

## EFCOG Best Practice #259

**Best Practice Title:** Washington River Protection Solutions (WRPS) Capital Asset Preplanning CRC Checklist.

Facility: Tank Operations Contractor Washington River Protection Solutions (WRPS), Hanford Site, Richland Washington

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**Brief Description of Best Practice:** This best practice is based on the Department of Energy (DOE) DOE O 413.3B (current version), Program and Project Management for the Acquisition of Capital Assets, CD Gate Process.

While most are aware of the prescribed process for “Initiation, Definition, Execution, and Closeout” phases of the “DOE Acquisition Management System”, typical compliance review findings indicate many do not employ the required approach.

The “Purpose of the 413.3B approach is:

*“To provide the Department of Energy (DOE) Elements, including the National Nuclear Security Administration (NNSA), with program and project management direction for the acquisition of capital assets with the goal of delivering projects within the original performance baseline (PB), cost and schedule, and fully capable of meeting mission performance, safeguards and security, and environmental, safety, and health requirements unless impacted by a directed change.”*

“Applicability” of the order states:

*“Departmental Applicability.*

*The requirements identified in this Order are mandatory for all DOE Elements (unless identified in Paragraph 3.c., Equivalencies/Exemptions) for all capital asset projects having a Total Project Cost (TPC) greater than \$50M, except that during the project development phase, Under Secretaries may reduce the threshold to \$10M for nuclear projects or complex first-of-a-kind projects. Any reference to a Program Secretarial Officer (PSO) in this Order is also applicable to the Deputy Administrator/Associate Administrators for the NNSA.”*

*“The principles (see Appendix C, Paragraph 1.a.-l.) as set forth in this Order apply to all capital asset projects. They also apply to General Plant Projects (GPPs) for which the approved total estimated cost does not exceed the minor construction threshold, using a tailored approach.”*

*“All projects with a TPC greater than \$50M are required to report progress and provide documentation in the Project Assessment and Reporting System (PARS II) at Critical Decision (CD)-0 and thereafter, in accord with Appendix C. After CD-2 is approved for projects with a TPC greater than \$50M, earned value reporting shall apply.”*

*“Additionally, for all projects with a TPC greater than \$50M, all approved CD or equivalent documents and performance baseline changes shall be submitted to the Office of Project Management Oversight and Assessments (PM).”*

Use of this ***“Capital Asset Preplanning CRC Checklist”*** best practice, places emphasis on the most critical component of project success, upfront planning. In an oversimplification of the typical planning process, discussions are held, decisions are made, and charge codes are issued. Much or most of the actions taken on the project are based on verbal discussions, and typically not traceable back to those with the authority and responsibility to make informed decisions.

With the CRC Checklist approach the project team (DOE Field Office/DOE Headquarters/DOE Contractor) collaboratively reach upfront agreement on implementation for each CD Gate task/activity via completion of the CRC Checklist form, which identifies:

- Applicability of training and CD Gate tasks/activities for the project
- A “Narrative Justification” for any and all CD Gate tasks/activities identified as “No” or not applicable
- The appropriate training and reference material that the project team will be required to take. This is best accomplished as required reading with signature to validate the training was completed.
- Assignment Responsibility name of the project individual responsible for a particular task/activity
- Activity Forecast Dates “Start” and “Finish” to facilitate a project management schedule which will then be integrated with the technical scope schedule.

Consistent with all project documents, this document must be under configuration control through a formal document control revision process, and should be updated to reflect any changes from previous decisions made by the project team.

**Expected Benefits of this Best Practice:** Routine use of this checklist will improve the project team knowledge of the compliant approach prescribed by DOE in the “Initiation, Definition, Execution, and Closeout” phases of capital and GPP projects.

Benefits will also be realized in gaining upfront implementation of the 413 preplanning approach in flushing out differing and often incorrect interpretations of the order and its applicability. With agreement upfront, project stakeholders will be on the same page with a common understanding of how the project will proceed, allowing the project team to focus their collective energy on problem solving for the challenges that will be encountered during the “Execution” phase. This should represent a welcome change from the typical “blame game” encountered when “anyone” involved blames “everyone” else for the preplanning “nobody” did.

Please see the ***“413 Project Management CRC Checklist”*** below.

