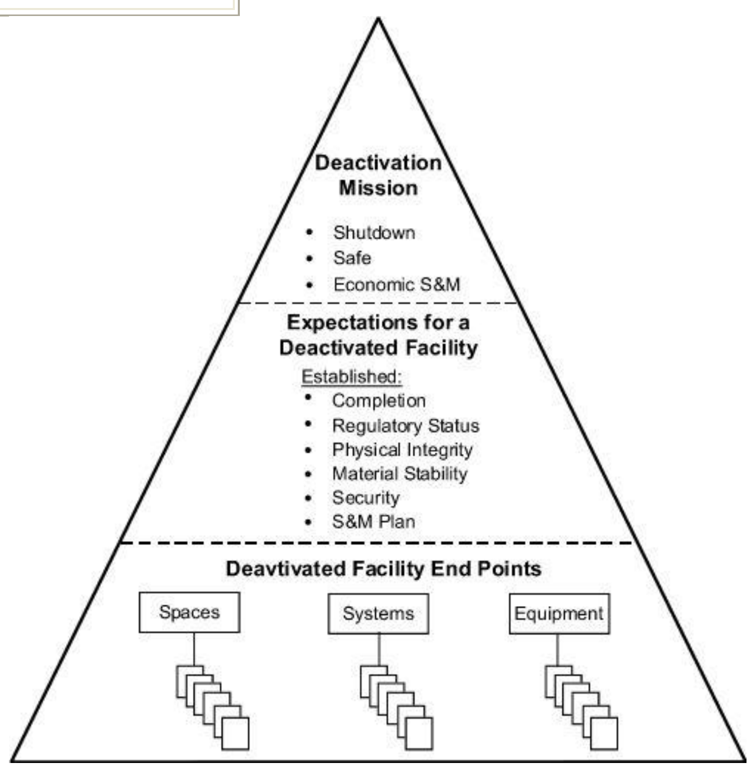
DEACTIVATION MANAGEMENT

The purpose here is to provide information for specific aspects of project management that apply to deactivation. Overall management of deactivation projects should use a traditional project management approach, and as such is not addressed. The following specific topics are based on lessons learned during deactivation of DOE facilities.

- **The Deactivation Mission**
- **The Stabilization/Deactivation "Customer"**
- **Project Approach for a Complex Facility**
- **Establishing the Overall End-State**
- **Viewing Deactivation in Two Phases**
- **Early Decisions**
- **Early Deactivation Tasks**
- **Facility-Specific Commitments**
- **Hazard Reduction**
- **Detailed End-Points**
- **Set Up Method and Criteria**
- **Post-Deactivation S&M Plan**
- **Specify End-Points**
- **Deactivation Work Plans**
- **Project Management Plan**
- **Decoupling from Decommissioning Decisions**
- **Contiguous Facilities**
- **Scheduling and Estimating**
- **Use of Independent Reviewers**
- **Safety Documentation**
- **Regulatory Interaction**
- **Stakeholder Interaction**

The Deactivation Project Mission

This figure provides a perspective of the increasing level of detail when placing a facility in a deactivated condition.



Deactivation Mission - At the top level, deactivation is defined in LCAM as:

- The process of placing a facility in a stable and known condition including the removal of readily removable hazardous and radioactive materials to ensure adequate protection of the worker, public health and safety, and the environment, thereby limiting the long-term cost of surveillance and maintenance. Actions include the removal of fuel, draining and/or de-energizing nonessential systems, removal of stored radioactive and hazardous materials, and related actions. Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning, e.g., removal of contamination remaining in the fixed structures and equipment after deactivation.

Note that LCAM 6.f (8) requires stabilization activities to be accomplished prior to transfer from another program office to EM for deactivation or decommissioning.

Expectations for a Deactivated Facility - At the completion of deactivation, it is expected that a facility, its systems, and equipment will be in a safe, stable, mostly or completely passive state that can be monitored over a long period with minimal cost. Requirements for service support, by humans and by active hardware, should be minimal after deactivation is complete. Radioactive contamination can exist as well as materials classified as hazardous; under the condition that they are determined or caused to be immobile and controllable. The degree of property protection should be at a minimum commensurate with the value of and the hazards contained within the facility.

Referring to the middle level of the figure, the overall expectations at the completion of deactivation can be viewed as the following conditions having been established:

1. **Completion** - Deactivation is complete as defined by end points and facility conditions clearly documented.
2. **Regulatory Status** - The regulatory status of the facility with respect to radioactive and hazardous materials and health and safety requirements are documented.
3. **Physical Integrity** - The facility's structures and support systems, and surveillance systems are in a physical condition sufficient to contain and monitor contamination, radiation, and other hazards. The conditions and inventories are documented and the facility is appropriately posted and secured.
4. **Material Stability** - Special nuclear materials, reactor fuels, high level waste, and other packaged waste are removed. Bulk hazardous and radioactive materials are removed to the degree practicable.
5. **Security** - Security systems and procedures are adequate to prevent unauthorized entry.
6. **S&M Plan** - A comprehensive S&M Plan is prepared with participation by the organization that will assume management for the deactivated facility. S&M funding arrangements have been established.

