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CONSULTING COSTS

(Editor's Note. Whether due to affects of prior years downsizing, current labor shortages or desires to use labor on an as-needed basis, consulting costs are increasing. Because of the increase in costs and as a result of a notorious scandal in the early 1990s where improper and illegal "consulting costs" were paid to obtain contract awards consulting costs are frequently scrutinized by auditors. They have taken an increasingly restrictive position in recent years. As part of our continuing series to explore a cost principle in depth, we thought it would be a good time to review the basic regulations, high profile court decisions, various accounting treatments and DCAA audit guidance affecting consulting costs. We do not use any one particular source for this article but it is based upon extensive readings and practical experience in our roles as consultants, former auditors and teachers.)

The Cost Principle

FAR 31.205-33, Professional and consultant service costs is the cost principle primarily governing outside professional and consulting services. It provides a broad definition of professional and consultant services that includes members of a particular profession or those individuals who possess special skills as long as they are neither officers or employees of the contractor. Numerous examples not intended to be exhaustive are included such as services intended to enhance a contractor's legal, economic, financial or technical position. The services are acquired to obtain information, advice, opinions, alternatives, conclusions, recommendations, training, direct assistance in the form of studies, analyses, evaluations, liaison with government officials or other forms of representation.

The regulation generally allows these costs if they are reasonable and not contingent on recovery of costs from the government. "Reasonableness" is not expressly defined in the principle but it states the following factors are to be considered:

1. the nature and scope of the services rendered in relation to the services required.

2. the necessity of acquiring outside services considering the contractor's capabilities.

3. the contractor's past pattern of acquiring such services.

4. the impact of government contracts on the contractor's business.

5. whether the proportion of government work a contractor has might lead the contractor to obtain services having little actual relation to the government work – *(the government has two concerns here: (1) existence of cost type work will provide little incentive to control costs and (2) consultants benefiting commercial work exclusively are not charged to government contracts*).

6. whether hiring qualified individuals would be more economical.

7. the qualification and fees charged by the individuals providing the services.

8. adequacy of the contract agreement for the consulting service (e.g. description of service is spelled out, estimate of time and expense, termination provisions).

In addition to meeting the above "reasonableness" considerations there is the need to demonstrate the work was actually performed and did not violate any law or regulation. Such evidence should include:

1. Details of all agreements (e.g. work requirements, basis of compensation for services and other expenses) as well as details of actual services provided.

2. Invoice or billings submitted by consultants that include sufficient detail of time expended and nature of actual services provided.

3. Consultants' work products and related documents such as trip reports indicating persons visited, subjects discussed, minutes of meetings and collateral memoranda and reports.

Retainer agreements receive specific coverage where allowability is conditioned on evidence showing:

1. The services covered by the retainer agreement are necessary and customary.

2. The level of past services justifies the amount of the retainer fees – if no services are rendered fees are not automatically disallowed.

3. The retainer fees are in line with maintaining an in-house capability to perform the covered services taking into account cost and level of expertise.

4. The actual services performed are documented following evidence of work performed along the lines discussed above.

The cost principle does state that retainer agreements are generally not based on specific statements of work.

The earlier-mentioned scandal resulted in additions to the standard that would explicitly disallow costs uncovered by the scandal such as services (1) to improperly obtain, distribute or use information or data protected by law or regulation (2) to improperly influence the contents of solicitations, evaluations of proposals and quotations or select awardees of a contract whether at the government, prime contractor or subcontractor level (3) resulting in violation of any statute or regulation that prohibits improper business practices or (4) performed services inconsistent with services contracted for.

Cost prohibitions of other cost principles also cover consultant costs. For example, professional and consulting services related to organization or reorganization activities, obtaining long term financing, defense of antitrust suits, defense of government claims or appeals, prosecution of claims against the government, patent infringement cases or costs related to disputes of parties with shared interest arrangements such as joint ventures, teaming arrangement or dual sourcing programs.

Accounting for Consulting Costs

Consulting costs are commonly charged as either direct or indirect, depending on the purpose of the services. Indirect services are frequently distinguished as either overhead (related to two or more jobs but not necessarily identifiable with one) or G&A (related to benefiting the company as a whole or that are in support of costs normally charged to G&A such as accounting or finance, human resources, office of the president, company-wide IT, etc.). Consulting services can also be broken out into other indirect pools.

When charged direct they are most frequently charged as "other direct costs" (ODCs). For various reasons we have discussed in other articles (e.g. Accounting for Purchased Labor, GCA DIGEST, Vol.3 No. 2) some contractors may segregate billings into individual components such as direct labor, fringe benefit and overhead and then charge these amounts to the corresponding accounts. An interesting case, *Software Research Associates,* addressed this issue. The proposal was based on the sole use of in-house employees but several consultants were used during actual contract performance. The contractor billed the consulting labor at the negotiated direct labor rates with agreed to overhead, G&A and fees rates applied on top. The government claimed reimbursement should be limited to actual payments made to the consultants plus G&A (a total cost input base was used) and profit. The government sided with the contractor ruling that since the contractor provided facilities to the consultants and integrated the personnel and their work product they should be allowed to charge the contract the same as in-house employees.

Common Challenges by the Government

Government challenges to allowability of consulting fees often contend the services could have been provided more economically in-house. These assertions are usually successfully countered by justifying outside services consisted of specialized technical skills and/or the volume of work facing the existing staff required augmentation.

