

SUPPLEMENTAL DIRECTIVE

NNSA SD 413.3-5A

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VALUE MANAGEMENT



NATIONAL NUCLEAR SECURITY ADMINISTRATION Office of Infrastructure

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VALUE MANAGEMENT

1. **PURPOSE.** To establish requirements necessary for the implementation of value management (VM) on National Nuclear Security Administration (NNSA) projects. This Supplemental Directive (SD) describes NNSA roles, responsibilities, and authorities as they relate to the implementation of VM in accordance with Department of Energy (DOE) Order (O) 413.3, *Program and Project Management for the Acquisition of Capital Assets*, current version, or successor (herein referred to as DOE O 413.3) and subsequent direction from the Secretary of Energy.
2. **AUTHORITY.** DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*, current version.
3. **CANCELLATION.** NNSA SD 413.3-5, *Value Management*, dated 11-22-21.
4. **APPLICABILITY.**
 - a. **Federal.** Applies to all NNSA Federal organizations.
 - b. **Contractors.** Does not apply to contractors.
 - c. **Equivalencies/Exemptions:**
 - (1) **Equivalency:** In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 United States Code (U.S.C.) sections 2406 and 2511, and to ensure consistency throughout the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.
 - (2) **Exemption:** DOE O 413. 3, Paragraph 3.c., provides information regarding exemptions from specific requirements when certain criteria are met by a project. In each case, the project must petition the Project Management Risk Committee (PMRC) for an exemption. The final decision is made by either the appropriate Under Secretary or the Deputy Secretary, depending on the result of the PMRC review. DOE O 413. 3 nuclear safety-related requirements, including DOE-STD-1189-2016, must be included and must not be exempted. Further, exemptions do not apply to defense nuclear facilities. Details regarding exemptions from specific DOE O 413. 3 requirements can be found in DOE O 413.3, Paragraphs 3.c.(3, 4, 5).

5. SUMMARY OF CHANGES.

- a. Projects must be conducted using SAVE International's standard job plan, which consists of eight phases to include the use of a Certified Value Specialist to facilitate VM studies;
- b. The cost for a VM study must be accounted for in the Program Manager's budget;
- c. Once a cost estimate and scope of VM activities have been determined, the Federal Project Director, in consultation with the Program Manager, determines if VM activities are cost effective;
- d. A VM must be conducted as early as possible in the project lifecycle, but no later than completion of conceptual design, to align with current version of the DOE O 413.3; and
- e. The Office of Acquisition and Project Management has been changed to Office of Infrastructure throughout.

6. BACKGROUND.

VM, which encompasses value analysis, value engineering (VE), value planning, and value control, is a methodology for analyzing functions of an item or process to determine the best value or the best relationship between worth and cost. VM is a systematic and structured approach for improving projects and processes directed toward analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest lifecycle cost consistent with required performance, reliability, quality, maintainability, environmental protection, and safety. VM challenges the Deputy Secretary as the CE, the PME, and the Program Manager (PM); the Federal Project Director (FPD); and organizations providing support to them to continually consider if they have properly identified the right need.

Value, defined as an expression of the relationship between the performance of functions relative to the resources required to realize them, can be expressed using the formula

Value = Function Performance/Resources, where:

- Function Performance = the capacity of the subject under study to provide improved function performance.
- Resources = the expenditure needed to validate and implement the improvement in terms of monetary or time-based units.

Implementation of a cost-effective VE process is required by 41 U.S.C. 1711 and outlined in the VE processes and requirements listed in DOE O 413.3.

Note: DOE has determined that DOE O 413.3 processes and requirements provide

05-21-25

equivalency and satisfy the VE guidance and requirements previously referenced in DOE Notice (N) 413.2, *Value Engineering*; DOE Policy 413.2, *Value Engineering*, (cancelled by DOE N 251.94, *Cancellation of DOE P 413.2, Value Engineering*, dated 12-13-10); and Office of Management and Budget (OMB) Circular A-131, *Value Engineering*. DOE O 413.3 implements the requirements of OMB Circular A-131, which requires that all Federal agencies use VE as a management tool. Additional information is provided in DOE Guide 413.3-1 Chg 1, *Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A*, current version, paragraph 3.1.1.2.5, Value Engineering.

7. REQUIREMENTS.

a. Line-Item Capital Projects.

