

## **SURPLUS FACILITY WALKDOWN ASSESSMENTS AT THE OAK RIDGE Y-12 PLANT**

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### **ABSTRACT**

A strategy for the National Facility Deactivation Initiative (NFDI) was issued in July 1999. A key element of the strategy is to facilitate the transfer of excess contaminated facilities from operating programs to the Environmental Management (EM) Program in accordance with DOE Order 430.1A, Life Cycle Asset Management (LCAM) and DOE-STD-1120-09, Integration of Environment, Safety and Health into Facility Disposition Activities. According to the LCAM Order, the operating programs are responsible for placing the surplus facilities in a stable and known condition prior to transfer to EM. The Surplus Facility Program at the Oak Ridge Y-12 Plant has established a process for dispositioning surplus facilities. This paper describes the decision process for surplus facilities with emphasis on the facility walkdown assessments that are the cornerstone of the process. The facility walkdown assessment process identifies existing conditions and activities required to place facilities into a stable and known condition. The walkdown assessment process captures the facility's operating history, divides the facility into functional areas and utilizes checklists which address health, safety, fire protection, waste management, environmental, and operational issues. The walkdown assessment establishes the facility's baseline for the stabilization and deactivation end-point requirements. In effect the walkdown assessment process is the building block for transferring facilities to EM or for Defense Programs to manage non-contaminated facilities which will not be transferred to EM. Another key element of the program is also to realize that throughout the process there needs to be close coordination and communication between DP and EM to facilitate the disposition of excess facilities in a timely and cost effective manner.

### **INTRODUCTION**

The Y-12 Plant Surplus Facility Management Program (Program) is charged with preparing surplus facilities for disposition and with their safe, compliant, and cost effective management until disposition. Disposition could include reuse by another entity, transfer to DOE's Office of Nuclear Material and Facility Stabilization (EM), or demolition by Defense Programs (DP). S&M is required throughout the process and can become an extended interim measure if the permanent disposition options are not feasible in the near term. The Program has developed a systematic approach for placing surplus facilities in a safe and compliant condition and minimizing S&M costs in a framework that protects workers, the public, and the environment.

### **WORK BREAKDOWN STRUCTURE**

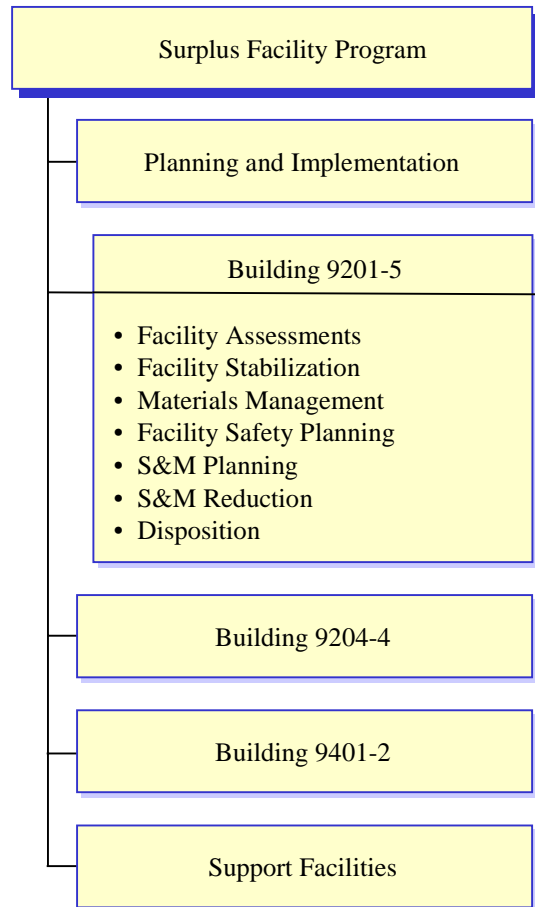
A Work Breakdown Structure (WBS) has been developed to guide and track surplus facility management activities at Y-12 (Figure 1). Work is structured by building, so that major production facilities are managed as independent WBS elements. Non-contaminated support facilities such as guard posts, office buildings, etc., are aggregated into one WBS element. As

consolidation of DP production capabilities continues, additional facilities will be incorporated into the WBS.