Reasonableness of fees is sometimes challenged. Many government auditors apply a rule of thumb that no consultant should receive more than the highest-level career government employee (currently around $65 per hour) but there is absolutely no basis for this position. Several cases prior to 1992 have justified significantly higher rates: attorney fees between $95-150 per hour for associates and $300 per hour for partners were held to be allowable (*GAO Decision, B-238162.4*) and; $250 per hour was justified considering the complexity of the case and geographic area (*SMS Data Products Group, GSBCA No. 10783-C*).

The most commonly contested costs we encounter are questions of allocability rather than assertions costs are unallowable. As we mentioned, consulting costs can be either direct or indirect depending on the services provided. Consulting costs that benefit only one contract should be charged direct to that contract and if consulting costs benefit more than one contract then they should be included in an indirect cost pool. This seemingly straightforward guidance very often is used to question both treatments by contractors, particularly when auditors feel an alternative treatment is preferable and will benefit the

government (e.g. lessen costs charged to reimbursable government work). Many auditors feel their job is to aggressively question costs and to this end, they will either claim costs charged directly to government contracts should be, instead, included in an indirect cost pool charged to all contracts or alternatively, a cost included in an indirect cost pool should be charged to a commercial or fixed price government job. *(We refer the interested reader to our article in the last issue where several arguments are assembled to challenge an assertion that certain legal costs should be charged directly to a commercial job and excluded from an indirect cost pool.)*

Audit Guidance

The most detailed audit advice is in DCAA's Contract Audit Manual (DCAM) Chapter 7-2105. The DCAM definitions and criteria for reasonableness are consistent with what we described above so we will not repeat it. The audit guidance primarily addresses supporting documentation and when consulting costs are unallowable.

♦ Supporting Documentation

DCAA guidance indicates that after March 1990 the regulations became more specific as to required documentation whereas earlier the regulations only generally referenced adequate evidence. After 1990, fees for actual services performed, including retainer fees, must be supported by the three elements stated above (i.e. details of agreements, invoices or billings and work product). The guidance further states an auditor should make a determination of adequacy of evidence and that three criteria should be considered – sufficiency, competency and relevance.

a. Sufficiency. Auditors are to use their judgement to determine what evidence is considered sufficient. Examples of what would be considered to justify sufficiency includes statements of actual work, invoices, work product, trip reports, meeting minutes, collateral memorandums and evidence of company actions in response to consultants' efforts. If there is no work product, then the auditor is told to look for other evidence such as actual work, invoices and or consulting agreements; if work product does exist, an invoice alone may be sufficient. *(Editor's Note. This guidance should be brought to the auditor's attention when, as is common, consulting costs are questioned when there is no distinct work product or when work product is shown to exist, the auditor seeks significant other evidence to "demonstrate" the expense is valid.)*

b. Competence. When considering whether the evidence is competent, the auditor is told to carefully consider whether reasons exist to doubt its validity or completeness and if doubt does exist, he should seek additional evidence. For example, if a statement of work is prepared after the fact then additional evidence should be found or if no work product exists, then some form of third party verification (e.g. a statement from the consultant or contracting officer) should be sought.

c. *Relevance*. The auditors are told to ensure that either original evidence or corroborating evidence is relevant. For example, if there is no work product and additional evidence is needed, an expired two-year-old agreement is not relevant to the current year while a statement of actual work from the consultant will be relevant.

DCAA places the burden of providing adequate evidence on the contractor. If the auditor decides the claimed costs need additional support they are to notify the contractor, provide a reasonable time to respond and then to disallow the costs if no evidence is provided. The auditor is told not to attempt to obtain the additional data themselves such as requesting professionals to provide statements of work.

♦ Allowability of Costs

DCAA indicates that reasonableness and allocability of professional and consultant costs are governed by FAR 31.201-3 and 31.201-4, respectively and when legal or other proceedings are involved, FAR 31.205-47 rules. The guidance addresses improper actions related to the early 90's scandal we identified above such as services intended to improperly handle information protected by law, inappropriate influence in solicitations, evaluations or awards, improper business practices or inconsistent activity to agreed-to services covers the examples. In addition, consulting costs related to such activities as organization or reorganization costs, costs of raising capital including financing and refinancing as well as preparing prospectuses and issuing stock rights and collecting bad debts are cited as unallowable consulting costs. *(Editor's Note. Contractors should be sensitive to incidences that may resemble some of these areas but are not where the auditor may fail to distinguish between allowable and unallowable activity. For example external reorganization activity related to acquisitions and divestments should not be lumped with internal reorganization activity intended to streamline operations or normal accounts receivable collection confused with bad debts.)*

ALLOWING REIMBURSEMENT OF SUBCHAPTER S SHAREHOLDER'S STATE INCOME TAX

(Editor's Note. We recently came across an interesting correspondence of one of our colleagues, Len Birbaum with one of his clients (the client's name was appropriately blacked out). In spite of over $100 million in sales the company was still classified as a small business and was organized as a Subchapter S corporation. The company had made considerable profits over time but never paid any federal or local income taxes since it passed through income to its shareholders. The controller saw a reference to a recent decision allowing reimbursement of state income taxes paid by shareholders for their share and asked Len whether they were entitled to state taxes paid. The client asked for more information on the case, specifically asking (1) whether it applied to them (2) did the absence of an agreement between the company and shareholders prevent recovery and (3) whether they should amend their incurred cost proposals for prior years to reflect the state taxes paid. Since we have recently decided to present real life challenges to government positions and expand on articles of interest initially presented in the GCA REPORT, we thought this correspondence offered an opportunity to meet multiple objectives. The source of this article is Len's correspondence with his client as well as the case itself for a detailed discussion of the issues involved.

