DEPARTMENT OF THE ARMY ER 11-1-321

U.S. Army Corps of Engineer
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Regulation No. 11-1-321 **28 February 2005**

ARMY PROGRAMS
VALUE ENGINEERING

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ARMY PROGRAMS
VALUE ENGINEERING
(USACE)

1. Purpose. This regulation provides general policy, procedures, and a framework for the execution of the Value Engineering (VE) elements within the Project Management Business Process (PMBP) of the U.S. Army Corps of Engineers (USACE). Value Management (VM) shall be made by implementing the Value Management Plan (REF8023G) from the U.S. Army Corps of Engineers Business Process Manual.

2. Applicability. This regulation applies to all VE activities of the Corps of Engineers. The 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, Environmental, Hazardous, Toxic and Radioactive Waste (HTRW) and Military Munitions Response Program (MMRP) projects, Support For Others (SFO), Formerly Used Defense Site (FUDS), Formerly Utilized Sites Remedial Action Program (FUSRAP) and any other Federal funded programs with a total project cost of $1 million or more ($2 million for construction projects (CCE)) regardless of the number of phases to accomplish the project.

3. Distribution Statement. Approved for public release, distribution is unlimited.

4. References. See Appendix A.

5. Definitions. See Appendix B.

6. General Requirements. 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, as amended by Public Law 104-106, Section 4306, dated February 10, 1996, requires each executive agency to establish and maintain a Value Engineering program. 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 currently requires VE application on all federal projects/programs over $1,000,000 total costs. Office of Management & Budget has allowed this amount to be $2 million for Corps of Engineers construction projects/programs.

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 known as Value Engineering.

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

e. For Environmental Laws, see Appendix A, references 15 and 16. The Project Delivery Team (PDT) shall include VE requirements in the Project Management Plan (PMP) for all environmental projects, such as HTRW, MMRP, and other environmental mitigation projects for Defense Environmental Restoration Program (DERP), Base Realignment and Closure (BRAC), SFO, FUSRAP with a total project cost of two million dollars or more, regardless of the number of phases to accomplish the work. The two million dollar threshold to perform VE studies for environmental projects shall be the estimated cost for the actual remediation and removal phase of the clean-up action for the operable unit. The performance of the Technical Project Planning (TPP) does not constitute completion of the VE requirement.

7. Procedural Requirements.

a. Planning and Scheduling. Project Management Plans (PMPs) shall contain a Value Management (VM) Plan (Ref. Appendices B and D). The PDT shall develop the VM Plan to ensure that VE activities are properly scheduled and resourced (Ref. Appendix D). VE activities (start and completion of 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 VE task(s) includes documenting the disposition of all study proposals.

b. VE Study Requirements. All projects, programs and procurements greater than $1 million ($2 million for construction and environmental) shall have an appropriate VE study(ies) (Ref. Appendix D) or approved waiver as indicated in the following paragraphs.

(1) Civil Works Construction or Civil Works Operation and Maintenance. VE studies shall not be waived for any project over $10,000,000 construction costs. The Corps of Engineers Major Subordinate Command (MSC) and Engineering Center Commanders may waive a 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 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 and environmental). Requests for waivers from conducting a study shall be staffed by the Project Manager (PM) over the signature of the Field Operating Activity (FOA) (District) Commander.

It is recommended that the PM discuss the pending VE waiver request with MSC Value Engineering representative prior to submission to the MSC for approval in order to streamline the process.

(2) Defense (Army, Navy, Air Force, etc.). VE studies may be waived for similar justification indicated in paragraph 6.b. (1). District requests for waivers will be through the Major Subordinate Command (MSC). Only the office that issues the Release Code to the Corps (normally the Programming/Budgeting Office for the project) may waive a Value Engineering Study. For Military Construction Army (MCA), this authority rests with Assistant Chief of Staff Installation Management (ACSIM); Military Construction Army Reserve (MCAR), ACSIM-AR; for Military Construction Air Force (MCAF), Major Air Force Command (MAJCOM); for Military Construction Air Force Reserve (MAFR), Headquarters Air Force Reserve Command (HQ AFRC); and for Department of Defense (DoD) projects authority rests with the DoD Programming/Budgeting Office, i.e., United States Special Operations Command (USSOCOM), Defense Finance and Accounting Service (DFAS), Defense Logistic Agency (DLA), etc. The $2 million threshold for performing Value Engineering studies refers to the Current Working Estimate (CWE). The $10 million threshold for performing mandatory VE studies also refers to the CWE.

