

16

TEST AND STARTUP ACCEPTANCE

The purpose of construction is to provide a functional product that operates as intended. This purpose cannot be achieved without a formal commissioning process which includes a transition to operation. This transition is best achieved by:

- ▶ early planning, organizing, and preparation of the transition.
- ▶ systematically performing required inspection and testing.
- ▶ providing adequate documentation of commissioning and transition activities.

Typically, all aspects of a formal construction project are under control of the construction organization, with oversight of the commissioning authority at the start of transition activity. By the time transition is completed, the construction organization has relinquished all control and the user organization and their operations and maintenance staff have total responsibility. Jurisdictional control of all structures, systems, and components must be clearly defined and controlled throughout the transition process. The project manager and commissioning authority are responsible for developing and implementing a jurisdictional control system that is appropriate for the size, complexity, and operational status of the construction activity and associated conditions. If the construction activity involves tie-ins to existing functional systems that remain operational, the jurisdictional control process should be described in detail. For construction activity that involves multiple “functional systems,” the jurisdictional control system should address control of individual “functional systems.” For formal construction projects, the jurisdictional control system should be described in the project execution plan; a separate commissioning plan may be desirable. Additional guidance on in-house energy management can be found in 10CFR435 for Federal buildings and in DOE O 430.2. DOE has published a “Model Commissioning Plan and Guide Specifications,” version 2.05, to assist in federal building commissioning.

16.1 TYPICAL STARTUP TESTING ACTIVITIES/LOGIC

Regardless of the project, there are typical activities or elements that when complete can result in an orderly project transition and commissioning process. However, this practice imposes no requirement to use the typical activities and logic. If

the project manager believes that the typical process would be beneficial for their particular construction activity, it may be followed. On the other hand, the typical activities and logic may be tailored for application to construction activity of any size (both formal construction projects and minor construction activity).

16.1.1 Define Functional Systems

As soon as adequate detailed design and design basis documentation is available, the construction activity should be broken down into “functional systems.” Typically, this breakdown will coincide with the project’s work breakdown structure. The “functional systems” consist of a group of components that when taken together form a logical group that allow meaningful testing to be performed. The “functional system” breakdown may or may not correspond to the permanent plant system breakdown. For some construction activity (e.g., minor construction activity), there may be a single “functional system” that is comprised of the entire construction activity. For large complex formal construction projects, there may be many “functional systems.” For any construction activity, the sum of all “functional systems” equals the total construction activity.

16.1.2 Establish Logic for System Startup Sequence

Construction activities that have multiple “functional systems” usually have to be tested and started in a particular logical sequence. (As an example, if System A provides electrical power to a motor in System B, then System A must be tested and started prior to testing and starting System B.) Establishing the “functional system” logical startup sequence is a prerequisite to developing the commissioning plan and critical path commissioning schedule.

16.1.3 Develop Critical Path Commissioning Startup Schedule

Each “functional system” should be evaluated to establish a reasonable startup testing duration. The durations combined with the sequence logic are used to form a critical path commissioning startup schedule. This schedule establishes the date that each construction complete “functional system” is needed. Once the “functional system” need dates are established, they should be clearly communicated to the physical construction organization so that physical construction activity can be focused and directed to produce the “functional systems” as needed to support the startup effort.

16.1.4 Integrate Construction Schedule with Commissioning Startup Schedule

For large formal construction projects (where construction may take years), construction management's focus should shift as the project progresses. For most of the physical construction period, construction management's focus is typically on bulk quantity installation (e.g., cubic yards of concrete, tons of structural steel, feet of large bore and small bore pipe).

As physical construction becomes approximately 20 percent complete, and startup "functional system" requirements become known, the focus should shift from bulk quantity installation to "functional systems" completion. Typically, the physical construction schedule does not contain easily identifiable "functional systems." For construction activity (both formal construction project and minor construction activity) with multiple "functional systems" defined, considerable construction schedule refinement is frequently required to integrate the physical construction schedule with the commissioning and startup schedule. This refinement of the construction schedule as physical construction progresses is a normal part of the transition to operation process and should be anticipated and planned.

For construction activity (both minor construction activity and formal construction projects) that consists of a single "functional system," integration of the construction schedule with the commissioning startup schedule is simple: finish physical construction so that commissioning activities may proceed.