By the way, we are pleased to announce that Len Birnbaum has agreed to join our new "Ask the Experts" panel where subscribers to the REPORT and/or DIGEST can email us questions related to cost, pricing, contract or legal issues of government contracting and we can forward the question to one of our experts who will respond at no charge. Len is the principle of Leonard G. Birnbaum & Company, LLP, one of the most imminent consulting and accounting firms in the nation as well as partner of Birnbaum & Umeda LLP a prominent law firm specializing in government contracting issues.)

Background Facts of the Case

The case is *Information System's Networks Corp. v. United States, Fed. C/. No 98-663C (Nov. 30, 2000*). The contractor is a California corporation organized under Subchapter S of the Internal Revenue code. Subchapter S corporations are small businesses (defined by the Small Business Administration) that are closely held by no more than 75 shareholders. The S corporation status, where it is common to have only one or two shareholders, is made to provide benefits of incorporation to individuals while eliminating the "double taxation" of normal corporate income – first corporate income tax followed by individual income tax on the remaining income. Under S corporations, no income tax accrues to the corporation but instead, the corporation's income is "passed through" to the shareholders and is recognized on the shareholder's personal income tax liability on pro rata amounts. Most but not all states have adopted the same treatment of S corporations as the federal government.

Roma Malkani was the sole shareholder of the corporation where the entire income tax liability of the contractor was passed through to her. The contractor verbally asserted that it and Roma had an agreement where she pays the state income taxes and is reimbursed by the contractor. The contractor held numerous cost type contracts and submitted multi-year final indirect rate proposals where it included the reimbursed state income taxes in its G&A pools.

Citing FAR 31.205-41, Taxes, the Defense Contract Audit Agency questioned the state income taxes based on the fact that since the contractor was an S corporation, it was not subject to the state income tax. Further the payment was a personal tax expense and state income taxes of individuals are not considered allocable to the company and hence is unallowable. The CO issued a final decision disallowing the costs and the contractor filed a suit in 1998 asking the court to declare the taxes paid by Roma and reimbursed by the contractor to be allowable.

The Court's Analysis and Conclusion

The court first reviewed FAR 31.205-41 that provides that certain federal, state and local taxes are allowable if they are required to be paid and are paid or accrued in accordance with generally accepted accounting principles. Under the cost principle, state income taxes are generally allowable unless a contractor is exempt from tax liability, even if they paid the exempt tax. The government asserted that the state law places ultimate responsibility on paying the taxes on the shoulders of Roma and therefore the S corporation has no responsibility to either pay the state income taxes or ensure Roma pays them. Since the contractor did not have to pay the state income taxes the contractor's claim for reimbursement is not allowable under FAR 31.205-41.The contractor responded that FAR 31.2 cost principles applies to all commercial organizations including S corporations and nothing in the regulation provides that different forms of organizations should be treated differently from others. The contractor further argued that if the taxes were not paid, the contractor ran the risk of forfeiting its corporate charter.

In analyzing the situation the court first determined whether the FAR provision allowed reimbursement of state income taxes paid as a result of the contractor's performance of government contracts even if it was not technically required to pay the tax. The Court concluded that the election of having the income tax pass through the corporation to shareholders was not the same as an exemption from the tax in the normal sense of the term. Usually an exemption results in the complete absence of payment of that tax. In this circumstance the contractor, as an S corporation, was not relieved of the state tax liability but is simply required to pass its liability to Roma. Commenting on the FAR, the Court said that FAR 31.205-41(a) states taxes are allowable and does not require any specific part of a corporation to pay the state income taxes. Because the taxes were required to be paid and were paid and because the tax liability on the corporate income is not subject to an exemption the state income taxes claimed by the contractor are allowed under FAR 31.205-41.

The Court responded to the government's contention that because shareholders and not the corporation is required to pay the taxes the two tax liabilities are completely separate and hence the contractor has no basis for requesting reimbursement for the tax expenditures of Roma. The Court claimed the tax codes indicate the relationship between an S corporation and its shareholders is "closely intertwined". For example, S corporations are required to file tax returns showing their corporate income despite the fact it never pays tax of the income. Non-resident shareholders in many states must file agreements they will pay their share of income taxes incurred by the corporation and these states have different provisions to ensure the tax liability is paid such as requiring corporations to pay if the shareholder fails to pay.

As for the government's claim that an agreement between Roma and the corporation was not substantiated, the Court ruled that even if the agreement did not exit the court's decision would not change. The critical fact is not whether the contractor agreed to reimburse the shareholder but whether it actually did reimburse Roma.