Washington River Protection Solutions - 413 Quick Reference Matrix

Project Manager 413 Capital Asset Planning Compliance Review Checklist (CRC) for: Applicability Determination / Justification / Training Completed /Assignment Responsibility / Review Completion and Sign-off		Applicability		Narrative Justification if "No"	Training Required?		Assignment Responsibility Name	Activity Forecast Dates	
		Yes √	No √		Yes √	No √		Start	Finish
<b>CD Gate Activities</b>		<b>Reference Material</b>							
Click the "EFCOG PDWG Training Express" Link to Access the Training Material		<a href="#">EFCOG PDWG Training Express</a>							
DOE O 413.3B Program and Project Management for the Acquisition of Capital Assets									
DOE G 413 3-1 MD&C Using System Engineering									
DOE G 413 3-5A Performance Baseline Guide									
DOE G 413 3-7A Risk Management Guide									
DOE G 413 3-9A Project Reviews for CAP Assets									
DOE G 413 3-12 Chg. 1 PDRI Guide									
DOE G 413.3-13 Acquisition Strategy									
DOE G 413.3-15A Project Execution Plans									
DOE G 413.3-17 Mission Need Statement									
DOE G 413.3-18A Integrated Project Team									
DOE G 413.3-20 Change Control Management									
DOE G 413.3-21A Cost Estimating Guide									
DOE G 413.3-22 Analysis of Alternatives Guide									
DOE G 413.3-24 Planning and Scheduling									
<b>Other 413.3 Reference Material</b> <small>(In Order of Appearance)</small>									
DOE-STD-1189-2016 Integration of Safety into the Design Process		<a href="#">DOE-STD-1189-2016</a>							
DOE O 361.1C Acquisition Career Management Program		<a href="#">DOE O 361.1C</a>							
DOE O 436.1 Departmental Sustainability		<a href="#">DOE O 436.1</a>							
DOE G 413.3-6A High Performance Sustainable Building		<a href="#">DOE G 413.3-6</a>							
DOE G 413.3-22, Analysis of Alternatives Guide (Reference GAO 16-22)		<a href="#">DOE G 413.3-22</a>							
DOE G 450.4-1C Integrated Safety Management System Guide		<a href="#">DOE G 450.4-1C</a>							
DOE O 414.1D Quality Assurance		<a href="#">DOE O 414.1D</a>							
DOE G 413.3-2 Quality Assurance Guide for Project Management		<a href="#">DOE G 413.3-2</a>							
DOE O 470.4B Safeguards and Security Program		<a href="#">DOE O 470.4B</a>							
DOE G 413.3-3A Safeguards and Security for Program and Project Management		<a href="#">DOE G 413.3-3A</a>							
DOE O 451.1B National Environmental Policy Act Compliance Program		<a href="#">DOE O 451.1B</a>							
DOE G 413.3-4A Technology Readiness Assessment Guide		<a href="#">DOE G 413.3-4A</a>							
DOE G 413.3-10B Integrated Project Management Using the Earned Value Management System		<a href="#">DOE G 413.3-10B</a>							
DOE G 413.3-2 Quality Assurance Guide for Project Management		<a href="#">DOE G 413.3-2</a>							
DOE P 451.1 National Environmental Policy Act Compliance Program		<a href="#">DOE P 451.1</a>							
DOE G 413.3-16A Project Completion/Closeout Guide		<a href="#">DOE G 413.3-16A</a>							
DOE O 425.1D Verification of Readiness to Start Up or Restart Nuclear Facilities		<a href="#">DOE O 425.1D</a>							
DOE O 430.1C Real Property Asset Management		<a href="#">DOE O 430.1C</a>							
DOE 413.3B CD Gate Tables - Check Marks below Indicate Requirements or Need to Analyze if Applicable									
<b>Prior to CD-0</b>									
<i>Perform Pre-Conceptual Planning</i> activities that focus on the Program Offices' strategic goals and objectives, safety planning, design, development of capability gaps, high-level project parameters, a ROM cost range, and schedule estimates.									
<i>Perform a Mission Validation Independent Review</i> on all Major System Projects. (Refer to DOE G 413.3-9.)									
<i>Approve a Mission Need Statement Document</i> with recommendation from PM for projects with a TPC ≥ \$100M. (Refer to DOE G 413.3-17.)									
<i>Independent Cost Review (ICR)</i> . <i>For Major System Projects, or for projects as designated by the CE, PM will conduct an ICR</i>									
<i>For Major System Projects</i> , the Project Management Risk Committee (PMRC) will review and analyze the CD and make recommendations to the ESAAB, CE, or PME, as applicable, before approval.									
<i>Program Requirements Document</i> , For NNSA only, defines the ultimate goals which the project must satisfy. (Refer to NNSA Business and Operating Policy.)									
<b>DOE-STD-1189-2016</b> <i>For Hazard Category 1, 2, and 3 nuclear facilities, and to the specificity possible, document DOE expectations for Safety-in-Design</i>									
<b>Post CD-0 Approval</b>		<a href="#">CD-0</a>							



