

Capital and Major Construction Projects Critical Decision Review and Approval

Performance Status & Verification



Standard Review Plan Senior Management Handbook





Overview

Our experiences with major nuclear design and construction projects continue to highlight the importance of a focused, technically rigorous, and standardized approach to project reviews performed at Critical Decision (CD) approval points. This approach is fundamental to a positive safety culture and effective nuclear safety management.

DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, and DOE-STD-1189-2008, *Integration of Safety into the Design Process*, provide core DOE requirements and expectations to ensure that project activities are conducted correctly and timely. This is also to ensure that safety is fully integrated, early in the facility lifecycle phases and, ultimately, the entire project.

The Standard Review Plans (SRPs) are designed to be a practical tool for Headquarters and field senior management and the Federal Project Directors (FPDs). They provide detailed lines of inquiry (LOIs) consistent with existing DOE requirements, expectations, and real-life DOE project experience. The LOIs encompass broad disciplines of Project Management; Engineering and Design; Nuclear and Facility Safety; Worker Safety; Environment; Security; and Quality Assurance. Collectively, they provide DOE management and technical staff the tools to ensure that the issues and risks that may challenge the successful execution of nuclear projects are identified early as part of the CD review process and managed proactively throughout the project or facility lifecycle.

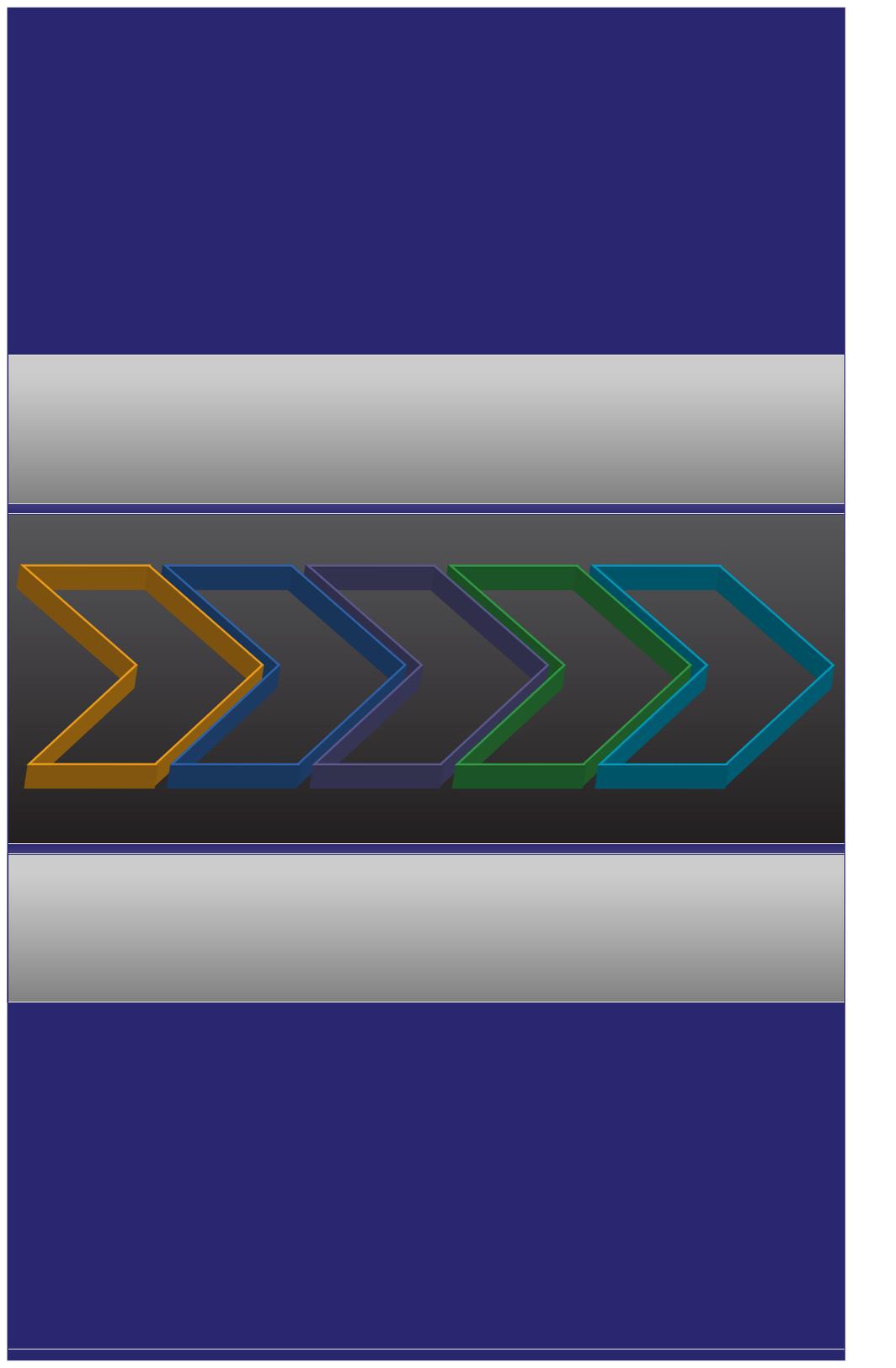
The development of the SRPs is a collaborative effort between the Office of Environmental Management (EM) and the Chief of Nuclear Safety (CNS). The National Nuclear Security Administration (NNSA) has developed a similar review tool, such as the Criteria and Review Approach Documents (CRADs). The NNSA CRADs are also designed to be CD- and project review-specific and based on DOE O 413.3B, DOE-STD-1189, other Federal and DOE requirements, and industry best business practices. NNSA works closely with the Chief of Defense Nuclear Safety (CDNS) to ensure that safety in design is built into each nuclear project. Both the EM SRPs and NNSA CRADs provide the technical framework to formalize our institutional processes and requirements associated with the in-depth review of nuclear projects and facilities.

