemed appropriate:

- Analyze the difference between actual count and book balance at the count date, and consider how such a difference arose and whether it could accumulate again in the roll-forward/back period.
- Review entries made to the general ledger account during the intervening period.
- Scrutinize the books of original entry and recurring and nonrecurring journal entries in the accounts. Significant unusual transactions or entries, other significant transactions, or expected transactions that did not occur should be investigated and supporting documentation reviewed.
- Analyze the variances for the roll-forward/back period.
- Review gross profit results for the intervening period and for the year separately and investigate any unusual fluctuations.
- Note the trends for purchases, sales, and production and assess whether such trends are consistent with the change in inventory balances.
- Compare data on individually significant items on hand at the count date and the year-end date.
- Perform year-end cutoff procedures.

Inventory determined by perpetual inventory records. When the year-end inventory is based on perpetual inventory records, the controls are important in determining the nature and extent of roll-forward procedures. The auditor can do the following to the extent deemed appropriate:

- Compare differences between the records and the physical count for major inventory items and, in total, with prior-year differences. Consider how the differences arose and whether they can accumulate again during the roll-forward period.
- Scrutinize the records for the intervening period and investigate any unusual items.
- Consider performing test counts and reconciling to the year-end balance.
- Investigate unusual fluctuations in the quantities and prices of individually significant items.
- Analyze gross profit for the year-end and the roll-forward period separately, and investigate fluctuations.
- Test the additions and reductions for inventory items on either a compliance, substantive, or dual-purpose basis.
- Perform year-end cutoff procedures (see “Year-End Cutoff Procedures,” following).

YEAR-END CUTOFF PROCEDURES

If the count is performed at year-end, the auditor should perform cutoff procedures described earlier, except that it will not be necessary to check

the cutoff to perpetual inventory records, unless the records are being relied upon. If the count is performed prior to year-end, cutoff procedures will have been performed at that date but it will usually be necessary to repeat certain cutoff tests at year-end.

If the year-end amount is determined from the general ledger balances, the procedures used to check purchases and shipments described in Chapter 3 could be repeated except that tracing to either listings or detailed inventory records is unnecessary. The objective is to obtain assurance that cost-of-sales cutoff is consistent with sales and that both purchases and shipments cutoffs are consistent with the goods movement. Any error in the latter cutoffs could affect gross profit and distort the balance sheet accounts.

If the year-end inventory is determined from perpetual records and cost records, errors in purchases and shipments cutoffs would misstate inventory, just as similar errors would at the count date. In such a situation, the auditor should refer to the procedures described in Chapter 3 under "Testing Cutoff."

Financial Statement Presentation and Disclosure

This chapter sets out various matters to be considered by the auditor with respect to presentation and disclosure of inventories in the financial statements. It also sets out other matters that should be considered before reaching an audit conclusion on inventories.

AUDITOR'S OBJECTIVE

The auditor's objective in presentation and disclosure is to obtain evidence that—

- The inventories have been properly aggregated and classified for financial statement purposes.
- The major categories of inventories and their bases of valuation are properly presented in the financial statements.
- All assignments, pledges, and commitments (where appropriate) of inventories are properly disclosed.

INVENTORY AGGREGATION AND CLASSIFICATION

The auditor attempts to obtain evidence that the financial statement aggregations and presentation are consistent with those of the previous periods being presented and that all inventory accounts are properly included in the aggregations. As a result, many auditors list on a lead sheet (or obtain lists of) all general ledger accounts comprising inventory amounts, with the comparative amounts for the prior periods presented. The purpose is to evaluate whether the groupings are consistent with the prior periods and to assess the reasonableness of the balances in comparison to the prior periods.

PRESENTATION

The financial statement presentation should be in accordance with the client's summary of accounting policies and generally accepted accounting principles. In addition, when LIFO has been used, additional information, not required by generally accepted accounting principles, is often presented. The auditor should be aware of such disclosure practices when appropriate.

REVIEW OF PLEDGES AND COMMITMENTS

As part of the audit of inventories, the auditor should obtain information on inventories restricted or pledged as security for debt or subjected to a lien of any kind. Inventory pledged as security for bank loans is usually set out in a bank confirmation. Details of other pledges usually will be obtained through the audit of the client's liabilities.

Significant outstanding purchase commitments should be reviewed to obtain evidence of possible future losses that should be accrued or disclosed (if not protected by sales contracts) and that the quantities do not appear to be excessive. In most cases, financial statement disclosure of inventory purchase commitments is not required.

Likewise, significant sales commitments should be reviewed to obtain evidence of possible product losses that should be reflected as a write-down to inventories (through lower of cost and market valuation). It is also possible that a company may incur losses on goods not yet completed.

INTERCOMPANY PROFIT ELIMINATIONS

When reviewing an aggregation of a consolidated inventory, the auditor should be satisfied that all intercompany profits in inventory have been properly eliminated. The auditor usually obtains or prepares a schedule that details intercompany sales still in inventory, as well as the related gross profit. The schedule should be reviewed for reasonableness and compared with the information obtained on product gross profit and existing working papers on testing cost valuation. The auditor should agree all significant items to the respective inventory listing (for proper cost recording) and to evidence supporting the estimated gross profit. The auditor should also check that all significant items noted during the valuations testing as being intercompany purchases are detailed on the client's elimination schedule.

