

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

EC 11-1-114

CECW-EV

Circular
No. 11-1-114.

28 February 2003

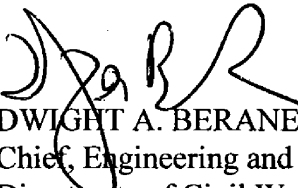
EXPIRATION DATE: 31 March 2005
Army Programs

VALUE MANAGEMENT (VM) / VALUE ENGINEERING (VE)

1. Purpose. This circular transmits a draft engineer regulation that provides general policy, procedures, and framework for execution of Value Management/Value Engineering.
2. Applicability. This circular applies to all VM/VE activities of the Corps of Engineers.
3. Distribution Statement. All Major Subordinate Commands, Engineering Centers, and Districts are included on distribution.
4. References. Required and related references are at Appendix A of attachment.
5. General and Procedural Requirements for Executing Subject Corps work. Details outlined in ER 11-1-XXX, attached.
6. Action Required. This draft ER should be used as interim policy and guidance pending publication of the final ER. Any comments regarding improvements or clarifications should be submitted to HQUSACE (CECW-EV), Washington, D.C. 20314-1000, within one year of publication of this EC.

FOR THE COMMANDER:

Attachment


DWIGHT A. BERANEK, P.E.
Chief, Engineering and Construction Division
Directorate of Civil Works

This regulation will be reviewed and updated as appropriate and supersedes all previous versions of Value Engineering (VE) regulations.

CECW-EV

Regulation
No. 11-1-XXX

XX XXXXXX 2004

Army Programs
VALUE MANAGEMENT / VALUE ENGINEERING

1. Purpose. This regulation provides general policy, procedures, and a framework for the execution of Value Management/Value Engineering (VM/VE) elements within the Project Management Business Process (PMBP) of the Corps of Engineers.

2. Applicability. This regulation applies to all VM/VE activities of the Corps of Engineers. The VM/VE program applies to all procurement acquisitions that are Federally funded and managed by the Corps of Engineers including, but not limited to, Civil Works and Military construction projects, such projects as Environmental, Hazardous, Toxic and Radioactive Waste (HTRW), Ordinance Explosive (OE) Support For Others (SFO), Formerly Used Defense Site (FUDS), Formerly Utilized Sites Remedial Action Program (FUSRAP), Foreign Military Sales (FMS), and any other Federal funded programs with a total project cost of \$1 million or more (\$2 million for construction projects) regardless of the number of phases to accomplish the work.

3. References: See Appendix A.

4. Definitions. See Appendix B.

5. General Requirements. VM/VE is mandated by federal law and by Office of Management and Budget (OMB) policy as follows:

a. The Office of Federal Procurement Policy Act was as amended by Public Law 104-106, Section 4306, dated February 10, 1996, requires each executive agency to establish and maintain Value Engineering. Specifically Section 36, sub-paragraph (b) states the following:

"IN GENERAL - Each executive agency shall establish and maintain cost effective value engineering procedures and processes..."

b. Office of Management and Budget (OMB) Circular No. A-131, dated May 21, 1993 "... requires federal departments and agencies to use Value Engineering (VE) as a management tool . . . to reduce program and acquisition costs...". The OMB Circular requires VE application on all federal procurement actions over \$1,000,000 total costs. Office of Management & Budget has revised this amount to \$2 million for Corps of Engineers construction projects.

This regulation will be reviewed and updated as appropriate and supersedes all previous versions of Value Engineering (VE) regulations.

c. Public Law 99-662, Water Resources Development Act of 1986. Section 911, Review of Cost Effectiveness of Design, states the following:

“During the design of each water resources project which has a total cost of \$10,000,000, which is authorized before, on, or after the date of enactment of this Act and undertaken by the Secretary, and on which construction has not been initiated by the date of enactment of this Act, the Secretary shall require a review of the cost effectiveness of such design . . .” The Conference Committee Report states that this review is commonly known as Value Engineering.

d. While VM/VE is required for major procurements, its use to improve non-procurement items, such as internal business processes, is also encouraged.

e. For Environmental Laws, see Appendix A, references 16 and 17. The method used by USACE to accomplish relative cost analysis shall be Technical Project Planning (TPP) process as defined in EM 200-1-2. All TPP will be coordinated with the TPP Team at the HTRW-CX, and elements from the TPP Team will be included on each project VM/VE PDT as designated by the District PM.