It is also expected that this deactivated state will be achieved as soon as is reasonable. Doing so means that end point requirements should be minimized in terms of the effort to achieve them, and consequently, work that cannot be shown to achieve a deactivation goal should not be done. Minimizing the schedule will also minimize the cost associated with surveillance and maintenance while deactivation activities are being conducted. Such minimization of work scope and schedule must be done consistent with safety during deactivation as well as in deciding on post-deactivation S&M activities.

Deactivated Facility End Points - To achieve these expectations, the details of the deactivated facility's conditions are subject to specification of end points for the facility's spaces, systems, and major equipment. "End Points" has become a term specifically associated with the stabilization and deactivation of a facility. The LCAM definition of End Points is:

- The detailed specification of conditions to be achieved for a facility's spaces, systems and major equipment. Fundamental to the determination of end points is risk reduction through elimination or stabilization of hazards, effective facility containment and facility monitoring and control.

The resulting set of specifications flows from a systematic process that can range from a hundred to a thousand or more explicitly stated conditions to be achieved. How to obtain this result is depicted at the base level of the figure.

The Stabilization/Deactivation "Customer"

A stabilization or deactivation project is necessarily conducted with "customers" in mind. The project manager has two primary customers. The DOE field office is the customer for *performance* in accordance with policy and contracts. The second customer is the organization (government and contractor) that will *receive and take on management responsibility* for the facility after stabilization/deactivation has been conducted. For both customers, the definition of completion is very important. Each must be integrally tied into the completion process at an appropriate level, among which are methods, criteria, detailed specifications, and execution.

Achieving completion is a process of accomplishing stabilization/deactivation activities, evaluating the results, and negotiating differences between what has been achieved and the customer's expectations so that transfer to the receiver can be accomplished. This handbook strives to provide sufficient details with respect to completion of a project such that:

- The field office customer can use the information to anticipate and stipulate what is expected of its contractors for specifying and achieving deactivation project completion.
- The deactivation contractor can determine how to satisfy its field office customer.
- A smooth transition will be achieved between the implementing contractor for stabilization/deactivation and the receiving organization customer.

The latter point cannot be overemphasized, especially for facilities that remain contaminated. The receiver will have much at stake from a long-term perspective and thus must be an active participant throughout the process leading to definition of completion and verification that specified end points have been achieved, or otherwise appropriately resolved.

Project Approach for a Complex Facility

An example of steps that were used at a complex facility to establish the deactivation process are shown in the **Figure 1**. Other projects may not use this specific set of steps, nevertheless the description of the functions and responsibilities provide insight and a starting point on how to organize for a deactivation project. The project organization responsibilities for implementing the activities indicated in Figure 1 were assigned to nine groups and are outlined in **Table 1**.