RELATED PARTY TRANSACTIONS

When performing audit procedures, the auditor should request from management the names of all related parties. When auditing the existence and valuation assertions and checking items such as intercompany sales, purchases, and gross profit and cutoff, the auditor should note any related party

transactions and determine that the information is presented properly in the financial statements.

LETTER OF REPRESENTATION

Written representation is often obtained from the client on matters such as the existence, valuation, and ownership and other assertions about inventory. The representation may be a separate document or part of a general letter of representation. The representation provides written documentation of oral representations made to the auditor in the inventory examination. Such representations do not, however, reduce either the scope of the auditor's examination or the auditor's responsibility.

ERRORS AND ADJUSTING ENTRIES

Errors should be brought to the client's attention as they are discovered. If an error is corrected by the client, the adjustment should be noted in the working papers. Many auditors note all unadjusted errors on the relevant working paper schedule for transfer to a separate schedule summarizing all unadjusted errors discovered during the audit.

AUDIT CONCLUSION

Once all the audit procedures deemed appropriate in the particular situation have been completed, the auditor needs to assess the results of the work performed and conclude whether the inventories contain errors that, when aggregated with other uncorrected errors, would be material to the financial statements. The auditor should consider documenting the conclusion in the working papers.

The auditor should advise the client of any material weaknesses in internal control and often should comment on other significant problems encountered so that remedial action might be taken. Such points can be included in a management letter to the client.

Examples of Internal Control Considerations for Inventories

Following are examples of typical internal control considerations relating to the inventories and cost of sales systems. The first section covers controls that relate to physical quantities; the latter sections illustrate controls over processing of inventory purchases and sales. The listings are for illustration purposes and emphasize the controls as they relate to inventories only. As a result, they do not purport to represent all possible controls that might be in place or that might be required in each internal control system.

Inventory Quantity Controls

1. Are the inventories under centralized control?
2. Do safeguards exist to deter theft of inventories?
3. Do such safeguards appear to be adequate?
4. Are perpetual inventory records maintained?
5. Are all items delivered to a stores department?
6. Are requisitions required in order to obtain goods from a stores department?
7. Are the inventory records maintained by employees independent of stores personnel?
8. Are inventories verified by physical count at least annually?
9. Are all count differences investigated and approved and are the perpetual inventory records adjusted on a timely basis?
10. Do proper controls exist to control scrap material?
11. Do procedures exist to identify and report obsolete, damaged, or slow-moving goods?
12. Do procedures exist to control consignment stock?
13. Are production reports prepared?
14. Are there procedures to control the movement of goods through production?
15. Are entries to the perpetual inventory records controlled through the use of prenumbered documents that are periodically accounted for?

16. Are data produced by different operating departments cross-checked?
 17. When inventories are to be counted, are written instructions prepared?
 18. Are inventory counts verified by persons who are independent of the inventory records?
 19. After the inventory count, are the count records (tags, sheets) adequately controlled?
 20. Is there a proper cutoff of receipts and sales?
 21. Are persons who handle the inventories segregated from both the purchases and sales recording functions?
 22. Does the insurance coverage appear adequate?
 23. Does the client maintain reports and records that provide for a review of internal control?
 24. Are there other management controls over inventories? Please detail.
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Purchases

1. Does a formal purchasing function or department exist?
2. Is the purchasing function independent of the receiving, shipping, and accounting functions?
3. Are prenumbered approved purchase orders used and controlled?
4. Are returned purchases routed to shipping?
5. Does the receiving department obtain copies of purchase orders for authority to accept incoming items?
6. Are prenumbered receiving reports used and controlled?
7. Is the sequence of numbers checked by the accounting department?
8. Is a file of unmatched receiving reports maintained and reviewed?
9. Does the receiving department retain a copy of the receiving report?
10. Does the purchasing department receive a copy of the receiving report?
11. Is the accounting department notified of returns?
12. Are shipping reports used for returns?
13. Are such shipping reports matched to the credit note when received?
14. Does the accounting department match invoices with purchase orders and receiving reports before an invoice is processed for payment?
15. Are shortages and damaged goods properly reported?
16. Is a record kept of open purchase orders?

Sales

1. Are approved shipping documents required for goods to leave the premises?
2. Are the sales, billings, receiving, shipping, and accounts receivable departments separate?
3. Do controls exist over the sales of scrap material and sales to employees?
4. Are back orders properly controlled?
5. Are shipping orders prenumbered?
6. Are shipping orders matched with the sales invoices?
7. Does the billing department receive a copy of the shipping order directly from the shipping department?
8. Are the shipping orders, sales invoices, and inventory requisitions prepared simultaneously?
9. Do procedures exist to ensure that all goods shipped are invoiced?
10. Are the sales invoices consecutively prenumbered?
11. Are the sales invoices, including those voided, accounted for?
12. Is merchandise from returned sales properly handled in the receiving department, in the inventory records, and in the accounts receivable records?
13. Are receiving reports prepared for returned goods?
14. Are receiving reports matched with the credit note?
15. Is it possible to match unit sales with inventory record credits by using, for example, perpetual inventory records or the retail inventory method?