- (1) The Office of Infrastructure (NA-90) must implement NNSA's Project Delivery Model for Line-Item Capital Projects. This model involves an integrated team of acquisition, design, and construction management professionals. The Office of Design and Construction (NA-92) must begin project management at the start of Conceptual Design.
- (2) VM must apply whenever there appears to be potential for project lifecycle improvement at a cost commensurate with the value to be added (i.e., where the value to be added exceeds the cost of conducting the VM activity and effecting related changes to the project).

b. Laws and Contracting.

- (1) VM must comply with all applicable laws, regulations, and implementing guidelines for application and use of VE as defined per 41 U.S.C. 1711. Agencies shall provide contractors with a substantial financial incentive through a change in a project's plans, designs, or specifications to develop and submit a Value Engineering Change Proposal that shall lower the project's lifecycle cost to the Government.
- (2) NNSA contracting activities must include VE provisions in appropriate supply, service, architect-engineer, and construction contracts as prescribed by Federal Acquisition Regulation (FAR) 48.201 and 48.202, except where exemptions are granted on a case-by-case basis, or for specific classes of contracts, by the agency head. See FAR 48.102 and 52, including 52.248-2, for additional information.

c. Studies.

- (1) VM studies must use a tailored, verifiable process that achieves the essential functions of a project at the best value for the Government, consistent with the needed performance, safety, security, reliability, and maintainability (see Appendix A).

- (2) The study must follow SAVE International's (the international society devoted to advancing and promoting value methodology) standard job plan, which consists of eight phases (see Appendix C).
 - (3) After completion of a VM study and internal approval, the study must be included with the permanent project files. An NNSA Value Management Report Summary (see Appendix B) must be furnished to the PME, the Federal PM, the Associate Administrator for Infrastructure, the Deputy Associate Administrator for Design and Construction, and the contracting officer.
- d. VM and VE techniques, as appropriate, must be used to ensure that the most effective lifecycle solutions are implemented.

8. RESPONSIBILITIES.

- a. Associate Administrator for the Office of Infrastructure.
 - (1) Ensures NA-90 follows the Supplemental Directive (SD) and VM requirements specified herein for Line-Item Capital Projects as defined in Section 7 (Requirements).
 - (2) Ensures that NA-90 implements all applicable Federal and Departmental acquisition policies and regulations.
- b. Deputy Associate Administrator for Design and Construction. Establishes, coordinates, maintains, and documents a viable VM process that includes the application of value management and engineering-related laws, regulations, policies, and orders.
- c. Deputy Administrators and Associate Administrators of Sponsoring Programs.
 - (1) Implement this policy within their organizations.
 - (2) Ensure timely requests for reports from the FPD (see Appendix B) on applied use of VM studies.
- d. Program Managers and Field Office Managers.
 - (1) Support the FPD in the implementation of VM requirements throughout the project lifecycle.
 - (2) Prior to the assignment of the FPD, the Headquarters Project Manager (acting in the role of the FPD) consults with the PM on all VM-related requirements and objectives.

- (3) Monitor the implementation of VM objectives and review reports containing documentation of VM activities.
 - (4) Organize and account for the budget of any VM program study.
 - (5) Apply VM whenever there appears to be potential for project lifecycle improvement at a cost commensurate with the value to be added (i.e., where the value to be added exceeds the cost of conducting the VM activity and effecting related changes to the project).
- e. Federal Project Directors.
 - (1) Implements VM in their projects, documenting the results of performed VM activities, and submitting reports documenting results to the Deputy Associate Administrator for Design and Construction, the Associate Administrator for Infrastructure, the PME, the PM, and the Field Office Manager.
 - (2) Assumes VM responsibilities for the project after the AoA, in consultation with the Program and Field Office Managers.
- f. Headquarters Project Managers. Coordinates and consults with the PM in implementing and meeting the VM requirements for the project, prior to the nomination of the FPD. After the appointment of the FPD, the FPD assumes VM responsibilities for the project.
- g. Contracting Officer.
 - (1) Inserts a VM clause in contracts when the contract amount is expected to exceed the simplified acquisition threshold, pursuant to FAR 48.201 and FAR 48.202.
 - (2) Inserts Department of Energy Acquisition Regulation clause 970.5215-4, *Cost Reduction*, in contracts, where it would bring cost efficiency to operations without adversely affecting the level of performance required.
 - (3) Reviews, approves, or authorizes VE Change Proposals submitted by the contractor and any related contract changes to scope, cost, or schedule.
- h. Chief Executive for Project Management or Project Management Executive.
 - (1) Assists with the development of supplemental policies for the use of VE, pursuant to FAR 48.102 and 52.248-1 for major system projects, as defined by DOE O 41.3, Appendix A-3.
 - (2) Reviews the recommended VM alternatives contained in the report and

- (2) Reviews the recommended VM alternatives contained in the report and selects the alternatives to be incorporated into the design through the change control process in the preliminary project execution plan.
9. CONTACT. The Office of Design and Construction (NA-92) at 202-586-1492.