This Handbook provides Headquarters and field senior management who are charged with review and approval of CD deliverables with a set of key questions to further strengthen technical soundness and performance accountability prior to CD approval. These high-level key questions are organized by CD phases and applicable disciplines. Included in this Handbook are also two tables that depict the prerequisite CD activities and the required documents that are subject to DOE review and approval. These tables also present the developmental process of the key documents as the project proceeds through the CD process.

I strongly encourage you to use this Handbook as a key institutional tool available to proactively enhance the successful execution of our projects.



Thomas P. D'Agostino
Under Secretary for Nuclear Security



Key Questions for Critical Decision Review and Approval¹

Before CD-0 Approval of Mission Need

	Yes	No
Has Pre-Conceptual Planning been performed to address project activities, including program strategic goals and objectives, safety, design, Rough Order of Magnitude cost range, and schedule estimates? (All Project Areas)		
For a Major System Project (MSP) with Total Project Cost (TPC) \geq \$750M, has a Mission Validation Independent Review been performed for Program Secretarial Office (PSO) approval? (PM)		
For a project with TPC \geq \$100M, has a Mission Need Statement Document been prepared for PSO approval? (PM)		
Has the Office of Acquisition and Project Management (APM) conducted an Independent Cost Review for the MSP or for a project designated by the Secretarial Acquisition Executive (SAE)? (PM)		
For a nuclear project (Hazard Category 1, 2, or 3), have the Safety-in-Design expectations been documented for approval by the Safety Basis Approval Authority (SBAA)? (ED, NFS, PM)		
Has a project prepared a Program Requirements Document that defines the goals the project must meet (note: this applies only to NNSA projects)? (All Project Areas)		

After CD-0 Approval of Mission Need

	Yes	No
Have all the required CD-0 Documents been submitted to APM? (All Project Areas)		
Has a Project Data Sheet (PDS) been developed for requesting Project Engineering and Design (PED) funds? (PM, ED)		
Has a project (TPC \geq \$10M) initiated monthly Project Assessment and Reporting System (PARS II) reporting? (PM)		
Has the project initiated Quarterly Project Reviews (QPRs) with the Acquisition Executive (AE) or designee? (PM)		

¹ PM = Project Management, ED = Engineering and Design, NFS = Nuclear and Facility Safety, WS = Worker Safety, E = Environmental, S = Security, QA = Quality Assurance

Key Questions for Critical Decision Review and Approval

Before CD-1 Approval of Alternative Selection and Cost Range	Yes	No
For an MSP, has an Acquisition Strategy been prepared, with endorsement from APM for PSO approval? (PM)		
Has a preliminary Project Execution Plan (PEP) been prepared for SAE or AE approval? (PM)		
If required, has a Tailoring Strategy been prepared for SAE or AE approval? (PM)		
Has the SAE or AE appointed an FPD ? Is the FPD certified at the correct level? (PM)		
Has an Integrated Project Team (IPT) been chartered and organized? Is it functioning? (PM)		
Has the Project Team established a Corrective Action Tracking process and routine methods for addressing issues on the project that promote a strong Nuclear Safety Culture ? (All Project Areas)		
Has a Risk Management Plan been prepared? Are all project risks identified, analyzed, and determined to be either avoidable or manageable? (All Project Areas)		
Has the PDS been updated from CD-0? (PM)		
For a nuclear project, has a Risk and Opportunity Assessment been prepared to support the evaluation of the Safety-in-Design Strategy? (ED, NFS)		
Does the project comply with the One-for-One Replacement legislation (excess space/offset requirement), as mandated in House Report 109-86? (PM)		
For a project with a TPC \geq \$100M, has APM developed an Independent Cost Estimate or conducted an Independent Cost Review ? (PM)		
For a nuclear project, has the development of a Code of Record been initiated to support conceptual design? (ED, NFS)		
Has a Conceptual Design Report been prepared? (ED)		
Has DOE completed the conceptual design review and prepared a Conceptual Design Review Report ? (ED)		
Have the High-Performance Sustainable Building (HPSB) considerations been evaluated and documented in the Conceptual Design Report, Acquisition Strategy, or PEP? (E)		
Has a Safety Design Strategy (SDS) been prepared for SBAA and FPD approval, with CNS concurrence, or reviewed by the CDNS? (ED, NFS)		