Sample Inventory Attendance Planning Questionnaire

This sample questionnaire is designed as an aid in documenting the client's inventory count procedures. If the client has written instructions for the count, this document might serve as a useful supplement.

Company: _____
 Year-end Date: _____

1. The client's inventory locations and observation dates are as follows:

<i>Location</i>	<i>Type of Inventory</i>	<i>Approximate % of Total Inventory</i>	<i>Date and Time of Count</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

2. Who are the client personnel (especially those in charge) involved in the count?

<i>Location</i>	<i>Person</i>	<i>Responsibility</i>	<i>Phone</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. How will the inventory be organized and laid out during the count?

4. What instructions exist for consignment inventory?

5. What instructions and procedures have been developed? Do they appear to be adequate to ensure that goods are properly identified? Matters to be considered include proper product description of the goods on the count record and special information concerning obsolete, damaged, or slow-moving goods.

6. How will the persons who will be performing the count be organized (e.g., into count teams)? If there are count teams, is one member of each team not normally involved with the inventories to be counted? Do the personnel appear to be knowledgeable about the count process?

7. What count procedures are designed to prevent double counting or missed goods? What type of document will be used to record the count? Considerations include the use of duplicate prenumbered count tags, count sheets, and other means of identifying goods counted, along with review of count execution by supervisors.

8. Will all counts be checked independently to ensure that they are accurate? In addition, if perpetual inventory records are used, is there provision for independent recounts if actual quantities differ?

9. What procedures will be in effect to ensure a proper cutoff for purchases, sales, and departmental transfers? Will the plant be closed during the count?

10. How will inventory at remote locations be counted?

11. Will the services of a specialist be required for the count? If so, have all appropriate arrangements been made?

12. How will identical items in numerous areas be accumulated? (This is important in order to tie in counts to a summary listing at a subsequent date.)

13. What special counting procedures or volume conversions are necessary for items stored in places such as piles and bulk silos?

14. How will work in process be identified and segregated from raw materials and finished goods?

15. How will the stage of completion of work in process be identified?

● raw materials _____

● direct labor _____

● overhead _____

● other _____

16. Are there any other matters that should be noted for the count?

Prepared by: _____

Date: _____

Approved by: _____

Date: _____

Sample Confirmation— Inventories Held by Others

[Letterhead of Client]

[Holder of Merchandise]
[Address]

[Date]

Dear

For audit purposes, kindly furnish directly to our auditors [*name and address of firm*] details concerning our merchandise held by you for [*processing*] [*consignment*] [*storage*] as of the close of business on, 19...

According to our records, you held the following inventories as of that date:¹

<i>Quantity</i>	<i>Description</i>	<i>Liens, if any</i>
.....
.....
.....

A stamped, self-addressed envelope has been enclosed for your convenience.

Yours truly,
[Signature of Client]

The information stated above is () correct.²
() incorrect.

(Please provide details of differences, if any.)

Company _____
Signature _____
Title _____
Date _____

1. This section is optional.
2. If the optional section is excluded, this section and the company data at the end of the letter can likewise be excluded.

Sample Confirmation— Inventories Held by Client on Behalf of Others

[Letterhead of Client]

[Holder of Merchandise]
[Address]

[Date]

Dear

For audit purposes, kindly furnish directly to our auditors [*name and address of firm*] details concerning your merchandise held by us for [*processing*] [*consignment*] [*storage*] as of the close of business on, 19... According to our records, we held the following inventories as of that date:

<i>Quantity</i>	<i>Description</i>	<i>Liens, if any</i>
.....
.....
.....

A stamped, self-addressed envelope has been enclosed for your convenience.

Yours truly,
[Signature of Client]

The information stated above is () correct.
() incorrect.

(Please provide details of differences, if any.)

Company _____
Signature _____
Title _____
Date _____

Sample Audit Program

This appendix provides a sample comprehensive audit program that can be used by an auditor in developing a program for a particular audit engagement. The program is designed to increase audit efficiency and effectiveness by linking the audit objectives, financial statement assertions, and the audit procedures to identify procedures common to most engagements. The program assumes a FIFO inventory. For special considerations such as retail method inventories and LIFO inventories, the auditor should refer to Chapter 4 for guidance. The audit program provided should be tailored to fit the particular circumstances of the client.

SAMPLE INVENTORIES AUDIT PROGRAM

Client _____ Balance Sheet Date _____

<u>Suggested Audit Procedures</u>	<u>Performed</u>	<u>W/P</u>
<u>by or N/A</u>		

Existence, Completeness, and Ownership Assertions

The auditor's objective is to obtain assurance that all inventories represented and recorded by the client do in fact exist and are the legal property of the client, and that all inventories owned are recorded.