(3) USACE Construction or services for other Federal Agencies. In cases where the Corps is performing the design and/or construction for other federal agencies, federally mandated VE requirements still apply (all procurements, including construction, greater than $1 million). The authority to waive the VE study lies with the funding agency. The Corps will perform VE studies unless the other federal agencies specifically request a wavier. The Corps' PM is responsible to ensure that appropriate written documentation from the other agency is contained in the project file where the funding agency waives (or has already performed) required VE studies. The Corps' PM shall verify that the individual with authority to make decisions on behalf of their programs has approved the waiver request. Once the Corps' PM receives written wavier documentation from another Federal Agency, the request should be sent to the MSC for approval. It is the responsibility of USACE to assure adherence to public law and administrative policy unless declined by other federal agencies. If any Corps program funds are utilized, the subject Corps VE regulation 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 VE requirements. Execution of VE studies should, however, be encouraged when appropriate.

(5) HTRW/MMRP Projects: The Program Management Plan (PMP) shall include a VM-plan. The Program Manager (PM) for the project shall ensure that the VE requirements are adequately resourced (including funding) as part of the project budget and properly scheduled. The USACE District or Engineering Center VE Officer or his/her designated representative shall be an integral member of the PDT. The VM Plan shall be the product of the PDT and shall have the PM's concurrence. The Performance of the Technical Project Planning (TPP) does not constitute the completion of the VE requirements.

(6) HTRW/MMRP Waivers: When executing reimbursable environmental projects, which utilize federal funds other then Army, the authority to waive VE lies with the customer. The USACE should budget and then encourage performance of the VE study as part of the business process to the customer. The PM is responsible to ensure that appropriate documentation is contained in the project file where the customer either performs or waives the VE studies to comply with the federally mandated VE requirements. For FUSRAP projects, the authority to waive VE requirements will be the Assistant Secretary of the Army for Civil Works; for FUDS, the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health.

c. Rejection of VE proposals. The rejection of any individual 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 and Engineering Center Commanders. Decisions to reject such major proposals should include independent technical review, as appropriate.

d. VE Certification.

(1) Civil Works Decision documents. All feasibility reports, post authorization change reports, general reevaluation reports, reauthorization letter reports and the equivalent will contain a review and approval statement from the PM indicating that required 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, impacting plan formulation, have been resolved.

(2) A statement that appropriate VE actions have been completed should accompany the Biddibility, Constructibility, Operability and Environmental (BCOE) document for all procurement actions with CWE over $1,000,000 ($2,000,000 for construction and environmental). The statement shall read:

"I, (the PM), certify that this procurement action has completed the Value Engineering process. A VE study was (completed/waived) on (date). All VE proposals indicating potential savings over $1,000,000 have been resolved with approval of the MSC and Engineering Center 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 and Engineering Center VE Officer should ensure that appropriate procedures are in place for review, approval, and contractor notification for VECPs.

f. Plans, Reporting, Records, and Metrics

(1) MSCs and Engineering Centers should have an Annual Plan in place for Value Engineering activities by 30 Nov for associated fiscal year (FY). MSCs and Engineering Centers should submit their plan directly to HQUSACE. Appendix F to this regulation provides guidance for the Divisions in developing the annual plan.

(2) Quarterly Reports. The MSCs and Engineering Centers 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 HQUSACE.

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

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

8. VE Workshops or Studies. VE workshops or studies shall follow the general VE Job Plan format as prescribed by ASTM and SAVE International standards – the 5 step process (Information, Speculation, Analysis, Development and Presentation Phases). Studies shall include and document legitimate functional analysis methodology (FAST diagrams) and generation of alternatives and not be simply project review sessions. VE study team members should be independent of the project design team so as to encourage the maximum interface and development and acceptance of proposals.

9. Staffing.

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

b. District and Engineering Center VE Officer. The District and Engineering Center VE Officer is the primary agent responsible for execution of the VE program. A person at each District or Engineering Center will be assigned VE as a primary duty. Commanders will ensure the position is located within the organization and provide sufficient visibility and resources to ensure proper VE execution.

10. Roles and Responsibilities.

a. Project Manager. PMs will include the 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 VE study is prepared for forwarding to the MSC or Engineering Center Commander.

(3) Ensure schedules are developed and adequate funds are budgeted for all VE activities, including proposal review by District and Engineering Centers, partners and customers.

(4) Ensure implementation of accepted VE study proposals.

(5) Ensure the rationale for not accepting proposals is valid and documented.

(6) Ensure a request for approval for non-implementation of all VE proposals, and/or group of proposals, with potential savings over $1,000,000, is made to the MSC or Engineering Center Commander.

b. District or Engineering Center VE Officer. The District or Engineering Center VE Officer (or his/her selected representative), will act as VE advisor on the PDT and as professional subject matter advisor to the PM and District and Engineering Center Commander. District and Engineering Center VE Officers duties include but are not limited to:

(1) Participate on PDTs to assist in developing the appropriate number and content of VM plans and VE studies, the scheduling and appropriate resources (OVEST, in-house or A-E contract) and funding for the VE stud(ies).

