

# GOVERNMENT CONTRACT COSTS, PRICING & ACCOUNTING REPORT®

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## ¶ 30 Lying With Statistics: DCAA's Misuse Of 'Statistical' Sampling To Question Costs By Projection Rather Than Auditing

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*There are three kinds of lies: lies, damned lies, and statistics.* —Benjamin Disraeli

During congressional hearings in the fall of 2008, the Defense Contract Audit Agency was criticized for being “obsessed with the speed of their process rather than the accuracy of the results.”<sup>2</sup> In response to this criticism, DCAA replaced its previous “dollars examined per audit hour” performance metric with a new “percentage of questioned costs to dollars examined” metric.

The new metric did nothing to improve the *accuracy* of the results of DCAA’s audits, but it was effective in replacing the *speed* of DCAA’s process with the *amount* of questioned costs. After DCAA began tracking and reporting this new metric, there was a predictable increase in the percentage of costs questioned, which peaked at 9.8 percent in DCAA’s fiscal year 2013 report to Congress.<sup>3</sup> DCAA’s transmittal letter for the FY 2013 report lauded the “savings” resulting from these questioned costs, stating, “This was the fourth consecutive year of increased savings, and the current year total was about 75 percent more than the annual average during FYs 2003–2009. For FY 2013, these savings represented a return on taxpayers’ investment in DCAA of about \$7.30 for each dollar invested.”<sup>4</sup>

The dramatic increase in questioned costs was partly the result of DCAA auditors taking more aggressive audit positions. But it was also due in no small measure to DCAA’s increased use of purported “statistical” sampling, and questioning costs and recommending the assessment of penalties by projection rather than by audit. Described by DCAA as “cost-effective” auditing, “statistical” sampling has enabled DCAA to devote relatively few audit resources for the amounts of costs questioned, which are often much greater than the amounts of costs actually audited. Indeed, although the percentage of questioned costs to dollars examined has fallen off since DCAA’s FY 2013 report, the percentage of questioned costs to transactions reviewed is likely much higher.

DCAA no longer reports the percentage of questioned costs to dollars examined. The FY 2016 National Defense Authorization Act required DCAA to change the metric included in its annual reports to “the total . . . of sustained or recovered costs both as a total number and as a percentage of questioned costs.”<sup>5</sup> It did not take long for DCAA to pressure the Defense Contract Management Agency to increase the “sustention” rate of DCAA’s questioned costs, including in particular projected questioned costs from DCAA’s use of “statistical” sampling. DCMA’s Contract Directorate May 9 published a “C-Note” on sustaining the statistical projection of questioned costs and penalties.<sup>6</sup> C-Note 17-25 begins by stating,

DCAA has expressed concern that DCMA sustention rates of costs questioned in final incurred cost audits has steadily declined. The most recent stats indicate only 16% of costs questioned by DCAA are sustained by DCMA. Although DCAA acknowledges there may be a number of barriers to obtaining sustention on questioned costs, statistical sampling was identified as one of those barriers.<sup>7</sup>

The cited 16-percent sustention rate is interesting, given that DCAA March 31 reported to Congress a sustention rate of 52.5 percent for FY 2016.<sup>8</sup>

The C-Note goes on to state that contracting officers are not expected to “become ‘experts’ in statistical sampling.” Instead, they should “request DCAA assistance in defending their sampling methodology and questioned items to the contractor.” More troubling, the C-Note states,

If DCAA identifies expressly unallowable costs during their examination of sampled transactions, they will also include in their report a projection of questioned costs subject to penalty. COs should also consider these projections as valid as long as the CO concurs that the questioned costs subject to penalty meet the definition of expressly unallowable.<sup>9</sup>

In an apparent effort to further dissuade COs from declining to sustain DCAA’s “statistical” projections, the C-Note concludes by stating, “Going forward, the Board of Review (BoR) process will include addressing DCAA questioned costs and penalties resulting from statistical sampling.”

Although audit sampling is an accepted procedure for certain types of audits, it is doubtful that DCAA’s current method can survive judicial scrutiny.