Planning Considerations

1. For familiarization with the client's inventory—
 - a. Review prior year's working papers.
 - b. Discuss prior year problems and current inventory status with management.

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
c. Consider a preliminary tour of the client's premises to confirm management discussions.	_____	_____
2. Obtain information on the anticipated timing of the inventory counts for all departments and locations and estimated dollar values for each location.	_____	_____
3. Ascertain whether any specialized inventories exist that might require the services of a specialist. If unable to attend the client's count, consider whether alternative procedures can be performed to compensate for the absence.	_____	_____
4. Obtain and review a copy of the client's proposed instructions for count, cutoff, and summarization procedures. Advise the client of any concerns with the proposed instructions. If no instructions exist, meet with the client to discuss and agree upon procedures.	_____	_____
5. Obtain information on client personnel who will be responsible for the counts and those having departmental responsibilities.	_____	_____
6. Complete the inventory attendance questionnaire (see Appendix B).	_____	_____
7. Depending on the composition of the inventories and whether the proposed count controls appear adequate and can be relied upon, ascertain whether the testing of the count will be compliance or substantive in nature.	_____	_____
8. Depending on the timing of the count relative to the year-end, assess whether reliance on internal controls might be desired and warranted for the period between the count date and the year-end. Ascertain whether compliance testing is required.	_____	_____
9. Consider undertaking a tour of the client's premises immediately before the count to enable precount identification of potential problems.	_____	_____

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
10. If the inventories are held at many locations, determine if attendance is required at each location or if it is possible and appropriate to perform alternative procedures.	_____	_____
11. If inventories are held by others, either confirm the inventories directly with the custodian (see Appendix C) as of the count date or perform alternative procedures, such as observation of the goods.	_____	_____
12. If a specialist is to be used, refer to the appropriate authoritative standards.	_____	_____
13. If the foregoing procedures identify areas where improved controls or efficiencies can be achieved, advise the client before the count to allow remedial action.	_____	_____

Count Considerations

Observation procedures

14. During the count—		
a. Tour the plant with client personnel to observe if the count instructions are being conscientiously followed.	_____	_____
b. Check that all consignment goods have been properly identified. Watch for evidence of nonownership and consider direct confirmation (Appendix D).	_____	_____
c. Check that slow-moving and obsolete stock has been properly segregated. Watch for items that are covered with rust or dust, are damaged, or appear to be in inappropriate areas.	_____	_____
d. Watch for movement of goods during the count.	_____	_____
e. Review shipping and receiving areas for goods that should be included in or excluded from inventory.	_____	_____
f. Record appropriate data on the foregoing for subsequent follow-up.	_____	_____
g. Check for evidence of ownership of the goods, such as name tags, supplier shipping details, and trademarks.	_____	_____

<u>Suggested Audit Procedures</u>	<u>Performed</u>	
	<u>by or N/A</u>	<u>W/P</u>
15. While conducting observation procedures, check that all items appear to have been counted.	_____	_____
<i>Test count procedures</i>		
16. The number of test counts to be performed is influenced by the extent to which the observation procedures confirm that the client is well organized and that the controls appear to be adequate and in effect. After making these assessments, select an appropriate number of test counts to be performed.	_____	_____
17. For each test count selected—		
<i>a.</i> Verify the item description by comparing the description to the goods.	_____	_____
<i>b.</i> Evaluate the reasonableness of the percentage of completion for work-in-process items.	_____	_____
<i>c.</i> Reconcile the count to the client's count.	_____	_____
<i>d.</i> Clear any count discrepancies.	_____	_____
<i>e.</i> Record the test count for subsequent follow-up.	_____	_____
18. If the counts are done before year-end and the client intends to use perpetual inventory records for year-end determination, agree some of the audit test counts and some of the additional client counts to the perpetual records.	_____	_____
19. Perform the test counts from the inventory to the tag or listing and from the tag or listing to the inventory.	_____	_____
20. Check for empty containers and hollow squares (empty boxes between piles of boxes). When necessary and appropriate, request that containers be opened or piles moved.	_____	_____
21. While touring the premises, "eyeball" items not test-counted for reasonableness.	_____	_____
22. Consider the magnitude and significance of count errors and consider increasing the ex-		

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
tent of counts to address the particular problem.	_____	_____
23. When appropriate (such as for precious metals), consider having a sample of the inventory examined by independent specialists.	_____	_____
24. Account for and record details on all used and unused tags or, if count sheets are used, record the number of count sheets used (if not prenumbered) or make photocopies. Have the client cross through all unused space on the count sheets.	_____	_____
25. Make photocopies or list details of additional items not counted so that they can be agreed subsequently to a final listing.	_____	_____
26. Record details of slow-moving, excess, obsolete, and consignment stock for subsequent follow-up.	_____	_____
27. When visiting the receiving and shipping areas—		
<i>a.</i> Observe that cutoff procedures are being followed.	_____	_____
<i>b.</i> Record the last number used (preceding the cutoff point) and any unused numbers when prenumbered receiving or shipping tickets are used.	_____	_____
<i>c.</i> Record information for several receipts and shipments before the cutoff point when prenumbered tickets are not used.	_____	_____
<i>d.</i> Make a listing of full and empty units on the premises and note their inventory status if freight cars or trailers are used for storage, shipping, or receiving.	_____	_____
<i>e.</i> Perform additional cutoff procedures if there is movement of inventory during the count.	_____	_____
28. If the client has goods on the premises that are regarded as having been sold, record details of such goods for subsequent follow-up. Ascertain that the goods have been appropri-		