Within each element is a common set of activities: assessment, stabilization, materials management, safety planning, S&M planning and reduction, and disposition.

## DECISION & PLANNING PROCESS

The Y-12 Surplus Facility Program (SFP) approach to managing surplus facilities is to employ a process that will serve as a model irrespective of who the current DOE programmatic owner or future owner of the facility may be. The approach is a systematic process that places a surplus facility into a safe and compliant condition; minimizes the S&M cost in a framework that is first and foremost protective of workers, the public, and the environment; and is consistent with DOE Order 430.1A, *Life Cycle Asset Management (LCAM)*, and DOE-STD-1120-98, *Integration of Environment, Safety and Health into Facility Disposition Activities*. In accomplishing this objective, the Program is responsible for identifying the requirements and funding necessary to manage and disposition surplus facilities and for planning and coordinating the necessary activities through final disposition. In this process, the facility owners are responsible for executing the identified requirements.



**Figure 1. Surplus Facility Management Program Work Breakdown Structure**

Figure 2 is a top-level flow diagram of the decision and planning process. While the flow diagram represents a linear sequence of events, many of the steps in the process can be done in parallel. The iterative nature of the process is depicted by the feedback loop from “Perform S&M” to “Evaluate and select disposition approach.” S&M is not final disposition, and facilities in long term S&M will be periodically reevaluated to determine if the time is right for a more permanent disposition. The level of activity required at each step in the process will depend on the size and complexity of the facilities. The process steps are discussed in some detail in the following paragraphs.

## SURPLUS FACILITIES IDENTIFICATION

The first step in the approach is to identify facilities that are surplus to the Y-12 missions. Identification of these facilities is obtained through the Y-12 Ten Year Site Plan, other planning documents, and an annual call letter sent to the plant organizations as appropriate.

## DISPOSITION STRATEGY

After a facility is identified as surplus, it is evaluated and a disposition strategy is selected. The disposition options are to

1. reuse the facility,
2. transfer it to EM,
3. demolish it, or
4. place it in long-term S&M.

The preferred option is to find a reuse (new owner) for the facility. If reuse is not feasible, transfer to EM or demolition by DP are the next preferences. For process contaminated facilities, EM is the departmental organization designated to deactivate and decontaminate as necessary and take the facility to its final disposition. The final disposition could be demolition or a reuse option that was not available in its former contaminated state. The uncontaminated facilities that EM will not take will be demolished with DP funding whenever justified on the basis of cost savings or other programmatic imperatives, such as need for the land. Demolition is subject to funding constraints. Long term S&M is a not a final disposition alternative, although it may be used while waiting for a reuse opportunity, demolition funding, or EM's readiness to accept a contaminated facility.

## SCHEDULING AND BUDGETING

After the disposition strategy for a facility is selected, a baseline schedule and cost estimate for the disposition of the facility will be developed and incorporated into the budget planning

