

FORMATTING VALUE ENGINEERING STUDY REPORTS TO GAIN APPROVAL

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ABSTRACT

This paper describes considerations in formatting a report describing the development of alternatives and the selection of a recommended alternative for a non-time critical removal action at a Department of Energy (DOE) facility. In addition, we demonstrate how a five-phase Value Engineering (VE) job plan and Environmental Protection Agency (EPA) Engineering Evaluation/Cost Assessment (EE/CA) guidance have been successfully merged to assemble a correctly packaged report for review by the governing authorities.

GENERAL

Most of us are familiar with the axiom: "The right clothing won't get an unqualified person into the board room, but the wrong clothing may keep a qualified person out." This paper is based on the premise that a corollary applies to reports. A VE report must be properly formatted; otherwise, regardless of its quality, its acceptance could be in jeopardy.

FORMAT SELECTION

Typically, the format for a VE study report is selected by the VE professional who is responsible for the study. This individual, who may be the VE manager, VE consultant, or VE study facilitator, all too often selects the format used in reporting his last study or a standard generic format, neither of which may be the most effective reporting format for the present study. Selection of methods such as reporting formats based on the rule "if it ain't broke, don't fix it!" is the antithesis of VE, which is based on finding a better way.

A VE report should satisfy its basic function, which is to convey information, while performing the secondary functions: "ensure convenience and satisfy customer." Accomplishing these goals may not require revision of standard reporting formats; however, it is the responsibility of the VE professional to identify

client expectations. Determining the customer's format requirements, as a prerequisite to performance of the study, could prevent costly and time-consuming revisions or rejection of the report because it is perceived by the client or regulatory agency reviewers as being incomplete.

Client format requirements for VE reports may be driven by third-party requirements; for example, guidelines issued by regulatory agencies can significantly influence report format. Such guidelines specify recommended practices and provide guidance supplied by agency personnel with technical expertise. Affected parties often apply reporting guidelines as standards requiring strict adherence. However, the readability and effectiveness of a report can often be significantly enhanced by minor modifications in format that are consistent with guidelines.

Report formats may also be altered to accommodate the degree of VE knowledge and expertise of the customer or other readers of the report. Report length usually varies inversely with the extent of the customer's familiarity with VE because less explanatory information is required to orient a reader who is familiar with VE principles.

BY ANY OTHER NAME

The VE job plan and function analysis can be used for tasks other than traditional VE cost reduction studies. They have been used effectively for cost avoidance (baseline) studies. For example, a VE job plan was used to define objectives, identify and evaluate alternatives that would achieve those objectives, and select a recommended course of action for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The report is classified by EPA as an EE/CA; the recommended format is delineated in guidance documentation. EPA is quite specific as to what an EE/CA must contain and even provides a table of contents (Figure 1).

- I. INTRODUCTION
- II. EE/CA REPORT
 - A. Site Characterization
 - 1. Site description
 - 2. Site background
 - 3. Analytical data
 - 4. Site conditions that justify removal action
 - B. Identification of Removal Action Objectives
 - 1. Statutory limits on removal actions
 - 2. Removal action scope
 - 3. Removal action achedule
 - 4. Applicable or relevant and appropriate requirements (ARARs)
 - C. Identification of Removal Action Alternatives
 - D. Analysis of Removal Action Alternatives
 - 1. Effectiveness
 - a. Protectiveness
 - b. Use of alternatives to land disposal
 - 2. Implementability
 - a. Technical feasibility
 - b. Availability
 - c. Administrative feasibility
 - 3. Cost
 - a. Total cost
 - b. Statutory limits on removal costs
 - E. Comparative Analysis
 - F. Proposed Removal Action
- III. CONTRACTING CONSIDERATIONS
- IV. COST MANAGEMENT
- V. EE/CA FUNDING
- VI. ENFORCEMENT-LEAD ACTIONS

Figure 1
The EPA EE/CA Guidance Table of Contents

Figure 1 lists EPA's data requirements; much of this information would be generated during thorough implementation of the VE job plan. The recommended format also includes all the relevant background information that should be made available to the decision-maker. However, the information is presented in a form different from that in a typical VE study report.

Another example is environmental/hazard assessments, which are not part of typical VE studies; conversely, Function Analysis System Technique (FAST) diagrams are not part of an EE/CA. Prudence would dictate that a report being submitted to EPA for approval should follow EPA's recommended format, which is familiar to EPA reviewers and enables them to determine quickly that all the required information is at hand. However, including an explanation of the VE job plan and VE elements such as FAST diagrams in the report (though such items may be unfamiliar to the reviewer) should only make the report more understandable.

THE EFFECT OF REVIEWER KNOWLEDGE

If the reviewer is already familiar with VE methodology, a description of the VE job plan is unnecessary and adds to the cost of preparing the report. In some instances, the reviewer may have more experience in VE than the VE professional preparing the report. Such may be the case when a Value Engineering Change Proposal (VECP) is prepared for submission to a decision-maker in the U.S. Army Corps of Engineers (USACE).

Here, too, the required contents of the report are clearly delineated by the Federal Acquisition Regulations (FARs), which specify the information that must be contained in a VECP submittal. The FAR VECP contract clause requires a minimum of seven specific components. Figure 2 lists the seven required parts of a VECP submitted under a typical USACE construction subcontract.

FAR 52.248.3 (c) Value Engineering--Construction specifies that "the VECP shall include the following:

(1) A description of the difference between the existing contract requirements and that proposed, the comparative advantages and the disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and the previous Government actions, if known."

Figure 2
VECP Requirements

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Because the FAR does not delineate the format for the client minimally familiar with VE. The report was also subject to public oversight. The report provided instruction in the VE process, which included the use of FAST diagrams (developed during the information phase) and tabulations (generated during the

speculation and analysis phases of the study) as examples of how the VE process worked. The specific VE proposals were provided as an attachment to the report and used a format employing standard forms similar to those shown in Figure 3.

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Figure 4
Table of Contents for an Instruction/Recommendation Report

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preparation of the format of a VE study report may lessen the impact of the work they have performed. It is important to know the background and expectations of the reviewer. Armed with

this information, combined with client input, the preparer of a VE report can ensure that the study will receive the careful consideration that it deserves.