### **There is No Authority for the Government to Use Statistical Sampling to Disallow Costs or Assess Penalties**

The Government bears the burden of proving a cost unallowable by operation of a Federal Acquisition Regulation cost principle or contract provision.<sup>10</sup> Apart from the items actually audited, the Government has no evidence that “projected” costs are unallowable. Put another way, the Government cannot meet its burden of proof by “projecting” a cost disallowance from a purported statistical sample to costs that have

never been audited. There is also no support in the FAR or Defense FAR Supplement for the Government to use statistical sampling for this purpose.

FAR 31.201-6(c)(2)–(5) permits a *contractor* to use statistical sampling as a means of identifying and segregating unallowable costs from Government contract proposals and billings, provided certain statistical requirements are met. If costs within the contractor’s selected sample are later determined to be unallowable, the amount projected to the sampling universe is also disallowed; if the costs are determined to be expressly unallowable, penalties are projected to the sampling universe. However, nothing in FAR 31.201-6 permits the Government to select its own sample to use to project questioned costs.

As initially proposed, FAR 31.201-6(c) would have permitted a contractor to use statistical sampling—rather than identify individual cost items—to identify and segregate unallowable costs, but it said nothing about how the Government would audit contractors that use statistical sampling.<sup>11</sup> In light of the public comments on the proposed rule, the FAR Councils took the unusual step of publishing a second proposed rule.<sup>12</sup> The *Federal Register* notice for the second proposed rule includes the FAR Councils’ responses to the public comments on the initial proposal, and rationale for making changes in the second proposed rule.

One commenter supported the use of statistical sampling to project unallowable costs in connection with discrete pools if there are a limited number of differing cost elements, but not in connection with a universe of diverse cost elements subject to multiple cost principles.<sup>13</sup> Although the councils “recognize[d] the respondent’s concern about the potential limitations of statistical sampling,” they “note[d] that contractors are not required to use statistical sampling, *i.e.*, it is an optional technique for segregating unallowable costs.”<sup>14</sup>

Another commenter argued that using statistical sampling instead of identifying and segregating individual cost items is contrary to 10 USCA § 2324, which provides for penalties if a contractor includes expressly unallowable indirect costs in its final indirect

cost rate proposal.<sup>15</sup> Interestingly, the same commenter argued that statistical sampling is “an acceptable practice for verifying that a contractor’s accounting practices and procedures for segregating and presenting unallowable costs are operating as intended.”<sup>16</sup> The councils concurred in part with this comment, stating,

The Councils do not believe that sampling is precluded by 10 U.S.C. 2324. The Councils note that there is no requirement in 10 U.S.C. 2324 to specifically segregate every item of unallowable cost. Statistical sampling, when properly applied, is acceptable for both segregating unallowable costs and verifying that such costs have been properly segregated (either by specific identification or using appropriate sampling techniques). However, the Councils recognize that the sampling must appropriately consider the requirements of 10 U.S.C. 2324 related to the application of penalties on unallowable costs. To avoid potential disputes in this area, a new paragraph (c)(3) has been added at 31.201-6 to explicitly include these appropriate considerations.<sup>17</sup>

The councils also concurred with a commenter who stated that “up-front coordination and agreement between the contractor and the auditor regarding the sampling plan (*e.g.*, sampling method, expense accounts, stratification, precision, confidence, and projection) is essential in order to avoid subsequent disputes over the adequacy of the sampling plan used by the contractor.”<sup>18</sup>

The councils expanded on these themes in addressing public comments on the second proposed rule. One commenter recommended clarifying that paragraph (c)(2) refers to contractors, not the Government.<sup>19</sup> The councils concurred with this comment, and adopted the commenter’s proposed language.<sup>20</sup> The councils added that “this language in no way binds or limits the Government from performing their responsibilities in fulfilling indirect cost rates in accordance with FAR Subpart 42.7, Indirect Cost Rates.”<sup>21</sup> Notably, however, the councils rejected a suggestion to add the following language, which would have permitted the Government to project unallowable costs and penalties from its own, “separate review of transactions”:

Any unallowable indirect costs that are not excluded from the universe, either as part of the projection of sample results or separate review of transactions, are subject to the penalty provisions at FAR 42.709.<sup>22</sup>

The language of FAR 31.201-6(c)(2) is clear that statistical sampling is an acceptable practice for *contractors* to follow. There is no comparable provision in the FAR regarding the Government’s use of statistical sampling. Moreover, the only mention of projecting to a sampling universe is in FAR 31.201-6(c)(3), which states, “For any indirect cost in the [contractor’s] selected sample that is subject to the penalty provisions at 42.709, the amount projected to the sampling universe from that sampled cost is also subject to the same penalty provisions.”