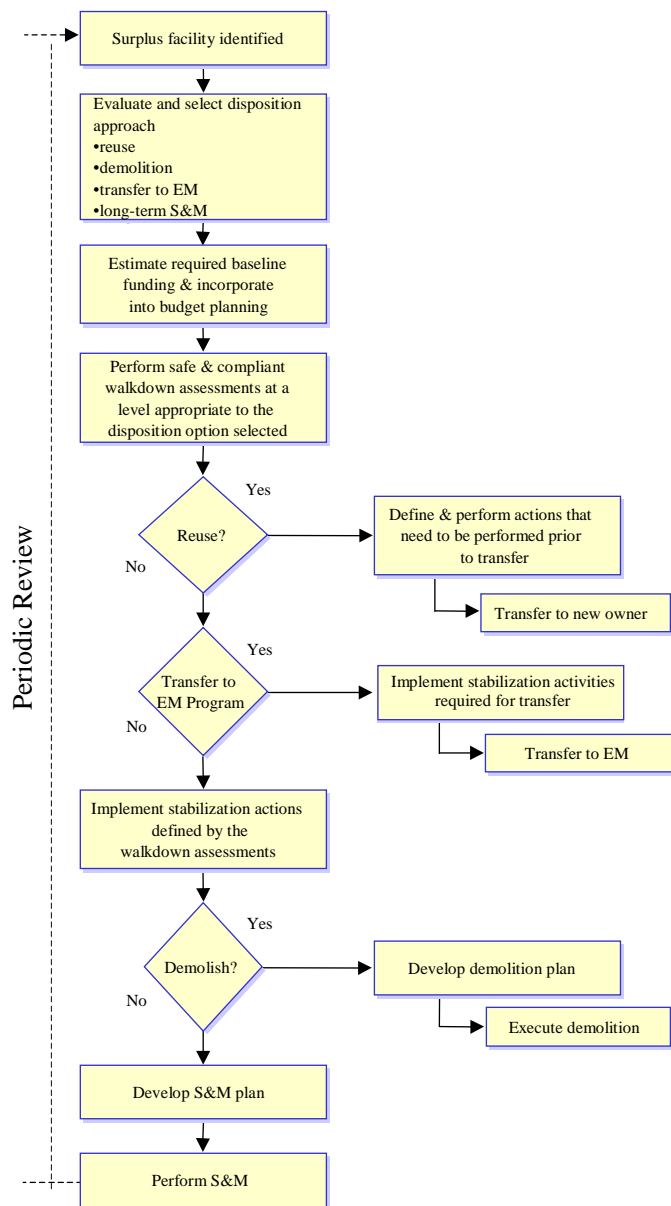


Figure 2. Decision and Planning Process

process. Developing the budget submission requires a team effort involving input from numerous Y-12 organizations: Operations, Engineering, Environment Safety and Health, Maintenance, Waste Management, Facility Safety, Fire Protection, and others as required. In preparing budgets, the Program assumes a level of effort commensurate with Integrated Safety Management principles and DOE Standard 1120-98 *Integration of Environment, Safety, and Health Into Facility Disposition Activities* and risk management concepts, while emphasizing necessary and sufficient actions which reduce cost in a framework consistent with health, safety, and environmental concerns.

## **REUSE**

The stabilization approach is tailored to the disposition strategy for the facility. If the facility is a candidate for reuse, then it is anticipated that some actions will need to be completed prior to transfer to a new owner. The results of the walkdown assessments will be used to determine these actions. These actions typically will address removal of potential Resource Conservation and Recover Act (RCRA) wastes, equipment, materials, etc., that are not needed by the new owner. The completion and verification of these actions is considered an integral part of the transfer agreement with a new owner.

## **TRANSFER TO EM**

If reuse is not an option, process contaminated facilities are candidates for transfer to EM. Process contamination is defined as contamination of systems or structural components by radioactivity or hazardous chemicals. The definition excludes contamination by conventional building materials, such as asbestos, lead-based paint, and PCB-containing equipment. It also excludes facilities in which bulk or containerized hazardous materials have been used or managed if no residual contamination remains after the hazardous materials are removed.

Transfer to EM will be done as prescribed by DOE Order 430.1a, *Life Cycle Asset Management* (LCAM). Because a facility's budget for S&M is transferred along with the facility, notification of intent to transfer is required two budget years in advance of the proposed transfer. This time will allow EM to incorporate the S&M costs into its budget planning and to complete a pre-transfer agreement. The pre-transfer agreement documents the actions that will be required by Y-12 prior to EM's accepting the facility.

## **DEMOLITION**

If a facility is targeted for demolition, the walkdown assessments are again useful for determining actions needed prior to demolition and are considered a part of the demolition plan for the facility. In developing the demolition plan, consideration will be given to options that could range from having a subcontractor remove the facility and salvage the materials with minimal cost to DOE, a low-bid subcontractor award contract, or other options. The intent is to minimize the costs to DOE while maintaining a safe and compliant process.

## **LONG TERM S&M**

If near term disposition by reuse, transfer, or demolition is not feasible, the facility will be placed into long-term S&M. The basic difference in the process at this time is the implementation of a surveillance and maintenance plan. The facility will be stabilized to a safe and compliant condition as determined by analysis of the walkdown assessments (based on necessary and sufficient principles). After stabilization, personnel access to the facility will be limited, and a S&M plan will be implemented. The objective is to minimize the S&M costs, consistent with risk management concepts. Reduction of S&M costs will potentially involve things such as shutting off utility services (e.g., electrical, water, steam), decontaminating radiation contaminated areas, removing materials, and eliminating inspections of equipment no longer in service. Systems such as the Criticality Accident Alarm System, Fire Protection, Emergency Notification System, and Emergency Lighting/Egress will remain in service as necessary to ensure the health and safety of workers, the public, and the environment.