BY ORDER OF THE ACTING ADMINISTRATOR:



Teresa M. Robbins
Acting Under Secretary for Nuclear Security
and Administrator, NNSA

Appendixes:

- A: Value Management Process Guidelines
- B: NNSA Value Management Report Summary
- C: SAVE International – Eight Phases
- D: Acronyms/Abbreviations
- E: Definitions
- F: References

APPENDIX A: VALUE MANAGEMENT PROCESS GUIDELINES

1. **BACKGROUND.** Value management (VM) is an organized analysis of a project to determine essential project scope, baseline schedule, or cost consistent with the required project performance. Value analysis, value control, value improvement, and value engineering are tools included within VM for the purposes of this policy. VM uses a professionally applied, function-oriented, systematic team approach to analyze and improve value in products, facilities, systems, or services. It is a powerful decision-making process for solving problems while improving performance and quality.
2. **PROCESS.**
 - a. At the onset of any National Nuclear Security Administration (NNSA) project, VM must be applied to defining the desired scope, schedule, and cost.
 - b. For ongoing capital acquisition projects:
 - (1) The Federal Project Director (FPD), in consultation with the Program and Field Office Manager, determines if a potential for project lifecycle improvements exist. Improvements include determination or modification of project scope, determination or modification of project schedule, or determination or modification of project costs.
 - (2) The FPD, in consultation with the Program Manager (PM) and contracting officer (CO), can decide, at any time during the project, to conduct a facilitated, project-enhancing study that adds value to scope, schedule, or costs. VM studies or other project enhancing investigations that increase project value are included in the project files.
 - (3) Decisions to perform VM or other project enhancing investigations must be reviewed and approved by the Project Management Executive (PME) in consultation with the PM.
 - c. For other, ongoing projects:
 - (1) The appropriate Deputy or Associate Administrator, interim manager, Federal Program Manager (FPM), or FPD determine if a potential for project lifecycle improvements exists.
 - (2) If so, they can decide at any time during the project, in coordination with the CO and others, to conduct a VM study to add value to the scope, schedule, or cost of the project.
 - d. If it is determined that the potential for lifecycle improvement exists, performance of a VM study must be considered. The study scope could vary from a facilitated Major Systems Project study with a large team down to one or two analysts

examining one specific aspect of a project. Such a VM study must, at a minimum, include:

- (3) A definition of the function being reviewed;
 - (4) Method of information gathering;
 - (5) Analysis of options;
 - (6) Evaluation of the best options; and
 - (7) A report of the findings.
- e. A format detailing the scope is specified in Appendix B for an NNSA VM study.
- f. The VM study report, at a minimum, must contain:
- (1) An Executive Summary;
 - (2) A one-page NNSA Value Management Summary Report;
 - (3) A detailed description of analysis methodology, options analysis, evaluation of best options, project lifecycle results, recommendations, team members, and applicable project documentation; and
 - (4) Value Engineering Change Proposals submitted by the contractor must be in accordance with Department of Energy Acquisition Regulation 970.5215-4, *Cost Reduction*.
- g. Once a cost estimate for the VM study or VM activities has been determined, the FPD, in consultation with the PM, determines if the cost-effectiveness of VM activities will result in improved performance, reliability, quality, safety, or lifecycle costs for the project.
- h. If a VM study is deemed to not be cost-effective, this decision, with the supporting documentation, is included in the project files. Some cost-effective options for VM studies include:
- (1) Completed studies that address options to the scope, schedule, risk, or cost of the project (option analyses); and
 - (2) Lessons learned from similar projects that had VM studies or value enhancing investigations performed, and the improvements have been used in this project's design and baseline.
- i. A VM study or other project enhancing investigation can be conducted at any time during the development of a project. However, to achieve the maximum

benefits, VM studies, analyses, and investigations must be initiated as early as possible in the project lifecycle, but no later than completion of conceptual design. Based on experience on other line-item capital projects, the optimal point to perform VM efforts is at the conclusion of the conceptual design, when the project scope is clearly described and understood, and the project cost range has been refined. The VM study team must use a structured process to identify target project activities and determine the best approach for achieving the best value for the Government.