6. Procedural Requirements.

a. Planning and Scheduling. Project Management Plans (PMP’s) shall contain a VM Plan (Ref. Appendix C). The Project Delivery Team (PDT) shall develop the VM Plan to ensure that VM/VE activities are properly scheduled and resourced (Ref. Appendix D). VM/VE activities (start and completion of VM/VE study, presentation, and implementation response) should also be included in the Network Analysis System (NAS) in the Project Management Automated Information Systems (PM-AIS) (e.g., P2, etc.) as a critical milestone at the district level. Full achievement of the VM/VE task includes documenting the disposition of all study proposals.

b. VM/VE Study Requirements. All projects and procurements greater than \$1 million (\$2 million for construction), shall have appropriate VM/VE study(ies) (Ref. Appendix D) or approved waiver as indicated in following paragraphs. Threshold for HTRW/OE construction is \$10 million for first year of this circular.

(1) Civil Works Construction, or Civil Works Operation and Maintenance. VM/VE studies shall not be waived for any project over \$10,000,000. The Corps of Engineers Major Subordinate Command (MSC) and Engineering Center (EC) Commanders may grant a waiver from conducting a VM/VE study on projects less than \$10,000,000 if sufficient justification is provided. For example, waivers are occasionally granted for repetitive type projects for which a VM/VE study was previously conducted, and where previous recommendations have been implemented into those designs. Waivers are not required for projects less than \$1 million (\$2 million for construction). Requests for waivers from the requirement to conduct a study shall be staffed by the Project Manager (PM) under signature of the Field Operating Activity (FOA) (District) Commander.

(2) Military Construction, or Military Operation and Maintenance. VM/VE studies may be waived for sufficient justification as indicated in paragraph 6.b.(1).

(3) USACE Construction or Other Services for Other Federal Agencies. In cases where the Corps is performing the design and/or construction for other federal agencies, federally mandated VM/VE requirements still apply (all procurements greater than \$1 million). The responsibility to perform or waive VM/VE lies with the funding agency. The Corps may perform VM/VE at the agency's request. The (Corps) PM is responsible, however, to ensure that appropriate documentation is contained in the project file in situations where the funding agency waives (or has already performed) required VM/VE studies. If any Corps program funds are utilized, Corps VM/VE regulations shall apply.

(4) USACE Construction or Other Services for Non-Federal Agencies. Design and/or construction activities that are totally funded from non-Federal agencies are exempt from VM/VE requirements. Execution of VM/VE studies should, however, be encouraged when appropriate.

(5) USACE Construction of HTRW/OE Projects: The TPP will be used to identify alternatives for Preliminary Assessment (PA), Site Inspection (SI), Remedial Investigation (RI), Feasibility Study (FS), and Record of Decision, ROD) phases of USACE HTRW/OE projects. VM/VE analysis of alternatives for Remedial Design (RD), Remedial Action (RA) or Construction, and Operation and Maintenance (O&M) phases of USACE HTRW/OE projects shall be accomplished after the Record of Decision (ROD) as a minimum. VM/VE shall be accomplished on each delivery order of Total Environmental Restoration Contracts (TERC), with costs above applicable thresholds. Such recommendations are to be utilized in TERC negotiations. All of these activities will be coordinated with counsel.

c. Rejection of VM/VE proposals. The rejection of any individual VM/VE proposal or group of proposals on a single project feature that may potentially save over \$1,000,000 requires the signed concurrence of the MSC/EC Commanders. Decisions to reject such major proposals should include independent technical review as appropriate.

d. VM/VE Certification.

(1) Civil Works Decision documents. All feasibility reports, post authorization change reports, general reevaluation reports, and the equivalent will contain a review and approval statement from the PM indicating that required VM/VE action has been completed as appropriate for that phase of the project. This statement will indicate that appropriate studies have been performed and that all proposals indicating savings greater than \$1,000,000 that impact plan formulation have been resolved.