## **WALKDOWN ASSESSMENTS**

The surplus facility walkdown assessment process, as shown in Figure 3, is the cornerstone for management of surplus facilities. The assessment process is designed to identify the actions required to place facilities in a safe and compliant condition and to verify these actions are performed.

As shown in Figure 3, the first consideration is to determine the number of Capability Units (CUs). This determination should be based upon the size, complexity and the number of operational areas within the facility. For instance, one building at Y-12 has 550,000 square feet of space with multiple operational groups located throughout the building. This building has been divided into 83 CUs, while a smaller, 13,000 square feet, facility was divided into 6 CUs. For smaller facilities such as a guard post, the facility itself is the CU. While determining the number of CUs it is also important to assign an owner for each CU. In the Y-12 case, for larger facilities, there is generally a building manager and different operating groups within the facility. The building manager is responsible for the building conduct of operations with the CU manager being responsible for stabilizing their CU.

The next step is to establish an assessment team. This team is assembled by the Surplus Facility Program manager and generally includes health, safety, environmental, operations, fire protection, engineering personnel and subject matter experts. Ideally this team would be established as soon as a facility ceases operation and is declared surplus. However, in many cases, this is not possible due to budget constraints, sudden changes in mission, experienced personnel are moved to other priority work, etc. The point is there are always exceptions. As an added suggestion, it is always a good idea to keep a list of retired personnel who may be interested in working part-time to help in the assessment process.