16.1.5 Provide "Construction Complete" Functional Systems

For commissioning activities to progress smoothly and rapidly, construction complete "functional systems" should be made available when needed. Supporting the commissioning startup schedule (i.e., providing construction complete "functional systems" when needed) becomes the construction organization's prime objective as physical construction approaches completion.

As "functional systems" become "construction complete" and are made available for functional performance testing, a jurisdictional transfer (from the construction organization to the testing organization, test engineer, and/or commissioning authority) typically occurs. The jurisdictional transfer allows the testing organization, test engineer, and commissioning authority to control the status of the system and aids in restricting construction personnel from changing physical parameters of transferred systems. For large formal construction projects (with multiple "functional systems") a formal process for system jurisdictional control shall be established.

As functional and system performance testing begins (for projects with multiple “functional systems”), a new category of safety hazards are introduced into the project; physical construction activity will necessarily occur in parallel with testing. Interrelationships should be documented and well understood to ensure the safety of construction and testing personnel. The commissioning startup plan should include pre-startup and functional performance test meetings prior to commencing these activities. In accordance with the ISMS, safety hazards must be identified, analyzed, and controlled prior to initiating testing work.

16.1.6 Develop Test Procedures

Part of the commissioning effort includes providing acceptance criteria and test requirements. This information is provided in the design basis and other engineering and design documentation. These criteria and requirements should be identified for each “functional system” as a prerequisite to developing each test procedure. Multiple test procedures (e.g., Acceptance Test Procedure, and Operational Test Procedure) or a single test procedure may be developed for each “functional system.” These procedures should be incorporated in the test plan, which is part of the more comprehensive commissioning plan. Test program and procedure requirements include:

- ▶ Tests shall be controlled, planned, performed, and documented.
- ▶ The commissioning authority generally representing the design authority shall provide test requirements and acceptance criteria.
- ▶ Test procedures shall be reviewed and approved in accordance with the applicable requirements.
- ▶ Test procedure results shall be documented.
- ▶ Acceptance testing must be witnessed and/or inspected by personnel who are independent of the work performing organization.
- ▶ Test results shall be documented.
- ▶ Test results shall be evaluated for acceptability by the commissioning authority.

Startup reports should be generated by the commissioning authority to the user organization. These reports should indicate any discrepancies or failures. These deficiencies should be added to the issues log (a type of ongoing commissioning punch list).

Test procedure sign-offs fall into three distinct categories:

- ▶ Approval of the test procedure prior to use, which documents that the test procedure is adequate for its intended purpose.
- ▶ Step-by-step sign-off in the procedure as the testing is being performed, which documents that each step (or group of steps) has been performed (and witnessed if required) and that specified test data has been collected.
- ▶ Review, analysis, and approval of test results, which documents that system performance has been achieved (acceptance and functional criteria have been met).

Consideration should be given to obtaining review and/or approval of test procedures from the user organization and/or their operations and maintenance departments. This is particularly appropriate if they will be involved in performing the test.

16.1.7 Construction Acceptance Testing

Construction/installation acceptance testing is designed to test and document that physical installation and startup activities have been completed in accordance with approved engineering and design documents. It is performed prior to functional performance testing. Because construction acceptance testing is typically component, not system operation, it provides limited assurance of the adequacy of a constructed product to perform its intended function (i.e., a correctly built design may not perform acceptably).

For formal construction projects, construction acceptance testing shall be performed in accordance with approved test procedures. Typical construction acceptance testing activities (depending on the particular system being tested) include, visual inspections, continuity checks, verification of equipment rotation, vibration and alignment including baselines, filling and flushing, hydrostatic pressure testing, instrument and control calibration, and loop checks. Documentation for these activities may include signed off installation verification forms or checklists. These forms or checklists should be signed off by the installation technicians and/or the Results from construction acceptance testing shall be evaluated (by engineering and design) to ensure that requirements have been satisfied.

Frequently, the construction activity involves interface with existing structures, systems, and components (e.g., modification or addition to existing facilities). All testing activity that has the potential to affect an existing facility shall be closely coordinated with the facility to assure that unplanned (and potentially unsafe)

conditions do not occur. This applies to both acceptance and functional performance testing. All testing activities shall be planned and conducted to support applicable conduct of operations requirements. In accordance with the ISMS, safety hazards that may occur as a result of testing must be identified, analyzed, and controlled prior to the start of each test. Particular care must be exercised when nuclear materials are involved which have the potential to create a criticality accident.