Implications of the Case for Len's Client

As long as the client can demonstrate it made distributions to shareholders to reimburse them for the obligation to pay state taxes that would otherwise be due by the corporation the reimbursement of the taxes paid by the shareholders should be considered an allowable cost. At this stage, it is uncertain whether the government plans to appeal the decision. The client can either amend the previously incurred cost submittals that did not include the reimbursement for the tax or may want to compute the affects of inclusion of the taxes to use as an offset of other questioned costs DCAA may identify. Len offers to prepare a legal memorandum that would form the basis of any such offsets. The case also addresses the advisability of preparing an agreement stipulating the reimbursement of the shareholders by the corporation but as the Court ruled, such an agreement is not essential for allowing the cost.

FINANCIAL DATA COMPARING PROFESSIONAL SERVICES CONTRACTORS

(Editor's Note. Most firms want to know how they compare with others. Unfortunately, most useful information is proprietary and almost all surveys we encounter are limited to generally useless financial data extracted from annual reports of publicly traded companies. The exception to this rule is an annual survey published by Wind2Software, Inc. (formerly Birnberg & Assocs.) The survey is unique because it surveys actual firms of varying sizes and offers very relevant data for government contractors. Though it surveys engineering and architectural firms, we find the results closely mirror those of most professional service organizations. This is not surprising since most labor intensive businesses, particularly in professional services, incur similar costs.)

The Wind2software survey presents a wide range of useful information: comparison of data for each year from 1978-2000, profit and loss statements, key financial ratios (e.g. current ratio, average collection periods), identification of key overhead cost elements (e.g. all fringe benefits, insurance, indirect labor, depreciation, marketing costs etc.), key measures of productivity, and other financial measures (e.g. work-in-process incurred but not billed, number of firms that charge interest on late accounts). The following table and explanations represents a selection of measurements for 2000 we chose that will provide interesting comparisons for our government contractor readers. For those who (like us) forget statistics terms, "mean" refers to an average while "median" refers to a midpoint.

	Mean	Median
1. Net Profit Before Tax on Total Revenue Before Tax & Distributions	13.7%	11.4%
2. Net Profit on Net Revenue Before Tax & Distribution	16.4%	13.0%
3. Contribution Rate	62.5%	63.7%
4. Overhead Rate (Before Distribution)	147.1	134.9
5. Overhead Rate (After Distribution)	168.5	159.2
6. Net Multiplier	3.1	2.9
7. Unallowable Overhead as a Percentage of Direct Labor	20.2%	14.2%
8. Unallowable Overhead as a Percentage of Total Overhead		
- Before Distribution	14.0%	11.9%
- After Distribution	12.4%	11.3%
9. Allowable Overhead as a Percentage of Direct Labor		
- Before Distribution	119.5	119.7
10. Net Revenue Per Total Staff	$82,007	$80,216
11. Net Revenue Per Technical Staff	$101,192	$100,076
12. Chargeable Ratio	64.8%	64.83%

1. Net Profit on *Total* Revenue before Tax and Distribution. Total revenue includes revenue generated from in-house labor (representing 85-90% of total revenue) as well as consultants or subcontractors and billable reimbursable expenses. Before distribution is before bonuses and profit distribution – since these items vary widely, the survey compares results before and after such distribution.

2. Net Profit on *Net* Revenue Before Tax Distribution. Net revenue refers to revenue generated only by employees and may be more relevant for firms having unusually high outside consultants and/or large reimbursable expenses.

3. Contribution Rate (before distribution). The portion of each dollar of revenue after direct project costs (labor and expenses) available for overhead and profit.

4. Overhead Rate (before distribution). This is the percentage of total office overhead to direct labor. What the survey calls "office overhead" is really what many contractors call overhead and G&A including the portion of employees labor not direct charged to projects. Adjustments for unallowable costs are addressed below.

5. Overhead Rate (after distribution). Same as above but the overhead includes bonuses, employee profit sharing and other distributions but not distribution of profit.

6. Net Multiplier. This is the effective multiplier achieved on direct labor and is calculated by dividing net revenue by direct labor. Consultants and reimbursables are excluded in order to determine an actual multiplier achieved by the firm's own efforts. The figure indicates participating firms received $3.09 for each $1.00 of direct labor spent.

7. Unallowable Overhead as a Percentage of Direct Labor. This consists of total overhead that contractors either voluntarily delete or government auditors disallow as a percentage of direct labor.

8. Unallowable Overhead as a Percent of Total Overhead Before and After Distributions. Looking at unallowable costs from a different vantage.

9. Allowable Overhead as a Percent of Direct Labor. This is actual overhead applied to direct labor after unallowables have been removed. If your firm uses multiple overhead rates, you would have to adjust them to measure oranges and oranges.

10. Net Revenue for Total Staff. This rough productivity index measures net revenue for each employee or part-time equivalent. It is calculated by dividing net revenue by average total staff, including principles and part time equivalents.

11. Net revenue Per Technical Staff. This is probably more relevant because it measures revenue by those directly responsible for generating it.

12. Chargeable Ratio. Measures the percent of total staff time charged to projects (whether billed or not) and is calculated by dividing total direct labor by total firm labor (direct labor plus indirect labor, vacation, sick leave and holidays actually paid).

PARAMETRIC ESTIMATING

(Editor's Note. Parametric estimating has attracted a great deal of interest in recent years by government and industry. It promises to provide accurate estimates for pricing purposes while reducing the costs associated with preparing and evaluating proposals. We intend to provide something for everyone in this article – basic understanding of what parametric estimating is for those who may have heard of it but doesn't really know what it is to those who are using or plan to use the techniques and need to know what the government will be doing to review the results. The source of this article is the handbook on estimating discussed below and DCAA's Contract Audit Manual.)

