

**U.S. Department of Energy**  
**Washington, DC**

**MINOR CHANGE**

**DOE O 413.3B**

Approved: 11-29-2010  
Chg 5 (MinChg): 04-12-2018

**SUBJECT: MINOR CHANGE TO DOE O 413.3B, *PROGRAM AND PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS***

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1. **EXPLANATION OF CHANGES.** This minor change adjusts the time-frame to achieve Critical Decision (CD)-2, *Approve Performance Baseline*, following a Congressional Budget Request for construction funds to two years before requiring Energy Systems Acquisition Advisory Board (ESAAB) review and Deputy Secretary approval. It also aligns the Order with DOE-STD-1189-2016, and changes were made to ESAAB membership to reflect the Department's current organizational structure.
2. **LOCATIONS OF CHANGES:**

Page	Paragraph	Changed	To
Gen		References to DOE-STD-1189-2008	DOE-STD-1189-2016
Gen		References to DOE-STD-1073-2003	DOE-STD-1073-2016
Gen		References to DOE-STD-3006-2010	Deleted from the Order
Gen		Acronyms for CSV, PSDR, and PSVR	Deleted from the Order
Gen		References to GAO-15-37	GAO-16-22
Gen		References	Reflect their current version
3	3.c.(4). Second Bullet	An on-going set of active capital asset projects, post CD-2, of over 10 projects at any time during the current Fiscal Year (FY); and	An on-going set of active capital asset projects, post CD- 2, of over 5 projects at any time during the current Fiscal Year (FY); and
5	6.	Language did not previously exist.	<b><u>INVOKED STANDARDS.</u></b> The following DOE technical standards and industry standards are invoked as required methods in this Order in accordance with the applicability and conditions

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			<p>described within this Order. Any technical standard or industry standard that is mentioned in or referenced by this Order, but is not included in the list below, is not invoked by this Order. Note: DOE O 251.1D, Appendix J, provides a definition for “invoked technical standard.”</p> <p>a. DOE-STD-1189-2016, <i>Integration of Safety into the Design Process</i>. This DOE technical standard is required to be used for development and integration of safety analysis and supporting design for new nuclear facilities and applicable modifications. See Appendix A and Attachment 1 for specific requirements.</p> <p>b. DOE-STD-1073-2016, <i>Configuration Management</i>. This DOE technical standard is required to be used in the establishment of a configuration management process for new nuclear facilities and applicable modifications. See Attachment 1, Section 9 for specific requirements.</p> <p>c. DOE-STD-1104-2016, <i>Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents</i>. This DOE technical standard is invoked by DOE O 420.1C, <i>Facility Safety</i>, and therefore treated as a requirement in this Order for DOE review and approval of safety basis and safety design basis documents for nuclear facilities.</p>
5	6.-8.	Renumbered	7.-9.

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A-5	4.b.	This process uses a systems engineering methodology that integrates requirements analysis, risk identification and analysis, acquisition strategies, and concept exploration....	This process uses a systems engineering methodology that integrates requirements analysis, safety strategies, risk identification and analysis, acquisition strategies, and concept exploration....
A-8	Table 2.1	Conduct a Preliminary Security Vulnerability Assessment from prior to CD-2	Prior to CD-1
A-8	Table 2.1	For Hazard Category 1, 2, and 3 nuclear facilities, prepare a Safety Design Strategy (SDS), with the concurrence of the CNS or with written advice of the CDNS, as appropriate, for projects subject to DOE-STD-1189-2008.	For Hazard Category 1, 2, and 3 nuclear facilities, prepare a Safety Design Strategy (SDS) to guide the development of the conceptual design, with the concurrence of the CNS or with written advice of the CDNS, as appropriate, for projects subject to DOE-STD-1189-2016.
A-8	Table 2.1	Approval authority of the CSDR from SBAA via the CSVr	SBAA via the Safety Review Letter
A-8	Table 2.1	Prepare a Conceptual Safety Validation Report (CSVr), with concurrence from the FPD, on the DOE review of the CSDR for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to DOE-STD-1189-2008.)	Prepare a Safety Review Letter, with concurrence from the FPD, on the DOE review of the CSDR for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to DOE-STD-1189-2016 and DOE-STD-1104-2016.)
A-9	Table 2.1 Note 4	Per 10 CFR 830.206(b), a major modification of an existing Hazard Category 1, 2 or 3 nuclear facility requires DOE approval of the nuclear safety design criteria to be used in the PDSA, unless the contractor uses the design criteria in DOE O 420.1, <i>Facility Safety</i> . Per DOE-STD-1189-2008, a SDS must be developed that addresses: (1) the need for a CSDR or Preliminary Safety Design	Per 10 CFR 830.206(b), a major modification of an existing Hazard Category 1, 2 or 3 nuclear facility requires DOE approval of the nuclear safety design criteria to be used in the PDSA, unless the contractor uses the design criteria in DOE O 420.1C, <i>Facility Safety</i> . Content requirements and guidance for the SDS are specified in DOE-STD-1189-2016.