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		Yes	No		Yes	No		Start	Finish
<b>Technology Readiness Assessment and develop a Technology Maturation Plan</b> For Major System Projects, or first-of-a-kind engineering endeavors, conduct a Technology Readiness Assessment and develop a Technology Maturation Plan, as appropriate. At this stage, each critical technology item or system shall achieve a Technology Readiness Level-4 (TRL-4). (Refer to DOE G 413.3-4A.)		√	√			√	√		
<b>Preliminary Hazard Analysis Report (PHAR)</b> Prepare a Preliminary Hazard Analysis Report (PHAR) for facilities that are below the Hazard Category 3 nuclear facility threshold as defined in 10 CFR Part 830, Subpart B.									
<b>Integrated Safety Management Plan</b> Develop and implement an Integrated Safety Management Plan into management and work process planning at all levels per DOE G 450.4-1C.									
<b>Quality Assurance Program (QAP).</b> Establish a Quality Assurance Program (QAP). (Refer to 10 CFR Part 830, Subpart A, DOE O 414.1D, and DOE G 413.3-2.) For nuclear facilities, the applicable national consensus standard shall be NQA-1-2008 (Edition) and NQA-1a-2009 (Addenda).									
<b>Safeguards and Security</b> Identify general Safeguards and Security requirements for the recommended alternative. (Refer to DOE O 470.4B and DOE G 413.3-3A.)									
<b>National Environmental Policy Act (NEPA) Strategy</b> Complete a National Environmental Policy Act (NEPA) Strategy by issuing a determination (e.g., Environmental Assessment), as required by DOE O 451.1B. Prepare an Environmental Compliance Strategy, to include a schedule for timely acquisition of required permits and licenses.									
<b>Update Project Data Sheet</b> Update Project Data Sheet, or other funding documents for MIE and OE projects, and A-11 Business Case, if applicable. This must contain an estimate of the required amount of PED funds to execute the planning and design portion of a project (period from CD-1 to completion of the project's design). (Refer to DOE CFO Budget Call for PDS and Business Case Template.)									
<b>Preliminary Security Vulnerability Assessment</b> Conduct a Preliminary Security Vulnerability Assessment, if necessary. (Refer to DOE O 470.4B and DOE G 413.3-3A.)									
<b>Safety Design Strategy</b> 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.									
<b>Independent Project Review (IPR)</b> For Hazard Category 1, 2, and 3 nuclear facilities, conduct an Independent Project Review (IPR) to ensure early integration of safety into the design process. (Refer to DOE G 413.3-9 and DOE-STD-1189-2016.)									
<b>Conceptual Safety Design Report (CSDR)<sup>4</sup></b> Prepare a Conceptual Safety Design Report (CSDR) <sup>4</sup> for Hazard Category 1, 2, and 3 nuclear facilities, including preliminary hazard analysis. For a project involving a major modification of an existing facility, the SDS must address the need for a CSDR, as well as the required PDSA. (Refer to DOE-STD-1189-2016.)									
<b>Safety Review Letter</b> 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.)									
<b>Post CD-1 Approval</b>									
<b>Begin expenditure of PED, MIE, or OE funds for the project design.</b>									
<b>Develop an Acquisition Plan, if applicable.</b>									
<b>Continue monthly PARS II Reporting</b> (excluding earned value). FPD, Program Manager and PM will provide monthly assessments, as appropriate.									
<b>Annually conduct Project Peer Reviews</b> of active projects when the top-end range is \$100M or greater.									
<b>Continue QPRs with the PME of their designee</b>									