### **DCAA’s Audit Sampling Methodology is Fundamentally Flawed**

In addition to the lack of any express regulatory authorization, DCAA’s audit sampling methodology is fundamentally flawed and intentionally misleading. DCAA’s guidance on its variable sampling policy is contained in Memorandum for Regional Directors (MRD) 11-OTS-001(R), “Guidance on Variable Sampling Policy” (Jan. 3, 2011); the *Contract Audit Manual* (CAM) § 4-600; and other non-public documents. DCAA’s variable sampling policy purports to follow the American Institute of Certified Public Accountants (AICPA) *Professional Standards*, volume 1, AU § 350, Audit Sampling, and the AICPA audit guide, *Audit Sampling*. However, as discussed below, DCAA is misusing the AICPA *Audit Sampling* guidance to develop original estimates of questioned costs—a purpose that is directly contrary to the guidance.

When properly designed and performed, audit sampling is recognized by the AICPA as an appropriate procedure for determining the effectiveness of controls or the existence of a material misstatement in an audited entity’s financial statements. AICPA AU-C § 530 defines audit sampling as:

The selection and evaluation of less than 100 percent of the population of audit relevance such that the auditor expects the items selected (the sample) to be representative of the population and, thus, likely to provide a reasonable basis for conclusions about the population. In this context, *representative* means that evaluation of the sample will result in conclusions that, subject to the limitations of sampling risk, are similar to those that would be drawn if the same procedures were applied to the entire population.<sup>23</sup>

Using audit sampling under AU-C § 530 to determine whether controls are effective or a material misstatement exists is analogous to the FAR Councils' statement that "[s]tatistical sampling, when properly applied, is acceptable for both segregating unallowable costs and verifying that such costs have been properly segregated (either by specific identification or using appropriate sampling techniques)."<sup>24</sup> The CAM refers to this type of sampling as "attributes sampling."<sup>25</sup> When properly designed and performed, attribute sampling is consistent with AU-C § 530 and the FAR Councils' description of the appropriate use of statistical sampling.

Importantly, however, the AICPA *Audit Sampling* guidance makes clear that audit sampling is *not* intended to be used to determine original amounts or proposed adjustments.<sup>26</sup> Indeed, that is one of the fundamental differences between audit sampling and the sampling applications used in other professions.<sup>27</sup>

Within most areas of primary research, sampling applications are used to estimate frequency or value, whereas audit sampling is used to detect material misstatements—*not* what the values should be. This is due in part to the fact that the distribution of values of populations investigated in audit sampling often differ from populations sampled as part of other research investigations. The distribution of many nonaccounting populations (e.g., physical measurements, opinions, amount of compensation, etc.) often cluster around a measure of central tendency (e.g., the arithmetic average or mean; the 50th percentile, known as median; or the highest frequency, known as mode). The measurements then move away from the central measure in a frequency creating a normal distribution, in the form of the familiar "bell curve." The confidence statements are usually based on the assumption of "normality" in visual distribution, or on the ability to mathematically transform the distribution to apply procedures based on the assumption of a "normal" distribution.<sup>28</sup> Accounting populations, on the other hand, "tend to include a few very large transactions, a number of moderately large amounts, and a large number of small amounts."<sup>29</sup>

The AICPA *Audit Sampling* guide states repeatedly

that it is not intended to be used to determine original amounts or proposed correcting adjustments. For example, ¶ 4.04 states,