(2) Execute duties as the technical expert on the PDT to assure that VM plans and VE studies are accomplished in accordance with established guidance and procedures.

(3) Track and record all district VE costs and savings for reporting in the VE channels.

(4) Coordinate with the MSC and Engineering 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 rejected VE proposals with potential savings over $1,000,000.

(5) Provide necessary programmatic VE status reports including auditable savings/avoidance for reporting to the Office of Management and Budget (OMB).

(6) Ensure that 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 established for VECP review, approval, and contractor notification.

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

(9) Ensure studies and workshop reports are compiled in electronic format, and incorporated into appropriate VE lessons learned database. Districts submit to MSC.

(10) Ensure credible VE studies earlier in the project cycle.

(11) Ensure seamless VE in accordance with PMBP intent.

c. MSC or Engineering Center VE Officer. The MSC or Engineering Center VE Officer is responsible for implementation of VE within the region. The MSC and Engineering Center

VE Officer will make staff visits as appropriate. The MSC and Engineering Center VE Officer will report quarterly to HQUSACE. The MSC and Engineering Center VE Officer will be, or as designated, a member of the VEAC and shall actively partake in its activities. The MSC and Engineering Center VE Officer will schedule an annual MSC VE Conference. The MSC and Engineering VE Officer will support the HQUSACE VE Officer as required or requested.

d. HQUSACE VE Officer. The HQUSACE VE Officer and/or representative will make staff visits to MSC and Engineering Center Offices. The HQUSACE VE Officer will report quarterly on VE to HQ directorates. The HQUSACE VE Officer shall provide appropriate reports for Army, the DoD, and the OMB. The HQUSACE VE Officer will obtain funding to support assigned VE Engineering Center and VEAC and to support special missions efforts as required.

e. Value Engineering Advisory Committee (VEAC). The VEAC comprises the HQ VE Officer, MSC and Engineering Center VE Officers, and/or their selected representatives, and an OVEST representative. The committee advises the HQ 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). A Full time VE Study Team formed by HQUSACE operating throughout the Corps and other Federal Agencies to produce and facilitate VE studies and related VE products on a reimbursable basis. OVEST is the Engineering Center of Expertise for VE in the Corps of Engineers. As Value Engineering Center of Expertise, assists HQUSACE and VEAC in administration of the VE program.

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

a. VE Officer. At a minimum, the District, Engineering Centers and MSC VE Officers must complete (or have previously completed) VE Module 1 training within one year of appointment. Within three years of appointment, the District and Engineering Center Officer will complete the VE Module 2 training and become certified within the 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. VE Officers should encourage attendance at VE training workshops, seminars, etc., and monitor the number of personnel that attend. Corps Managers and Technical staff (branch and section chiefs of PM and Engineering Division PMs) should attend a VM and VE seminar, or preferably, a VE Module I workshop during the first 2 years of their appointment and at least every 5 years thereafter. The VE Officers should implement the training of Corps Managers, Team Leaders and Technical staff on the VM process and procedures.

c. VE mentors. The District VE Officers shall mentor new VEO of other Districts. During this period, the VEO shall introduce the functions of how to conduct a VE study, prepare a VE report and presentation and the overall process of the VE program.

d. New VE District Officers. The MSCs and Engineering Centers shall include, in the annual plan, a program to support and mentor new District VE officers that do not have formal background or experience in VE. The program shall consist of mentoring the new VE officer on conducting studies, attending studies and actively assisting in the management of the new VE officer's program. Assistance from other District VE Officers is required. This development program of new District VE officers shall be intensely managed for a minimum of one year.

12. Quality Assurance (QA). The District and Engineering Center 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 the 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 and Engineering Center VE Officer for completeness, content, and accuracy. The District and Engineering Center VE Officer will verify that study teams are appropriately staffed (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 and Engineering Center VE Officer may take part in or audit VE studies in each District and is responsible for ensuring the quality of the VE process. Required reports and files should also be verified for accuracy and content.

13. VE Lessons Learned Tool. Personnel should use the appropriate lessons learned system or portal to keep up to date with the latest VE standards, store examples of well-developed studies, and exchange study templates. MSC and Engineering Centers should also use the VE Portal to collect district input for MSC/Centers Quarterly Report as well as for posting the consolidated report.

14. Selection of the District VE Officer and OVEST members. In the event that a selection of new District VE Officer or an OVEST member is to be made, a Division Value Engineering Officer or the HQ VE Officer should be on the selection committee as a voting member to provide input as to the best-suited individual for that position.