Key Questions for Critical Decision Review and Approval

Before CD-1

Approval of Alternative Selection and Cost Range *(Continued)*

Yes

No

For a nuclear project, has the PSO requested an **Independent Project Review (IPR)** to ensure early integration of safety into the design process? (ED, NFS)

For a nuclear project, has the contractor prepared a **Conceptual Safety Design Report (CSDR)** for DOE approval? (NFS)

Has the DOE SBAA approved the CSDR and documented the findings in the **Conceptual Safety Validation Report (CSVSR)**, with concurrence from the FPD? (NFS)

Has an **Integrated Safety Management (ISM) Plan** been developed and implemented? (NFS, WS)

For a non-nuclear project (i.e., below the Hazard Category 3 nuclear facility threshold as defined in 10 CFR Part 830, Subpart B), has the contractor prepared a **Preliminary Hazard Analysis Report (PHAR)**? Has the Field Organization approved the report? (FS, WS)

Has a **National Environmental Policy Act (NEPA) Strategy** been completed? Has a determination been issued? Has an Environmental Compliance Strategy been prepared? (E)

Have **Safeguards and Security** requirements been identified? (S)

Has a **Quality Assurance Program** been established? For nuclear projects, are NQA-1 standards being implemented? (QA)

After CD-1

Approval of Alternative Selection and Cost Range

Yes

No

Have all the required **CD-1 Documents** been submitted to APM? (All Project Areas)

For a nuclear project, has a **Checkout, Testing, and Commissioning Plan** been initiated in preparation for the acceptance and turnover of the structures, systems, and components at CD-4? (PM, ED, NFS)

Has the project begun expenditure of the **Project Engineering and Design (PED)**, **Major Item of Equipment (MIE)**, or **Operating Expense (OE)** funds? (PM)

Has the project developed an **Acquisition Plan**, if applicable? (PM)

Has the project continued the monthly **PARS II** reports? (PM)

Has the project continued the **QPRs** with the AE or designee? (PM)

Key Questions for Critical Decision Review and Approval

Before CD-2

Approval of Performance Baseline

Yes

No

	Yes	No
Has the project established a Performance Baseline (PB) for FPD approval? (PM)		
Has the Acquisition Strategy been updated for PSO approval? (PM)		
Has the PEP been updated and approved by the SAE or AE? (PM)		
Has a Funding Profile been prepared for SAE or AE approval? (PM)		
Have Long-Lead Item Procurements been established for SAE or AE approval? (PM)		
Has a Project Management Plan been developed, if applicable? (PM)		
Has the contractor employed an Earned Value Management System (EVMS) in accordance with ANSI/EIA-748B, or as required by the contract? (PM)		
For an MSP, has a Technology Readiness Assessment (TRA) been conducted? Has a Technology Maturation Plan (TMP) been developed, as appropriate? Are they approved by the FPD? (ED, NFS, WS)		
Has a Project Definition Rating Index Analysis been prepared for FPD approval for projects with a TPC \geq \$100M? (PM)		
Has the PDS been updated from CD-1? (PM)		
For a nuclear project, has the Code of Record been placed under configuration control during preliminary design? (ED, NFS)		
Has a Preliminary Design Report been prepared? (ED)		
Has DOE completed the preliminary design review? Has DOE prepared a Preliminary Design Review Report ? (ED, NFS)		
Have the HPSB considerations been evaluated and documented for the preliminary design? (E)		
Has an SDS been updated for SBAA and FPD approval, with CNS concurrence, or reviewed by the CDNS? (ED, NFS)		
For a nuclear project, has a Technical Independent Project Review (TIPR) been conducted for preliminary design and approved by the PSO? (ED, NFS)		

Before CD-2 Approval of Performance Baseline (Continued)