(2) A statement that appropriate VM/VE actions have been completed should accompany the Biddability, Constructibility, Operability and Environmental (BCOE) document for all procurement actions over \$1,000,000 (\$2,000,000 for construction). The statement should read:

“I (the PM) certify that this procurement action has completed the Value Management/Value Engineering process. A VM/VE study was (completed/waived) on (date). All VM/VE proposals indicating potential savings over \$1,000,000 have been resolved with approval of the MSC/EC Commander.”

e. **Contract Clauses.** The Value Engineering Change Proposal (VECP) clauses shall be included in contracts as prescribed by FAR PARTS 48 and 52. The District/EC VM/VE Officer should ensure that appropriate procedures are in place for review, approval, and contractor notification for VECP's .

f. **Plans, Reporting, Records, and Metrics**

(1) MSCs should have an Annual Plan in place for Value Management/Value Engineering activities by 30 Nov each FY. ECs should submit their plan directly to HQUSACE.

(2) **Quarterly Reports.** The MSC/EC will report to HQUSACE within 7 calendar days of the end of the quarter. Reports are to be electronically transmitted in standard format as directed by Headquarters United States Army Corps of Engineers (HQUSACE).

(3) **Records.** Each District/EC VM/VE Officer will maintain a copy of all VM/VE reports, waivers, the expected and claimed savings, and all unresolved proposals in the project's file.

(4) **Performance Metrics.** Reports will contain description of performance measured against metrics as defined in Appendix E.

7. **VM/VE Workshops or Studies .** VM/VE workshops or studies (studies, workshops, documents) shall follow the general VE Job Plan format as prescribed by ASTM and SAVE International standards (Information, Speculation, Analysis, Development and Presentation Phases). Studies shall include and document legitimate functional analysis methodology and not be simply project review sessions.

8. **Staffing.**

a. **Organization.** The VM/VE organization consists of the HQUSACE VM/VE Officer, MSC/EC Command VM/VE Officers, Value Engineering Advisory Committee (VEAC), District VM/VE Officers, the Office of the Chief of Engineers Value Engineering Study Team (OVEST), PDT members, customer, contractors, and multi-district personnel. The organization also may include district-level VM/VE Committees as described below.

b. **District/EC VM/VE Officer.** The District/EC VM/VE Officer is the primary agent responsible for execution of VM/VE. A person at each District or Engineering Center will be assigned VE/VM as a primary duty, and Commanders will ensure that the position is located within the organization with sufficient visibility to ensure proper VM/VE execution.

9. Roles and Responsibilities.

a. Project Manager. PMs will include the VM/VE Officer or his designated representative as an integral member of the PDT. The project manager will:

- (1) Assure the PDT develops a VM Plan for the project.
- (2) Ensure that a waiver request containing a written justification for non-performance of a Value Management Workshop/VE study is prepared for signature of MSC/EC Commander.
- (3) Ensure schedules are developed and adequate funds are budgeted for all VM/VE activities, including proposal review by District/EC, partners and customers.
- (4) Ensure implementation of accepted VM/VE study proposals.
- (5) Ensure that the rationale for not accepting major proposals is valid and documented.
- (6) Ensure that a request for approval for non-implementation of all VM/VE proposals, and group of proposals, with potential savings over \$1,000,000 has been made through the District or EC Commander.

b. District/EC VM/VE Officer. The District/EC VM/VE Officer, or his selected representative, will act as VM/VE advisor on the PDT and as professional subject matter advisor to the PM and District/EC Commander. District VM/VE Officer's duties include but are not limited to:

- (1) Participation on PDTs to assist in developing appropriate number and type of VM/VE studies are scheduled and appropriate resources (whether in-house or contract) are identified in the PMP to accomplish mandatory VM/VE requirements.
- (2) As the technical expert on the PDT assure that the VM/VE studies are accomplished in accordance with established guidance and procedures.
- (3) Track and record all district VM/VE costs and savings for upward reporting in the VM/VE channels.
- (4) Coordinate with the MSC/Center. Produce and forward the district's/center annual plan and quarterly reports to the MSC/HQUSACE. Report to the MSC/HQUSACE office the status of all VM/VE proposals with potential savings over \$1,000,000.
- (5) Provide necessary programmatic VM/VE status reports
- (6) Ensure that VM/VE cost savings and avoidances are considered for use on Sustainable Design project additions. These saving shall be supported by life cycle saving analysis performed in accordance with established procedures.

(7) Ensure procedures are established for review, approval, and contractor notification for VECP's.

(8) As an active member of the PDT, shares responsibility for assuring the PDT meets the commitments of the project PMP.