FOR THE COMMANDER:

6 Appendices
(See Table of Contents)

JOHN R. McMAHON
Colonel, Corps of Engineers
Chief of Staff

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. ER 5-1-11, US Army Corps of Engineers Business Process.

A-8. ER 37-2-10, Accounting and Reporting - Civil Works Activities.

A-9. ER 37-345-10, Accounting and Reporting – Military Activities.

A-10. ER 1110-2-1150, Engineering and Design for Civil Works Projects.

A-11. ASTM E 1699-95, Standard Practice for Performing Value Analysis (VA) of Buildings and Building Systems.

A-12. ASTM E 2013-99, Standard Practice for Constructing FAST Diagrams and Performing Functional Analysis During Value Analysis Study

A-13. ER 1110-345-100, Design Policy for Military Construction

A-14. EP 11-1-4, Value Engineering: A Profitable Partnership

A-15. 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-16. 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).

A-17. PMBP REF8023G, Value Management Plan, A reference guide to the PMBP workbook.

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. Biddibility, 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. CCE. Current Construction Estimate. The total cost for construction of a particular project, including the escalation. The CCE is usually compared to the contractor's bid proposal.

B-8. CWE. Current Working Estimate. The total cost of a particular project including the construction and design contingencies and the Army Corps of Engineers construction administration fee (SIOH). The CWE is usually compared to the initial programming amount (PA).

B-9. 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-10. Engineering Center. Designated USACE activity with specific engineering and/or research/development or training function (Huntsville, Transatlantic Center, etc.). The Engineering Center supports very specialized missions that require unique technical expertise in programs that are generally national or very broad in scope.

B-11. FMS. Foreign Military Sales.

B-12. FOA. Field Operating Activity. i.e. Corps of Engineers District Office.

B-13. FUDS. Formerly Used Defense Site.

B-14. FUSRAP. Formerly Utilized Sites Remedial Action Program.

B-15. HQUSACE. Headquarters United States Army Corps of Engineers.

B-16. HTRW. Hazardous, Toxic and Radioactive Waste.

B-17. ITR. Independent Technical Review. 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-18. MSC. Major Subordinate Command, Example: U.S. Army Corps of Engineers Division.

B-19. MMRP. Military Munitions Response Program: A program category of the Defense Environmental Restoration Program for response actions to address military munitions and explosives of concern and munitions constituents.

B-20. Operable Unit. A discreet action that comprises an incremental step toward comprehensively addressing site problems. This discreet portion of a remedial response manages migration and/or eliminates or mitigates a release or pathway of exposure. The cleanup of a site, i.e., an installation or property, can be divided into a number of operable units, depending on the complexity of the problems associated with the site.

B-21. OVEST. Office of the Chief of Engineers Value Engineering Study Team. A full time VE Study Team formed by HQUSACE operating throughout the Corps and other Federal Agencies to produce and facilitate VE studies and related VE products. OVEST is the Value Engineering Center of Expertise and assists HQUSACE in administration of the VE program.

B-22. PDT. Project Delivery Team. An interdisciplinary group formed to develop a product.

B-23. 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-24. QA. Quality Assurance. The process of oversight and verification of the quality control processes to ensure their effectiveness in the production of quality products.

B-25. QC. Quality Control. 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; appropriate laws, regulations, and policies on schedule and within budget.

B-26. 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 VE practitioners.

B-27. SFO. Support For Others. Otherwise known as IIS – International and Interagency Support. Projects that are performed by the Corps of Engineers on a reimbursable basis from the requesting organization.

B-28. 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-29. 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-30. TPP. Technical Project Planning. The Technical Project Planning process is a comprehensive and systematic planning process for identifying long and short-term project objectives. Technical project planning is accomplished at the beginning of a project whereby all stakeholders provide input to the initial perimeters.

B-31. Value Engineering (VE) Methodology. A function oriented, systematic team approach to balance performance and cost, performed under the direction of an active District 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-32. Value Engineering Study. A process of application of the Value Engineering Methodology, which uses a multi-discipline team of designers and stakeholders and the product delivery team 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 process.

B-33. VEAC. Value Engineering Advisory Committee. Composed of HQ VE Officer, MSC VE Officers and/or their selected representatives, and an OVEST representative formed for the purpose of advising the HQ VE Officer on matters of importance from their District and Division offices.

B-34. VECP. Value Engineering Change Proposal. A VE proposal submitted by the contractor after award with the savings being cost shared between the contractor and government.

B-35. 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-36. VM. Value Management. 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 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-37. VM Plan. Value Management Plan. A sub-element of the project management plan that describes how value methodology will be applied throughout the life of the project.