Yes

No

For a nuclear project, has the contractor prepared a **Preliminary Safety Design Report (PSDR)** for DOE SBAA approval? (NFS)

Has the DOE SBAA approved the PSDR and documented the findings in the **Preliminary Safety Validation Report (PSVR)**? (NFS)

Has the **ISM Plan** been updated and implemented? (NFS, WS)

For a non-nuclear project, has the contractor prepared a **Hazard Analysis Report (HAR)** based on new hazards and design information? Has the Field Organization approved the report? (FS, WS)

Has the final **Environmental Impact Statement (EIS)** or **Environmental Assessment (EA)** been issued? (E)

Has a **Preliminary Security Vulnerability Assessment** been conducted, if applicable? (S)

Has a **Quality Assurance Program** been updated for preliminary design? (QA)

For projects with a TPC \geq \$100M, has APM conducted an **EIR to validate the PB** and issued a **Performance Baseline Validation Letter** to the PSO in accordance with DOE O 413.3B? (PM)

For projects with a TPC $<$ \$100M, has the Project Management Support Office conducted an **IPR to validate the PB**? (PM)

For projects with a TPC \geq \$100M, has APM developed an **Independent Cost Estimate** to validate the PB? (PM)

After CD-2 Approval of Performance Baseline

Yes

No

Have all the required **CD-2 Documents** been submitted to APM, including any **Baseline Change Proposals (BCPs)**? (All Project Areas)

Has the **Budget Request** for the TPC been submitted? (PM)

Has **AE Endorsement** been obtained on any changes to the approved funding profile? (PM)

Has an **Annual Project Peer Review** been initiated for project with TPC \geq \$100M? (PM)

Has the project continued the monthly **PARS II** reports? (PM)

Has the project continued the **QPRs** with the AE or designee? (PM)

Key Questions for Critical Decision Review and Approval

Before CD-3 Approval of Start of Construction/Execution	Yes	No
Has the SAE or AE approved the updated CD-2 Project Documentation that reflects major changes from final design, PEP, Performance Baseline, Acquisition Strategy, Project Data Sheet, and funding documents for MIE and OE funds? (PM)		
Has the Final Design been completed and reviewed, and is the design sufficiently mature to start procurement or construction? (ED, NFS)		
Has the FPD ensured that the Constructability Review was completed as part of final design? (PM, ED, NFS)		
Has the Code of Record been managed and controlled during final design and construction with a process for reviewing and evaluating new and revised requirements? (ED, NFS)		
Have the HPSB considerations been evaluated and documented for the final design? (E)		
Has the contractor employed a certified EVMS in accordance with ANSI/EIA-748B, or as required by the contract? (PM)		
For an MSP, has APM conducted an EIR for construction or execution readiness? (All Project Areas)		
For a non-MSP, has the Project Management Support Office conducted an IPR ? (All Project Areas)		
Has APM developed an Independent Cost Estimate for the project with a TPC \geq \$100M? (PM)		
For an MSP, has a PSO-approved TRA been conducted if there are significant technological modifications occurring after CD-2? (ED, NFS, WS)		
Has an SDS been updated for SBAA and FPD approval, with CNS concurrence, or reviewed by the CDNS? (ED, NFS)		
For a nuclear project, has the contractor prepared a Preliminary Documented Safety Analysis (PDSA) for DOE approval? (NFS)		
Has the DOE SBAA approved the PDSA and documented the findings in the Safety Evaluation Report (SER) ? (NFS)		
For a non-nuclear project, has the contractor prepared an updated HAR based on new hazards and design information? Has the Field Organization approved the report? (FS, WS)		
Has a Quality Assurance Program been updated for final design, construction, and procurement activities? (QA)		



Key Questions for Critical Decision Review and Approval

Before CD-3 Approval of Start of Construction/Execution (Continued)

Yes No

Has the **Security Vulnerability Assessment Report** been finalized, if necessary? (S)

Has a **Construction Project Safety and Health Plan (CPSHP)** been prepared prior to start of construction? Has it been kept current during construction? Has the Field Organization approved the CPSHP?(WS)

Note: The Worker Safety and Health Programs under 10 CFR Part 851, which would include the Construction Project Safety and Health Plans, if applicable, must be developed and approved before any work, including construction work for DOE, is conducted on a DOE site. The Construction Project Safety and Health Plan can be a starting point for the development of a post-construction safety and health program.