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		Report (PSDR) as well as the required PDSA, to support project phases; (2) the graded content of the PDSA necessary to support the design and modification; (3) the application of nuclear safety design criteria; and (4) the interface with the existing facility, its operations, and construction activities.	
A-11	Table 2.2	<p>Prepare a Preliminary Safety Design Report (PSDR)<sup>3</sup> that updates the CSDR for Hazard Category 1, 2, and 3 nuclear facilities based on updated hazard analysis and design information. For a project involving a major modification of an existing facility, the SDS must address the need for a PSDR, as well as the required PDSA. (Refer to DOE-STD-1189-2008.)</p> <p>Approval authority from SBAA via the PSVR</p>	<p>Prepare Preliminary Safety and Design Results<sup>3</sup> that update the CSDR for Hazard Category 1, 2, and 3 nuclear facilities based on updated hazard analysis and design information. These results complete the preliminary design phase and allow for DOE review prior to completing the final design phase. (Refer to DOE-STD-1189-2016.)</p> <p>SBAA via the Safety Review Letter</p>
A-11	Table 2.2	Prepare a Preliminary Safety Validation Report (PSVR), with concurrence from the FPD, based on a DOE review of the PSDR for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to DOE-STD-1189-2008.)	Prepare a Safety Review Letter, with concurrence from the FPD, based on a DOE review of the Preliminary Safety and Design Results for Hazard Category 1, 2, and 3 nuclear facilities. This DOE review should be scheduled as early as practicable, after contractor completion of the preliminary design, to minimize project risk. (Refer to DOE-STD-1189-2016 and DOE-STD-1104-2016.)
A-11	Table 2.2	Prepare a Safety Evaluation Report, with concurrence from the FPD, based on review of the PDSA for Hazard Category 1, 2, and 3 nuclear facilities.	Prepare a Safety Evaluation Report, with concurrence from the FPD, based on review of the PDSA for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to

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		(Refer to 10 CFR Part 830, Subpart B.)	10 CFR Part 830, Subpart B, and DOE-STD-1104-2016.)
A-12	Table 2.2 Note 4	Per 10 CFR 830.206(b), a major modification of an existing Hazard Category 1, 2 or 3 nuclear facility requires DOE approval of the nuclear safety design criteria to be used in the PDSA, unless the contractor uses the design criteria in DOE O 420.1, <i>Facility Safety</i> . Per DOE-STD-1189-2008, a SDS must be developed that addresses: (1) the need for a CSDR or Preliminary Safety Design Report (PSDR) as well as the required PDSA, to support project phases; (2) the graded content of the PDSA necessary to support the design and modification; (3) the application of nuclear safety design criteria; and (4) the interface with the existing facility, its operations, and construction activities.	Per 10 CFR 830.206(b), a major modification of an existing Hazard Category 1, 2 or 3 nuclear facility requires DOE approval of the nuclear safety design criteria to be used in the PDSA, unless the contractor uses the design criteria in DOE O 420.1C, <i>Facility Safety</i> . Content requirements and guidance for the SDS are specified in DOE-STD-1189-2016.
A-12	Table 2.2 Note 5	Language did not previously exist.	5. There are some statutory (appropriation and authorization) and/or regulatory provisions that implicate this Order. Solely for purpose of the application of appropriations and authorization laws and regulations and for any approvals under those laws and regulations, CD-3A (or CD-3X) will be treated as separate from and not within the scope of those laws and regulations as they pertain to CD-2 and CD-3. For all other purposes, from a project management perspective, CD-3A (or CD-3X) remains part of the project total scope and remains embedded in the project TPC.

