AACE INTERNATIONAL RECOMMENDED PRACTICE

21R-98

PROJECT CODE OF ACCOUNTS - AS APPLIED IN ENGINEERING, PROCUREMENT, AND CONSTRUCTION FOR THE PROCESS INDUSTRIES

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AACE® International Recommended Practice No. 21R-98

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TCM Framework: 7.1 – Project Scope and Execution Strategy Development
7.2 – Schedule Planning and Development
7.3 – Cost Estimating and Budgeting

Rev. January 27, 2003

Note: As AACE International Recommended Practices evolve over time, please refer to www.aacei.org for the latest revisions.

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Disclaimer: The opinions expressed by the authors and contributors to this recommended practice are their own and do not necessarily reflect those of their employers, unless otherwise stated.

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INTRODUCTION

This guideline is an industry-specific addendum to AACE International's generic guideline for project code of accounts (Recommended Practice No. 20R-98). This document describes recommended practices for codes of accounts (COA) as applied to engineering, procurement, and construction (EPC) projects in the process industries. "Process industries" are those with facilities whose main function is to perform a process. This includes chemical, petrochemical, hydrocarbon, pulp and paper, pharmaceutical, power generation, thermal, metallurgical, assembly, fabrication, and other processing. The primary characteristic of these industries, as it relates to codes of accounts, is that process or manufacturing equipment is the core or primary physical component of the facility. Equipment differentiates these projects from commercial construction and infrastructure where the core component is a structure, from software development projects where the core component is programming code, and so on.

COAs are applicable to all phases of the asset life cycle, but this guideline specifically addresses the EPC for creation, modification, or termination of a process facility. This guideline does not apply to code of accounts to support ongoing operations of process facilities. Proper defining a work breakdown structure (WBS), and other project structures, and deciding how they should be structured are outside the scope of this document.

A project code of accounts is a coded index of project cost, resource, and activity categories. A complete COA includes definitions of the content of each account code and is methodically structured to facilitate finding, sorting, compiling, summarizing, defining and otherwise managing the project information that is linked to the code. The information is used to support total cost management practices such as cost estimating, cost reporting, cost accounting, planning, and scheduling. Refer to 20R-98 for a more complete description of the principles of COAs.

PURPOSE

The purpose of this guideline is to establish a common understanding of the attributes of project COAs in the process industries so that communication is improved among all process industry project stakeholders. These guidelines are intended to help cost management practitioners create or modify a COA in a way that maximizes its value.

Common understanding is important because all projects are the product of team endeavors in which the timely and accurate flow of project cost, resource, progress, and other information is essential to project success. Industry experience has shown that a large amount of time and resources are wasted in the effort to reconcile disparate project records, and project failures are often traced to poor communication. The practice of benchmarking process industry project costs at a meaningful level of detail is a daunting task because of the lack of cost coding commonality.

A "standard" fully-defined, process industry code of accounts that meets every user's requirements is beyond the scope of this guideline, but, a basic guideline COA structure is provided. The basic guideline COA establishes a minimal level of cost information organization that a process industry COA should follow to achieve the objective of establishing common understanding.

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GUIDELINE METHODOLOGY AND BACKGROUND

This guideline was developed using a practical approach rather than a theoretical one. Real COAs were gathered and dissected to identify core COA principles, prevailing attributes and characteristics of COAs as they are applied in process industry EPC projects today. The content characteristics that were most commonly used were tabulated and compiled into the basic guideline COA.

There are almost as many different codes of accounts as there are companies executing EPC projects in the process industries. For this guideline, 21 actual COAs were collected, analyzed, and summarized in table 1. Despite the differences, there is sufficient consistency of approach in the industry to provide confidence that the COAs collected are an adequate sample.