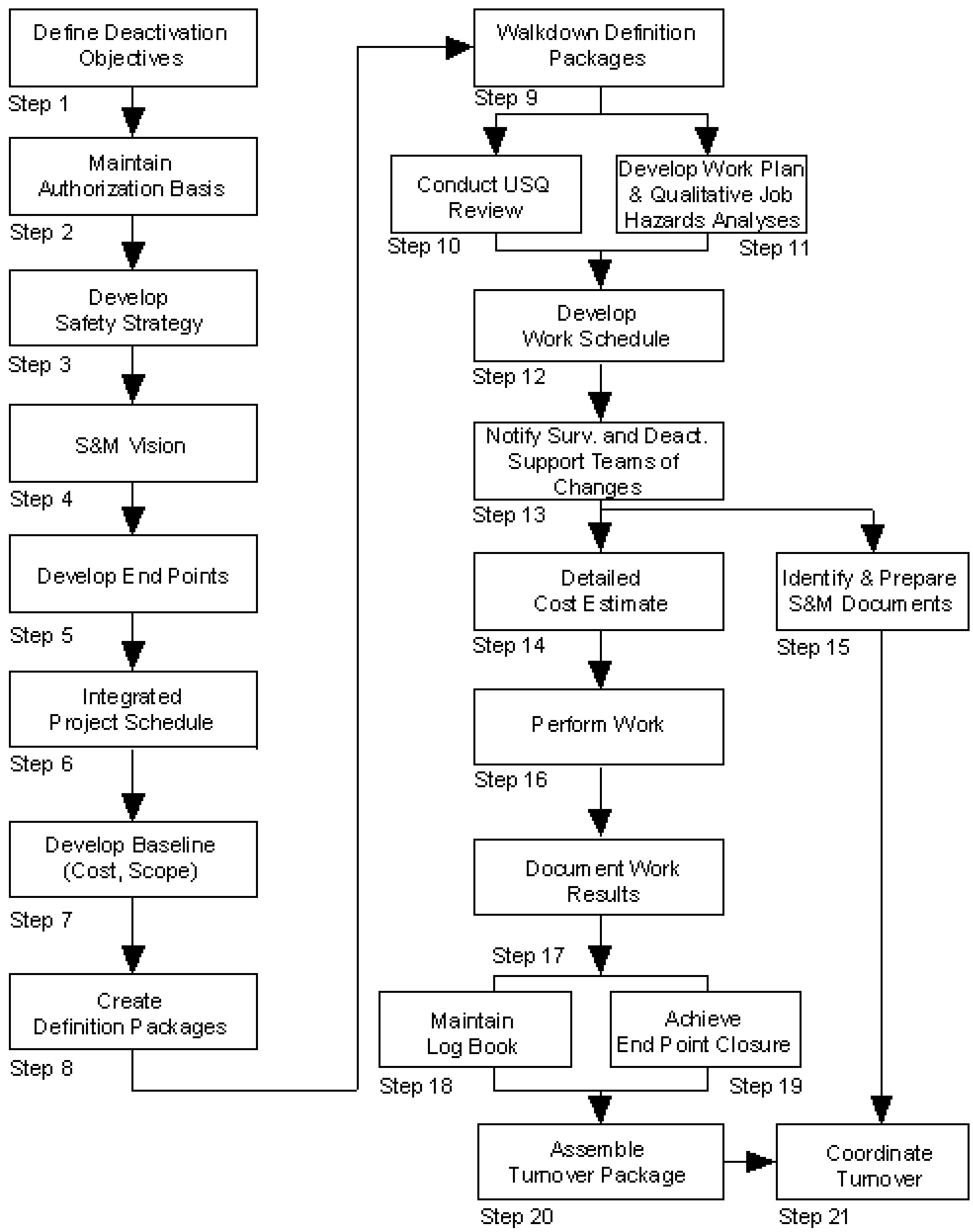


Figure 1 - Complex Facility Deactivation Steps

Table 1 - Project Organization Responsibilities

Team/Group	Project Organization Responsibilities	Lead for Fig. 1. Steps
1. Project Management	▪ Define major objectives and goals relating to stabilization, minimum long-term S&M costs, including the deactivation schedule. ▪ Establish the safety strategy for the project. ▪ Approve the deactivation plan and obtain customer approval of its scope, schedule, and cost baselines. ▪ Obtain authorization of current year funding based on the project management plan and schedule. ▪ Ensure that the deactivation activities are completed on schedule and within regulations. ▪ Provide direction and support to the project teams and groups for problem	1, 3

	resolution, setting priorities, etc. ▪ Conduct reviews as necessary. ▪ Report status to Site Management and others.	
2. Baseline Control Team	▪ Use input from the Deactivation Planning Group to develop, maintain, and update an approved project baseline (scope, cost, schedule).	Support
3. Near Term Planning Team	▪ Maintain an integrated schedule with input from the Field Work Teams. ▪ Coordinate the use of internal and external resources.	Support
4. Deactivation Planning (essentially project engineering)	▪ Write a deactivation plan. ▪ Set up a method for deriving deactivation end-points, specifying the end-points, and issuing an end-point document. Define the end-point criteria and end-points. ▪ Develop and maintain a deactivation process administrative procedure. ▪ Develop, track, maintain, and report status of an approved Work Breakdown Structure (WBS). ▪ Write and provide Definition Packages to the Field Work Teams. The Definition Packages will contain descriptions and guidance of deactivation activities and requirements and will define the endpoints as outlined in the Definitions Package. ▪ Describe preliminary needs of post deactivation S&M activities including regulatory compliance activities, inspection routes, frequency, data needs, and cost objectives. ▪ Integrate the Field Work Teams' detailed resource-loaded work schedules with the deactivation baseline. ▪ Provide guidance as needed to project teams and groups involved in the deactivation activities. ▪ Monitor and report deactivation progress. ▪ Serve as the primary contact between the Facility Deactivation Project and the Receiving Organization, DOE, and other contractors for acceptance of end-point closures. ▪ Maintain end-point closure documentation files and submit the files to the Receiving Organization for deactivation project completion. Assemble the turnover package for approval and manage turnover to the Receiving Organization.	4, 5, 6, 7, 8, 14, 15, 20, 21
5. Field Work Teams	▪ Develop and submit a detailed resource-loaded work schedule to the Near Term Planning Team prior to starting work. ▪ Provide input for modification and cancellation of surveillance, maintenance, and emergency procedures. ▪ Conduct the USQ process. ▪ Compile appropriate work control documentation, including the Qualitative Job Hazard Analyses (QJHA). ▪ Perform the deactivation work described in the Definition Package and achieve end-point closure. ▪ Provide Deactivation Planning with copies of the documentation which supports endpoints closure activities. ▪ Maintain a log of deactivation activities to support project communications and reporting of work status. ▪ Report deactivation progress.	9, 10, 11, 12, 13, 16, 17, 18, 19
6. Regulatory Support	▪ Assess the facility for hazards (chemical, contamination etc.) and determine hazard level, quantity or degree of hazard, and the requirement or need to remove or stabilize the hazard. ▪ Write a safety plan for deactivation, including the elimination of requirements as hazards are eliminated. ▪ Maintain, and modify as deactivation proceeds, the facility's authorization basis, regulatory requirements, and hazards analysis. ▪ Maintain the interface with regulators and advise of updates, (for example, the Confined Space List) as deactivation proceeds. ▪ Provide documentation required by regulations as a condition of end-point	2, 3 and Support