B-38. VMP. Value Methodology Practitioner. A level of certification for practicing Value Specialists.

B-39. 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 VE PLAN AND WORK BREAKDOWN STRUCTURE

C-1. Value Engineering Plan.

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

b. Objectives: (Specific items of accomplishment that the 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 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:

b. Organization Code:

c. WBS Code:

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

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

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

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

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

i. Cost:

j. Time:

APPENDIX D

SCHEDULING FOR VE STUDIES

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

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 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 35% completion of the design; additional earlier VE studies should also be considered when appropriate.

d. Post-Authorization Changes (PACs). 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 in Para c above. 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 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 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 CWE, a VE study shall be performed, unless waived by the MSC or Engineering Center Commander. 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, DB projects may be studied during development of the RFP and the 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% design effort). Function of this study will be primarily to influence the planning direction. A value based design charrette shall not fulfill the requirement for a VE study.

b. Design-Bid-Build. A minimum of one VE 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 of the RFP preparation. The 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 VE Workshop or VE study shall be performed (or waived) for any procurement greater that $1 Million. VE should be performed early in the planning/design/acquisition process.

D-5. USACE Construction of HTRW/MMRP Projects. VE will be applied to the selected alternative after the Decision Documents or RODs (Record of Decision), as a minimum, for all projects other than those that will use Performance Based Contracts (PBC). VE efforts in partnership with the PBC contractor are strongly encouraged. Details of such effort should be stated in each PBC, when applicable. VE shall be accomplished in each delivery order of Total Environmental Restoration Contracts (TERC), with costs above applicable thresholds. Such recommendations are to be used in TERC negotiations.

APPENDIX E

METRICS

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

a. Goal**.** The MSC and Engineering Center will be required to report annual VE savings minus current FY VE study costs. VE savings goal will be based on 1.0% of the MSC's total obligation authority allocated to the MSC and Engineering Centers. The goal for FY06 and beyond will increase to 1.5% of the total obligation authority. The percentage goal may change as directed by HQUSACE.

b. Allowable Savings and Cost Avoidance. 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 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 VE proposal results in non-expenditure of money, which would have otherwise been spent. Cost savings will typically be the result of implemented VECPs submitted by the contractor

c. Claiming Period. 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 a total of six years on future projects (or processes) that repeatedly benefit from the VE action.

d. Documentation. Savings and cost avoidance will be documented and reported to the MSC and Engineering Center. Documentation must adequately define and illustrate how a specific 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 VE Studies done in current FY. Indicator of VE current year program coverage performance will be as follows:

Formula:

$$\textbf{Accomplished \%} = \frac{\textbf{(Studies accomplished + Waivers) X 100}}{\textbf{(Total studies required or planned – Slippage)}}$$

Definitions:

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

Studies, slippage: 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 VE studies for which final reports were issued for that FY.

Study waivers granted: Number of studies waived by appropriate approval authority.

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

E-4. Metric #4, Qualitative Improvements. Non-monetary project or process enhancements produced by 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. The VE studies have a goal of developing one quality improvement proposal for every 10 accepted VE proposals.

APPENDIX F

SAMPLE ANNUAL GUIDANCE PLAN
VALUE ENGINEERING PROGRAM
NORTH ATLANTIC DIVISION, U.S. ARMY CORPS OF ENGINEERS

F.1. Program Description and Current Status.

a. Purpose. The purpose of the FY 2004 Annual Guidance plan for the Value Management (VM) Program (also known as Value Engineering (VE) Program) is to convey a standard annual plan for all of the Districts within the North Atlantic District. This annual plan is to enhance the functional quality and cost effectiveness of our VM/VE products and services. The VM/VE methodology can be applied to any business process and it is not restricted to the field of engineering. Since the Districts under North Atlantic Division mission are mainly that of Engineering, Construction, Operations and Maintenance, our VM program is focused mainly on conducting VE studies on our engineering, design, construction, Operations and Maintenance projects. The Value Engineering Change Proposals (VECP) program, a cost savings sharing program for construction contractors, is also an important albeit smaller component of the Corps' VM program. The purpose of this FY 2004 Annual Plan is to provide a uniform framework for the NAD Districts support and execution of a reinvigorated VM/VE program in accordance with Corps' VM/VE policy and procedures as embedded/integral elements within the Corps' Project Management Business Process (PMBP).

b. Program Guidance. The essential program guidance documents consist of:

(1) Value Management Plan (VMP-REF8023G) which is an integral part of the Corps' PMBP. Reference Memorandum dated 7 November 2002, in which LTG Flowers approved implementation of the USACE Business Process Manual. This Guidance is found at the website link to the VMP-REF8023G http://www.hnd.usace.army.mil/p2/tutor/ref8023G.htm as well as Appendix 1 of this FY 2004 Annual Plan. This guidance calls for the embedment of the VMP into every qualified project management plan.