Process Industry Type	Organization	Type of Projects	Number
Oil & gas	Owner	EPC, maintenance	3
Oil & gas	Standards/professional	EPC, operating	1
Offshore oil & gas	Standards/owners	EPC, operating, maint.	1
Offshore oil & gas	Contractor/owner	EPC	2
Process-general	Contractor	EPC	4
Process-general	Standards/professional	EPC	2
Process-general	Benchmarking	EPC	1
Chemical	Owner	EPC, operating, maint.	1
Chemical	Contractor	EPC	2
Utility	Owner	EPC, maintenance	1
Utility	Contractor	EPC	1
Process - pulp & paper	Contractor	EPC	2
			21

Table 1 – Sample of Process Industry Code of Accounts Used in This Guideline

The detailed contents of the owner and contractor company COAs are confidential. Some of the sample COAs have been previously published. A general description of these is included in Appendix A. The COA from the organization referred to as "benchmarking" is a format that 14 international owner companies had agreed to use for cost and resource benchmarking and metrics purposes.

After identifying the content characteristics of each COA, these characteristics were listed in tables that categorize them by their prevalence of use. The most prevalent characteristics were then compiled in a logical manner into the basic guideline COA. When determining the most prevalent (i.e., primary) content characteristics, each COA was given equal weight, with the exception of the "benchmarking" COA that was given double weight because many owner companies had agreed to this format for cost sharing purposes. Characteristics were categorized or ranked by prevalence of use as shown in table 2.

Characteristic Group	Percent Occurrence in the Sample COAs
Primary	Equal to or greater than 75 percent
Secondary	50 to 74 percent
Tertiary	25 to 49 percent
Other	Less than 25 percent

Table 2 – COA Characteristic Ranking Categories

While the practical approach described above is not specifically forward-looking, the core COA practices identified are expected to have lasting value. This and related guidelines will serve as a documented basis for AACE's

cooperation with other industry COA initiatives (particularly those of vendors and users of computer-aided engineering and design, enterprise and project planning systems, and accounting systems as they attempt to further integrate their products).

ATTRIBUTES OF PROCESS INDUSTRY CODES OF ACCOUNTS

The four basic attributes of a code of accounts as described in RPS-20R98 include:

- usage;
- content;
- structure and format; and
- standardization.

When evaluating a COA, these attributes should be considered within the context of the project system's circumstances and requirements. In the case of this guideline, the general requirements of the process industries are considered. Each of these four attributes is discussed in the sections that follow.

Usage

There are three primary groups who use project codes of accounts in the process industries: asset owners, contractors, and consultants.

Asset Owner Companies
The primary use of COAs by process industry owner companies is for allocation of costs for financial budgeting and close-out reporting. Asset classifications such as cost center, area/unit, authorization for expenditure, and location, are frequently used by owners. Most owners contract out their construction work, detailed engineering, and bulk material procurement, and therefore the owner perceive less immediate need for activity-based accounts as used for project control during execution. In many cases, owners do not have a COA that allows effective project control of their own internal activities, such as front-end engineering. Activity-based cost data is critical to owners for understanding their own long-term project cost performance and developing their own conceptual cost estimating and benchmarking capabilities, but many owners do not adequately understand its value.

Over 80 percent of process industry owners segregate capital, expense, and suspense cost types. Suspense costs are temporary holding accounts for items such as project material stock, contractor retention, and so on, which are cleared-out prior to closing the project. Expense costs are those that are written-off in the year they are incurred, while capital costs are those that depreciate over more than one year. About 70 percent of process industry owners have a code to classify capital cost of assets for taxation, capital cost allowance, and fixed asset accounting depreciation.

EPC Contractors
The primary use of COAs by process industry contractors is the allocation of costs for project control. Cost and resource data need to be captured by discipline/commodity and area/unit so that work progress can be planned and assessed. Asset classification and capitalization are minor issues (except to the extent that owners request this data). A special code that is often used by contractors, but not owners, is the billing code that indicates whether the relevant cost can be charged or billed to the client. General contractors and construction managers need to separate subcontractor costs from their own (they are also sometimes asked by owners to maintain overall project cost records, including owner costs).

Standards Groups, Benchmarking Consultants, and Others