Designation: E2132 – 17

Standard Practice for Inventory Verification: Electronic and Physical Inventory of Assets[1]

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1. Scope

1.1 This practice addresses inventory verification which includes either physically or electronically confirming the existence, location, and quantity of assets.

1.2 Inventory verification is a key element in the asset management process.

1.3 The appropriate level to track assets is best expressed in Practices E2499 and E2608. Different types of assets may be managed or tracked at different levels of control, as noted in Practice E2608. The location specificity required for an inventory verification should match the location specificity required by the entity's asset management procedures or other controlling command media.

1.4 Inventory verification requires proper planning and execution. Depending on the type and scope, the inventory verification can involve significant dedication of resources. Entities should ensure that the value earned from an inventory verification is equal to or greater than the costs of the dedication of resources.

2. Referenced Documents

2.1 *ASTM Standards:*

E2131 Practice for Addressing and Reporting Losses of Tangible Property

E2135 Terminology for Property and Asset Management

E2499 Practice for Classification of Asset Physical Location Information

E2604 Practice for Data Characteristics of Equipment Asset Record

E2608 Practice for Equipment Control Matrix (ECM)

3. Terminology

3.1 *Definitions*—For definitions relating to property and asset management, refer to Terminology E2135.

3.1.1 *independence, n*—free from conflict of interest.

3.1.2 *independent data source, n*—information that is autonomous from the official record.

3.1.3 *inventory verification, n*—physically or electronically confirming the existence and location of an asset or group of assets.

3.1.4 *overage, n*—assets that are located during the inventory verification that were not previously recorded.

3.1.5 *reconciliation, n*—the process of comparing the assets and associated data collected during the inventory verification against the entity's assets record information.

3.1.5.1 *Discussion*—The reconciliation serves to verify existence of assets contained in the official records and the accuracy of the data maintained on the records, with corrective action taken as necessary.

3.1.6 *shortage, n*—assets that are not located during the inventory verification that were previously recorded.

4. Significance and Use

4.1 Inventory verification is conducted to accomplish one or more of the following:

4.1.1 Assess the accuracy of asset records,

4.1.2 Validate or update asset records, or both,

4.1.3 Assess asset loss experience,

4.1.4 Identify process inconsistencies, and

4.1.5 Provide the status of the verified assets for reporting purposes.

4.2 A properly conducted inventory verification provides data that may be used to report, at a minimum, that quantity on record equal quantities on hand.

4.2.1 Identifying shortages is critical for assessing the entity's asset management system.

4.3 During the inventory verification, record deficiencies, such as incorrect locations or other descriptive information that may be identified. These records should be corrected as part of the reconciliation phase.

4.4 Assets may be located during the inventory verification process for which a record does not exist. Records should be created upon identification of these assets to ensure asset accountability.

[1] This practice is under the jurisdiction of ASTM Committee E53 on Asset Management and is the direct responsibility of E53.01 on Process Management.

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4.5 Inventory verification serves as a deterrent to loss, theft, damage, and misuse so those responsible for assets perceive that they will be held accountable for such assets, and will be required to produce proof of existence of those assets on a periodic basis.

4.6 An inventory verification may include identification or verification of additional information, such as use, condition, status, serial number confirmation, model confirmation, manufacturer confirmation, assigned user, year of manufacture, etc.

5. Physical Inventory Planning

5.1 *General:*

5.1.1 Detailed planning, coordination, and adequate supervision are necessary to ensure success of the inventory verification. Written procedures for planning, conducting, and reconciling are requisite to conducting a successful inventory verification. Inventory verifications should be completed by consistently applying these written procedures. Inventory verifications generally measure performance over a period of months or years and results are often compared to identify trends or problem areas. Entities that repeat past inventory verification, unless found to have been previously deficient or ineffective, will be able to make the results comparable from inventory verification to inventory verification.

5.1.2 As inventory verifications generally involve significant time and, resources appropriate project management techniques should be employed. Written procedures for planning the inventory verification should address the elements in 5.2 through 5.13 when planning.