<u>Suggested Audit Procedures</u>	<u>Performed</u>	
	<u>by or N/A</u>	<u>W/P</u>
ately segregated and have not been included in the count.	_____	_____
29. After completing the inventory observation, prepare a memorandum outlining the results of the attendance.	_____	_____
Postcount Considerations		
30. Obtain a copy of the client's final inventory listing.	_____	_____
31. To the extent deemed necessary, trace the test counts recorded during the count to the listing.	_____	_____
32. Compare the count sheets and tags to the photocopies or the actual count or other documents to ensure that they were not subsequently inflated or deflated. Check that unfilled spaces crossed through on the count sheets have not been erased and items added.	_____	_____
33. Trace, to the extent deemed appropriate, items from the client's original count sheets or tags or the extracts taken to the final listing.	_____	_____
34. Test that all the inventory tags or count sheets used to record the count are accounted for in the final listing.	_____	_____
35. Test check, to the extent deemed appropriate, the final listing back to the original count sheets to obtain assurance that items have not been added.	_____	_____
36. Compare quantities of larger dollar value items with the quantities on hand in prior years and vice versa and obtain information for unusual fluctuations.	_____	_____
37. If perpetual inventory records are to be relied upon at year-end or if there are large unexplained count differences, agree the final listing to the perpetual records.	_____	_____

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
38. Tie all received confirmations into the final listing. If replies were not received, perform alternative procedures.	_____	_____
39. Determine that the goods identified as consignment goods at the count were not recorded in the final listing.	_____	_____
40. Check purchase cutoff as follows:		
a. Examine a sample of receiving reports, including the last few prior receipts and first few subsequent ones. These should be agreed to the cutoff data obtained previously.	_____	_____
b. Agree the larger items directly to the final listing to obtain assurance that they were excluded or included, as appropriate.	_____	_____
c. If detailed inventory records are to be relied on at year-end, agree a sample of the receiving reports to the detailed perpetual inventory records.	_____	_____
41. Check sales cutoff as follows:		
a. Examine a sample of shipping documents, including the last few prior shipments and first few subsequent ones. These should be agreed to the cutoff data obtained previously.	_____	_____
b. Agree larger items directly to the final listing to obtain assurance that they were excluded or included, as appropriate. Consider checking those items to the general accounting records to determine that a proper cutoff was obtained in the general ledger.	_____	_____
c. If detailed inventory records are to be relied on at year-end, agree a sample of the shipping documents to the detailed perpetual inventory records.	_____	_____
42. Check in-transit goods and departmental transfer cutoff as follows:		
a. Examine a sample of the documents for a period surrounding the count date, includ-		

<u>Suggested Audit Procedures</u>	<u>Performed</u>	
	<u>by or N/A</u>	<u>W/P</u>
ing the last few prior and first few subsequent documents.	_____	_____
b. Agree the larger items directly to the final listing to obtain assurance that they were excluded or included, as appropriate.	_____	_____

Valuation

The auditor's objective is to obtain assurance that all inventories have been stated properly at the lower of cost and market under generally accepted accounting principles or another appropriate basis of accounting, and that all inventories are reduced, when appropriate, to replacement cost or net realizable value.

- | | | |
|---|-------|-------|
| 43. Discuss the valuation procedures with the client to determine any changes in specific products, accounting policies, methods used to accumulate costs, pricing policies in force, and their effects on the valuation. Determine that the valuation methods used are appropriate under generally accepted accounting principles. | _____ | _____ |
| 44. Review the accounting procedures and practices used by the client and any specific controls that might exist over pricing and market determination to allow a reduction in the extent of testing. Prepare or update a schedule summarizing the procedures and practices. | _____ | _____ |

Raw Materials and Purchased Finished Goods

- | | | |
|--|-------|-------|
| 45. The following should be considered after selecting items for testing from the final listing: | | |
| a. If the client uses cost records to cost the inventory, agree the values from the final listing to the cost records. | _____ | _____ |
| b. Test the accumulation of the cost records. For items priced at actual cost, agree the cost records to supplier invoices, freight invoices, and other external documents, where appropriate. | _____ | _____ |
| c. If the client does not maintain cost records, agree the sample of items directly to the most recent supplier invoices and other ex- | | |