(9) Help assure/maintain/enhance Corps credibility, and cost effectiveness

(10) Ensure documentation, auditable savings/avoidance for reporting to Office of Management and Budget

(11) Ensure studies and workshop reports are compiled in electronic format, submitted to MSC, and incorporated into appropriate VM/VE lessons learned database.

(12) Encourage credible VM/VE studies earlier in the project cycle.

(13) Encourage seamless VM/VE in accordance with PMBP intent

c. MSC/EC VM/VE Officer. The MSC/EC VM/VE Officer is responsible for implementation of VM/VE within the region. The MSC/EC VM/VE Officer may make staff visits as appropriate. The MSC/EC VM/VE Officer will report quarterly to HQUSACE, The MSC/EC VM/VE Officer is, or designates, the MSC member of the VEAC. The MSC/EC VM/VE Officer should schedule an annual MSC VE/VM Conference. The MSC/EC VM/VE Officer should support the MSC/EC VM/VE Officer as required or requested.

d. HQUSACE VM/VE Officer. The HQUSACE VM/VE Officer and/or representative may make staff visits to MSC/Center Offices. The HQUSACE VM/VE Officer will report quarterly on VE/VM to HQ directorates. The HQUSACE VM/VE Officer shall provide appropriate reports for Army, the Department of Defense (DOD), and the Office of Management and Budget (OMB).

e. Value Engineering Advisory Committee (VEAC). The VEAC comprises the HQ VM/VE Officer, MSC VM/VE Officers, and/or their selected representatives, and, an OVEST representative. The committee advises the HQ VM/VE Officer on matters of importance from their District/Center and MSC offices.

f. Office of the Chief of Engineers Value Engineering Study Team (OVEST). Full time VM/VE Study Team formed by HQUSACE operating throughout the Corps and other Federal Agencies to produce and facilitate VM/VE studies and related VM/VE products on a reimbursable basis. As Value Engineering Center of Expertise, assists HQUSACE in administration of the VM/VE program, subject to availability of funds.

g. District/EC VM/VE Committee. Districts/ECs should consider the establishment of a Value Management/Value Engineering Committee (VM/VEC). The membership and

responsibility of the VM/VE Committee can be customized to best serve the needs of the district. The overall functions of the VM/VE Committee are to help guide VM/VE and to obtain greater VM/VE buy-in throughout the district.

10. Training. VM/VE Officers should provide annual recommendations to their organizations on VM/VE training needs and encourage that the needs are incorporated in the Individual Development Plans (IDP).

a. VM/VE Officer. At a minimum, the District/EC or MSC VM/VE Officer must complete (or has previously completed) VE Module 1 training within one year of appointment. Within three years of appointment, the District/EC VM/VE Officer should consider completing VE Module 2 training and become certified within the VM/VE profession, i.e., Certified Value Specialist (CVS), Associate Value Specialist (AVS), or Value Methodology Practitioner (VMP). Further certifications such as Professional Engineer (P.E.), Registered Architect (R.A.), Professional Geologist (P.G.), and Project Management Professional (P.M.P.) are highly recommended.

b. Other Staff. VM/VE Officers should encourage attendance at VM/VE training workshops, seminars, etc., and monitor the number of personnel that attend. Corps Managers and Technical staff (branch and section chief's of PM and Engineering Division and PM's) should attend a VM/VE seminar, or preferably, a VE Module I workshop during the first 2 years of their appointment and at least every 10 years thereafter.

11. Quality Assurance (QA). The District/EC VM/VE Officer and the PDT will verify that a VE study report has been completed for every project studied, in approved format, and accurate in its presentation. VE study proposals should be considered as a matter of official record at the time of VE study presentation. Proposals should be subsequently addressed as appropriate. The presentation, consideration, and implementation of proposals are considered part of the QA.

VE study reports prepared by AE contractors will be reviewed by the District/EC VM/VE Officer and the PDT for completeness, content, and accuracy, and the District/EC VM/VE Officer will verify that study teams are appropriately staffed (VM/VE Officer should verify that the team members are qualified by reviewing and approving the team member resumes prior to the actual study being conducted) and studies show appropriate level of effort. The MSC/EC VM/VE Officer may take part in or audit VE studies in each district and is responsible for ensuring the quality of the VM/VE process. Required reports and files should also be verified for accuracy and content.