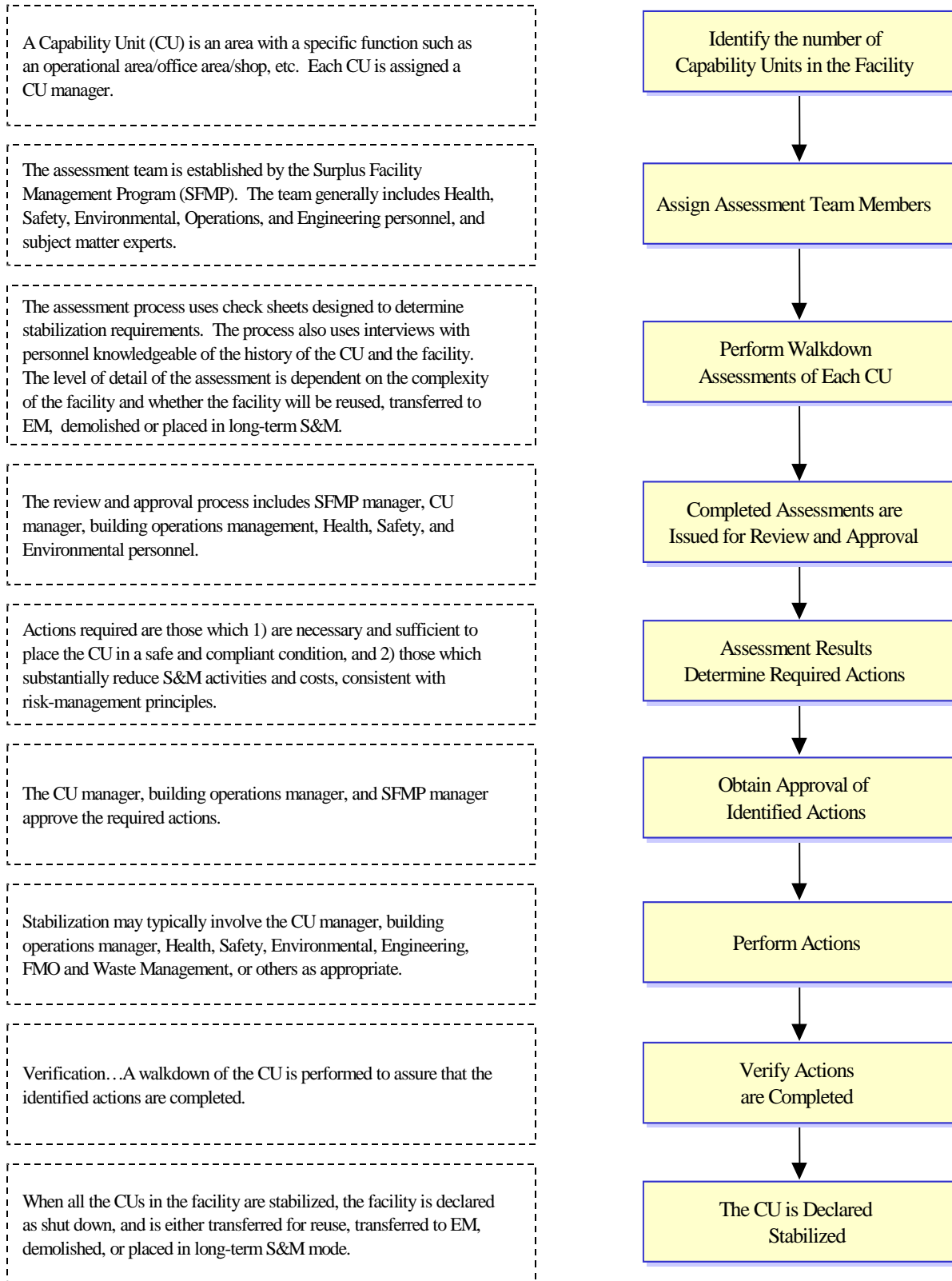


Figure 3. Surplus Facility Walkdown Assessment Process

Once the team is established and has received any training necessary for access to the facility, the walkdown assessments begin utilizing a set of eight checklists that are shown in Tables 1 through 8. Typically, there is a set of checklists completed for each CU. Table 1, the Generic Action List, lists 27 generic actions required for deactivation. Tables 2 through 8 are Assessment Checklists for the following topics: Operations<sup>a</sup>, Industrial Safety, Fire Protection, Industrial Hygiene, Radiation Control, and Environmental Management. Assessment checklist items requiring attention for deactivation are keyed to one of the 27 generic actions on Table 1 and also located on a floorplan diagram of the CU if appropriate. After the checklists are completed, the organizations represented on the checksheets are requested to review and approve them. If the facility is to be transferred to EM, the assessment results should be utilized to prepare the LCAM end point requirements for stabilization by DP and deactivation by EM. This is the point in time where DP and EM should be in close communications to develop their respect end-point requirements. An additional benefit to the assessment process is that the team is instructed to identify and report any immediate health and safety concerns to the building and/or CU manager. The SFP manager also has the flexibility within budget constraints to request that the assessment team identify potential surveillance and maintenance cost reduction tasks, equipment/material available for salvaging or recycling and potential pollution prevention opportunities.

In addition to the checklists, the operating history, a floorplan diagram, and a photograph of the CU are prepared and assembled into the assessment report. Prior to issuing the final assessment report, it is reviewed and approved by the CU manager, the building manager and the Surplus Facilities Program Manager.

Once approval of the actions identified by the assessment report is obtained the stabilization deactivation actions are completed, verified as complete and the CU is declared as stabilized.

## **CONCLUSIONS**

The management of surplus facilities at the Y-12 plant is approached in a logical order of events with the realization that exceptions always exist and the approach should be flexible and consistent to assure a safe and compliant stabilization of surplus facilities. The walkdown assessment reports capture the condition of the facility and define a baseline that establishes the criteria for safe and compliant stabilization. It is intended to be a graded approach consistent with the nature of the facility to be stabilized and sufficient to assure that surplus facilities are transferred from the DP program to the EM program as described in the DOE LCAM Order 430.1A. In the accomplishment of this objective there is no substitute for close coordination and communication between the DP and EM programs to ensure a smooth transition of facilities between the programs.

## **REFERENCES**

1. DOE Order 430.1A, Life Cycle Asset Management (LCAM)
2. DOE-STD-1120-09, Integration of Environment, Safety and Health into Facility Disposition Activities

**FOOTNOTES**

<sup>a</sup> Tables 2 and 8 are both entitled “Operations Assessment Checklist,” with the former addressing contents of the CU and the latter addressing hazardous substances historically processed, handled, or stored in the CU.