After CD-3 Approval of Start of Construction/Execution

Yes No

Have all the required **CD-3 Documents** been submitted to APM? (All Project Areas)

Has a **Lessons Learned Report** regarding upfront project planning and design been submitted to the PSO and APM within 90 days of CD-3 approval? (All Project Areas)

Has an **Annual Project Peer Review** been initiated for projects having a TPC \geq \$100M? (PM)

Has the project continued the monthly **PARS II reports**? (PM)

Has the project continued the **QPRs** with the AE or designee? (PM)

Has the **PDS** been updated? (PM)

Have **EVMS** reviews been conducted to ensure compliance with ANSI/EIA-748B, or as required in the contract? (PM)



Key Questions for Critical Decision Review and Approval

Before CD-4 Approval of Start of Operations or Project Completion	Yes	No
Has the FPD verified whether the Key Performance Parameters and Project Completion Criteria have been met and the mission requirements have been achieved? (All Project Areas)		
Has the project prepared a Project Transition to Operations Plan? (All Project Areas)		
For a non-nuclear project, has a Readiness to Operate Assessment been conducted? (All Project Areas)		
For a nuclear project, has an Operational Readiness Review (ORR) or Readiness Assessment (RA) been conducted? (All Project Areas)		
Has the DSA been finalized? Have the Technical Safety Requirements (TSRs) been established? (NFS)		
Has the DOE SBAA reviewed and approved the DSA and TSRs and prepared an SER? (NFS)		
For a non-nuclear project, has the HAR been finalized? Has the Field Organization approved the report? (FS, WS)		
Has the Environmental Management System (EMS) been revised in accordance with DOE O 450.1A? (E)		
Have Contractor Evaluation Documents been prepared and submitted to the AE, PSO, and APM? (All Project Areas)		
Is the Code of Record included as part of the turnover documentation? (ED, NFS)		
After CD-4 Approval of Start of Operations or Project Completion	Yes	No
Have all the required CD-4 Documents been submitted to APM? (All Project Areas)		
Has the PARS II reporting been finalized, including earned value data? (PM)		
Has a Lessons Learned Report been submitted to the PSO and APM within 90 days of CD-4 approval regarding project execution and facility startup? (All Project Areas)		
Has the Initial Project Closeout Report been prepared within 90 days? (All Project Areas)		



Key Questions for Critical Decision Review and Approval

Before Project Closeout (Prior to Operations)

Yes

No

Has the final **Project Closeout Report** been prepared? (All Project Areas)

Have the **Facility Sustainment** goals been documented and verified by an independent third-party entity within one year of facility occupancy? (E)

Has the property record in the **Facilities Information Management System** been established and updated? (PM)

Has the site's **Ten-Year Site Plan** been updated? (PM)