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
ternal evidence. If the quantities on hand exceed the invoice total and if a price change is suspected during the purchase period, agree the excesses back to previous purchases until the quantity on hand has been built up.	_____	_____
d. Determine that freight, duty, discounts, and allowances are consistently accounted for.	_____	_____
e. Note the dates of purchase of the items tested and note items that appear to be slow-moving.	_____	_____
46. Relate the cost of items tested to the costs of similar products and investigate significant variations.	_____	_____
47. Relate the costs of other significant untested items to prices used in the prior year and investigate significant variations.	_____	_____
48. Note the total of the items chosen for testing, the basis for sample selection, and the inventory total. Consider the impact of errors found on the overall population.	_____	_____
49. When the client prices the inventory at standard cost, the following might be considered as alternative or additional procedures, depending on the circumstances:		
a. A raw materials variance analysis on as detailed a level as possible. Emphasis should be placed on the latter months' inventory accumulations, not the entire year's purchases. Attempt to identify any portion of the variance that might be allocated to inventories or, conversely, if the standards might be excessive.	_____	_____
b. A detailed comparison of standard and actual costs. The extent of the sample selected will depend on the results of the variance analysis.	_____	_____

Work in Process and Finished Goods

If work in process and finished goods are priced at actual cost, perform procedures 50 and 51. If work in

Suggested Audit Procedures

	<u>Performed</u>	
	<u>by or N/A</u>	<u>W/P</u>

process and finished goods are priced at standard cost, all of the procedures listed below should be performed.

50. Test a sample of items from the final inventory listing to cost records to determine that the correct unit costs are used.

_____	_____
-------	-------

51. Test the build-up of selected cost records. Procedures to agree standards are required if the items are priced at actual cost. The extent of testing for standard costs may be reduced depending on the results of the variance analysis.

a. For materials, agree standard material usage to engineering specifications. Agree actual material usage to production reports. Agree actual costs to supplier's invoices, freight bills, and other evidence.

_____	_____
-------	-------

b. For labor, agree actual and standard direct hours to time studies, production reports, and labor tickets. Agree actual labor rates to payroll records.

_____	_____
-------	-------

c. For overhead, agree the application base and rates to appropriate documentation and compare the rates to the prior year for reasonableness.

_____	_____
-------	-------

d. By reference to production date, note any apparent slow-moving items for subsequent follow-up.

_____	_____
-------	-------

52. Compare actual and standard costs on a test basis. The extent of the test will depend on the results of the variance analysis. This test can be combined with procedure 51.

_____	_____
-------	-------

53. Perform a raw material variance analysis to determine if a portion of the variance can be allocated to inventories or if the material valuation is excessive.

_____	_____
-------	-------

54. Perform labor and overhead analyses.

a. Review the methods and procedures used to allocate labor.

_____	_____
-------	-------

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
b. Review the costs included in overhead to determine that they have been properly allocated.	_____	_____
c. Obtain a schedule comparing actual and standard rates by department or another basis and compare current with prior year's results.	_____	_____
d. Obtain a detailed schedule analyzing variances.	_____	_____
e. Investigate the causes for the variance to determine if a portion should be allocated to inventories or if the labor or overhead contents are excessive.	_____	_____

Testing Condition for All Inventories

55. Obtain a listing of all items written down as slow-moving, excess, or obsolete.	_____	_____
56. Compare the data obtained at the count attendance with the client's listing and with the final inventory listing to ensure proper recording.	_____	_____
57. Compare data, obtained in the price tests for reasons such as possible obsolescence, with the client listing to identify any items written down.	_____	_____
58. Discuss with the client the need, if any, for write-downs of items noted in the price tests that are not on the client's listing.	_____	_____
59. Review documentation supporting write-downs on the client's listing that were not specifically tested to determine if such write-downs are reasonable.	_____	_____
60. Check that significant items written down in prior years have not been written up in the current year. Determine if further write-downs might be required.	_____	_____

Testing Replacement Cost for Raw Materials

61. Discuss with management anticipated future cost reductions for any major product. Con-		
--	--	--

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
sider recent changes in sales tax, import/export duties, foreign exchange, prices, and freight to obtain some indication of whether prices might be expected to fall, remain stable, or increase.	_____	_____
62. Test replacement costs by examining post-year-end price lists or invoices.	_____	_____
63. Review price lists before and after year-end to obtain indication of price trends.	_____	_____

Testing Net Realizable Value

64. Determine through inquiry and calculation the market effect of recent changes in material prices, taxes, duties, exchange rates, and wages.	_____	_____
65. Review product profit and loss reports for unprofitable items.	_____	_____
66. Inquire about discontinued product lines or significant product engineering changes.	_____	_____
67. Review the records of goods scrapped or returned after the year-end date, or any specialty products (such as private brands) for which sales are being disputed, to identify items that might be overvalued.	_____	_____
68. Independently calculate net realizable value for a sample of items by reference to sales invoices, price lists, and direct selling costs.	_____	_____
69. Compare quantities on hand for selected items with quantities noted on the sales invoices and customer invoices to determine that the quantities on hand are not excessive.	_____	_____

Other Procedures and Financial Statement Presentation and Disclosure

The auditor's objective is to obtain assurance that the inventories are properly aggregated and classified for financial statement purposes, and that the major categories and their bases of valuation, as well as all

Suggested Audit Procedures

Performed
by or N/A

W/P

assignments, pledges, and commitments concerning inventories, are properly disclosed.