The basic definition of parametric estimating is techniques that use validated relationships between a project's known technical and cost characteristics and its known historical resources consumed during development, manufacturing or modification of a

product or service. These techniques include cost estimating relationships (CERs) and parametric models. The technique relies on a value, called a parametric or independent variable to estimate the value of something else, typically a cost. CERs range from simple relationships (say a percentage) to increasingly complex relationships (where there are multiple independent variables) with the term parametric models reflecting the most complex relationships.

Parametric techniques have been accepted by both Industry and Government for many years. Trade studies identifying independent variables and design-to-cost analyses are common and pricing analysts use numerous trade studies to conduct price reasonableness analyses. FAR 15.404-1 has recognized parametrics as an acceptable estimating technique. In addition, it has been quite common for companies to use the results of parametrics as a "sanity check" to its primary estimating methodology (e.g. bottom up estimates). With recent attention on reducing proposal evaluation and negotiation cost and cycle time the government has been focusing attention on techniques to realize these benefits and parametrics have been at the forefront. In December 1995, the Defense Contract Management Command (DCMC) and DCAA sponsored a Parametric Estimating Reinvention Laboratory to identify parametric opportunities, test techniques on actual proposals and establish best practices and guidance on using parametrics. Thirteen teams tested or implemented a full spectrum of parametric techniques on new development, engineering change orders and follow on production efforts to produce estimates of a full range of use from specific cost elements to major-assembly costs. The results were considered overwhelmingly successful citing accuracy of the methods as well as significant reduced cost and cycle time. DCMC and DCAA sponsored publication of a handbook on parametrics where the newest second edition can be obtained at www.ispa-cost.org/PEIWeb/newbood.htm. Parametrics has become a big field led by the International Society of Parametrics Analysts (found at "ISPA-cost.org").

Cost Estimating Relationships

CERs are becoming more commonplace in pricing low cost items or services that have traditionally taken a significant effort using more traditional resources. CERs are mathematical expressions of varying degrees of complexity expressing cost as a function of one or more cost driving variables. The relationship may use cost-to-cost variables or cost-to-noncost variables. Examples of cost-to-cost include using manufacturing costs to estimate quality assurance costs or manufacturing hours to estimate costs for expendable materials such as rivets, primer or sealant. The key is that the cost of one element is used to estimate or predict the cost of another element. When the relationship is cost-to-noncost the notion is a characteristic of an item is used to predict the item's cost such as when the weight of an item is used to estimate manufacturing costs or the number of engineering drawings are used to estimate design engineering costs. In these examples, weight and number of drawings are the noncost variable.

Examples of CERs in various industries include:

1. Electronics. The cost of certain electronic items vary considerably with the total of electronic parts. For example, a CER analysis might indicate that the cost of an item might consist of a $57 setup charge plus an additional cost of $1.10 for each integrated circuit so an item requiring 30 integrated circuits would be $57 + $1.10 (times 30) or $90.

2. Weapons Procurement. The cost of an airplane may consist of numerous CERs where one may be a wing assembly where history showed the cost being $40,000 of nonrecurring engineering and $1,000 per square foot. A wing with a 200 square foot area would cost $40,000 + 200 square feet times $1,000 per sq. ft or $240,000.

3. Construction. Many construction contractors use a cost per square foot to determine the cost of a building. If a small warehouse costs $60 per foot and the building consisted of 2,200 square feet then the cost for the building (excluding the lot) would be $60 per sq ft times 2,200 square feet or $132,000.

Parametric models are generally more complex than CERs because they often incorporate many equations, ground rules, assumptions, logic and variables and often use databases of program technical and cost history. Parametric models are used to estimate certain cost elements (e.g. labor hours for software development, lines of code) or for hardware items (radar systems, space shuttle spare parts, software systems such as air traffic control systems) and such estimates will form the primary basis of a proposal.

All parametric estimating techniques require credible data be used. Credibility requires collection of historical cost data and technical noncost data. It should be collected and maintained to provide an audit trail. Common formats include Work Breakdown

Structure (WBS) and cost models used for activity based costing (ABC) systems. The collection point for cost data is the general ledger or other accounting data or at least be reconcilable with such data. Technical noncost data describes the physical, performance and engineering characteristics of a system or individual items such as weight, horsepower, watts, thrust or lines of code. A fundamental requirement of using noncost variables in a CER is that it be a reliable predictor of cost. While less complex CERs need only demonstrate a simple correspondence between the variables more complex relationships need to show valid statistical testing (see the handbook for the types of statistical techniques used to validate parametrics).

Achieving the benefits of parametrics, whether used for proposals, a sanity check for other estimates or challenging price analysts' conclusions may require some research. The handbook is an excellent source for learning how to use the techniques and the ISPA website above will refer the reader to as many resources as desired.

Audit Considerations

Though most of our readers will likely not become skilled experts at parametric estimating they are likely to become involved when government auditors and price analysts review proposals. Since DCAA has been one of the participants in the workshops and generally been members of teams encouraging their use, it is not surprising they have taken a great interest in reviewing contractors' use of the technique in their estimates. Chapter 9-1000 of the DCAA Contract Audit Manual (DCAM) provides guidance to auditors who are reviewing proposals containing parametric estimating techniques.