12. VM/VE Lessons Learned Tool. Personnel should use the VE Portal website provided through <http://www.projnet.org/> when completed, to keep up to date with the latest VM/VE standards, store examples of well developed studies, and to exchange study templates. MSCs/ECs should also use the VE Portal to both collect district input for MSC/Centers Quarterly Report as well as for posting the consolidated report.

APPENDIX A

REFERENCES

- A-1. Office of Federal Procurement Policy Act, as amended February 10, 1996 by Public Law 104-106.
- A-2. Office of Management and Budget (OMB) Circular No. A-131, dated May 21, 1993.
- A-3. Public Law 99-662, Water Resources Development Act of 1986. Section 911.
- A-4. FAR PART 48, Federal Acquisition Regulations.
- A-5. FAR PART 52, Federal Acquisition Regulations.
- A-6. AR 5-4 Department of the Army Productivity Improvement Program.
- A-7. OCE Supplement 1 to AR 5-4.
- A-8. ER 5-1-11, US Army Corps of Engineers Business Process.
- A-9. ER 37-2-10, Accounting and Reporting - Civil Works Activities.
- A-10. ER 37-345-10, Accounting and Reporting – Military Activities.
- A-11. ER 1110-2-1150, Engineering and Design for Civil Works Projects.
- A-12. ASTM E 1699-95, Standard Practice for Performing Value Analysis (VA) of Buildings and Building Systems.
- A-13. ASTM E 2013-99, Standard Practice for Constructing FAST Diagrams and Performing Functional Analysis During Value Analysis Study
- A-14. ER 1110-345-100, Design Policy for Military Construction
- A-15. EP 11-1-4, Value Engineering: A Profitable Partnership
- A-16. U.S. Code Title 10, Armed Forces, Subtitle A, General Military Law, Part IV, Service, Supply, And Procurement, Chapter 160, Environmental Restoration, Section 2701, Environmental Restoration Program, Paragraph (a)(2).
- A-17. U.S. Code Title 42, The Public Health And Welfare, Chapter 103, Comprehensive Environmental Response, Compensation, and Liability, Subchapter I, Hazardous Substances

Release, Liability, Compensation, Section 9605, National Contingency Plan, Paragraph (a)(2).

APPENDIX B

DEFINITIONS

- B-1. A-E. Architect-Engineering firm.
- B-2. AVS. Associate Value Specialist. A mid-level of certification for practicing Value specialists.
- B-3. BCOE. Biddability, Constructibility, Operability and Environmental Review. Required to be performed and certified before a construction contract can be advertised.
- B-4. Customer. The owner, client, user, or other similar beneficiary of a product having a vested interest in the product. Customers may be multiple entities with conflicting priorities and values.
- B-5. CVS. Certified Value Specialist. The highest level of certification for practicing Value specialists.
- B-6. Contributed Funds. These funds are non-federal funds that are used to support the requirements of the PCA.
- B-7. Decision Documents. A decision document is any report prepared for the purpose of obtaining project/program authorization or modification, commitment of federal funds for project implementation, and approval to spend/receive funds as a result of entering into agreements with other agencies or organizations including those to obtain congressional authorization.
- B-8. EC. Engineering Center. Designated USACE activities with specific engineering and/or research/development or training function (CERL, Huntsville, etc.)
- B-9. FMS. Foreign Military Sales.
- B-10. FOA. Field Operating Activity. For example, Corps of Engineers District Office.
- B-11. FUDS. Formerly Used Defense Site.
- B-12. FUSRAP. Formerly Utilized Sites Remedial Action Program.
- B-13. HQUSACE. Headquarters United States Army Corps of Engineers.
- B-14. HTRW. Hazardous, Toxic and Radioactive Waste.

B-15. Independent Technical Review (ITR). A technical review by a qualified person or team, not affiliated with the development of a project, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles, and professional procedures.

B-16. MSC. Major Subordinate Command, Example: U.S. Army Corps of Engineers Division.

B-17. OVEST. Office of the Chief of Engineers Value Engineering Study Team. Full time VE Study Team formed by HQUSACE operating throughout the Corps and other Federal Agencies to produce and facilitate VM/VE studies and related VM/VE products. OVEST is the Value Engineering Center of Expertise, and assists HQUSACE in administration of the VM/VE program.