	closure.	
7. Configuration Control Authority	▪ Modify the configuration control process as appropriate for a facility to be abandoned. ▪ Implement the configuration control process by communicating with the project teams and groups.	Support
8. Surveillance and Maintenance Coordination	▪ Identify surveillance and maintenance activities necessary to support deactivation activities and long term-requirements on building infrastructure, including modifying and/or deleting procedures as a result of modifications and/or changes to plant configuration as described in the Definition Package. ▪ As facility deactivation proceeds modify as needed to conduct work, and cancel when no longer needed, the surveillance and maintenance procedures and activities.	Support
9. Hazardous Material Authority	▪ Provide documentation to support closure of endpoints related to hazardous material disposal.	Support

Establishing the Overall End-State

To the extent possible, a facility's expected condition at the completion of deactivation should be stated. This will provide a basis for proceeding with planning for early tasks and completion activities. For example, the conditions to be established can vary considerably if a facility is to be decommissioned immediately after deactivation, contrasted with being placed in a monitored state.

Viewing Deactivation in Two Phases

In general, for complex facilities with a multitude of structures, systems, and components, deactivation implementation generally occurs in two phases. **Figure 2** illustrates this point. The first phase deals with the "big picture" strategic issues and is referred to as "early decisions." The second phase addresses details of the final condition and is referred to as "detailed end-points." The importance of this two-phase view is that most major decisions should be made early while decisions on final conditions for individual areas of the facility can be made somewhat later. Indeed, early decisions will often be necessary before the latter can be specified.

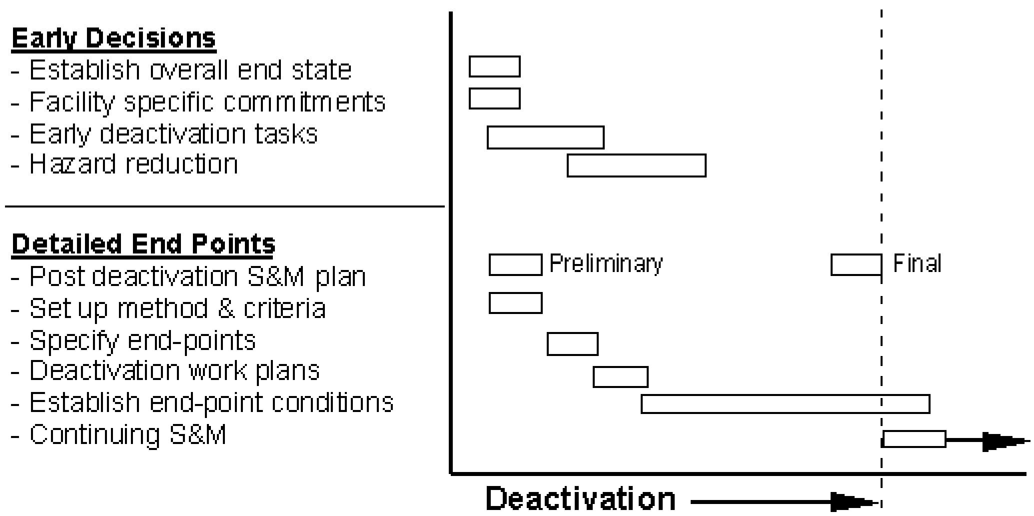


Figure 2 - Two Phases of End-Point Development

Early Decisions

The top portion of **Figure 2** refers to decisions that affect the overall plan, or that require major efforts, which must be addressed first. The overall facility end-point goals must be stated very early in the deactivation planning because they are what describe the project goals in strategic terms. This approach will allow planning to be specific and minimize the need for a conservative approach resulting from objectives that are not clearly defined.

