

EPA VALUE ENGINEERING

Office of Emergency and Remedial Response
Hazardous Site Control Division OS - 220

Quick Reference Fact Sheet

Circular No. A-131, issued by the Office of Management and Budget on January 26, 1988, requires the use of Value Engineering (VE), when appropriate, by Federal Departments and Agencies to identify and reduce nonessential procurement and program costs. Value Engineering is a specialized cost-control technique that uses a systematic and creative approach to identify and reduce unjustifiably high costs in a project without sacrificing the reliability or efficiency of the project or affecting the Record of Decision (ROD) or basis of design.

VALUE ENGINEERING DURING DESIGN

It is the responsibility of EPA's Remedial Project Manager (RPM) to assure that VE screening, and VE study if appropriate, is conducted on each fund-financed remedial design. Typically, the designer should be awarded the VE study task if the screening conducted during preliminary design indicates the need for the study, and an independent and objective study can be conducted within the design firm. For some designs, the Bureau of Reclamation, the Corps of Engineers, or a firm with the requisite expertise should conduct the study.

The VE study is different from design reviews. The design reviews concentrate on functional aspects such as whether the design works, is sufficiently reliable, and meets the designer's contractual obligations. VE, on the other hand, is focused on reducing the investment necessary to achieve those functions. It should be noted that the focus of VE does not preclude the VE team from identifying technical errors or omissions and alerting the designer so these problems can be taken into consideration during the design reviews.

The VE study should be scheduled so as to minimize the impact on the design schedule. If the VE workshop and decision-making process are structured to avoid adding time to the schedule (i.e., not on the critical path), then the only potential schedule impact would be caused by a design change resulting from the VE process and not from the process itself. A design change and its

associated cost are part of the decision-making process of accepting or rejecting the VE recommendation.

When planning a design project, the party contracting for design must include VE in the design tasks. This begins with an initial VE screening during preliminary design to determine if the project will include any high-cost, non-industry standard items and unusual design. If the screening task identifies a potential cost savings, a VE study must be initiated.

To perform this study, a VE study team leader selects a multidisciplinary team with VE experience and technical knowledge to conduct the review. Guided by the team leader and possibly a team coordinator, this group of technical experts completes a prescribed six-phase process that culminates in the presentation of cost saving alternatives first to a review board and later, if accepted, to the original project design team. These six phases are: information, creative analysis, development, presentation, and implementation.

The primary activities of this six-phase process have been standardized and typically take the form of a one-week workshop. Projects can often be reviewed in less time, however, depending upon their complexity. A VE study may not be appropriate for a simple design, whereas a complex design may require a level of effort between 200 and 500 hours.

VALUE ENGINEERING DURING REMEDIAL ACTION

The VE incentive clause, found in the Federal Acquisition Regulation (FAR) at 52.248-3, is generally included in federal remedial action contracts over \$100,000. REM and ARCS firms may choose to include the clause in their subcontracts for remedial action, even if not directed to do so by EPA's contracting officer. States and claimants under mixed funding may also choose to use a similar clause in their remedial action contracts.

The VE incentive clause provides the opportunity to the remedial action (RA) contractor to use its unique knowledge and experience as a basis for submitting a Value Engineering Change Proposal (VECP). The VECP is the RA contractor's proposal to change contract requirements in such a way that the price of the contract is reduced. To have a valid VECP, the RA contractor must submit the following information:

- A description of the proposed change and the contract requirement.
- An itemization of the contract requirements that must be changed.
- An estimate of the performance costs that will be reduced if the proposal is adopted.
- A prediction of any saving the change may have on operations, maintenance, or equipment.
- A statement of time by which the proposal must be implemented by the party contracting for remedial action.

To ensure the program's effectiveness and integrity, individuals and firms who have prior involvement in the project design or in other value engineering activity prior to remedial action are not eligible to participate, directly or indirectly, in the development and preparation of a VECP or monetary sharing of any resulting savings.

While the VECP is being processed, the RA contractor should continue the construction activity as scheduled. As a minimum, a VECP should result in a net capital cost reduction while causing no increase in the total life cycle cost of the project and meeting the following conditions:

- The required function, reliability, and safety of the project will be maintained.
- The proposed change will not result in any contract resolicitation.
- The proposed change will not cause undue interruption of the contract work.

Savings resulting from the change proposal are normally shared between the RA contractor and the contracting party after the RA contractor is reimbursed for its cost of implementing the change. Prior to approval of the VECP, the party contracting for remedial action must consult the designer regarding any impact on the design.

RPM CONSULTATION AND REPORT

EPA's RPM must be consulted during the VE study and VECP review if there will be a delay in the completion of the design or construction, an increase in cost, or an impact on the environment or public health, Record of Decision (ROD), or basis of design. The VE study team leader and VECP reviewer must prepare, for EPA's RPM, a

final written report containing the cost of the study or review, findings and recommendations, estimated cost savings, and reasons for rejection of any recommendations. The RPM must forward this report to HSCD's VE Coordinator (OS-220), Washington, D.C. 20460, for inclusion in an annual EPA report.