This guide does not provide guidance on the use of sampling if the objective of the application is to develop an independent estimate of quantities or amounts . . . . Furthermore, issues related to independence may be relevant if the auditor develops estimates based on projections from sampling procedures that become the principal basis for the valuation of key accounts in a company's financial statements, then the auditor opines on the financial statements containing those estimates. Such issues are beyond the scope of this guide.<sup>30</sup>

Yet, that is precisely what DCAA does with its "variable sampling": project the amount of unallowable and expressly unallowable costs.<sup>31</sup> The problem is that DCAA's variable sampling is not "statistical sampling"—let alone statistical sampling supported by the AICPA *Audit Sampling* guide—but it is presented as if it were. The AICPA guide states in this regard,

Statistical sampling uses the laws of probability to measure sampling risk. Any sampling procedure that does not permit the numerical measurement of the sampling risk is a non-statistical sampling procedure.<sup>32</sup>

To have a reasonable basis for drawing conclusions about a population, the sample must be (1) representative of the relevant population, (2) randomly selected and (3) large enough to be statistically significant. DCAA's variable sampling does not satisfy any of these criteria.

First, to be representative of the population, a sample must reflect the same characteristics that occur in the population, which means the population must be relatively homogeneous.<sup>33</sup> To use a simple example, variable sampling could appropriately be used to estimate the number of blue marbles in a jar full of marbles, or red M&Ms in a bag of M&Ms. More to the point, the AICPA *Audit Sampling* guide explains that variable sampling is typically used for such tests as the existence of valid receivables, the accuracy of inventory quantities and amounts, the occurrence of recorded payroll expenses, or the existence of fixed-asset additions.<sup>34</sup>

Second, a sample is "random" if every item in the

population has an equal chance of being selected.<sup>35</sup> The CAM states in this regard, “A randomly selected sample is one in which each item in a stratum has a known probability of being selected. More broadly, a statistical sample is one for which each sampling unit within a stratum has a known and equal chance for selection.”<sup>36</sup>

Third, the necessary sample size depends on the desired sampling precision and variability of the population, among other factors. Generally speaking, the larger the sample size, the greater the sampling precision. For example, in a coin toss, the probability of getting heads is 50 percent. Yet, with a small sample (e.g., 10 tosses), it is extremely unlikely that 50 percent of the tosses will result in heads. On the other hand, with a large sample (e.g., 1,000 tosses), the results are far more likely to reflect the expected probability of 50-percent heads.

The greater the variability of the population, the larger the sample size needed.<sup>37</sup> The AICPA *Audit Sampling* guide notes that “[t]o reduce the overall variation, a population can be separated, or stratified, into relatively homogeneous groups to reduce the sample size by minimizing the effect of the variation within each group.”<sup>38</sup> On the other hand, “[s]ample sizes for unstratified populations with high variation in the sampling characteristic of interest are usually large.”<sup>39</sup> Importantly, the AICPA guidance also makes clear that “audit sample sizes that are designed to provide sufficient evidence that an account or population is fairly stated” are generally not sufficient to provide a precise estimate for proposing a correction if misstatements are found.<sup>40</sup>

DCAA uses variable sampling to estimate unallowable costs in populations with diverse characteristics, such as consultant costs or travel expenses, and where the “error” being measured is often a matter of opinion, such as appropriate level of documentation. Even DCAA’s method of selecting samples is not random. The CAM describes two sampling methodologies: physical unit sampling (PUS) and dollar unit sampling (DUS), the latter of which is DCAA’s preferred method.<sup>41</sup> With PUS, which is often referred to as classical variable sampling, each item in the sample uni-

verse has an equal chance of being selected.<sup>42</sup> By contrast, DUS uses “probability proportional to size sampling,” which means that an item’s chance of selection is directly proportional to its size (expressed in dollars).<sup>43</sup> Thus, DUS is not random sampling: By design, it concentrates the sampling evaluation on larger dollar items.