(2) ER 11-1-321, dated 28 February 2005, which contains general and procedural requirements for executing Corps' VM/VE work. This guidance is contained in appendix of this annual plan.

c. Value Engineering Services. Our VE services mainly consist of independent third party VE Team reviews and studies on qualified construction projects. These reviews and studies follow an organized process of team partnership and consensus decision-making, incorporating elements of functional analysis, creative brainstorming and life cycle cost comparisons. The ultimate goal of any VE review or study is to maximize value by producing a quality product that will accomplish the required functions at a reduced, reasonable and acceptable life cycle cost. Therefore, the VE process should not be synonymous with mere cost cutting or the reduction of the scope of our products or services. Rather, VE services should be embedded as an integral part of our total project management and delivery process.

d. In-house VE Capability/In-house VE Study Teams. The VE study process utilizes a multi-disciplined and synergistic team approach. Because it is knowledge and skill based, an effective VE team must have an adequate amount of training and appropriate and sufficient experience. Therefore, any viable VM program for the longer term must have VE training as one of its essential elements. Because qualification and capability criteria are the same for In-house or AE Contract VE Study Teams, our goal should be to make available at least two trained and qualified teams composed of the essential expertise/disciplines according to VE study needs of the projects (e.g. Architectural, Civil, Structural, Electrical, Mechanical Engineers, Cost Engineers, Environmental scientists and other specialty consultants).

e. Out-Source/AE Contract VE Study Team. The success of the AE contract, VE study team is that AE teams are often comprised of highly experienced individuals in the various engineering and/or specialized disciplines. Outside Architects and Engineers (AE) and other VE consultants such as the Corps' own VE Study Team (OVEST), can be especially beneficial as alternative resources. VMP requires that any VE team members be considered an integral part of the project delivery teams that require their VE study services. Our current design AE contracts, as the VE subcontractor are well qualified and capable of providing multi-disciplined VE study teams and delivering cost effective VE study services. There is currently a VE study workload being made and a NAD AE contract for all NAD Districts to utilize under a GSA contract for cost and, VE services contract may be justified.

f. Annual Plan and Reports. Each fiscal year (FY), Higher Headquarters requires each District to prepare an Annual Plan to document and measure its VE Study and Cost Avoidance (Savings) efforts. Quarterly and Year-end Reports are required to account for accomplishments. VE staffing and VE training data are also included in these Annual Plans and Quarterly and Year-end reports. District Annual Plans and Reports are then consolidated at the MSC or Division level for submittals to HQUSACE.

g. Value Engineering Officer. The NAD Value Engineering Officer serves as a special assistant to the commander to administer the VE program. He or she must also serve as the promoter and integrator of the new and reinvigorated VM process as an integral part of the PMBP.

F.2. Customer Expectations & Customer Relations.

The obvious expectation of our customers is the efficient and effective delivery of VE services to reach Value Management and Project Management goals. The only obvious and rational justification for promoting project specific use of VE services is that it makes good sense to maximize value by producing cost effective and quality products and services that will meet the customer required functions. Therefore, customer decisions must depend on the availability and adequacy of project funding.

Current laws and regulations governing the VE program were designed for higher goals of a more cost effective government. As a result, from an individual project manager's perspective, if adequate project funds have already been obtained, there is really little incentive or need to reduce cost. Therefore, project managers often view VE tasks as of no value, but added burden, if the money saved through VE studies are returned to the agency's program budget rather than credited back to the local project. Therefore, the most common reason for project customers to seek VE services is inadequate project funding.

Our experiences in recent years show that even if project funding is above current estimates and cost avoidance is not an identified customer need, a VE study can help to validate the design and enhance the over-all functionality and quality; therefore, value of the project. This may be accomplished through detailed examination of the cost effectiveness and functional quality of the individual project components and redistribution of funds among the project components to enhance the over-all quality of the project. The VE team may also make suggestions toward expediting project schedules and improving project management processes. Thus, the VE program can help to meet customer needs as well as enhance Corps' reputation by contributing to our ability to consistently deliver products and services that will meet or exceed customer expectations. Therefore, intensive out-reach and collaboration efforts with all of our internal and external customers are necessary. The end goal would be to establish mutually beneficial and long-term partnerships to achieve the common goal of quality engineering products and services at reasonable or acceptable costs.