When possible, these types of early decisions should be initiated before deactivation formally begins. This is not necessary, but quite often there will be advance efforts for the major decisions. Also, some deactivation tasks may begin before an end-point specification method is selected and end-points specified. Where deactivation is initiated prior to detailed end-point criteria being established, an assumed, realistic, overall facility end state must be decided and stated by management so that a reasonable planning effort may begin.

Early decisions can address a wide variety of issues, all of which can affect many of the deactivation tasks. Examples are given below in categories of policy and operational issues.

Policy issues are those that are not directly related to the operation of the facility and can include, for example:

- Receiving organization - What organization will take responsibility for the facility after it is deactivated?
- Post deactivation disposition - Will the facility be placed in a monitored S&M condition or will decommissioning begin immediately?
- Future use of facility - Are there any future uses of value? Is economic development and/or sale or granting of the property to other entities a consideration? Does part of the facility remain operational? Does this make sense from a "life cycle" cost standpoint, or is it better to separate those portions administratively and operationally?
- Is immediate demolition in place of deactivation an option? This will depend on the condition of the facility, funds availability, and agreements. Regardless of the answer, some effort to reduce a high S&M burden is warranted.
- Material disposition - Are there significant quantities of material remaining within the facility after transition activities were completed that must be disposed of? Are there disposal sites available for waste, either radioactive or hazardous?

  - Radioactive waste and processed fission products, corrosion products, TRU - What is the range of concentrations and waste form?
  - Bulk chemicals in storage - Can the material be a resource for some other operation; or, disposed of by commercial sale?
  - Uranium and Plutonium, fuel or SNM, and other types of nuclear and non-nuclear programmatic material - quality and quantity are key.

- Material interim storage needs - referring to the list above, is there a need to store materials for some indefinite time? If so, what are the options?
- What should be the goal for the hazard category for an excess nuclear facility, and for the reduction of hazards in other facilities? Related to this question is the need to interact with the receiving organization to ensure it is aware of, and ready to make, adjustments to its technical capability needed to perform the post-deactivation S&M.

Examples of early decision operational issues include:

- Is there operational know-how that must be used early before personnel retirement or work force reduction? If so, what are they?
- Are there major hazards for which it is prudent to stabilize or reduce for the benefit of future decommissioning workers or during the post-deactivation S&M period?
- What is the fastest way to reduce the surveillance and maintenance burden while deactivation is in progress?
- How do NEPA, RCRA, CERCLA, etc., impose requirements for cleanout of process systems, tanks, and other storage?

- Ventilation and other services - Is ventilation needed during post-deactivation S&M to ensure positive control of contamination? What services can be terminated without significant consequence?
- Structural Stability - Are buildings structurally stable for post-deactivation S&M?

A goal of early project planning should be to identify such policy-related and operational issues that specifically apply to the facility. Related decisions that will constrain, dictate, or otherwise affect detailed deactivation planning must be made as soon as possible.

Early Deactivation Tasks

There are tasks that will be required regardless of the detailed end-points. These can get started as soon as budget and personnel are available. The early overall facility end state decision (planning), may lead to conclusions that some of the detailed end-points are intuitive. To maximize use of available personnel, some of these activities can be planned and initiated in parallel with preparation of the end-point criteria and detailed planning. There will be a tendency, however, to do "too much" and care must be taken to avoid proceeding too far without first reaching the next step of detailed end-point planning.

Facility-Specific Commitments

Negotiated agreements and special requirements resulting from regulatory and other stakeholder interests may have some impact on the condition of the facility after deactivation. If there are specific commitments that need to be considered in end-point planning, they should be identified early so they can be included in end-point specifications.

Hazard Reduction

Elimination and mitigation of significant remaining physical, chemical, nuclear, or radioactive hazards can often be substantial projects of their own. Examples include purifying and disposing of acids or caustics, shipping of spent nuclear fuel to a central repository, or disposal of radioactive solid waste that is not integral to the facility's equipment. Such projects may start in advance of detailed end-point work since removal may be prerequisite to proceeding with other deactivation work.

Detailed End-Points

The lower portion of **Figure 2** refers to a second phase of specifying and establishing detailed end-points for the conditions of spaces and equipment within the facility. **Figure 3** illustrates the relation of overall and detailed end-point specification to other deactivation project management tasks. Specifying end-points is an integral part of deriving the project work breakdown structure, schedule, and budget. While preliminary projections can be created, sufficient data for budgeting will only be available when work planning is conducted with an explicit set of area, equipment, and documentation goals.