- j. The selection of the study team members is important for the success of the VM study. The composition of the team will vary according to the organization and function(s) of the project. An effective facilitator and subject matter experts for specific project technology and integrated disciplines, who have not been previously directly involved with the project, are preferred team members.
- k. Although initial cost and schedule savings are important, the overall project scope, baseline schedule, and lifecycle cost, which includes reliability, availability, maintainability, and inspectability are the prime considerations in a VM study.
- l. As a best practice, VM studies are conducted using Society of American Value Engineers analysis techniques and led by a Certified Value Specialist who is trained in facilitation methodologies, functional analysis, or value management, to ensure the VM is properly followed, when feasible.
- m. Once completed, the study must be provided to the CE, PME, Program and Field Office Managers, and the Deputy Associate Administrator for Design and Construction for review.
- n. After appropriate review of a value management study, the FPD sends the one-page NNSA Value Management Summary Report to the PME, the Associate Administrator for Infrastructure, the Deputy Associate Administrator for Design and Construction, and the Contracting Officer. Reports must be provided as soon as available.
- o. The VM study or other actions to address VM are to be maintained as part of the permanent project documentation.

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APPENDIX B: NNSA VALUE MANAGEMENT REPORT SUMMARY

I. PROJECT NAME AND PERIOD OF PERFORMANCE:

(Enter the Value Management (VM) study title, location, project name, and study dates)

II. SPONSOR/PROGRAM:

(Enter the sponsor and/or funding organization)

III. STATEMENT OF PROBLEM AND OBJECTIVES:

(Describe the pre-study problem and/or drivers and study objectives)

IV. VALUE ENGINEERING (VE) FOCUS AREAS:

(List focus areas for VE studies, include technical discipline and location)

V. WORKSHOP MEETING DATE(S) AND ATTENDEE LIST:

(Include details regarding the Workshop meeting schedule and Attendee List)

VI. Team Composition: # Total *(Enter total number of team members)*

- | | |
|--|--|
| ☐ Project Personnel: | #: |
| ☐ Subject Matter Experts: | #: |
| ☐ Regulator/Stakeholders: | #: |
| ☐ VE Facilitators (Certified Value Specialist)/Leads: | #: <i>(Indicate certification, as appropriate)</i> |

(Identify the team composition breakdown in the four categories above)

VII. RESULTS OF BRAINSTORMING:

(Table to list potential VE options)

VIII. SCREENING CRITERIA & SCREENING RESULTS:

(Table to list screening criteria/results)

IX. List of Viable VE Options (with assigned priority groupings, if applicable):

(Table to list VE options that survived screening)

X. TEAM RECOMMENDATIONS AND IMPLEMENTATION STATUS:

(Summarize the team's recommendations/proposals, management's endorsement/approval, and implementation status)

XI. ESTIMATED SAVINGS/AVOIDANCE:

- ☐ Cost:
- ☐ Schedule:
- ☐ Scope:
- ☐ Risk:

APPENDIX C: SAVE INTERNATIONAL – EIGHT PHASES

INTRODUCTION. Value management (VM) follows save international's standard job plan, which consists of eight phases:

1. **Preparation:** Identify what is to be studied (the VM study subject) and when it is to be studied.
2. **Information:** Gather information to better understand the project.
3. **Function Analysis:** Analyze the project to understand and clarify the required functions. The Function Analysis System Technique (FAST) aids in thinking about the problem objectively and in identifying the scope of the project by showing the logical relationships between functions. The organization of the functions into a function-logic, FAST diagram enables participants to identify all the required functions. The FAST diagram can be used to verify if, and illustrate how, a proposed solution achieves the needs of the project, and to identify unnecessary, duplicated, or missing functions.
4. **Creative:** Generate ideas on all the possible ways to accomplish the required functions.
5. **Evaluation:** Synthesize ideas and concepts and select those that are feasible for development into specific value improvements.
6. **Development:** Select and prepare the best option(s) for improving value.
7. **Presentation:** Present the value recommendation to the project stakeholders.
8. **Implementation:** Sponsor or stakeholder acceptance of VM options to be incorporated into the subject under study.