CD-1

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Project Manager 413 Capital Asset Planning Compliance Review Checklist (CRC) for: Applicability Determination / Justification / Training Completed / Assignment Responsibility / Review Completion and Sign-off	Applicability		Narrative Justification if "No"	Training Required?		Assignment Responsibility Name	Activity Forecast Dates	
	Yes	No		Yes	No		Start	Finish
For <b>Nuclear Facilities</b> , develop a Checkout, Testing and Commissioning Plan in preparation for acceptance and turnover of the structures, systems and components at CD-4. (Refer to DOE-STD-1189-2016.)	√	√		√	√			
<b>Prior to CD-2</b>								
<b>Approve an updated Acquisition Strategy</b> , if there are any major changes to the acquisition approach. Obtain endorsement from PM for Major System Projects. (Refer to DOE G 413.3-13.)								
<b>Establish a Performance Baseline</b> , reflective of identified and assessed risks and uncertainties, to include scope, TPC, CD-4 date, and minimum KPPs (if applicable). The key project milestones and completion dates shall be stated no less specific than month and year. The scope will be stated in quantity, size and other parameters that give shape and form to the project. The funding assumptions upon which the PB is predicated will be clearly documented and approved. (Refer to DOE G 413.3-5A.)								
<b>Approve updated Project Execution Plan.</b> (Refer to DOE G 413.3-15.)								
<b>Prepare a Funding Profile to support the execution of the PB and reflect in the budget document.</b> The funding profile may be included in the PEP.								
<b>Approve Long-Lead Item Procurements, if necessary.</b> Approval may be concurrent with (or prior to) CD-2 approval. (Long-lead item procurement approval will be designated as CD-3A.)5								
<b>Develop a Project Management Plan</b> , if applicable. (Refer to Attachment 1.)								
<b>Perform a Performance Baseline External Independent Review (EIR) or an Independent Project Review (IPR).</b> PM will conduct EIRs to validate the PB for projects with a TPC ≥ \$100M. PM must issue a Performance Baseline Validation Letter to the PSO that describes the cost, schedule, and scope being validated. PMSO will conduct IPRs to validate the PB for projects with a TPC < \$100M. (Refer to DOE G 413.3-9)								
For projects with a TPC ≥ \$100M, <b>PM will develop an Independent Cost Estimate (ICE).</b> The ICE will support validation of the PB.								
<b>Complete a Preliminary and/or Final Design. Hazard Category 1, 2, and 3 nuclear facilities shall achieve at least 90% design completion prior to CD-2 approval.</b> Non-nuclear project designs shall be sufficiently mature to prepare a project baseline with 80-90% confidence prior to CD-2 approval. (See Appendix C, Paragraph 6a for definition of 90% design complete.)								
<b>Incorporate the Guiding Principles for Federal Leadership</b> in High Performance and Sustainable Buildings per EO 13693, Section 3(h), sustainability requirements per DOE O 436.1, and/or other sustainability considerations into the preliminary design and design review. (Refer to DOE G 413.3-6A.)								
<b>Conduct a Design Review of the preliminary and final designs.</b>								
<b>For Hazard Category 1, 2, and 3 nuclear facilities, design reviews should include a focus on safety and security systems.</b> Additionally, the Code of Record shall be placed under configuration control during preliminary design. It is controlled during final design and construction with a process for reviewing and evaluating new and revised requirements. New or modified requirements are implemented if technical evaluations determine that there is a substantial increase in the overall protection of the worker, public or environment, and that the direct and indirect costs of implementation are justified in view of this increased protection.								
Complete a Preliminary Design Report.								
For projects with a TPC ≥ \$100M, the <b>PMRC will review and analyze the CD and make recommendations to the ESAAB, CE, or PME, as applicable, before approval.</b>								
<b>Conduct a Project Definition Rating Index Analysis, as appropriate</b> , for projects with a TPC ≥ \$100M. PM will review as part of the EIR. (Refer to DOE G 413.3-12.)								
For Major System Projects, or first-of-a-kind engineering endeavors, <b>conduct a Technology Readiness Assessment and develop a Technology Maturation Plan, as appropriate.</b> At this stage, each critical technology item or system shall achieve a Technology Readiness Level-7 (TRL-7). (Refer to DOE G 413.3-4A.)								
<b>Employ an Earned Value Management System compliant with EIA-748C, or as required by the contract.</b> This is performed by the contractor. (Refer to DOE G 413.3-10A.)								
<b>Prepare a Hazard Analysis Report for facilities that are below the Hazard Category 3 nuclear facility threshold</b> as defined in 10 CFR Part 830, Subpart B by updating the PHAR based on new hazards and design information.								

CD-2







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	Yes √	No √		Yes √	No √		Start	Finish
Establish and/or update the property record in the Facilities Information Management System (FIMS) for all construction of or modifications to real property. (Refer to DOE O 430.1C.)	<a href="#">Project Closeout</a>							