♦ Introduction

DCAA's definitions of parametrics and CERs do not differ from those presented above. It indicates the audit guidance will address more complex applications such as cost-to-noncost CERs, multiple independent variables related to a single cost effect or independent variables defined in terms of weapon system performance or design characteristics. Examples offered include end item weight, performance requirements, density of electronic packaging, number or complexity of engineering drawings, production rates and number of tools produced. The guidance also states parametric estimating techniques are quite valid when used in conjunction with other estimating methods such as (1) detailed bottom up approaches (e.g smaller component costs such as a bill of materials) (2) comparative analyses where costs of like items produced in the past are used for future pricing where allowances are made for other things like complexity, scale, design and materials and (3) judgmental estimates, particularly at the research and development phase where prior experience, informal notes and judgment is often used.

♦ Criteria for Price Proposals.

Consistent with the Truth in Negotiations Act requiring cost and pricing data be current, complete and accurate parametric estimates need to meet the same basic disclosure requirements. The guidance stresses parametric estimating will likely present new factual situations concerning cost and pricing data and auditors are to remember the TINA definition as "all facts…which prudent buyers and sellers would reasonably expect to have a significant effect on price negotiations." The guidance also appropriately alludes to the distinction between facts and judgments reminding that strict guidance of TINA applies only to facts while contractor's do not make representations of accuracy for judgments particularly when parametric estimating provides supplemental support or "sanity checks" on other methods of estimates.

♦ Evaluation of Parametric Cost Estimates

Since audit attention on parametrics is still rather new, the DCAA guidance heavily weights what it traditionally calls internal controls. The first factors it cites for evaluating parametric cost estimates are:

- Do procedures clearly establish guidelines for when parametric techniques are appropriate
- Are there guidelines for consistent application of estimating techniques
- Is there proper identification of sources of data and the estimating methods and rationale used in developing cost estimates
- Do relevant personnel have sufficient training, experience and guidelines
- Is there an internal review and accountability for the adequacy of the estimating system that includes a comparison of projected and actual results and analysis of the differences.

Additional criteria include:

Logical Relationships. The contractor needs to demonstrate that the estimating relationships between

the independent and dependent variable are the most logical. Were other alternatives considered? Statistical testing (e.g. regression analysis) should demonstrate the method used is the most logical. No tests are specified but there should be proposal documentation describing the statistical analysis used as well as the contractor's explanation of the CER's statistical validity.

Verifiable Data. The contractor should demonstrate the data used can be verified. The guidance stresses that traditional accounting sources may need to be supplemented with other information systems and the resulting data needs to be accurately and consistently available over a period of time.

Cost Prediction Results. The contractor should be able to demonstrate that the parametric cost estimating relationships can predict costs with reasonable accuracy. For example, the contractor should be able to document that work being estimated is comparable to prior work from which the parametric data is based.

System Monitoring. The contractor should be able to ensure that cost-to-noncost rates are periodically monitored in the same way the cost-to-cost rates and factors are monitored. If a CER is validated and used only on a onetime major new pricing then rate monitoring is not considered essential while if the rates will be used on an ongoing basis then monitoring is more essential.

♦ Special Areas of Concern

The guidance identifies several areas of concern when contractors are using parametric cost estimating:

Change Orders. Change order pricing may need to be considered in a different light than initial pricing since cost estimating relationships may be different for change orders. Since contractors generally do not segregate costs for individual change orders the auditor may need to find ways to validate CERs that are used uniquely for change orders. If the CER was applicable to the basic contract then, of course, separate cost segregation will not be necessary.

Forward Pricing Rate Agreements. Contractors may choose to submit proposals for forward pricing rate agreements (FPRAs) or formula pricing agreements (FPAs) for parametric cost estimating relationships to reduce proposal documentation efforts and promote a greater understanding and acceptance by government in their system. These agreements should be cited in initial proposal audits and the latest cost or pricing data submitted with the FPRAs should be identified. Auditors are told FPRAs are not practicable if CERs are intended for use on only one or a few proposals and they should make sure the work being proposed is comparable to that identified in FPRAs.

Subcontract Pricing. FAR 15-404 requires that when a contractor submits certified cost or pricing data then the contractor will also submit to the government accurate, complete and current cost or pricing data from prospective subcontractors in support of subcontract cost estimates that are (1) $10 million or more (2) more than the cost or pricing threshold (currently $1 million) and more than 10 percent of the prime contractor's proposed price or (3) is considered necessary for adequate pricing. Use of CERs does not relieve the contractor of these requirements for subcontractors. The contractor should explain any significant differences between parametric estimates of subcontract costs and subcontractor quotes and provide a rationale for using the parametric estimate.

Material Costs. If proposed material costs are based on parametric estimates, the auditor should make sure the type of material for the proposal is the same reflected in the CER. To avoid double counting the auditor should make sure the material is not separately estimated in the proposal. Also, adjustments to the CER database should be made for significant items that were previously manufactured in-house and are now being purchased.

Parametric Estimating Efficiency. If an elaborate parametric estimating model is anticipated, the contractor should conduct a cost-benefit analysis to show that implementation and monitoring of costs do not outweigh the benefit of reduced estimating costs. This is particularly important since the primary justification of using parametrics is reduced estimating costs.