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A-12	4.c.(2) Bullet 1 Bullet 3 Bullet 4	<p>Optional budget request process for construction projects. Upon PME approval, a construction project can submit a line item budget request prior to CD-2 approval, provided the PME accepts the following conditions:</p> <ul style="list-style-type: none"> <li>• Project will document the strategy to request funds prior to CD-2 approval in the AS and preliminary PEP.</li> <li>• CD-2 approval is obtained within one year following OMB budget submission to Congress. Typically, there are no exceptions and subsequent budget requests would not be allowed until CD-2 approval.</li> <li>• If CD-2 approval is not achieved within one year following budget submission, any future budget requests for construction must be approved by the CE through the ESAAB process.</li> </ul>	<p>Optional budget request process for construction projects. Normally, funds for construction cannot be requested until CD-2 approval is obtained, or when CD-3A approval is obtained to support CD-3A scope of work. Upon PME approval, a construction project can submit a line item budget request prior to CD 2 approval, provided the PME accepts the following conditions:</p> <ul style="list-style-type: none"> <li>• Project will document the strategy to request funds (i.e., CD-3A) prior to CD-2 approval in the AS and preliminary PEP.</li> <li>• CD-2 approval is obtained within two years following OMB budget submission to Congress. Typically, there are no exceptions and subsequent budget requests would not be allowed until CD-2 approval.</li> <li>• If CD-2 approval is not achieved within two years following budget submission, any future budget requests for construction must be approved by the CE through the ESAAB process.</li> </ul>
A-16	Table 2.4	Prepare a Safety Evaluation Report (SER) based on a review of the Documented Safety Analysis and Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to 10 CFR Part 830, Subpart B.)	Prepare a Safety Evaluation Report (SER) based on a review of the Documented Safety Analysis and Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities. (Refer to 10 CFR Part 830, Subpart B, and DOE-STD-1104-2016.)
A-16	Table 2.4	For nuclear facilities, the Code of Record must be included as part of the turnover documentation from a design and construction phase contractor to the operating phase contractor; from an operating phase contractor to	For nuclear facilities, the Code of Record must be included as part of the turnover documentation from a design and construction phase contractor to the operating phase contractor; from an operating phase contractor to the decommissioning phase

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		the decommissioning phase contractor; and when a change in contractor occurs during any single life cycle phase and is maintained under configuration control.	contractor; and when a change in contractor occurs during any single life cycle phase and is maintained under configuration control. (Refer to DOE-STD-1189-2016)
A-18	5.c.	Language did not previously exist.	For projects involving construction of new Hazard Category 1, 2, and 3 nuclear facilities, DOE-STD-1189-2016 provides requirements for contractor justification of long-lead procurement items. DOE-STD-1104-2016 establishes the required method for DOE review and approval of long-lead procurement items.
A-22	7.a.(2) and (3)	ESAAB Membership. The members are (including anyone acting in such capacity):  (2) Under Secretary for Management and Performance  (3) Under Secretary for Science and Energy	ESAAB Membership. The members are (including anyone acting in such capacity):  (2) Under Secretary of Energy  (3) Under Secretary for Science
A-23	7.a.	The Deputy Secretary will serve as the Chair and the Under Secretary for Management and Performance will serve as the Vice Chair. In the event that the Deputy Secretary position is vacant or the Deputy Secretary is recused from a matter involving the ESAAB or is otherwise unable to attend an ESAAB meeting, the Chair of the ESAAB shall be filled by the Vice Chair. In the event that the Under Secretary for Management and Performance position is vacant, the Secretary shall designate a Vice Chair from among the members. In the event that	The Deputy Secretary will serve as the Chair. In the event that the Deputy Secretary position is vacant, the Secretary shall designate a Chair from among the members. If the Deputy Secretary is recused from a matter involving the ESAAB or is otherwise unable to attend an ESAAB meeting, the Deputy shall designate a Chair from among the members. The Chair may elect to choose a Chair pro tempore, from among the members, to convene an ESAAB meeting to review a CD and to transmit the recommendation of the ESAAB to the Chair.