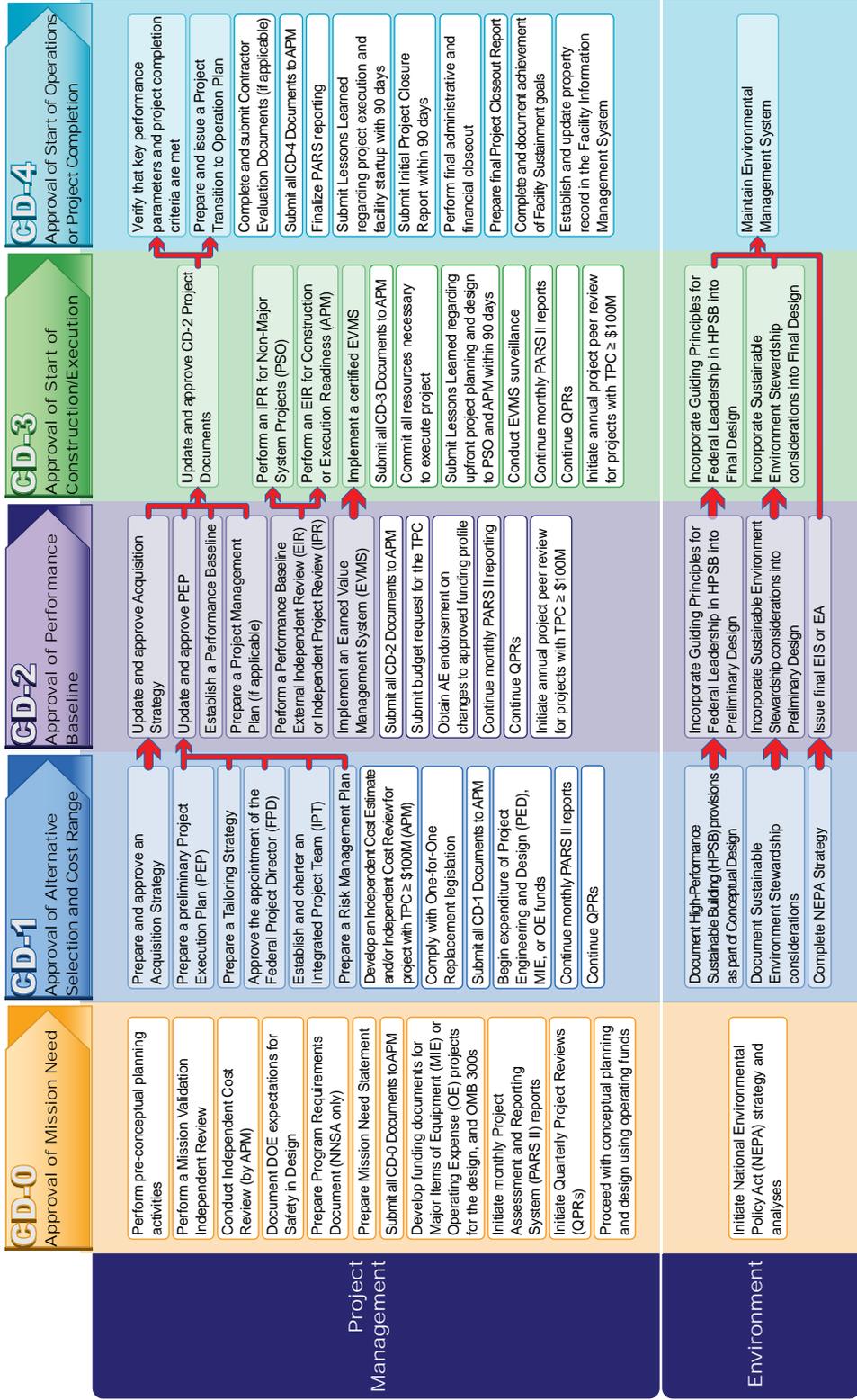


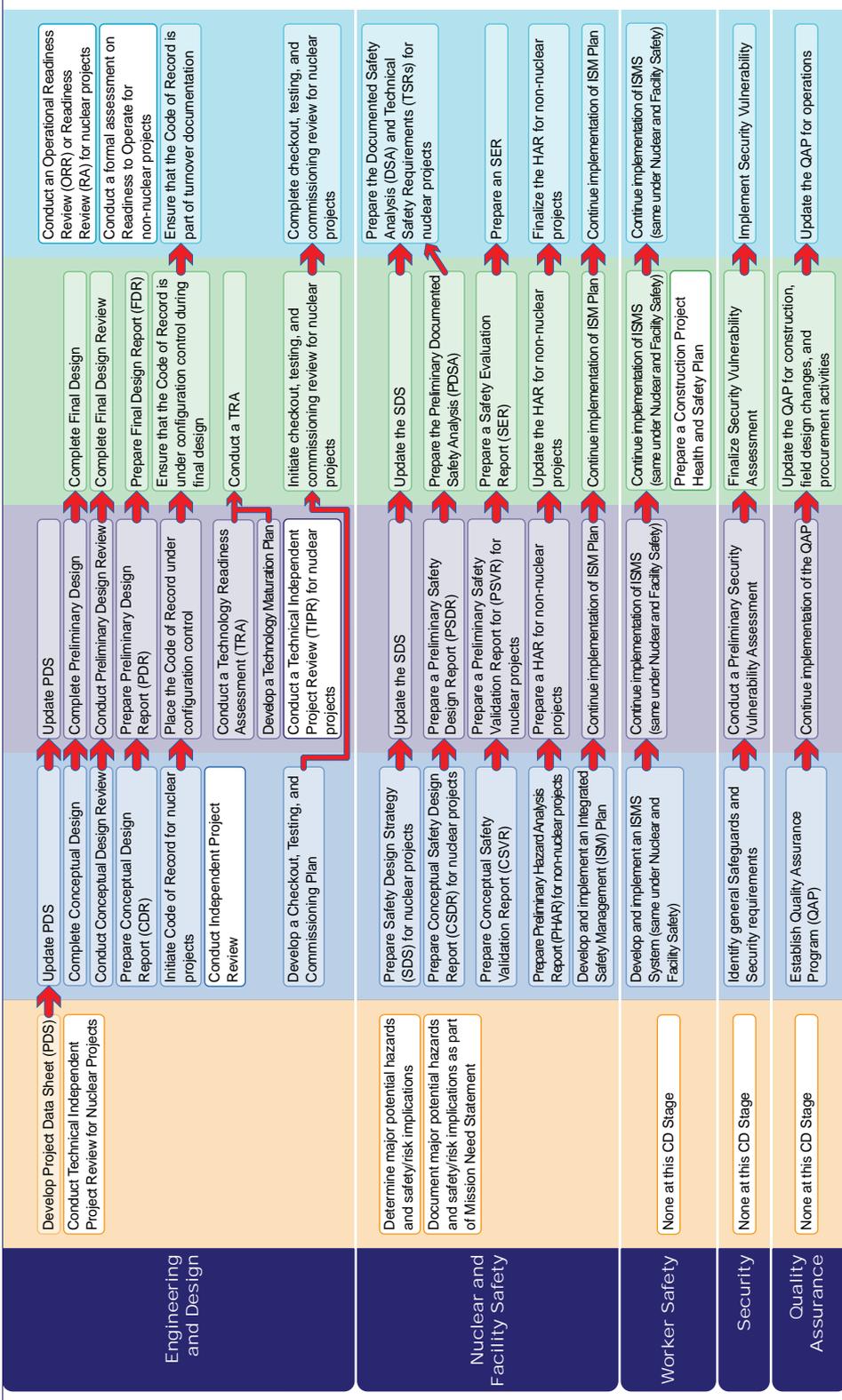


Critical Decision Prerequisite Activities