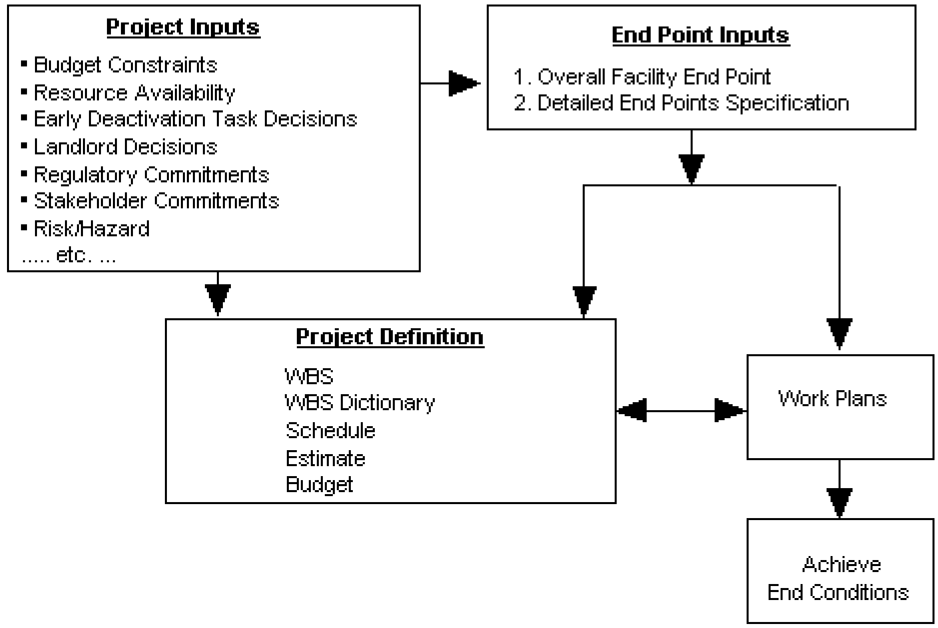


Figure 3 - End-Points Input to Project Management

A project's work breakdown structure (WBS) and WBS dictionary are first developed, followed by detailed cost estimates and schedules. The plant engineers responsible for end-point specifications must be involved with developing the WBS and WBS activity descriptions. (The detailed project cost estimate and schedule are used as the project control baseline.) Until end-point specifications are established, job definition, scheduling, and estimating cannot be completed.

Set Up Method and Criteria

It is important to start end-point planning and specification as soon as possible so the results can support scheduling and budgeting. The early steps of setting up for determining end-points requires minimal resources. A management position of "it's too early for end-point planning" is not acceptable.

The first step in end-point planning is laying out the method to be used. This handbook provides detailed examples of how that can be done.

In contrast to early decisions, the more detailed area and equipment related end-points are less likely to affect the overall deactivation approach and are more likely to be able to be specified based on judgment (that is, do not require intensive analysis). Thus, as long as planners are properly versed in avoiding specifying excessive efforts, they can approve commencing some deactivation activities in parallel with development of the detailed end-point specifications.

Post-Deactivation S&M Plan

Presuming a facility is not to be immediately dismantled, one of the key elements of end-point planning is knowing what the post-deactivation S&M activities will be so that conditions can be established to support them. An S&M plan will clarify some of the goals for deactivation activities and influence the deactivated facility configuration. However, end-point planning should not await a complete, final, detailed S&M plan. It is important that a preliminary S&M plan be written as soon as possible during deactivation to lay out the anticipated S&M routine, even if the full details cannot be specified. The final S&M plan, which fine tunes these details and addresses other subjects not significantly affecting deactivation work, can then be developed as deactivation proceeds.

Specify End-Points

Specifying end conditions is the beginning of the labor-intensive part of the end-point planning process. Facility end-points are derived for plant areas, structures, systems and equipment. Facility end-point specifications must be quantitatively measurable where possible, and in all instances explicit. When the receiving organization is identified, obtaining its agreement with the end-points is essential so that later turnover for post-deactivation S&M will proceed smoothly.

Deactivation Work Plans

From the end-point specifications, which say *what* must be done, work packages are developed by plant engineers to say *how* to carry out the work. An important point is that many end-point specifications can be consolidated in a single work package when the work to achieve the end-points is in the same physical area. Such consolidation will be more efficient by mobilizing efforts for an area only once or twice during the project schedule.