Another possible benefit of performing a VE study on a project that is within budget is to roll over the possible savings on VE suggestions into increased, sustainable design features for a project, thereby increasing the metal rating of the project, such as from bronze to silver. A Customer Needs and Satisfaction Survey website, http://www.nws.usace.army.mil/pm/ve/questionnaire.cfm has been established to gauge potential customer requirements and expectations as well to measure success. Future success will depend largely on emphasis and encouragement by Corps, NAD and the Districts senior management, as well as continued out-reach, education and marketing efforts.

F.3. Plans to Address Major Program Issues and Needs.

a. VE Goals and Accomplishments. A critically important issue of Corps' VE program is the issue of setting rational and reasonable goals. Although EC 11-1-114 has recently been issued, detailed guidance for setting goals and reporting accomplishments are still being coordinated at higher Headquarters. Until further guidance arrives, the current plan is to continue work with project managers to identify all qualified and eligible projects and to conduct VE reviews, Charrettes and VE team studies as needed, unless a waiver is justified. A list of currently identified VE study projects is found in paragraph 4.

b. Budgeting/funding. VE Office budget is largely overhead funded, whereas VE studies are directly funded by individual projects. Therefore, budgeting or funding is the second critical issue facing an effective and successful VE program. A reasonable system of establishing VE budgets needs be established. A dialogue has to be established and maintained between the VE and individual project, program and resource managers, such as the PDMT. This collaborative process of reaching mutually agreed goals and resource/budget requirements would help to develop not only early forecasts, but also a reasonable VE Overhead, Training and Project Specific budget. It will also go a long way towards a sound resource plan to foster a capable VE work force, as well as a reinvigorated VM program. Adequate resources must be provided to conduct required project related VE reviews and studies. Adequate funding must be established to conduct the necessary overhead functions critical for the implementation of the new VM processes, as well as to nurture in-house capabilities to ensure future success. With the new PMBP and VE guidance in hand, ongoing communication, coordination and planning efforts have been focused on developing a viable budget and the Annual Plan for FY 2004.

c. Programs and Project Information. There is a need for both Project Management and Value Management to keep each other informed of the project status. Timely workload and resource projections are particularly important to aid program and project planning as well as effective conduct of both the Project Management and the Value Management programs. Accurate, complete and timely individual Project Management Plans and information on resource allocation and workload projections should be made. They will determine future success or failure of the planning, tracking, effective management and delivery efforts of all projects. Therefore, it is in the best interest of Project Management and the Value Engineer to jointly endeavor to foster an accurate, complete and timely project and program management database reporting system. The Value Engineer will have to work with individual project managers to enhance the reporting programs, as well as to ensure implementation of an effective future program. The NAD VM/VE community should make continuous and strenuous effort through contacts with individual project managers to obtain, update and verify accurate VE budget and schedule information on all potential VE study projects.

d. VE Training Plan. The District VE Officer should make a concerted effort to train in-house employees in the VE process. As an example, the Baltimore District has made an investment to train individuals in the Design Branch and Cost Engineering Branch in the 40-hour VE module 1 class. There are also a large number of new employees, even seasoned mid and senior level managers and supervisors that had little or no timely VE exposure. In the absence of training or information, they often have pre-conceived ideas of what Value Engineering should be. Therefore, the District VE Officers should start or continue a gradual process of remedial actions to address the multitude of VM/VE training deficiencies. The most acute need is for general VE information and awareness training in the work force. This training is particularly important for project managers, since they are the crucial and immediate links to implement the VMP into individual projects. EC 11-1-114 also recommends that Corps Managers and Technical staff (branch and section chiefs of PM and Engineering Division and PMs) 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.

Trained Ad Hoc VE coordinators for VE representation on the project delivery teams are needed to implement the new PMBP/VMP, as well as to support a reinvigorated VE program.

The VE coordinators or representatives and VE study team members must be minimally trained in the 40-hour VE Workshops to qualify and function effectively. In order to jumpstart the reinvigorated VE program, the District Value Engineer Officer should propose to personally conduct a series of affordable VE orientation seminars and briefings at Branch staff meetings in the District and field offices. Where a VE briefing cannot be made a part of the Branch Staff Meeting, a separate briefing session will be scheduled to reach the maximum possible number of project managers and technical employees who could derive job related benefits from the VE information. The purpose of these seminars and briefings is to give the work force a basic understanding of the VE process as well as to help project managers and others in understanding and fulfilling their VE responsibilities. The Value Engineer will address the contents of the new VE guidance, the basics of VE methodology and processes required to conduct an effective and reinvigorated VM/VE program. The VE officer will also solicit employee input and feedback to facilitate the implementation of the PMBP/VMP program.

Although VMP training as part of the PMBP process, may be funded by PMBP training resources, the VMP training instructions have not been issued and are not expected until FY 2004. Based on preliminary feedback from PDMT members, doable one-hour VE orientation or briefing sessions should be planned. Scheduling of these briefing sessions is designed with flexibility in mind to allow the Value Engineer time to prepare, coordinate and conduct these briefings interspaced between other urgent and ongoing VE job tasks.