As “functional systems” successfully complete installation and startup testing, a jurisdictional transfer (from the construction/installation organization to the functional performance testing organization) typically occurs. The jurisdictional transfer allows the testing organizations to control the status of the system and aids in restricting construction and other testing personnel, such as the test and balance firm, from changing physical parameters of transferred systems during functional performance testing. For large formal construction projects (with multiple “functional systems”), a formal process for system jurisdictional control shall be established.

For formal construction projects, successful completion of construction/installation acceptance testing constitutes a significant project milestone—physical construction is complete. This is officially documented in a construction completion document. This document is required for formal construction projects, and is optional for minor construction activity.

For minor construction activity, construction acceptance may not require a formal written procedure and may be as simple as performing a visual inspection to assure that the physical construction/installation has been completed.

16.1.8 Functional Performance Testing

Functional performance testing is designed to verify and document that construction complete systems and projects meet specified performance requirements. It is performed after construction/installation acceptance testing, and demonstrates that the constructed product is capable of performing its intended function/mission.

For facility-type construction activity (e.g., a nuclear process plant), functional performance testing has traditionally been performed by user personnel or their assigned commissioning authority. This practice places no restriction on what organization performs functional performance testing. The commissioning authority working with the project manager is responsible to assure that required functional performance testing activities are defined, planned, scheduled, staffed,

performed, and documented. They are also responsible to assure that clear jurisdictional control is maintained throughout the startup testing process performance requirements defined in the technical baseline document (final basis for design) during the conceptual phase.

For formal construction projects, functional performance testing is usually performed in accordance with approved functional performance test procedures. Typical functional performance testing activities (depending on the particular system being tested) include, initial operation of components and systems, operating systems independently at normal parameters, and operating systems together through various operating levels and through specified transients. Results from functional performance testing shall be evaluated (by the commissioning authority) to ensure that requirements have been satisfied.

Much of the construction activity involves interface with existing structures, systems, and components (e.g., modification or addition to existing facilities). All testing activity that has the potential to affect an existing facility shall be closely coordinated with the facility to assure that unplanned (and potentially unsafe) conditions do not occur. All testing activities shall be planned and conducted to support applicable conduct of operations requirements. In accordance with the ISMS, safety hazards that may occur as a result of testing must be identified, analyzed, and controlled prior to the start of each test. Part of the hazard analysis/accident analysis identifies hazards and potential accidents that exist during the startup process. Particular care must be exercised when nuclear materials are involved which have the potential to create a contamination event or incident, or a criticality accident.

For formal construction projects, successful completion of functional performance testing completes the project. This is officially documented in a construction completion document as well as the final commissioning report. This form is required for formal construction projects and is optional for minor construction activity.

For minor construction activity, functional performance testing may not require a formal written procedure and may be as simple as demonstrating functionality.

16.1.9 Prepare for Facility Startup

Functional and operations performance testing is designed to measure and document the adequacy of the constructed or installed system(s) to perform their intended function(s) and is focused on the functional adequacy of installed hardware.

Facility startup readiness (which occurs after functional performance testing) expands the focus to include not only hardware, but also the adequacy of personnel, procedures, and administrative processes necessary to support and maintain safe operations. Assessment of the need for a readiness review should take place early enough to allow preparation for the review to be completed by the end of the execution phase.

16.1.10 Review, Analyze, and Approve Test Results

Approval of functional and operational test results is the major milestone for any construction activity. Successful results from functional performance testing assures that the constructed product is capable of achieving the functional and performance requirements as intended in the technical baseline document (final basis for design) during the conceptual phase.

16.2 CONSTRUCTION ACTIVITY CLOSEOUT AND DOCUMENTATION

Typical construction activity closeout and documentation activities are described in this section. These activities and logic may be tailored for application to construction activity of any size (both formal construction projects and minor construction activity). All closeouts and documentation activity shall be performed consistent with the content of the PEP and commissioning plan, if generated.