Project Management Plan

- A Deactivation Project Management Plan should focus primarily on the baseline, baseline control, reporting, management, and summary sections. The project control system is crucial and should be consistent with project management methods rather than with operating methods.
- To the extent a Deactivation Project Management Plan addresses other subjects and policies, maximum reference to existing site procedures should be used and modified, if needed, to apply to deactivation.
- A short, high-level Project Plan is better for setting overall deactivation strategy than a long all-encompassing document. Sub-plans dealing with various issues such as regulatory compliance, safety strategy, stakeholder involvement, etc., then could be issued as supporting or ancillary documents. Each document then would be more "alive" in that it could be revised and implemented more quickly without having to obtain concurrence via an entire plan revision.
- Management flexibility is essential:
  - Creativity and forethought can be employed even in standby periods, to the benefit of a facility. Even during periods when clear direction is lacking and when mission flexibility needs to be preserved, some steps can be taken to deactivate portions of a large facility on a temporary basis and bring down costs. With proactive leadership, those who know the plant most intimately are best equipped to brainstorm the specific ways to implement cost-saving steps.
  - While an early deactivation plan provides a good starting point for activities, facility managers and work planners should watch for opportunities to combine or accelerate tasks throughout the project. New and creative resolutions, resulting in cost and time savings, can present themselves as the facility representatives meet with regulators, crafts people, and others who may have input.

Decoupling from Decommissioning Decisions

Because many years may pass between deactivation and ultimate decommissioning of major DOE facilities, the exact needs, methods, and end states of decommissioning decades in the future cannot be fully anticipated. Factors ranging from technology to public values and concerns could change the character of future decommissioning efforts into forms not considered by today's planners. Therefore, in such cases, establishing completion specifications for deactivation should not, in general, presume any specific method of decommissioning.

On the other hand, if there has been a conscious decision to completely decommission in the near term, then it is important that deactivation and decommissioning be planned as an integrated project.

Contiguous Facilities

There are many facilities that are small, and/or abandoned, and/or contiguous with other facilities that remain operational. Specific guidance is needed for such situations. Decoupling operating areas and systems can be a significant part of the deactivation project.

For process and utility systems, as well as operational areas, to the extent practical, decoupling should be physical (as opposed to administrative) when there will be a long-term substantial difference in missions between the two portions of the facility. In some cases, it may be cost-effective to isolate and abandon entire service systems and install a more limited capability for that part of a facility to remain operational.

Scheduling and Estimating

Scheduling for a deactivation project takes on a much different flavor than for operating a facility. Managers must not assume that a production scheduling process they have used in the past will be sufficient for what can be a multi-year, thousand-task effort with a substantial number of work packages and several complex sub-projects.

- The end-point criteria process should be in place before the deactivation schedules are developed and baseline estimates are finalized.
- The practice of generating fully developed, integrated, resource-loaded schedules, while time-consuming in itself, leads to cost-effective implementation for a large project. The costs and efforts of producing the schedules are vastly surpassed by the cost savings that result from avoiding the work delays and duplication that would occur without such schedules.
- Schedules in large and complex deactivation projects need to have the capacity to easily incorporate change. They need to be "living" schedules because no person or collection of persons, however knowledgeable, can anticipate all of the various changes that will occur over the life of the project.
- The software package chosen for a large deactivation project should be evaluated carefully before it is adopted. The sheer size and complexity of integrated, resource-loaded schedules that guide thousands of tasks demands software of huge capacity and flexibility.
- Newly developed tools for deactivation and decommissioning estimates and project requirements management can contribute to efficient project management.

Use of Independent Reviewers

The early involvement of an independent technical review team to review a major deactivation operation and make overview recommendations provides healthy and useful input. It allows the operation to be viewed by those with experience and by those not directly tied to, nor constrained by, the day-to-day concerns of facility operations and management. It also provides a challenge to the facility staff to think of the deactivation project in different terms. In terms of broad concepts, the value of independent oversight is immeasurable.

However, advice of an independent review team in attempting to scope and define specific work tasks and pathways within a large deactivation project is less helpful than the broad overview perspective brought by such a team.

Very limited, narrowly-focused, short term technical reviews by outside experts on a case-by-case basis can be extremely useful for providing a "fresh look" at a problem area. In chartering such efforts, it is important to use individuals with expertise regardless of their organizational affiliation (so long as there is no conflict of interest). That is, hire *individuals* for such jobs, not organizations who will have an interest in only using their personnel. When such efforts warrant a team study, consider the use of on-site staff from other parts of the organization.