5.1.3 There are several factors an entity must consider prior to determining the appropriate inventory verification method. These factors include:

5.1.3.1 The type of asset(s),

5.1.3.2 The number of assets,

5.1.3.3 The number of locations,

5.1.3.4 The required data elements to be collected,

5.1.3.5 Cost restrictions, and

5.1.3.6 Resources.

5.2 *Management and Accountability*—Assign responsibility, authority, and accountability for the conduct of the inventory verification and the results.

5.3 *Key Results Required*—When planning, an entity should determine the questions or actions, or both, that will be addressed based on the results of the inventory verification. For example, common questions include:

- How effective are the processes associated with asset management systems?
- What is the percentage of located assets by value and physical count? Value may include original acquisition cost, net book value, or market value. Once a value is selected, it shall be used consistently. This is an indicator of an entity's success, or lack thereof, in managing its assets.
- What is the number or percentage of overages? This is an indicator of an entity's success at achieving control of or data management over inbound or newly fabricated assets.
- What is the percentage of undocumented or unrecorded location changes? This is an indicator of an entity's location record accuracy and process of asset control and record updates supporting moves and transfers.

All subsequent elements of inventory verification planning must accommodate measurement of key results with sufficient accuracy and precision for decision-making.

5.4 *Population:*

5.4.1 Determine the population to be verified. A population may be defined by asset type, value, location, age, controlling entity or program, use status, or other categories. A population may also be defined using the criteria in Practice E2608.

5.4.2 The population to be verified shall be set at the beginning of the inventory verification period and "frozen" (that is, no additions or deletions should be allowed to the population). Records should be updated prior to "freezing" the population to reflect status of open transfers and disposals. New items received after the inventory verification has started should be excluded from the count and the inventory verification statistics.

5.5 *Independence*—Internal controls are established to determine how an inventory verification is conducted, verified, reconciled, recorded and reported. Independence is established by removing conflicts of interest through defining roles.

5.6 *Data Requirements*—Beyond the key results determined in accordance with 5.3, determine the need to verify or update various data elements (based upon business needs) during the inventory verification. Many entities update the location data element; other information may also be verified or updated. (See Practice E2604.)

5.7 *Validation of Record Existence*—Employ asset-to-record checks and other techniques to determine the record accuracy status that existed prior to the commencement of the inventory verification.

5.8 *Validation Techniques*—Determine the validation and data gathering techniques permissible for the inventory verification. Validation techniques physically or electronically (or both) confirm the existence and location of an asset and may include: barcode scanning, RFID, owner validation, validation by an independent individual, two signature validation, validation by transactions or records (for example, receipt, maintenance, transfers of accountability or location, network log-on or use records, and shipping papers) and others. All acceptable techniques shall meet the independence requirements established in accordance with 5.5, gather the necessary data determined in accordance with 5.3 and 5.6, and be documented in the entity's inventory verification procedures. Software processes and protocols should not allow for undocumented and unauthorized alteration of documentation or records.

5.9 *Result Validation*—Some entities have requirements for independent validation of results. This validation can be incorporated into the inventory verification itself or occur after the inventory verification close. Determine if any such requirement exists and, if so, establish inventory verification plans or procedures to meet the requirement. Generally, validation is more effective and efficient if conducted during the inventory verification.

5.10 *Period*—Determine the time frame for the inventory verification. The period determines the permissible time frame for validations. The inventory verification plan or procedures may include provisions for extension of the period under certain circumstances.

5.11 *Resources*—Considerations in 5.2 through 5.10 are generally sufficient to determine resource requirements. Determine the individuals who will perform and manage the inventory verification (in accordance with the entity's independence requirements and asset management procedures). Determine additional resource requirements, including funding, equipment, vehicles, supplies, information systems needs, and unique expertise (for example, statistics). Those who will be held accountable for the results should control the resources.