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		both the Deputy Secretary and Under Secretary for Management and Performance positions are vacant, the position of the Chair shall be filled by the Secretary. The Chair may elect for the Vice Chair to convene an ESAAB meeting to review a CD and to transmit the recommendation of the ESAAB to the Chair.	
A-27	7.f.(2) and (3)	<p>Membership. The Secretary shall appoint the members of the committee. All committee members shall be federal employees who are experts in their representative fields or senior leaders with significant decision making authorities. Standing members shall include:</p> <p>(2) Director, Office of Project Management Oversight and Assessments, Office of the Under Secretary for Management and Performance (Secretariat)</p> <p>(3) Director, Office of Project Assessments, Office of the Under Secretary of Management and Performance</p>	<p>Membership. The Secretary shall appoint the members of the committee. All committee members shall be federal employees who are experts in their representative fields or senior leaders with significant decision making authorities. Standing members shall include:</p> <p>(2) Director, Office of Project Management Oversight and Assessments, Office of the Under Secretary of Energy (Secretariat)</p> <p>(3) Director, Office of Project Assessment, Office of Environmental Management, Office of the Under Secretary for Science</p>
C-5	6.a.	<p>Design Management for Nuclear Facilities.</p> <p>Nuclear construction projects are DOE/NNSA projects that build facilities with technologies to manage, store, process or handle nuclear materials, shall comply with DOE-STD-1189-2008 design safety requirements. Projects designated as Hazard Category 1, 2, and 3 nuclear facilities shall achieve at least 90</p>	<p>Design Management for Nuclear Facilities.</p> <p>Projects involving construction of new Hazard Category 1, 2, and 3 nuclear facilities intended to manage, store, process or handle nuclear materials shall comply with DOE-STD-1189-2016 and shall achieve at least 90 percent design completion before CD-2.</p> <p>The objective of this requirement is to ensure systems, structures, and components, the overall design, are sufficiently mature to</p>



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		<p>percent design completion before CD-2.</p> <p>The objective is to ensure systems, structures, and components, the overall design, are sufficiently mature to meet project requirements and outcomes and thus fulfilling the mission need.</p>	<p>meet project requirements and outcomes and thus fulfilling the mission need.</p>
C-13	9.a.(2) and (3)	<p>(2) Prior to CD-2, a PSDR is developed from the CSDR to reflect more refined analyses based on the evolving design and safety integration activities during preliminary design. The PSDR should include the results of process hazards analyses and confirm or adjust, as appropriate, the items included in the CSDR.</p> <p>(3) Prior to CD-2, a PDSA is prepared which updates the safety information in the PSDR and identifies and justifies changes from the design approach described in the PSDR.</p>	<p>(2) At completion of the Preliminary Design Phase, Preliminary Safety and Design Results are developed to reflect more refined analyses based on the evolving design and safety integration activities during preliminary design. The Preliminary Safety and Design Results should include the results of process hazards analyses and confirm or adjust, as appropriate, the items included in the CSDR.</p> <p>(3) Prior to CD-2, a PDSA is prepared which updates and expands the safety information in the Preliminary Safety and Design Results and identifies and justifies any changes from the design approach described in the Preliminary Safety and Design Results.</p>
C-14	9.b.(2)	<p>Prior to CD-2, a Hazard Analysis Report is developed by updating the PHAR to include any new or revised information on facility hazards and safety design.</p>	<p>Prior to CD-2, a Hazard Analysis Report is developed by updating the PHAR to include any new or revised information on facility hazards and safety design. If the hazard characterization is below Hazard Category 3 by analysis, the SBAA should approve this analysis before CD-2.</p>
C-23	23.c.(1)	<p>Language did not previously exist.</p>	<p>(1) DOE Review of Preliminary Safety and Design Results.</p> <p>For Hazard Category 1, 2, and 3 nuclear facilities, DOE conducts</p>

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			<p>an independent review of the Preliminary Design and Safety Results to determine whether final design should proceed. The review may consist of a single review or a series of reviews, based on when the preliminary design of the facility (or of defined segments of the design) is complete and ready to enter final design. This review is conducted by a DOE-selected team of experts and its results provided to the FPD for review and action as necessary. The size and composition of the team reflects the size and complexity of the project. More than one review may be conducted at the discretion of the FPD; the SDS should define segments when more than one review is planned. The independent review(s) should be scheduled as early as practicable, after completion of preliminary design, to minimize project risk. This review may be handled by the TIPR, as long as the appropriate experts are part of the review team. Refer to DOE-STD-1104-2016 for the required method for DOE personnel to review and approve the Preliminary Design and Safety Results.</p>
C-24	23.c.(2)	<p>Completion of the TIPR is required prior to the start of any subsequent reviews (including EIRs) and is required prior to CD-2 approval.</p> <p>CNS or CDNS concurrence, as appropriate, is required for reviews of projects that must implement DOE-STD-1189-2008.</p>	<p>Completion of the TIPR is required at or near the completion of preliminary design, and prior to the start of any subsequent reviews (including EIRs) and is required prior to CD-2 approval.</p> <p>CNS or CDNS concurrence in CD-2 approval is required for reviews of projects that must implement DOE-STD-1189-2016.</p>