and Key Documents



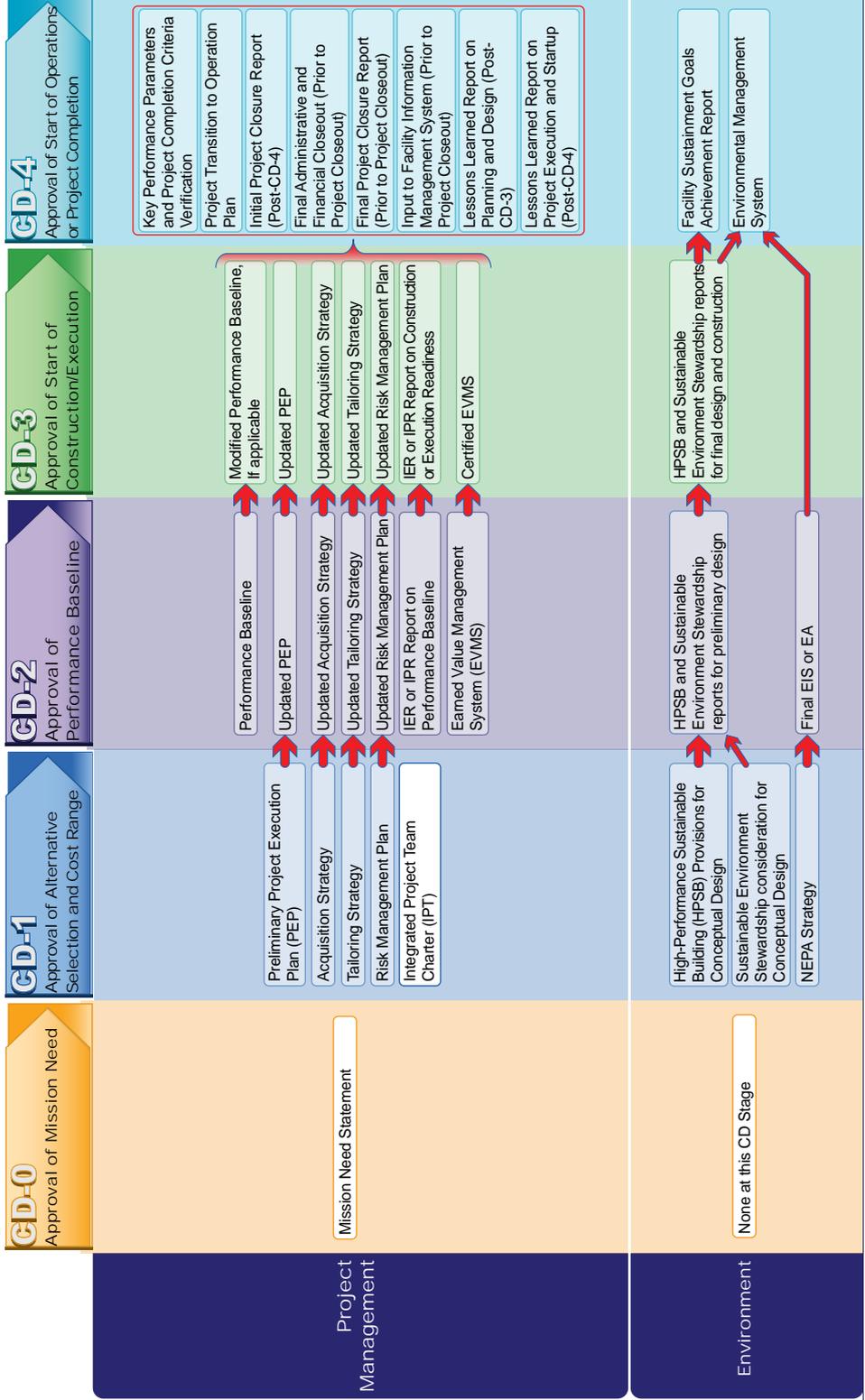
Table 1: Critical Decision Approval Prerequisite Activities*