16.2.1 Punch List

As physical construction nears completion (approximately 95 percent complete), a detailed punch list which itemizes remaining construction work shall be prepared and maintained by the project. Project participants (e.g., commissioning, engineering, quality control, construction, startup, operations) should assist the project in development of the project punch list. Care should be taken to only include items on the punch list that are part of the approved project baseline. (Out of scope items should not be included on the punch list.) The project manager is responsible to complete the work that is represented by the punch list items. As punch list items are completed, the project manager shall verify completion and shall document the completion on the official project punch list. For projects that use a multiple “functional system” turnover and startup testing approach, a separate punch list shall be prepared and maintained for each defined “functional system.” This punch list is generated or part of the commissioning issues log which may be rolled into the comprehensive punch list at this point.

For formal construction projects, substantial construction completion is achieved as punch list items are completed. Remaining punch list items (if any) become the exception list. The exception list (if there is one) is attached to the construction completion document and are completed following turnover.

16.2.2 Construction Completion Document

Summary construction completion documentation is required for formal construction projects. The project manager is responsible for assuring that a construction completion document is initiated and processed as physical construction and construction/installation acceptance testing approach substantial completion.

If specific items on a formal construction project's punch list cannot be readily closed, yet substantial construction completion has been achieved, then the construction completion document should be initiated and processed with exception list attached. The exception list includes all open official project punch list items (including incomplete acceptance tests) that exist when construction completion is achieved. Like the official project punch list, the exception list is maintained and tracked to closure by the project organization.

16.2.3 Closeout Activities

As physical construction nears completion, closeout activities should be performed. For large formal construction projects, a closeout plan and schedule may be appropriate. This plan may or may not be part of the comprehensive commissioning plan. Typical formal construction project closeout activities include:

- ▶ Complete all as-built drawings and specification incorporating all properly approved change notices.
- ▶ Complete all as-building to reflect construction.
- ▶ Ensure that all nonconformance reports and deficiency reports are properly dispositioned and closed out.
- ▶ Assemble, review, and turnover all project drawings, specifications, and records.
- ▶ Cease formal project performance reporting.
- ▶ Terminate charging to the project. This includes not only terminating labor charges, but also closing out all other project financial matters. Examples include completing all supplier and transportation transactions and changes/

claims, closeout of all procurement and subcontracts and release of liens. The cost account manager(s) initiates and processes forms to close a project's cost account(s).

- ▶ Dispose of temporary construction facilities, temporary utility services, and excess construction material. Dispose of all secondary hazardous waste generated during construction.
- ▶ Generate required project completion/lessons learned documents and reports.
- ▶ Complete and process the construction completion document and the project closure forms.
- ▶ Generate the final commissioning report (note that this activity may be extended for up to two years after the project is considered substantially complete).

16.2.4 Operations and Maintenance Training

Operations and maintenance training shall be given to the users operations and maintenance staff for all of the larger and more complex equipment and systems. The commissioning authority, with input from the engineering design and the users maintenance staff shall issue a list of all equipment and systems requiring training. Training details may include, but are not limited to the following:

- ▶ A training plan will be developed by the commissioning authority. This may be done by the contractor's test engineer and reviewed/approved by the commissioning authority.
- ▶ Training will be done in a classroom setting with field training as required.
- ▶ The training may be professionally videotaped for the future use of existing and new maintenance personnel.
- ▶ A preset number of indexed video copies may be submitted as part of the closeout package.
- ▶ All training materials should be ready and available to the participants.
- ▶ A training schedule is developed and approved.
- ▶ Operations and maintenance manuals (preferably indexed, tabbed, and bound) are submitted at training or with the closeout package. All warranty information, spare parts lists, and other information are to be included with the O&M manuals.

16.3 OPERATIONAL READINESS REVIEW AND READINESS ASSESSMENTS

DOE policy is that for the startup of new nuclear facilities and for the restart of existing nuclear facilities that have been shut down, a readiness review process shall be implemented that in all cases demonstrate that it is safe to startup (or restart) the applicable facility. The facility shall be started up (or restarted), only after documented independent reviews of readiness have been conducted and specified approvals have been received. The readiness reviews are not intended to be tools of line management to achieve readiness. Rather, the readiness reviews provide an independent confirmation of readiness to start or restart operations.

16.3.1 Operational Readiness Review (ORR)

A disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems to ensure that a facility will be operated safely within its approved safety envelope, as defined by the facility safety basis. The ORR scope is defined, based on the specifics of the facility and/or the reason for the shutdown as related to a minimum set of core requirements. A graded approach will be used in defining the depth of the ORR, based on these core requirements.