5.12 *Information Management*—Determine the process for updating asset records based upon each permissible type of validation. Determine the process for recording previously unrecorded assets (overages) identified during the inventory verification. Determine how results (ongoing and final) will be gathered, maintained, and reported. Determine requirements and procedures for supporting documentation. Establish adequate controls to ensure validity, such as independence and division of responsibility.

5.13 *Training and Communication*—Ensure that individuals involved in the inventory verification have all necessary skills and information, and ensure that all those affected by the inventory verification are familiar with the established objectives, period, population, and validation techniques.

6. Procedure

6.1 Inventory verification should be conducted according to the written inventory verification plan and/or asset management procedures, documenting all deviations as applicable. Conduct the inventory verification in such a way that it could be repeated with substantially similar results.

7. Reconciliation

7.1 Compare the various data elements collected during the inventory verification against the official records. This identifies:

7.1.1 Asset records in which the data is either accurate or minor changes are required.

7.1.2 Assets recorded in the official record and not located during the inventory verification.

7.1.3 Assets inventoried in a location different than the location identified on the official record.

7.1.4 Assets located for which there is no official record.

7.2 Root cause analysis should be performed to determine the source of significant inventory verification discrepancies. If an entity has established asset management procedures for process improvement, those procedures should be followed to address identified discrepancies.

8. Results

NOTE 1—The following calculation methods are for specific inventory verification results that may be determined to be beneficial to an entity and are furnished solely for standardization purposes. They are not to be construed to be requisite to the planning, conduct or reporting of an inventory verification.

8.1 Key results of an inventory verification are measured by located rate, by verified count, or by value and an overage rate by verified count or value.

8.1.1 Located rate by verified count is calculated as follows:

$$\text{Calculated: } \frac{\text{Number of assets located}}{\text{Number of assets in the total population}} \quad (1)$$

8.1.2 Located rate by value is calculated as follows:

$$\frac{\text{Value (as defined in 5.3) of assets located}}{\text{value of assets in the total population}} \quad (2)$$

8.1.3 Overage rate by number is calculated as follows:

$$\frac{\text{Number of overages}}{\text{Number of assets in the total population}} \quad (3)$$

8.1.4 Overage rate by value is calculated as follows:

$$\frac{\text{Value (as defined in 5.3) of overages}}{\text{Value of assets in the total population}} \quad (4)$$

8.2 Loss rates can be addressed and reported in accordance with Practice E2131.

8.3 Other measures should be employed to provide the required key results established in 5.3.

9. Interpreting Physical Inventory Results

9.1 The accuracy and validity of inventory verification results are dependent upon the techniques employed, the confidence and precision of samples, and the level of effort expended.

9.2 Lists and internal analyses of the following information are useful for determining control effectiveness and vulnerabilities.

9.2.1 Location rate of recorded assets verified. (See Section 8 for calculation instructions.)

9.2.2 Location rate of assets verified in the proper custodial area. (See Section 8 for calculation instructions.)

9.2.3 Verification that assets on record are assigned an entity identification control number.

9.2.4 Identification of unrecorded assets so that they can be reconciled to asset management and financial records.

9.2.5 Identification of location and control number of verified assets that were not in their assigned location or assets that cannot be located, or both. (See Section 8 for calculation instructions.)

9.3 An inventory verification is a lagging indicator, and may not always reveal why an asset was not located. Generally, it can only identify those assets verified and those not verified. Assets not found may have been lost or stolen, disassembled or destroyed, legitimately disposed of (though not recorded), or may have been overlooked during the inventory verification.

9.4 Consideration should be given to the possible loss of information that was stored on Information Technology assets.

10. Reporting Inventory Verification Results

10.1 The results of the inventory verification should be reported to the appropriate functions within an entity. For example:

10.1.1 Results for capital assets should be reported to the Entity's Finance Officer.

10.1.2 Results for record accuracy should be reported to the appropriate manager.

10.1.3 Results for assets not owned by an entity should be reported to the asset owner.

10.2 Reports may be issued in reference to the results obtained through the internal analyses performed in 9.2.

11. Keywords

11.1 asset; asset management; equipment; inventory verification; physical inventory; verification