In fact, statisticians have noted that using DUS (also referred to as monetary unit sampling or MUS) for audit sampling tends to overestimate total error. For example, an article published in *Advances in Accounting* states,

MUS/DUS estimation has a shortcoming because it does not explicitly recognize that a total population of account errors typically consists of distinct distributions, namely one large mass with zero error, a second distribution of small errors and a third distribution of 100% errors. These distribution characteristics of accounting error populations have been discussed in prior research (e.g., Kaplan, 1973, Neter & Loebbeck, 1975; Chan, 1988). Due to this shortcoming, in practice sample accounts are incorrectly assumed to have similar tainting (ratio of error per dollar) to non-sample accounts. This assumption, combined with MUS/DUS sampling bias toward selecting larger accounts, often leads to very large estimation of total error in the population and overly conservative auditors’ decisions.<sup>44</sup>

Another disadvantage of DUS is that it does not allow for transactions that are reversals or credits.<sup>45</sup> In practice, DCAA auditors generally ignore these amounts, and either exclude them from the sampling universe or convert them to absolute values—both of which result in overstating the amount of questioned costs.

DUS is especially problematic if there is significant variability in the sampled items’ costs questioned ratios (costs questioned/sample items’ values). With airfare costs, for example, higher-priced tickets are more likely than lower-priced tickets to involve premium airfare. Therefore, because DUS results in a disproportionate number of higher-priced items in the sample, projecting the disallowance to the universe of airfare costs is likely to overestimate the unallowable costs.

This problem is exacerbated when DCAA combines

different types of unallowable costs. For example, DCAA frequently uses “statistical” sampling for travel expense reports. There is the same problem as in the airfare cost example with selecting a disproportionate number of larger dollar amount samples. That is, larger dollar amount travel vouchers are more likely to involve issues such as exceeding the maximum per diem rate and including premium airfare.

But with DCAA’s position that different types of unallowable costs can be combined, there are other issues. For example, assume that DCAA questions 10 percent of the costs in one expense report as unallowable entertainment costs, and questions another expense report in its entirety due to an alleged lack of supporting data. One cannot reasonably project these disallowances to the entire universe because there is no way of ascertaining that the samples are representative of the universe. In addition, disallowances based on an auditor’s personal opinion regarding the adequacy of supporting data are not objectively verifiable.

These fundamental flaws in the sampling methodology are disguised by DCAA’s misleading presentation in audit reports of the results of its “statistical” sampling. It is DCAA policy that all statistical sampling applications are initially based on a 90-percent confidence level.<sup>46</sup> However, rather than selecting the sample size according to the requirements of AICPA AU-C § 530, DCAA auditors are instructed to use the following table to establish the minimum sample size for a sampling universe that has more than 250 items:<sup>47</sup>

Expected Error Rate or Estimated Variability in Questioned Ratios	Tolerable Misstatement		
	High	Moderate	Low
Low	47	58	77
Moderate	69	86	114
High	87	109	145

Although DCAA omitted the title, this sample size table was taken directly from Table 4-5, Illustrative Sample Sizes, in a section of the AICPA *Audit Sampling* guide titled, “Examples of Sample-Size Determinations.”<sup>48</sup> DCAA’s table is an extraction of a three-by-three matrix of adjacent cells from the 418 illustrative sample sizes—ranging from 2 to 2,308

items—shown in the AICPA’s Table 4-5. The table does not specify a minimum or maximum universe. Moreover, the illustrative sample sizes are used to determine whether financial statements are materially misstated, and *not* to estimate original amounts.

In addition to misusing the AICPA guide for a purpose it expressly disavows, DCAA’s minimum sample sizes range from 47 to 145, without regard to the various audit environments that DCAA auditors encounter. Moreover, the sample sizes dictated by DCAA’s table are relatively small, particularly when the universe is very large. For example, in a universe of 10,000 items, the largest sample size in the chart would represent 1.45 percent of the universe. Moreover, auditor judgment determines which of the sample sizes listed in the chart should be used. The auditor first selects a tolerable misstatement rating of low, moderate or high depending on the maximum monetary misstatement in the population that the auditor is willing to accept. The auditor then selects a low, moderate or high level for the expected error rate or expected variability in questioned costs. An assessment set at low results in a smaller sample size, reflective of the auditor’s expectation of few misstatements. An assessment set at high would reflect the auditor’s expectation that many errors exist in the account.