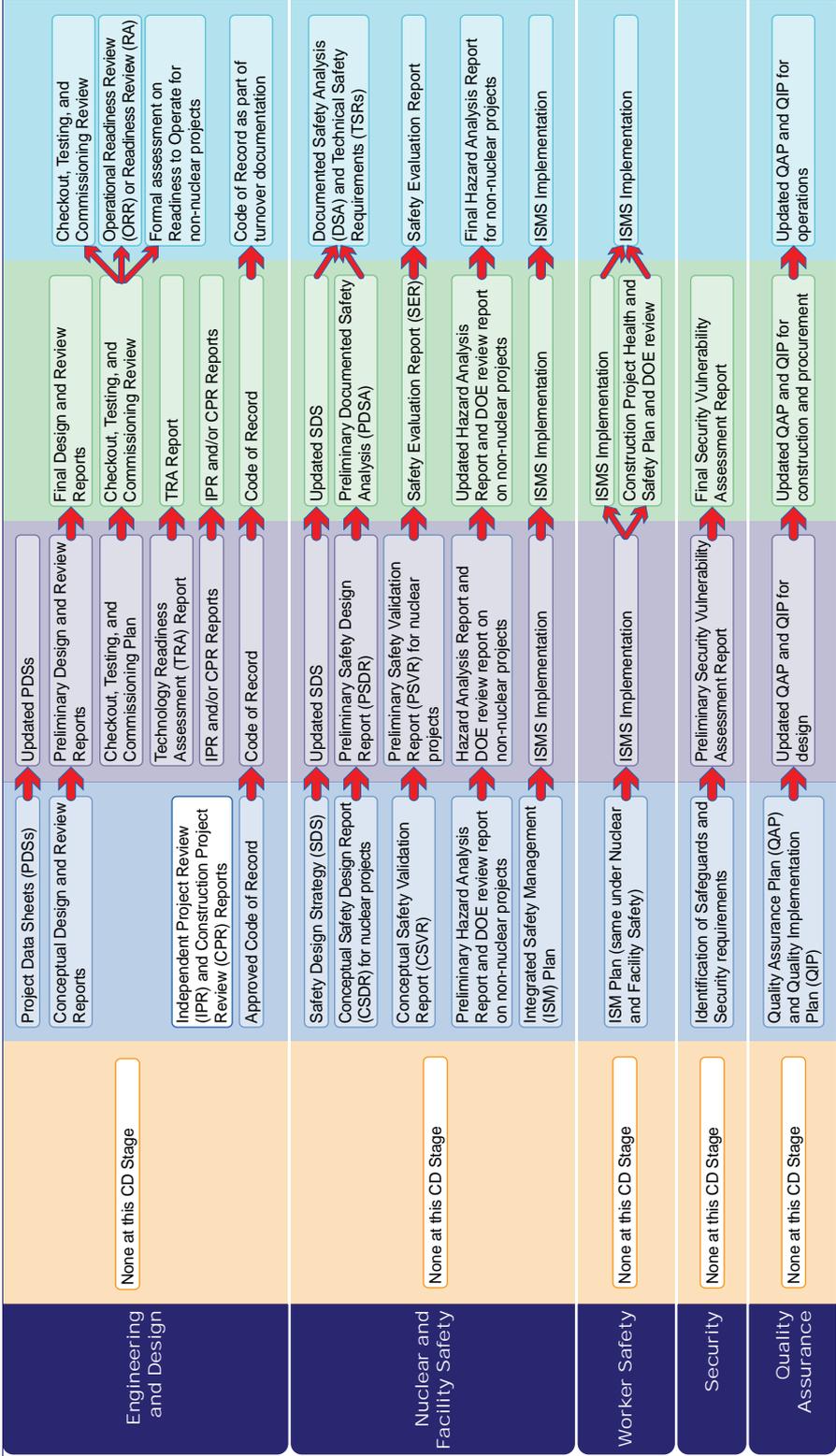




To conserve space, acronyms are spelled out earlier in the body of the Handbook and in DOE O 413.3B or DOE-STD-1189-2008.

Table 2: Key Documents to Support Critical Decision Approval*





These are the Key Documents required by DOE O 413.3B to support Critical Decision approvals

Points of Contact

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