B-18. Project Delivery Team (PDT). An interdisciplinary group formed to develop a product.

B-19. Quality. Characteristic of a project that meets or exceeds customer needs; adheres to all applicable technical and policy requirements; is on schedule and within budget.

B-20. Quality Assurance (QA). The process of oversight and verification of the quality control processes to ensure their effectiveness in the production of quality products.

B-21. Quality Control (QC). The process employed to ensure the performance of a task meets or exceeds the agreed-upon requirements of the customer; the proper application of sound technical criteria and practices of the disciplines involved; and appropriate laws, regulations, and policies on schedule and within budget.

B-22. SAVE International. Formerly called the Society of American Value Engineers, International, this organization sets standards for Value Engineering/Value Management practices, requirements for professional certification and provides training opportunities for VM/VE practitioners.

B-23. SFO (II2S) Support For Others. Projects that are performed by the Corps of Engineers on a reimbursable basis from the requesting organization.

B-24. Technical Products. All deliverables are referred to as technical products, including real estate, decision and implementation documents, PMPs, and plans and specifications, that include the integration of technical products from multiple functional elements. They include completed deliverables that are ready for transmission to other members of the design or study team, outside of the element that performed the work.

B-25. Technical Review. Technical Review focuses on compliance with established policy, principles, and procedures using clearly justified and valid assumptions. It includes the validation of assumptions, methods, procedures, and material used in analyses based on the level of complexity of the analysis. It validates the alternatives evaluated, appropriateness of data used and level of data obtained, functionality of the product, and validates the reasonableness of the results including whether the product meets the customer's needs consistent with law and existing policy and engineering and scientific principles.

B-26. Value Engineering(VE) Methodology. A function oriented, systematic team approach to balance performance and cost, performed under the direction of an active District VM/VE Officer or facilitator with qualifications equivalent to a Certified Value Specialist. The Value Engineering methodology utilizes five basic steps (information, speculation, analysis, development, and presentation) to perform an analysis of the functions of a program, project, system, project, item of equipment, building, facility, service, or supply of an executive agency, for the purpose of improving performance, reliability, quality, safety, and life cycle costs.

B-27. Value Engineering Study or Value Management (VM) Workshop. A process of application of the Value Engineering Methodology, which uses the product delivery team and a multi-discipline team of designers and stakeholders to break down the project into functional performance elements. Cost and benefits are assigned to each element and evaluated. Creative options are then sought to improve functionality and/or cost-effectiveness. Results are documented in a published report. This study or workshop (studies or workshops as appropriate) is (are) a milestone(s) to be identified in the PMP and accomplished as part of the VE/VM process.

B-28. VEAC. Value Engineering Advisory Committee. Composed of HQ VM/VE Officer, MSC VM/VE Officers and/or their selected representatives, and an OVEST representative formed for the purpose of advising the HQ VM/VE Officer on matters of importance from their District and Division offices.

B-29. VECP. Value Engineering Change Proposal. A VE proposal submitted by the contractor after award, the savings being cost shared between the contractor and government.

B-30. VE Modules I and II. These are the industry standard introductory and developmental value engineering training courses. Offered in USACE PROSPECT, SAVE International and other commercial providers.

B-31. Value Management (VM) is the use of the Value Methodology at multiple points in a project, process, or program to discover, understand, and consider the needs and values of all Project Delivery Team (PDT) members, customers, partners, and stakeholders. When performed properly and professionally, Value Management Workshops help the project manager effectively balance scope, schedule, resources, and quality of a project. The VM/VE process emphasizes the use of multi-functional teams and their resulting synergy. It is a management tool that should be applied throughout the life cycle of projects and programs. Value Management seamlessly integrates into the PMBP and may be applied to all business processes phases.

B-32. Value Management Plan (VM plan). A sub-element of the project management plan that describes how value methodology will be applied throughout the life of the project.

B-33. VMP. Value Methodology Practitioner. A level of certification for practicing Value Specialists.

B-34. Value Methodology. The Five-step job plan: Information, Speculation, Analysis, Development, and Presentation, as applied in a Value Management Workshop or Value Engineering Study.