The *Audit Sampling* guide explains that “Table 4-5, ‘Illustrative Sample Sizes,’ contains sample sizes for MUS given tolerable misstatement, expected misstatement, and the risk of incorrect acceptance.”<sup>49</sup> Tolerable misstatement is “the maximum monetary misstatement the auditor is willing to accept for the account balance and should not exceed materiality.”<sup>50</sup> The *Audit Sampling* guide further states that “as the expected amount of misstatement approaches the tolerable misstatement, there is a need for more precise information from the sample. . . . Therefore, the auditor would usually expect this to result in a larger sample size as the expected amount of misstatement increases.”<sup>51</sup> It further states,

The auditor may assess the expected amount of misstatements on the basis of his or her professional judgment after considering such factors as the entity’s business and risks, the results of prior years’ tests of the

account balance or class of transactions, the results of any pilot sample, the results of any related substantive procedures, and the results of any tests of the related controls or changes to the controls during the year.<sup>52</sup>

The AICPA's Table 4-5 has 11 levels of tolerable misstatement, ranging from 0.50 percent to 50 percent.<sup>53</sup> By contrast, DCAA's sample size table has only three levels of tolerable misstatement: low, moderate and high.

The *Audit Sampling* guide defines the risk of incorrect acceptance as "the risk that the sample supports the conclusion that the recorded account balance is not materially misstated when it is materially misstated."<sup>54</sup> On the other hand, the risk of incorrect rejection is the risk that the sample will lead the auditor to conclude incorrectly that a material misstatement exists.<sup>55</sup> Put in the context of an incurred cost audit, the risk of incorrect rejection is the risk that the auditor will conclude that the account balance includes a material amount of unallowable costs when it does not.

Importantly, the illustrative sample sizes shown in the AICPA's table consider only the risk of incorrect acceptance, not the risk of incorrect rejection. Moreover, the *Audit Sampling* guide notes that limiting the risk of incorrect rejection requires larger sample sizes than those required to limit the risk of incorrect acceptance, and may be more costly than performing other audit procedures.<sup>56</sup>

DCAA's variable sampling policy is based on an initial 10-percent risk of incorrect acceptance, and ignores entirely the risk of incorrect rejection. However, DCAA does not make this point clear in its audit reports, and gives COs the misleading impression that the projected questioned costs are 90-percent accurate. Put another way, DCAA is misusing the 90-percent confidence level to suggest that the "risk of incorrect rejection," i.e., the risk of concluding that a transaction amount is materially misstated (or that a cost is unallowable), is 90 percent, when, in fact, it is not. Thus, this policy gives the false impression that DCAA is 90-percent confident that the amount of questioned costs is accurate.

## Conclusion

In summary, there is a serious question as to whether

the Government can meet its burden of proving that a cost is unallowable, or that penalties were properly assessed, if costs are questioned because of a projection from DCAA's "statistical" sampling. Much like DCAA's executive compensation review methodology, DCAA's use of variable sampling "has the look of an objective mathematical model," but "there is no substance behind this scientific veneer."<sup>57</sup>

## ENDNOTES:

<sup>2</sup>S. Hrg. 110-1035, "Expediency Versus Integrity: Do Assembly-Line Audits at the Defense Contract Audit Agency Waste Taxpayer Dollars?" Hearing before the Senate Committee On Homeland Security and Governmental Affairs (Sept. 10, 2008).

<sup>3</sup>U.S. Department of Defense, "Report to Congress on the FY 2013 Activities at the Defense Contract Audit Agency" at 4 (March 24, 2014).

<sup>4</sup>Id. at preface.

<sup>5</sup>FY 2016 NDAA, Pub. L. No. 114-92, § 893(b)(1), 129 Stat. 952 (Nov. 25, 2015).

<sup>6</sup>DCMA C-Note 17-25, Sustention of Statistical Projection of Questioned Costs and Penalties (May 9, 2017).

<sup>7</sup>Id. at 1.

<sup>8</sup>DOD, "Report to Congress on the FY 2016 Activities at the Defense Contract Audit Agency" at 7 (March 17, 2017).

<sup>9</sup>DCMA C-Note 17-25, *supra*, at 1.