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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HAZARDOUS WASTE DIVISION

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SOLID WASTE AND EMERGENCY RESPONSE

Phil
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cc all
RPM's/SC's

MEMORANDUM

SUBJECT: Implementation of Value Engineering for Corps of Engineer Managed Superfund Remedial Design and Remedial Action Projects

FROM: Henry L. Longest II, Director *Jim Fields (for H.L.L.)*
Office of Emergency and Remedial Response (OS-200)

TO: Waste Management Division Directors
Regions I-X

Purpose:

This directive defines value engineering and its use in Superfund Federal lead remedial design (RD) and remedial action (RA) projects managed by the Corps of Engineers, the roles of the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) in value engineering reviews, and requirements for reporting related actions and activities.

Background:

Value Engineering (VE) is a highly beneficial technique to reduce unnecessary cost in engineered projects. Value Engineering uses systematic and creative approaches without sacrificing the reliability, efficiency, or original objectives of the project. These techniques are widely recognized and are required by the Office of Management and Budget (OMB Circular No. A-131, issued January 26, 1988) to be implemented by Federal departments and agencies, when appropriate.

Value Engineering has been effectively used at Superfund sites, and some of the best examples are Regions II and VI projects conducted for EPA. In three sites, Marathon Battery, Helen Kramer, and Bayou Bonfouca, VE during the RD phase resulted in potential savings of approximately \$65 million. VE during remedial actions, known as a value engineering change proposal

(VECP), was also used at the Bridgeport Rental and Oil Services site with an estimated savings of \$550,000.

While there have been some excellent success stories with VE, experience suggests that confusion exists over the roles of EPA and USACE personnel in implementing VE. The majority of the technical decisions needed to implement VE proposals have no adverse impacts on project objectives or schedules, and can result in substantial cost savings. For USACE RD and RA projects, clearer definition of authority for the USACE project manager (PM) would result in more timely and efficient implementation. For those situations where VE recommendations adversely impact project schedules, the Record of Decision (ROD), or environmental or public health matters, better definition of EPA approval roles and timeframes for making decisions are needed. For example, VECP proposals by remedial action contractors usually have evaluation schedules specified in the contract, and timely decisions are necessary in order to realize the full savings and avoid delay claims.

State roles in Federal lead projects will require special attention so the process can function in a smooth and timely way. States will have a special interest in impacts on operation and maintenance costs since they are normally responsible for these costs while their remedial action cost share is usually 10 percent.

The OMB Circular on VE establishes requirements for Federal agencies to report VE savings. USACE has existing reporting systems, but the EPA Superfund program has not yet formalized a system. The VE results and benefits will become better understood and OMB requirements will be met if both agencies coordinate effectively on VE reporting.

A Quick Reference Fact Sheet on Value Engineering is attached. This fact sheet provides a more comprehensive description of the VE process.

Implementation:

1. All remedial designs conducted by either USACE or EPA for projects with an estimated RA value of \$2 million or greater will include a formal VE screening and, if deemed appropriate by the screening process, a formal VE study. For lower cost projects, an informal VE screening should be performed, but formal VE studies are usually not required.

2. All USACE conducted RAs greater than \$100,000 will include the VE incentive clause which provides the contractual mechanisms for the VECP process. These clauses provide a specified time period (45 days) for the government to conduct technical reviews and decide on the VE change proposals made by the RA contractor. USACE PMs and EPA RPMs will establish project schedules and operating plans that will allow the VECP process to function within the contract schedules.

3. For USACE conducted RDs and RAs, technical reviews and approvals/concurrences for recommendations from VE, VECP, will be made in accordance with the following guidelines:

A. Review and approval of the EPA RPM must be obtained if implementing the recommendations would do the following:

- (1) Have an environmental or public health impact,
- (2) Propose a change or variation to the remedy specified in the ROD,
- (3) Increase the cost or delay the completion of the RD or RA beyond that specified in the IAG,
- (4) Increase operating and maintenance costs, or
- (5) Exceed the constraints of the project IAG.

B. If the recommendations are not affected by the conditions stated in A above, USACE has the authority to implement the recommendations. As with all activities in USACE conducted projects, the EPA RPM will be kept fully informed of all actions.

C. In order to provide consistent and efficient project management, State reviews and approvals/concurrences will be limited to the conditions and circumstances described in A above. EPA RPMs will keep appropriate State officials fully informed of project activities.

4. USACE districts will provide reports on projects with implemented value engineering recommendations in accordance with the following:

A. Reports will include the following information.

- (1) Cost of the VE study or VECP review,

- (2) Findings and recommendations,
- (3) Estimated cost savings,
- (4) Reasons for rejecting any recommendation.

B. USACE design and construction districts will provide copies of final written reports to the appropriate EPA RPMs and the Office of Emergency and Remedial Response (OERR), Design and Construction Management Branch, Superfund VE coordinator (OS-220) within 45 days of a decision to implement value engineering recommendations.

C. EPA's Superfund VE Coordinator (OS-220) will coordinate with the Office of Water, EPA Regions, and USACE Headquarters to prepare an annual consolidated report on Superfund VE savings. EPA's Office of Water VE Coordinator may also solicit information directly from the Regions.

For additional information, contact Tom Whalen of my staff at (202) 475-9755.

Attachment