APPENDIX C

SAMPLE CONTENT OF VM/VE PLAN AND WORK BREAKDOWN STRUCTURE

C-1. VALUE MANAGEMENT/VALUE ENGINEERING PLAN.

a. Goals: (Statement of the overall goal of the VM/VE effort; ex. Compliance with Federal Law; Attempt identify possible cost saving and project enhancement options)

b. Objectives: (Specific items of accomplishment that the VM/VE effort will achieve as specific to the project; for example, Validate current alternative strategies; Identify and address pertinent issues that may impact the implementation and effectiveness of the current alternatives strategies; provide recommendations for future research needs.)

c. Execution: (Discussion on how VM/VE effort will be implemented; ex. Scheduled VE studies; Participation in plan formulation, development and technical review activities)

C-2. WORK BREAKDOWN STRUCTURE.

a. Organization Name: as

b. Organization Code: as

c. WBS Code: as

d. What: (Description of VM/VE effort, i.e., specific VE study(ies), other participation in PDT activities).

e. Why: (Purpose of VM/VE action(s))

f. Who: (Specific staff and/or contractors)

g. When: (VM/VE activity schedule in terms of the overall project)

h. How: (Brief Description of process to be used to execute VM/VE activities)

i. Cost: as

j. Time: as

APPENDIX D

SCHEDULING FOR VM/VE STUDIES

D-1. Value Management Planning. A VM plan will be developed as part of the PMP. See Appendix C. VM/VE should be implemented early and be used as an integral part of project planning and design development.

D-2. Civil Works Program.

a. Reconnaissance Phase: A VE study is not required in the Reconnaissance Phase. A VE study may be used, however, to help formulate projects by using VM/VE methodology to ensure that the customer and all other stakeholder issues are properly addressed early in the project development process.

b. Construction Projects Exceeding \$10 Million. Value Management Workshops (VE Studies) shall be performed in both planning and design phases of project development as follows:

(1) Pre-authorized (Planning Phase). At least one VE study will be performed during the feasibility phase of the project, as part of the plan formulation process prior to the selection of final alternatives. This is generally during the latter part of "Identification of Measures" and the early part of "Formulation of Alternative Plans".

(2) Authorized (Design/Construction Phase). A VE study shall be performed on all authorized projects with current working estimate (CWE) or programmed amount (PA) exceeding \$10 million and individual project design features thereof exceeding \$10 million no later than at the 35% completion of the design and shall be in addition to the feasibility phase VE study noted above. Under no circumstances shall a contract for water resources project over \$10 million be awarded prior to completion (including complete disposition of proposals) of a formal VE study.

c. Construction Projects Exceeding \$2 Million up to but less than \$10 Million. A VE study shall be performed on all projects and individual contracts in this cost range no later than at the 35% completion of the design; additional earlier VE studies should also be considered when appropriate.

d. Post-Authorization Changes (PAC's). For all Post-Authorization Change Reports (e.g., LRRs, GRRs), a VE study must be performed, unless waived by MSC/Center (waiver only allowed for project less than \$10 million).

e. Operation and Maintenance Projects/Programs and All Other Procurements.

(1) Projects or Procurements Exceeding \$10 Million. A VE study shall be performed on all projects or procurements exceeding \$10 million as described above.

(2) Projects or Procurements Exceeding \$1 Million up to \$10 Million (\$2 Million up to \$10 million for Construction. A VE study shall be performed on all projects and procurements in this cost range as described above in Para c. While it is fully realized that it may be impractical to study the vast number of District O&M projects/programs in this range, managers should consider utilizing VM/VE studies on a combination of projects and/or program applications.

f. Design-Build (DB). All DB or other alternative procurements must be studied in accordance with the above pre and post authorization project requirements. Additionally, projects that have been identified for DB acquisition shall have a VM plan prepared by the PDT and a VM/VE study conducted prior to completion of the draft Request for Proposal (RFP) document. The accepted proposals shall be incorporated prior to publishing the draft RFP for review.