FOR EXAMPLE:

Military Programs Branch may identify the need for two consecutive bi-weekly sessions during its bi-weekly branch staff meetings.

Environmental and Technical Services Branches may tentatively schedule a joint session for 20 project managers.

Construction Branch may identify the needed sessions.

One for the Construction Branch office staff in the District Office and one for each of the field offices.

Operations Division may have one or more briefing sessions.

The Value Engineer needs to devote an estimated average of 2 workdays to prepare, coordinate, travel, set-up and deliver each of these sessions.

F.4. Current List of VE Projects. Based on ongoing and recent communication with individual program and project managers, we have identified the following potential VE review or study projects:

CENAD FY04 ANNUAL WORK PLAN							
		(SAMPLE PROJECTS)					
CATEGORY / LOCATION CWE>$2MIL	PROJECT NUMBER	PROJECT, PROGRAM, SYSTEM OR PRODUCT	DIST	PROGRAM AMOUNT	SCHEDULE	ESTIMATE VE STUDY COST	Notes on Project
MILITARY							
Ft. Drum	xxxxx	Hall Addition	NAN	$49,000,000	1QTR	$50,000	
Ft. Drum	xxxxx	House Design	NAN	$45,000,000	2QTR	$60,000	
Ft. McNair	xxxxx	Barracks	NAB	$114,000,000	1QTR	$60,000	
Ft. Myer	xxxxx	SEBQ	NAB	$50,000,000	3QTR	$70,000	
Ft. AP Hill	xxxxx	House Design	NAB	$4,000,000	2QTR	$50,000	
Vilseck, Germany	xxxxx	School	NAU	$11,800,000	1QTR	$35,000	
Stuttgart, Germany	xxxxx	Laundry	NAU	$24,000,000	1QTR	$35,000	
Grafenwoehr, Germany	xxxxx	Barracks	NAU	$36,430,000	1QTR	$40,000	
Heidelberg, Germany	xxxxx	Barracks	NAU	$3,550,000	1QTR	$35,000	
Defense Dist.Region – East	xxxxx	Replace Barracks	NAB	$20,000,000	4QTR	$44,000	
FAMILY HOUSING							
Ft. Lee, VA	xxxxx	Thomas Replacement	NAO	$46,000,000	3QTR	$20,000	D/B contract
DLA FUNDS PROGRAM							
DSCR, Richmond, VA	xxxxx	South Facility	NAO	$5,300,000	3QTR	$15,000	FFP design
		Logistics Room Renovation	NAE	$4,100,000	3QTR	$30,000	
		Agency Facility	NAE	$5,200,000	3 QTR		
SFO							
Thule. AFB	xxxxx	Hangar	NAN	$19,800,000	2QTR	$50,000	
Langley, AFB	xxxxx	Runway Design	NAO	$9,000,000	4QTR	$30,000	
Arlington Cemetery	xxxxx	Creamatorium	NAB	$30,000,000	4QTR	$60,000	
Architect of Capitol	xxxxx	Site Design	NAB	$38,000,000	4QTR	$60,000	

CATEGORY / LOCATION CWE>$2MIL	PROJECT NUMBER	PROJECT, PROGRAM, SYSTEM OR PRODUCT	DIST	PROGRAM AMOUNT	SCHE DULE	ESTIMATE VE STUDY COST	NOTES
CIVIL WORKS							
		1st Beach	NAN	$85,000,000	4QTR-FY05	$50,000	
		2nd Beach	NAN	$96,000,000	4QTR	$50,000	
		Point of New York	NAN	$12,000,000	4QTR	$50,000	
		Michael Dam	NAO	$6,000,000	3QTR	$15,000	
		Clear River Local Protection	NAE	$40,000,000	3QTR	$50,000	
O & M							
		Delaney Dam Deficient	NAP	$27,000,000	4QTR	$50,000	Based on receipt of funding study may not be done until FY05.
		Richmond Harbor and Channel	NAO	$11,000,000	3QTR	$15,000	
		Clear Creek	NAB	$2,000,000	2QTR	$20,000	
		Sandy Bottom	NAB	$4,700,000	4QTR	$47,000	
		Ten Mile	NAB	$4,800,000	4QTR	$48,000	
		Mink Lake Spillway	NAE	$4,000,000	4QTR	$50,000	
HTRW ENVIRONMENTAL							
		Nosects, Baltimore	NAN	$40,000,000	1QTR	$50,000	
OEM		TaniRare River	NAN	$2,300,000	4QTR	$35,000	