DOE line management shall determine (and ensure that contractor management determines) if ORRs are required for startup of new nuclear facilities or restart of a nuclear facility. DOE shall conduct (and ensure that contractors conduct) an ORR in accordance with DOE Order 425.1A when an ORR is required.

16.3.2 Readiness Assessment

A review that is conducted to determine a facility's readiness to startup or restart when an ORR is not required or when a contractor's standard procedures for startup are not judged by contractor or DOE management to provide an adequate verification of readiness.

For restarts of nuclear facilities not requiring an ORR, as defined in Order 425.1A, DOE line management shall evaluate (and ensure that contractor management evaluates) the need for performing a Readiness Assessment prior to restart. This includes the startup or restart of program work associated with operating facilities when the new or restarted program work does not require DOE approval of changes to facility limits or requirements as stated in authorization basis documents. When a Readiness Assessment is required, operations offices shall develop

procedures and ensure that the contractors use the procedures to gain operations office approval of the startup or restart of nuclear facilities. If a Readiness Assessment is not to be performed, the contractor's standard procedures for startup or restart will be used.

16.3.2.1 Operational Readiness Review Documentation

For Operational Readiness Reviews, DOE line management shall require contractors to prepare the following documents: startup/restart notification reports, plans-of-action, ORR implementation plans, and final reports. DOE line management shall prepare its plans-of-action, and ensure the ORR team leaders prepare ORR implementation plans, and final reports. The resolution of all findings from the ORRs shall be documented and maintained with the plans-of-action, implementation plans, and final reports.

16.3.2.2 Breadth of Operational Readiness Review

DOE line management shall develop (and ensure the contractor develops) the breadth of the ORR and documents it in each plan-of-action. A minimum set of core requirements, shall be addressed when developing the breadth of the ORR. The plan-of-action may reference a timely, independent review that addressed the requirement in a technically satisfactory manner to justify not performing further evaluation of a core requirement, or portion thereof. During conduct of the ORR, the breadth may be expanded by the ORR team, if appropriate.

16.3.2.3 Operational Readiness Review Plans-of-Action, Approval, and Content

The contractor and DOE Operational Readiness Review plans-of-action shall be approved by the startup or restart authorities. DOE line management shall ensure the contractor's plan-of-action specifies the prerequisites for starting the responsible contractor's ORR; the prerequisites shall address each minimum core requirement determined to be applicable when developing the scope of the ORR. The DOE plan-of-action shall specify additional prerequisites, such as certification of readiness to oversee facility operations by Operations Office and Headquarters management. The DOE and contractor plans-of-action shall be provided to EH-2 for review and comment.

16.3.2.4 Operational Readiness Review Teams

DOE line management shall appoint (and ensure that contractor management appoints) ORR teams in accordance with the following qualifications and training requirements:

- ▶ Technical knowledge of the area assigned for evaluation, including experience working in the technical area.
- ▶ Knowledge of performance-based assessment processes and methods.
- ▶ Knowledge of facility-specific information.

The ORR teams shall not include as senior members (including team leader) individuals from offices assigned direct line management responsibility for the work being reviewed; any exceptions require approval of the startup or restart authority. Additionally, no ORR team member should review work for which he or she is directly responsible.

The ORR team leaders shall determine and document qualifications of ORR team members.

16.3.2.5 Criteria and Review Approaches

DOE line management requires that the DOE Operational Readiness Review team determines (and ensures that the contractor's ORR team determines) the criteria and reviews approaches to be used for their review, based on the approved breadth given in their plan-of-action, and documents the criteria and review approaches in their ORR implementation plan.

16.3.2.6 Approve and Use Implementation Plans

DOE line management requires that the DOE Operational Readiness Review team leader approves (and ensures that the contractor's ORR team leader approves) their respective implementation plans and use the implementation plans to conduct their ORRs. DOE line management requires that the DOE implementation plan (and ensures that the contractor's implementation plan) is provided to EH-2 for review and comment.

16.3.2.7 Certification and Verification

The following are prerequisites for starting the DOE Operational Readiness Review:

- ▶ DOE line management has received correspondence from the responsible contractor certifying that the facility is ready for startup or restart, and this has been verified by the contractor ORR.
- ▶ DOE line management has verified that the contractor's preparations for startup or restart have been completed.
- ▶ DOE line management has certified that it meets the DOE plan-of-action that includes, as a minimum, the applicable DOE-specific core requirements.