70. Test the clerical accuracy of the inventory listing by—

- Testing additions and extensions.
- Testing quantity accumulations when several lots of items have been accumulated for extension.
- Testing conversions.
- Scanning the listing for obvious errors.

_____	_____
_____	_____
_____	_____
_____	_____

71. Reconcile the physical inventory to the general ledger account balance. Investigate and obtain explanations for all significant reconciling items.

_____	_____
-------	-------

72. Obtain a copy of the client's roll-forward schedule from the count date to the year-end. Test the roll-forward's accuracy to the extent necessary.

_____	_____
-------	-------

73. If the count was not at the year-end, perform additional cutoff procedures similar to those performed for the count date.

_____	_____
-------	-------

74. Perform the following analytical review procedures.

- a. Compute inventory turnover ratios and number of days' sales in inventory by inventory category and product line and compare to the prior year's amounts.
- b. Compute gross margin percentages by major product line and in total on a quarterly or monthly basis, and compare with the prior year's amounts.
- c. Investigate and obtain explanations for significant variations between the years.
- d. Prepare a comparative summary by major inventory category.
- e. Review the relationship of inventory balances to recent production, purchases, and sales activities.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

<u>Suggested Audit Procedures</u>	<u>Performed</u> <u>by or N/A</u>	<u>W/P</u>
<i>f.</i> Review supporting documentation to the extent necessary to support client explanations.	_____	_____
75. Obtain information on any inventories restricted or pledged as security for debt. This is often done as part of the testing of liabilities.	_____	_____
76. Review outstanding purchase and sales commitments for evidence of possible future losses.	_____	_____
77. Prepare a comparative lead sheet aggregating the inventory categories on the basis of the proposed financial statement presentation. Determine that the basis of presentation is consistent with that of the preceding year.	_____	_____
78. Determine if the inventory includes any significant intercompany profit. Determine the amount of such profit for possible elimination.	_____	_____
79. Obtain a letter of representation for inventories, which can be included as part of the general letter of representation.	_____	_____
80. Summarize all errors found during the audit and review all adjustments made by the client.	_____	_____
81. Prepare an audit conclusion on inventories.	_____	_____

Reviewed By: _____ Date _____

Final Approval: _____ Date _____

Sample Representation Letter for Inventories

The following is a sample representation letter for inventories. It might be used to supplement the general letter of representation or included therein. The letter should be modified when appropriate.

[Letterhead of Client]

[Name of Public Accounting Firm]
[Address]

[Date]

Dear.....

In connection with your examination of the financial statements of X Company as of, 19. . . , and for the year then ended, we make, to the best of our knowledge and belief, the following representations concerning inventories and cost of goods sold.

1. Inventories at the year-end consisted of the following:

Raw materials and purchased parts	\$x,xxx
Work in process	x,xxx
Finished goods	<u>x,xxx</u>
Total	<u><u>\$x,xxx</u></u>

2. Inventories were determined by a physical count at the year-end that was taken under our supervision and in accordance with written instructions. All inventory quantities were determined by actual count, weight, or measurement.¹

1. Potential alternate paragraphs for this section are as follows:

- a. Inventories were determined by a physical count at _____ taken under our supervision in accordance with written instructions. All inventory quantities were determined by actual count, weight, or measurement and properly adjusted for subsequent receipts and shipments to the year-end date.
- b. Inventory quantities were determined from our inventory records at the year-end. During the year, these records were adjusted to reflect actual quantities on hand as determined by actual count, weight, or measurement taken under our supervision in accordance with written instructions.

3. All inventories owned by the entity have been recorded, including any inventories held on consignment or stored by other parties and outside warehouses.
 4. The inventories do not include any consignment goods held on behalf of other parties.
 5. No inventories have been pledged as security under existing debt provisions, and no liens or encumbrances exist on the inventories at the year-end, except as follows.
-
-

6. All raw materials and purchased parts have been valued at the lower of their cost, determined on a first-in, first-out basis and their replacement cost. The basis of valuation is consistent with that of the preceding year.
7. All work in process and finished goods have been valued at the lower of their manufactured cost and net realizable value after allowance, when appropriate, for completion and disposal costs. The basis of valuation is consistent with that of the preceding year.
8. Adequate provision has been made to reduce excess, slow-moving, damaged, or obsolete inventories to their estimated net realizable value.
9. There are no losses to be sustained as a result of purchase commitments for inventory quantities in excess of normal requirements or at prices in excess of the prevailing market price.
10. There are no losses to be sustained in the fulfillment of, or from the inability to fulfill, any sales commitments.
11. The inventories do not include any items, or components thereof, that have been the subject of recall by us or of required recall by any regulatory authority.
12. All inventories comply to the labelling, regulatory standards, and other requirements of the jurisdiction of intended sale.
13. All inventories held for specific customers, including customer-labelled items, are covered by purchase order commitments of the customer and do not represent a quantity on hand in excess of the unfulfilled customer order.