D-3. Military Construction. For all projects greater than \$2 million, a Value Management Workshop or VE study shall be performed unless waived by MSC/EC Commander. VM/VE methodology will be done early on applicable projects, and can be utilized at several different phases of project development including Planning Charrette and Design Charrette phases, and at any phase of subsequent design completion to ensure elimination or reduction of reprogramming requests. In addition to the Planning Charrette and Design Charrette phases, Design-Build (DB) projects may be studied during development of the RFP and the VM/VE methodology may be used to facilitate the initial design conference after selection of contractors for increased partnering.

a. For all MILCON projects a value based design charrette may be performed at the design initiation (approximately 10%). Function of this study will be primarily to influence the planning direction.

b. Design-Bid-Build. A minimum of one Value Management Workshop or Value Engineering study will be performed as early in the process as possible, but no later than 35% design. The purpose of this study will be to help identify and resolve problems in the design, changed conditions, ensure that the project is in accordance with the program documents (such as 1391) and control cost and schedule growth.

c. Design-Build. A Value Management Workshop or VE study will preferably be performed at the preliminary (draft) stage of RFP development, but at least one study will be performed no later than the final stage. Function of this study will be to identify and resolve problems in the design, focus on performance as much as possible, identify any changed conditions and control cost and schedule growth.

D-4. Other Projects/Programs/Procurements. A VM Plan will be developed in accordance with guidance stated above. A Value Management Workshop or VE study shall be performed (or waived) for any procurement greater than \$1 Million. VM/VE should be performed early in the planning/design/acquisition process.

D-5. USACE Construction of HTRW/OE Projects. When VM/VE is utilized during Preliminary Assessment (PA), Site Inspection (SI), Remedial Investigation (RI), Feasibility Study (FS), and Record of Decision (ROD) phases of USACE HTRW/OE projects, the PM will direct the District VM/VE Officer to include on his PDT, a person from the District or the HTRW-CX who is experienced in Technical Project Planning (TPP).

APPENDIX E

METRICS

E-1. Metric #1, Savings and Cost Avoidance.

a. Goal. The MSC/EC will be required to report annual VM/VE savings minus current FY VM/VE study costs. VM/VE savings goal will be based on 1% of the MSC's total expenditures of the previous FY and be allocated by MSC/Center. While monetary goals cannot be directly connected to current year VM/VE actions, it is believed that this goal is both indicative of total MSC function and is readily accountable.

b. Allowable Savings and Cost Avoidance. VM/VE benefits (cost avoidance or cost savings) may be claimed on any Federally authorized project or process. Benefits should be claimed in their entirety regardless of cost-sharing circumstances. Cost avoidance and cost savings are both defined as the estimated cost differences between the originally proposed work and the work as changed by the implementation of VM/VE proposals. "Cost avoidance" refers to the case where proposals are implemented before a contract occurs, thus avoiding future cost. "Cost savings" refers to the case where a contract is in place, and implementing a VM/VE proposal results in non-expenditure of money, which would have otherwise been spent.

c. Claiming Period. VM/VE savings and cost avoidances should generally be claimed concurrently with construction placement or other procurement action. Savings or cost avoidance may be claimed up to five years on future projects (or processes) that repeatedly benefit from the VM/VE action.

d. Documentation. Savings and cost avoidance will be documented and reported to the MSC/EC. Documentation must adequately define and illustrate how a specific VM/VE action directly, or indirectly, resulted or significantly contributed to, a cost saving (or avoidance) change of action.

E-2. Metric #2, Program Coverage. Measurement of mandated (i.e., Civil Works or Military) or annual plan Value Engineering Studies done in current Fiscal Year. Indicator of VM/VE current year program coverage performance will be as follows:

Formula:

Accomplished % = $\frac{\text{Studies accomplished} \times 100}{\text{Total studies available} - \text{Studies (waivers granted + schedule delays)}}$

Definitions:

Total Studies: Number of Mandated or total traditional Value Engineering studies (studies based on 35% design documents) stated in the current FY VM/VE annual plan.

Studies, schedule delays: Number of studies originally scheduled in the annual plan which had design or other delays causing study to be rescheduled to next FY.

Studies accomplished: Number of mandated or total traditional VM/VE studies for which final reports were issued for that FY.

Study waivers granted: Number of studies waived by the MSC Commander.

E-3. Metric #3, Projected Savings. Measurement of potential study success will be by reporting potential VM/VE savings offered from acceptable VM/VE proposals (including cost avoidance), gauged against the project/program CWE and the actual cost of VM/VE study. This will yield a gauge of potential study effectiveness and return on investment (ROI).

E-4. Metric #4, Qualitative Improvements. Non-monetary project or process enhancements produced by VM/VE efforts will be reported quarterly. This will include items such as value added project/program improvements, added sustainability, schedule improvements, quality improvements, functional improvements, advanced construction items, plan validation, etc.