<b>Table 1 GENERIC ACTION LIST</b>	
<b>Actions:</b>	
1.	The CU Manager shall remove/dispose of _____.
2.	The CU Manager shall have the _____ disconnected/turn off.
3.	The CU Manager shall have the _____ repaired and/or corrected.
4.	The CU Manager shall remove/dispose of all contents from file cabinets, desks, bookcases, etc., and leave unlocked.
5.	The CU Manager shall remove/dispose of all contents from the flammable storage cabinet and attach an “Empty” sticker to cabinet.
6.	The CU Manager shall remove/dispose of all flammables, loose combustibles, and oxides.
7.	Maintenance shall disconnect all water lines to sinks, lavatories, water closets, etc., and plug all drains.
8.	Maintenance shall plug all floor drains in the CU.
9.	Maintenance shall disconnect water cooler (water and power), plug drain and evacuate the freon.
10.	Maintenance shall disconnect power to eye bath/safety shower and tag “Out of Service.”
11.	The CU Manager shall label appropriately all drums, cans, and other containers and remove from the CU.
12.	Maintenance shall evacuate coolant from equipment.
13.	The CU Manager shall remove all process material, including production parts, except those described in a material management plan.
14.	The CU Manager shall dispose of all environmentally undesirable materials.
15.	The Operations Manager shall insure all ladders are tagged appropriately.
16.	The CU Manager shall drain oil, test for PCB as necessary, and dispose of the oil appropriately. (Oil must be removed from equipment not intended for reuse.)
17.	The CU Manager shall check equipment for PCB – If 50 ppm or greater, drain the oil and replenish with clean oil if intended for reuse.
18.	The CU Manager shall remove all contents from process equipment, tanks, sumps, and pits (both liquid and solid) and apply the appropriate signs, labels, and other markings such as “Empty,” “Out of Service,” “Not for Reuse,” etc.
19.	Maintenance shall disconnect piping to tanks and cap pipe. The capped pipes should be labeled with point of origination.
20.	The CU Manager shall close the RCRA 90-day accumulation area and/or the satellite accumulation area.
21.	After completion of deactivation, the CU Manager shall have HSEA verify signage and post as required.
22.	The CU Manager shall have these items removed from the ET&I inspection program.
23.	The Operations Manager and the CU Manager shall coordinate the shutting down of the utilities with Engineering.
24.	The CU Manager shall have the power disconnected to the crane/hoist and tag it “Out of Service.”
25.	The CU Manager shall remove all material handling equipment from the CU.
26.	The CU Manager shall remove all computer equipment from the CU.
27.	At the time of CU shutdown, the area should not look as if it has been abandoned; but it should be in an orderly condition that reflects “Good Housekeeping.”



**Table 2  
Operations  
ASSESSMENT CHECKLIST**

Building:				Operations Mgr		
CU No.				CU Manager		
Description				Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION XX	QTY	COMMENTS
100	Safety concerns					
101	Health concerns					
103	CSA area					
104	Special access-ingress/egress					
105	Equipment list available ("Y" No.)					
106	Special security requirements					
109	Cranes/Hoist					
110	Material handling equipment					
113	Computer equipment					
114	Permits					
115	Janitorial supplies					
116	Drinking fountains					
117	Refrigerator					
118	Liquids					
120	Books, records, paper, & etc.					
121	Wood and other loose combustibles					
128	Classified parts					
129	Accountable material (Fissile)					
130	Machine chips/fines					
131	Potentially hazardous materials					
137	Roof leak					
140	Gases/cylinders					
144	Production Parts					
145	Process Materials					
<b>XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.</b>						
Approved by: _____				Date: _____		
Operations				I		

**Table 3  
Industrial Safety  
ASSESSMENT CHECKLIST**

Building:				Operations Mgr		
CU No.				CU Manager		
Description				Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION XX	QTY	COMMENTS
200	Hazardous walking surfaces					
201	Platforms					
202	Ladders					
203	Blocked aisles					
204	Emergency showers					
205	Emergency eye bath					
206	Monitoring systems					
207	ENS					
208	Fire Alarm					
209	UMS					
223	Working surface hazards					
XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.						
Approved by: _____				Date: _____		
<b>Industrial Safety</b>						