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C-32	27.e.	CD-3A may be needed for long lead item procurement. While there is potential risk in procuring equipment before the design is complete, the potential schedule improvement may be significant and more than compensate for the risk. If the long lead item is nuclear safety related or nuclear safety related equipment, safety document maturity must also be considered.	CD-3A may be needed for long lead item procurement. While there is potential risk in procuring equipment before the design is complete, the potential schedule improvement may be significant and more than compensate for the risk. If the long lead item is nuclear safety related or nuclear safety related equipment, safety document maturity must also be considered (refer to DOE-STD-1189-2016 and DOE-STD-1104-2016).
Atch 1 Pg.5	14.	For projects that are Hazard Category 1, 2, and 3 nuclear facilities or include major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189-2008 shall be fully implemented. The following documents must be submitted: Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-2), and Documented Safety Analysis with Technical Safety Requirements (CD-4). For major modifications, the Conceptual Safety Design Report (CSDR) and the Preliminary Safety Design Report (PSDR) may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis. The need to maintain the CSDR and PSDR as separate documents shall be based on the design development phases. Projects with conceptual and/or preliminary design phases shall	For projects involving construction of new Hazard Category 1, 2, and 3 nuclear facilities or include major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189-2016 shall be fully implemented. The following documents must be submitted, as applicable: Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety and Design Results (CD-2), Preliminary Documented Safety Analysis (CD-2), and Documented Safety Analysis with Technical Safety Requirements (CD-4).

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		develop the corresponding safety documentation.	
Atch 2 Pg.2	15.	<u>Code of Record</u> . A set of requirements, including Federal and state laws, as defined in contracts and Standards or Requirements Identification Documents (or their equivalent), that are in effect at the time a facility or item of equipment was designed and accepted by DOE. It is initiated during the conceptual design phase, and prior to approval of CD-1. It is placed under configuration control to ensure it is updated to include more detailed design requirements as they are developed during preliminary design, and prior to approval of CD-2. It is controlled during final design and construction with a process for reviewing and evaluating new and revised requirements to determine their impact on project safety, cost and schedule before a decision is taken to revise the Code of Record. It is maintained and controlled through facility decommissioning.	<u>Code of Record</u> . A set of design and operational requirements, including Federal and state laws, in effect at the time a facility or item of equipment was designed and accepted by DOE. It is (i) initiated during the conceptual design phase, placed under configuration control to ensure it is updated to include more detailed design requirements as they are developed during preliminary design, (ii) controlled during final design and construction with a process for reviewing and evaluating new and revised requirements to determine their impact on project safety, cost and schedule before a decision is taken to revise the Code of Record, and (iii) maintained and controlled through facility decommissioning. The Code of Record may be defined in contracts, Standards or Requirements Identification Documents (or their equivalent), or project-specific documents. [DOE-STD-1189-2016]
Atch 2 Pg.7	55.	<u>General Plant Project</u> . Miscellaneous minor construction project, of a general nature, for which the total estimated cost may not exceed the congressionally established limit. GPPs are necessary to adapt facilities to new or improved production techniques, to effect economies of operations, and to reduce or eliminate health, fire and security problems.	<u>General Plant Project</u> . Miscellaneous minor construction project, of a general nature, for which the total estimated cost may not exceed the congressionally established limit. GPPs are necessary to adapt facilities to new or improved production techniques, to effect economies of operations, and to reduce or eliminate health, fire and security problems. These projects provide for design, construction, additions,

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		These projects provide for design and/or construction, additions, improvements to land, buildings, replacements or additions to roads, and general area improvements. (Refer to DOE O 430.1B and 50 USC 2743)	and/or improvements to land, buildings, replacements or additions to roads, and general area improvements. (Refer to 50 USC 2743)
Atch 2 Pg.12	107.	<u>Technical Independent Project Review</u> . An independent project review conducted prior to obtaining CD-2, for Hazard Category 1, 2, and 3 nuclear facilities. At a minimum, the focus of this review is to determine that the safety documentation is sufficiently conservative and bounding to be relied upon for the next phase of the project.	<u>Technical Independent Project Review</u> . An independent project review conducted at or near the completion of preliminary design, and is required prior to CD-2 approval, for Hazard Category 1, 2, and 3 nuclear facilities. At a minimum, the focus of this review is to determine that the safety documentation is sufficiently conservative and bounding to be relied upon for the next phase of the project.