Data Adjustments. Since a basic requirement is that the parametric data is comparable to work being estimated, DCAM recognizes the validity of "calibrating" the data to achieve consistency. Examples include utilizing a complexity factor to CERs or adjusting the base for achieving future savings from improvement initiatives (remember TQM?). Use of such adjustments need to be documented and disclosed and if not, auditors are to consider notifying the CO or issuing a qualified or even adverse opinion.

Estimating Standards. Estimating standards look like parametrics but have normally been developed through the use of motion-time-measurement studies. Examples of estimating standards include hours per pound, hours per drawing, hours per page, welding costs per ton of steel or guard service costs per week. Such estimating standards are usually limited to narrower or more discrete elements than in more complete CERs and they may be included as part of CERs or more complex modeling. The auditor is instructed to verify that elements of costs in a proposal are consistent with the basis for estimating standards. When industry-wide statistics are used the auditor should ensure they are relevant and verifiable to the experience of the contractor using them. Auditors are told that many estimating standards used on a cost-buildup proposal may qualify for "other" cost classification (exempt from a cost analysis) if they are a relatively minor part of the proposal.

CAS BOARD PROPOSES NEW COVERAGE OF POST RETIREMENT BENEFITS

(Editor's Note. Though we reported on this proposal in the GCA REPORT, some of our readers have asked for more detail. One warning – as many industry observers have commented, the proposal is confusing and needs to be simplified.)

The Cost Accounting Standards Board Oct 5 proposed a new standard – CAS 419 – directly addressing the costs of post-retirement benefits (PRB) under government contracts. The proposal is in the form of an advanced notice of proposed rulemaking which followed a 1996 staff discussion paper and a 1999 request for comments on adopting the current SFAS 106 guidance on PRB cost.

The CAS Board decided coverage was necessary because PRB costs, mostly in the form of health and insurance costs for retirees, are significantly increasing and unlike pension costs, are largely unfunded. Earlier discussion envisioned amending relevant sections of CAS (e.g. pension costs of 412 and 413, insurance costs of 416, deferred compensation of 415) but it was decided such action would be "extremely cumbersome" and would "muddy" the existing standards so it was decided to issue a separate standard that would maintain consistency with the others. Earlier considerations also thought it would be sufficient to apply Financial Accounting Standards No. 106, "Employers' Accounting for Post-Retirement Benefit Costs other than Pensions" to government standards but it was decided that though SFAS 106 could be used as a "baseline" it was either inadequate or inappropriate for government contract costing. Also, earlier debate centered around funding where government representatives thought actual funding was necessary to recognize the cost while industry thought an accrual based on a valid liability to pay should be sufficient to charge government contracts. The proposed standard is presented in six subsections.

1. *Recognizing and Identifying PRB.* The proposed CAS does not require funding but does require the contractor to have the duty to pay the benefit. It sets forth criteria to determine when a liability for PRB plans can be estimated, is contractually obligated and reasonably foreseeable to justify accrual accounting. Four conditions must be met: (1) documented in writing (2) communicated to employees (3) nonforfeitable once earned and (4) legally enforceable. If the plan does not sufficiently establish the grounds for the accrual the contractor must use pay-as-you-go accounting. The standard also recognizes that many PRB plans have separate benefit packages and combine various investment vehicles so the standard provides flexibility to either combine or separate benefits and investment arrangements.

2. *Measuring and Assigning Costs.* The proposal recognizes the pay-as-you-go method and accrual accounting for either defined-contribution or defined-benefit plans. Under pay-as-you-go plans, the assignable cost is measured by the amount of payments made to either beneficiaries, providers or insurers during the current period. The exception is that any payment that seeks to settle or terminally fund current and future benefits must be amortized over 15 years. For defined-contribution plans that use accrual accounting, the amount of assignable cost is the annual amount paid or distributed to individual accounts (which is different than SFAS 106 which recognizes contributions made after retirement in the period required by the plan). For defined-benefit plans the actuarial assumptions and cost methods of the contractor is used. Assignable costs are based on service cost, interest cost, actual return on assets, amortization of prior service costs, amortization of gains and losses and recognition of transition obligation where the methods used to measure some of these costs will likely differ from SFAS 106 guidelines.

3. *Allocating Costs to Segments.* The method of allocating all plan costs to each segment must use an appropriate allocation base whether allocated using

the same base or developing a special allocation method for one or more segments.

4. *Allocation to Intermediate and Final Cost Objectives.* Once benefit costs are measured, assigned to a period and allocated to a segment or a home office then existing standards (e.g. CAS 403 for allocating costs from a home office, CAS 410 for allocating G&A costs, CAS 418 for allocating intra-segment costs) will be applied to allocate costs to cost objectives.

5. *Adjusting for Curtailments, Settlements and Special Termination Benefits.* Under a defined-contribution plan, the Board proposes that forfeiture credits due to a plan termination be amortized over ten years while for a defined-benefit plan, adjustments, curtailment, settlement or termination be amortized over ten years.