**Table 4  
Fire Protection  
ASSESSMENT CHECKLIST**

Building:				Operations Mgr		
CU No.				CU Manager		
Description				Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION XX	QTY	COMMENTS
300	Fire alarms in area					
301	Fire extinguisher in area*					
302	Fire suppression system					
303	Emergency Exit not marked					
304	Obstruction of fire protection equip.					
305	Exit way blocked					
306	Locked emergency door					
307	Improper warning signs					
308	Flammable liquids					
309	Combustible liquid					
310	Oxidizing liquid					
311	Flammable solid					
312	Combustible solid					
313	Oxidizing solid					
314	Flammable storage cabinets					
315	Emergency lighting					
316	Emergency Lighting Plan					
317	Other					
<p>* Fire extinguishers need to be checked monthly if flammables, combustibles or oxidizers still remain in them. After these items have been disposed of and the CU has been shutdown, the extinguishers may be removed.</p>						
<p>** These items are being turned over to the CU Manager for immediate action.</p>						
<p><b>XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.</b></p>						
Approved by: _____				Date: _____		
<b>Fire Protection</b>						

**Table 5  
Industrial Hygiene  
ASSESSMENT CHECKLIST**

Building:				Operations Mgr		
CU No.				CU Manager		
Description				Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION XX	QTY	COMMENTS
400	Respirator required					
401	Special ventilation requirements					
402	Special monitoring devices					
403	Friable asbestos					
404	Non-asbestos fibrous insulation					
405	Beryllium					
406	Lithium					
407	Lead					
408	Mercury					
409	Carcinogens					
410	Confined space entry					
411	Noise in excess of 85 dBA					
412	Temperature extremes					
413	Non-ionizing radiation					
414	Biohazards					
415	Acids					
416	Caustics					
417	Coatings and etc.					
418	MSDS sheets available					
419	HAZWOPER Site					
XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.						
Approved by: _____				Date: _____		
<b>Industrial Hygiene</b>						



Table 7  
Environmental Management  
ASSESSMENT CHECKLIST

Building:				Operations Mgr		
CU No.				CU Manager		
Description				Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION XX	QTY	COMMENTS
600	<b><u>Water compliance objectives</u></b>					
601	Water					
602	Drains – sink, lav., etc.					
603	Floor drains					
604	Process drains					
605	Process solutions					
606	Steam					
607	Process chemicals.Bulk.Liquid					
608	Process chemicals.Bulk.Solid					
609	Out of service equipment					
610	Containers, drums, cans, etc.					
611	Tanks					
612	Dikes					
613	<b><u>Air emissions</u></b>					
614	Process exhaust					
615	Filters and filter media					
616	Exhaust systems					
617	Refrigeration system					
618	Heating system					
619	Ventilation system					
620	Methanol brine system					
621	Air permits					
622	Rad stack samples					
623	<b><u>RCRA Issues</u></b>					
626	90-day or satellite AA					
627	Identifiable hazardous waste					
628	<b><u>PCBs</u></b>					
629	Contaminated equipment					
630	Fluorescent light ballast					
631	Transformers, capacitors, etc.					
632	Hydraulic systems					
XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.						
Approved by: _____				Date: _____		
				<b>Environmental</b>		

**Table 8  
Operations  
ASSESSMENT CHECKLIST**

<b>Historical Data and S&amp;M Reduction</b>							
Building:					Operations Mgr		
CU No.					CU Manager		
Description							
					Walkdown Assessment Date:		
REF	ITEMS/CONCERNS	YES	NO	ACTION	QTY	COMMENTS	
				XX			
<b>Historical Data:</b>							
Were any of the following elements or compounds containing these elements ever processed, handled, stored, or used in any capacity within this CU? If unknown, leave blank.							
700	Americium						
701	Beryllium						
702	Biohazards						
703	Bromine						
704	Cadmium						
705	Cesium						
706	Depleted Uranium						
707	Deuterium						
708	Enriched Uranium						
709	Hydrofluoric Acid						
710	Iridium						
711	Lead						
712	Lithium						
713	Mercury						
714	Niobium						
715	PCB						
716	Plating Chemicals/Compounds						
717	Technetium						
718	Thorium						
719	Tritium						
720	Zirconium						
<b>XX The "Action" code is defined in Table 1. The item location may be found in Figure 2.</b>							
Approved by: _____					Date: _____		
					<b>Operations</b>		