At the start of the DOE Operational Readiness Review, all actions required for startup or restart shall be complete with the exception of a manageable list of open prestart findings that have a well-defined schedule for closure to allow review of the results of the closure process by the DOE Operational Readiness Review team. In the certification and verification process, DOE operations office line management shall document their actions taken to verify operations office and contractor readiness, including review of closure of contractor ORR findings, assessments of completion of defined prerequisites, and other assessments performed to ascertain readiness. Specific events significant to the startup and restart process that occur prior to the formal commencement of the DOE Operational Readiness Review (e.g., site emergency response drills, integrated equipment testing, etc.) may be reviewed by the DOE Operational Readiness Review team when they are conducted.

16.3.2.8 Final Report

Upon completion of the contractor or DOE Operational Readiness Review, DOE line management shall ensure a final report is prepared and approved by the ORR team leader. The final report shall document the results of the ORR and make a conclusion as to whether startup or restart of the nuclear facility can proceed safely. There shall be a statement in each ORR final report as to whether the facility has established the following: an agreed upon set of requirements to govern safe operations of the facility; this set of requirements has been formalized with DOE through the contract or other enforceable mechanism; these requirements have been appropriately implemented in the facility, or appropriate compensatory measures, formally approved, are in place during the period prior to full implementation; and in the opinion of the ORR team, maintain adequate protection of public health and safety, worker safety, and the environment.

This conclusion shall be based on

- ▶ review of the program to document conformance with the agreed upon set of requirements, including a process to address new requirements,
- ▶ extensive use of references to the established requirements in the ORR documentation.

Additionally, there shall be a “lessons learned” section of the final report that may relate to design, construction, operation, and decommissioning of similar facilities and future ORR efforts.

The core requirements, in aggregate, address many of the core functions and guiding principles of an Integrated Safety Management System (ISMS). The final report should include a statement regarding the team leader’s assessment of the adequacy of the implementation of those functions and principles, already addressed by the ORR at the facility undergoing review.

16.3.3 Specific Recommendations

In addition to the preceding information, some specific recommendations related to performing RA/ORR activities follow.

- ▶ Establish the scope of the readiness activity, document and control to avoid “scope creep.”
- ▶ Contractor ORRs should not start prematurely. Readiness should be achieved before starting the review. ORRs are to verify readiness, not achieve readiness.
- ▶ Reduce last minute perturbations by providing the implementation plan early to oversight groups.
- ▶ When planning the ORR, include not only the time on site for conducting interviews and observations, but also time to consolidate individual preparation, preparing forms, and analyzing data.
- ▶ Early in the project, define the ORR prerequisites and core requirements or core objectives.
- ▶ Avoid the temptation to constrain the end date when defining the critical path.
- ▶ Site access training, facility walkthroughs, and document reviews are essential for team members to gain the necessary familiarity with the project prior to initiation of the ORR.
- ▶ The contractor should provide a complete set of surveillance procedures and authorization basis documents.

- ▶ Team members should be dedicated for the duration of the review.
- ▶ Partial certification packages cause confusion and added work. Analyze the lines of inquiry prior to assigning responsibility for certification package preparation to assure multiple organizations do not answer the same question.
- ▶ Clearly define interfaces between organizations at the beginning of the process to avoid conflict and confusion.
- ▶ Secure early management support at the appropriate level to confirm necessary organizational support.
- ▶ Facility management must assume responsibility and ownership of the readiness review process and be involved in planning and execution. That is, the readiness review process cannot be the responsibility of the project organization. At this point, a project is simply a resource to assist the facility owner.
- ▶ A realistic, resource-loaded schedule must be prepared and maintained.
- ▶ The lines-of-inquiry review and approval process should screen and eliminate inapplicable lines of inquiry.
- ▶ Lines-of-inquiry should be separated as necessary to preferably apply to a single party.
- ▶ Assure lines-of-inquiry are clearly written and specific acceptance criteria are provided.
- ▶ If possible, avoid parallel readiness review activities, i.e., owner, DOE.
- ▶ All deficiencies, both Findings and Observations, must be documented on a Deficiency Form and described in sufficient detail to assess the impact on readiness. This includes deficiencies corrected “on-the-spot.”
- ▶ The RA/ORR schedule needs to be established consistent with a firm determination as to when facility turnover will occur.