<sup>10</sup>See, e.g., *Kellogg Brown & Root Servs., Inc.*, ASBCA No. 56358, 14-1 BCA ¶ 35,639 ("The government has the burden of proof in establishing that a cost is unallowable by operation of a specific contract provision or regulation."); *Space Gateway Support, LLC*, ASBCA No. 56592, 12-1 BCA ¶ 34,941 ("The government bears the burden of establishing that a cost is unallowable by operation of a specific contract provision."); *Lockheed Martin Western Dev. Labs.*, ASBCA No. 51452, 02-1 BCA ¶ 31,803 ("The Government has the burden of proof in establishing the unallowability (by operation of specific contract provision or regulation) of a cost.").

<sup>11</sup>See 68 Fed. Reg. 28108 (May 22, 2003).

<sup>12</sup>See 69 Fed. Reg. 58014 (Sept. 28, 2004).

<sup>13</sup>See 69 Fed. Reg. at 58015.

<sup>14</sup>Id.

<sup>15</sup>Id.

<sup>16</sup>Id.

- <sup>17</sup>Id.
- <sup>18</sup>Id.
- <sup>19</sup>70 Fed. Reg. 57463, 57464 (Sept. 30, 2005).
- <sup>20</sup>Id.
- <sup>21</sup>Id.
- <sup>22</sup>Id.
- <sup>23</sup>AICPA AU-C § 530.05.
- <sup>24</sup>69 Fed. Reg. at 58015.
- <sup>25</sup>DCAA CAM, ¶ 4-602.7 (September 2016).
- <sup>26</sup>AICPA *Audit Sampling*, ¶¶ 1.14, 2.04, 4.24, 4.90.
- <sup>27</sup>Id., ¶¶ 2.03–2.06.
- <sup>28</sup>Id., ¶ 2.05.
- <sup>29</sup>Id.
- <sup>30</sup>Id., ¶ 4.04.
- <sup>31</sup>CAM, ¶ 4-602.8; see also MRD 11-OTS-001(R), “Guidance on Variable Sampling Policy” (Jan. 3, 2011).
- <sup>32</sup>AICPA *Audit Sampling*, ¶ 2.22.
- <sup>33</sup>Id., ¶ 1.05.
- <sup>34</sup>Id., ¶ 2.40.
- <sup>35</sup>Id., ¶¶ 3.29, 3.30, 4.17.
- <sup>36</sup>CAM, ¶ 4-602.3.b.
- <sup>37</sup>AICPA *Audit Sampling*, ¶ 4.27.
- <sup>38</sup>Id.
- <sup>39</sup>Id.
- <sup>40</sup>Id., ¶ 4.24.
- <sup>41</sup>CAM, ¶ 4-602.8.c.
- <sup>42</sup>Id.
- <sup>43</sup>Id.
- <sup>44</sup>Higgins and Nandram, “Monetary Unit Sampling: Improving Estimation of the Total Audit Error,” 25-2 *Advances in Accounting*, 174–82 (December 2009).
- <sup>45</sup>AICPA *Audit Sampling*, ¶ 6.07.
- <sup>46</sup>CAM, ¶ 4-602.8.b.
- <sup>47</sup>CAM, ¶ 4.602.9.f(a); MRD 11-OTS-001(R), supra at 1, 3.
- <sup>48</sup>AICPA *Audit Sampling*, ¶ 4.68, Table 4-5.
- <sup>49</sup>Id., ¶ 4.68 n.21.
- <sup>50</sup>MRD 11-OTS-001(R), supra at 3.
- <sup>51</sup>AICPA *Audit Sampling*, ¶ 4.60.
- <sup>52</sup>Id., ¶ 4.61.
- <sup>53</sup>AICPA *Audit Sampling*, Table 4-5.
- <sup>54</sup>Id., ¶ 4.34.
- <sup>55</sup>Id., ¶ 4.43.
- <sup>56</sup>Id., ¶¶ 4.43–4.47.
- <sup>57</sup>*J.F. Taylor, Inc.*, ASBCA No. 56105, 12-1 BCA ¶ 34920.