Note: Refer to the SAVE International website for the latest standard job plan updates to the phases.

APPENDIX D: ACRONYMS AND ABBREVIATIONS

a.	<u>AoA</u>	Analysis of Alternatives
b.	<u>CE</u>	Chief Executive for Project Management (Deputy Secretary)
c.	<u>DOE</u>	Department of Energy
d.	<u>DOE G</u>	Department of Energy Guide
e.	<u>DOE O</u>	Department of Energy Order
f.	<u>DOE P</u>	Department of Energy Policy
g.	<u>FAR</u>	Federal Acquisition Regulation
h.	<u>FAST</u>	Function Analysis System Technique
i.	<u>FPD</u>	Federal Project Director
j.	<u>OMB</u>	Office of Management and Budget
k.	<u>PME</u>	Project Management Executive
l.	<u>PMRC</u>	Project Management Risk Committee
m.	<u>SD</u>	Supplemental Directive
n.	<u>TPC</u>	Total Project Cost
o.	<u>U.S.C.</u>	United States Code
p.	<u>VE</u>	Value Engineering
q.	<u>VECP</u>	Value Engineering Change Proposal
r.	<u>VM</u>	Value Management

APPENDIX E: DEFINITIONS

Any terms used in this Supplemental Directive (SD) coincide in meaning to terms defined by Department of Energy Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*, (current version). Additional terms used in this SD are defined below.

- a. Lifecycle Cost. The total cost of a system, building, program, project, or other product, computed over its useful life. It includes all relevant costs involved in acquiring, owning, operating, maintaining, and disposing of the system, project, or product over a specified period, including environmental and energy costs.
- b. Value Engineering (VE). A structured technique commonly used in project management to optimize the overall value of the project without sacrificing functionality or performance. Often, creative strategies are employed to achieve the lowest lifecycle cost available for the project. The VE effort is a planned, detailed review or evaluation of a project to identify alternative approaches to providing the needed assets.
- c. Value Engineering Change Proposal (VECP). A proposal submitted by a contractor consistent with the VE clause(s) in the contract that, through a change in the contract, would lower the project's lifecycle cost to the Government without impairing essential functions, characteristics, or performance. The contract change requirement can be the addition of the VECP to the contract with attendant savings. VECPs are applicable to all contract types, including contracts with performance-based specifications.
- d. Value Management (VM) Study. The formal process of applying VE on an individual project or program. VE studies may be tailored to meet the individual needs of the project or program. For example, the level of effort for each phase of VE may be scaled (truncated, eliminated, etc.), as appropriate, based on factors such as the cost or complexity of the project, the stage of project planning or development, and project schedule.
- e. Value Management (VM). An organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for achieving the essential functions at the lowest life-cycle cost that is consistent with required performance, quality, reliability, and safety. VM encompasses VE.
- f. Project Management Risk Committee (PMRC). PMRC supports the Department of Energy's strategic objective of excellence in project management. The PMRC leverages existing capabilities to provide enterprise-wide project management risk assessment and expert advice to the Secretary, the Chief Executive for Project Management (CE), the Project Management Executive (PME), and the Energy System Acquisition Advisory Board (ESAAB) on cost, schedule and technical issues regarding capital asset projects with a total project cost (TPC) of \$100 million (M) or greater. Upon request of the CE, PME, or ESAAB, the PMRC will also address projects with a TPC less than \$100M that are at risk of not meeting their performance baseline. Defined in DOE O 413.3 Appendix A, A-25.

- g. Value = Function Performance / Resources
- Function Performance = the capacity of the subject under study to provide key customer or user functions.
 - Resources = the expenditure needed to validate and implement the improvement in terms of monetary or time-based units.

APPENDIX F: REFERENCES

- a. 41 United States Code (U.S.C.) 1711, *Value Engineering*.
- b. Office of Management and Budget (OMB) Circular A-131, *Value Engineering*.
- c. Federal Acquisition Regulation (FAR), Part 48, *Value Engineering*.
- d. FAR, Part 48.102, *Policies*.
- e. FAR, Part 52, *Solicitation Provisions and Contract Clauses, Subpart 52.248, Value Engineering*.
- f. Department of Energy (DOE) Acquisition Regulation 970.5215-4, *Cost Reduction*.
- g. DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*, current version.
- h. DOE Guide 413.3-1, *Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A*, current version.
- i. SAVE International, www.value-eng.org.