Safety Documentation

- Worker health and safety, always a DOE and contractor concern, has been elevated in recent years to even more important status. Often, worker safety and health aspects of older facility safety documentation will prove to be the area wherein such documentation falls short of modern standards. It is extremely important that worker safety and health considerations, comparable to or exceeding the levels required by DOE Orders and OSHA regulations, be incorporated into newer revisions or supplements of safety documentation.
- Worker involvement and a tailored approach to the levels of safety analysis required for various deactivation tasks are keys to making the safety analysis process useful, efficient, and satisfactory to all concerned. The tailored approach is cost effective in that it does not demand a high level of analysis for simple jobs already covered in established procedures. Worker involvement is also cost-effective in that it provides a higher level of assurance that workers are participating willingly and without hesitation in the jobs that are required for facility deactivation.
- Existing safety documentation from facility operational periods should and can be used in creative and careful ways as the basis for deactivation project safety documentation. Revisions, comparisons, "crosswalks," and other types of screening procedures can be used to evaluate which deactivation actions may be covered in existing documentation, and which actions need supplementary coverage. Such comparison efforts performed by those who know the facility well are more cost-effective and time-efficient than the preparation of all new safety documentation for facility shutdowns.
- Workshops and other joint working efforts that bring together the principals interested in safety documentation, DOE, the operating contractor, consultants, and independent experts, are important early in a deactivation project for brainstorming and establishing the major cornerstones of consensus about the safety documentation.

Regulatory Interaction

The basic philosophy should be to meet the intent of the regulations while at the same time avoiding costs that do not make sense for facilities that soon would be closing. Through effective teamwork, regulators and Hanford Site officials have achieved breakthroughs, such as a two-phased Closure Plan, which can be used to guide other facilities. In terms of safety documentation, the objectives are to ensure safety but to avoid unnecessary documentation costs for the project.

- Every effort should be made for facilities to coordinate their status and potential regulatory situations to DOE-HQ on a constant basis, to avoid sudden or unexpected shutdown orders. Effective planning and communications between the DOE and its contractors are needed so that facility preparations for the consolidation and disposition of hazardous materials can begin prior to the arrival of formal closure orders.
- It is essential to involve and inform regulators early in any regulatory process or negotiation. A cooperative spirit is established by such actions, and joint efforts then can be directed at solutions rather than into confrontational or penalty-based actions.
- Regulatory issues and needs must be communicated by contractor and DOE experts to all of the managers, engineers, and work planners at a facility. Just as understanding the methods and needs of the scheduling professionals by the plant operating personnel contributed to better schedules, likewise understanding of regulatory requirements by facility operators will help ensure that regulatory mistakes and violations are avoided.
- For facilities in states that have negotiated special agreements with state and federal regulators (such as the Hanford Site's Tri-Party Agreement), such agreements can serve to break regulatory impasses that might be encountered under RCRA and other statutes. Because the Hanford Site Tri-Party Agreement has legal precedence over some other environmental laws, it can be a useful tool in negotiating creative solutions in response to unique needs.
- Emissions Comparison Documents are a useful tool in saving the costs and time that would otherwise be necessary to prepare full new permit applications for deactivation actions.
- Where an operational EIS exists, it is possible to comply with NEPA requirements without preparing a new EIS for deactivation. This action can save substantial amounts of time and money.

Stakeholder Interaction

- Public and tribal involvement is essential to the success of major deactivation projects. Such involvement should be started early, and should include initial efforts to assemble and distribute informational documents that allow non-technical people to understand the history, operations, and proposed deactivation end-points. The provision of such documents can save enormous time for plant personnel that might otherwise have to be spent answering repetitive questions. It also can prevent a domino-effect of misunderstandings about the deactivation, based on basic misunderstandings of plant functions, layout, history, chemical and radiological inventory, and many other topics. Plant tours also are important to helping stakeholders understand the scope of the physical plant itself, the deactivation project, and the work being performed.
- Once the common information base is established (the first phase of public involvement), the public involvement process should become a dialogue. Two-way, iterative communication is essential. Plant personnel must truly listen to the values, motivations, and concerns of stakeholders, and must be willing to change their ideas based on the input of others. The era of singular federal decisions clearly is over, and leadership in the new era means flexibility and trust. Compromises can be reached, and the value of obtaining the buy-in of regional stakeholders can ensure the long-term success of deactivation projects and other DOE missions.
- Communication with facility employees (a key stakeholder group) is essential, especially in view of the fact that employees of a successful deactivation project literally work themselves out of their jobs. They must be kept appraised of project goals and their roles in achieving these goals, and they must be given guidance on how and where their "shutdown skills" may be applied in new, future positions.
- Stakeholder involvement extends to many external review groups that have an interest in various aspects of a complex, prototypical facility such as the PUREX Plant. During 1993 and 1994, the PUREX facility was subject to a Spent Fuel Vulnerability Assessment, a Chemical Vulnerability Assessment, a Plutonium Vulnerability Assessment, reviews by the Defense Nuclear Facility Safety Board, the General Accounting Office, and DOE-HQ special safety teams. It also experienced a vast increase in requests for tours and media information associated with its being a deactivation project model. Support for all of these requests for information must be factored into deactivation project costs and personnel needs. However, one innovative cost saving method adopted at PUREX and available to other plants is to prepare video tours and information packages that can be duplicated and used many times.