6. *Adjusting for Segment Closing.* The proposal envisions segment closing under three situations: (1) ownership of the segment changes by sale or transfer (2) the segment discontinues operations or is abandoned and (3) the contractor is no longer seeking or performing government work at that segment. Under pay-as-you-go method, no adjustment is provided. Under the defined-contribution method using accrual accounting the contractor is to measure an immediate period adjustment to recognize any portions of credits for unvested account balances. When a segment closes under a defined-benefit plan, the contractor must measure an immediate period adjustment based on the unavoidable liability for PRB which would be measured by the difference between the benefit obligation and the sum of the plan's assets plus the accumulated value of unfunded accruals.

FAR COST PRINCIPLES CHANGES CHART

When questions about the allowability of costs arise, the general rule is that those cost principles in effect on the date of the contract governs. FAR 31.205 are the regulations generally referred to as "the cost principles" and since they periodically change it is a good idea to be able to see which version affected a given contract. The following is a revised reproduction of a chart prepared by Professors John Cibinic and Ralph Nash presented in the February 2001 issue of The Nash & Cibinic Report that trace cost principle changes through January 2001. We distributed a copy of their chart to our subscribers two years ago that went back to 1991 so let us know if you need a copy.

FAR COST PRINCIPLES CHANGES THROUGH JANUARY 31, 2001

FAC	Effective	FAR Section	Description
97-01	10/21/97	31.001, 31.205-2, and all other sections dealing with automatic data processing equipment	Finalizes the Federal Acquisition Circular 90-44 interim rule deleting the coverage of automatic data processing equipment leasing costs.
97-03	2/9/98	31.205-6(p)(1)	Finalizes the FAC 90-45 interim rule implementing § 809 of the Fiscal Year 1997 National Defense Authorization Act, P.L. 104-201, with editorial changes making it clear that for senior management compensation, only the amount that exceeds $250,000 is unallowable.
		31.205-18(a), (c), (d), and (e)	Removes provisions requiring a ceiling for independent research and development and bid and proposal costs for FY 1996 and beyond, and "clarifies" that B&P costs for cooperative arrangements are allowable.
	12/9/97	31.205-46(a)(3)(v)	Increases, from $25 to $75, the travel expenditure amount that requires a receipt (this is an interim rule).
97-04	Costs incurred after 1/1/98	31.205-6(p)	Interim rule implements P.L. 105-85, placing limits on allowable compensation costs for contractors' senior executives.
	4/24/98	31.205-10(a)(5) and 31.205-52	Adopts Cost Accounting Standards (48 CFR § 9904.404-50(d)) rules for determining tangible capital asset values resulting from purchase method business combinations and cost of money, whether or not CAS apply.
97-05	8/21/98	31.205-46	Finalizes the FAC 97-03 interim rule, increasing from $25 to $75 the travel expenditure amount that requires a receipt (interim rule was effective from 12/9/97).
97-09	12/29/98	31.001, 31.201-5, and 31.205-6(j)	Brings Cost Principles in line with CAS pension costs provisions.
	Since 1984	31.205-5	Removes coverage for civil defense costs.
		31.205-47(b), (c), and (e)	Includes the costs of qui tam suits in unallowable proceedings costs.
97-10	Costs incurred after 1/1/98	31.205-6(k) and (p)	Adopts interim rule published in FAC 97-04, with changes, regarding executive compensation.
97-11	Costs incurred after 1/1/99	31.205-6(p)	Interim rule implements P.L. 105-621 to change the definition of "senior executive" to include the "five most highly compensated employees" in management positions at each home office and each segment of the contractor, whether or not the home office or segment reports directly to the contractor.

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FAR COST PRINCIPLES CHANGES THROUGH JANUARY 31, 2001

FAC	Effective	FAR Section	Description
	5/3/99	31.205-1(d)	Amends the Advertising Cost Principle to remove language dealing with recruitment costs but retains reference to FAR 31.205-34.
		31.205-34(a), (b), and (c)	Liberalizes allowability of recruitment costs by removing provisions limiting help-wanted advertising to those "required to perform obligations under a Government contract" and other limitations such as advertising in color in publications and removes subparagraph (c) dealing with excessive compensation.
97-12	6/17/99	31.205-6(o)(6)	Technical amendment removing word "certified" from the second sentence of this paragraph.
97-14	11/23/99	31.205-6	Converts interim rule of FAC 97-11 on compensation of executives to final rule without change.
		31.205-20	Minor wording changes dealing with interest costs without change in substance.
97-17	4/25/00	31.101	Changes the name of the Department of Defense official authorized to grant class deviations to the Cost Principles from Under Secretary of Defense for "Acquisition and Technology" to Under Secretary of Defense for "Acquisition, Technology, and Logistics."
97-19	9/25/00	31.205-48	Amends the FAR "to clarify and simplify" the "Deferred research and development costs" Cost Principle to (a) delete the second sentence addressing precontract costs and (b) indicate that costs incurred in excess of the contract price or grant amount for research and development

FAR COST PRINCIPLES CHANGES THROUGH JANUARY 31, 2001

FAC	Effective	FAR Section	Description
			are "unallowable under any other Government contract." The previous version stated that such excess costs "may not be allocated as a cost to any other Government contract."
97-21	1/19/01	31.205-21	Adds paragraph (b) to "Labor relations" Cost Principle making costs incurred "for activities that assist, promote, or deter unionization" unallowable.
		31.205-47	Changes paragraph (b)(2) by making costs related to civil or administrative proceedings unallowable if it was found that the contractor "violated, or failed to comply with, a law or regulation."

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