[Signature of Client]
[Title]

Examples of Computer-Assisted Audit Techniques

Audit Objective: Determine whether the inventory quantities underlying the year-end balance are fairly stated.

Interrogation Method

- Select items for counting by the auditor.
- Compare physical counts with the auditor's test counts and note items that disagree.
- Identify missing or duplicate physical count records.
- Identify physical count records that are not fully completed.
- Identify products not covered by perpetual count procedures in the specified period by checking the date of the last count or determining whether a stock adjustment has been processed during the period.
- Identify differences between book and physical quantities, and report differences that exceed a predetermined number or value.
- Identify products that existed in a prior year which do not exist in the current year inventory balances.

Effect on Substantive Procedures

The program will carry out the selection of items to be counted based upon criteria specified by the auditor.

The program will carry out the comparison of the results of the auditor's count with those of the company.

The program will determine the extent to which all inventories have been counted, and may avert the need for lengthy manual scrutinies of the client count records.

The program will compare book and physical quantities for all products on file, and will report the total overstatement or understatement of inventories. Manual comparison of inventory summaries to detailed records is thus avoided.

The program will identify and provide totals of items that may constitute unusual fluctuations or material

- Identify lines that exist in the current year which did not exist in the prior year.
- Stratify the balances on file and select a sample from each stratum.

variations from normal or expected levels.

The program will provide summaries of each stratum for use by the auditor in determining materiality and audit risk.

Audit Objective: Determine whether the inventory cutoffs have been performed satisfactorily.

Interrogation Method

- Identify items dated after the cutoff date.

Effect on Substantive Procedures

The program will provide the total value of items posted to the file after the cutoff date, and select samples for investigation where the total is material. Where immaterial, as defined by the parameters input at the time of executing the software, no further work is required. Manual scrutiny of goods received and dispatched documentation, therefore, is avoided.

Audit Objective: Determine whether pricing of the inventory quantities for cost is appropriate.

Interrogation Method

- Identify products if the difference between cost at which inventory is valued and standard price is greater than a predetermined percentage.
- Identify products for which the unit price has not been updated within a given period.
- Identify products with an abnormally low or negative unit price if there is an inventory balance.
- Identify products with an abnormally large unit price if there is an inventory balance.

Effect on Substantive Procedures

The program will carry out the comparison of cost and standard price for every item on file and will provide a total variance. If the variance is material, the items to be investigated will be selected by the program. If immaterial, no further work is required.

The program will report totals of items, the cost price of which is unusual for any of the reasons stated. The auditor may rely upon these figures as an indication of the reasonableness of the cost price of the inventory, and may therefore reduce the level of detailed comparison with cost records or supplier invoices.

- Identify products that occur more than once in the inventory file and report those that do not have the same price.
- Identify large standard unit costs.
- Identify products for which the difference between the current year unit cost and the previous year unit cost is above or below a predetermined percentage.
- Identify products which have been acquired through intercompany transactions.

The program will provide a total to assist in determining that all intercompany profit is excluded.

Audit Objective: *Determine whether the inventory summaries are arithmetically correct.*

Interrogation Method

- Total the file, reperforming calculations where possible, and report separate totals of debits, credits, and zero balances. In addition, report the net total of balances on the file.

Effect on Substantive Procedures

The program reperforms the arithmetical accuracy of the complete inventory summary and provides an independent total for checking to the general ledger control account.

Audit Objective: *Determine whether appropriate net realizable values have been used in making any required inventory breakdowns.*

Interrogation Method

- Identify lines where the difference between cost and selling price is below a predetermined percentage.
- Compare, for each job recorded as being in process, the total expenditure to date with—
 - a. The quoted selling price less a margin for selling and distribution costs.
 - b. the total estimated cost.
 - c. the client-authorized cost.

Effect on Substantive Procedures

The program will report a total and a sample of items on file if the mark-up between cost and selling price is less than a predetermined percentage. This total will help determine whether a provision is required and will avert the need for lengthy manual comparisons.

The program will report totals and a sample of possible loss-making products in work-in-process. The total will help determine if a provision is required.

Audit Objective: Determine whether slow-moving, damaged, or obsolete inventories have been appropriately identified and valued.

Interrogation Method

- Analyze balances by date of last receipt or issue.
- Identify items indicated on the record as being obsolete or damaged.
- Identify items in inventory at the start of the year that were still in inventory at the year-end.
- Identify potentially excessive balances by evaluating the year-end balance against past usage or future requirements.
- Identify products against which obsolescence formulas are not being correctly applied.
- Identify lines in excess of maximum inventory levels.
- Identify items (for example, production or scrap) for which exceptional movements have been recorded.
- Compare identification numbers of jobs in process at the end of the period with those of a prior period to identify potentially slow-moving items.
- Identify jobs in progress for longer than a specified period by reference to the job commencement date.

Effect on Substantive Procedures

The program will provide totals of inventory products against which a provision may be required. These totals will assist in determining the amount of any provision. Extensive manual scrutiny of the inventory records to identify items against which provisions may be required is therefore avoided.

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