

MEMO

DATE: JULY 14, 1998

TO: TERRY OVERLID
JIM PATTERSON
FRED HUGHES
MARTIN WHEELER
TED HOPKINS
TOM DIETER
BRUCE WATSON
JEFF BARROSO
JEFF SMITH
TIM HUMISTON
MIKE NELSON

FROM: VERN GUTHRIE, X7415, T130F

SUBJECT: BUILDING 123 LESSONS LEARNED DOCUMENT FOR REVIEW

ENCLOSED FOR YOUR REVIEW IS THE BUILDING 123 LESSONS LEARNED DOCUMENT DATED JULY 13, 1998. THIS DOCUMENT HAS BEEN DEVELOPED, REFORMATTED, REVISED AND REVIEWED ON MANY OCCASIONS DURING THE DEVELOPMENT PROCESS. SEVERAL K-H TECHNICAL WRITERS AND PERSONNEL WITH KNOWLEDGE OF REQUIREMENTS FOR LESSONS LEARNED DOCUMENTS HAVE BEEN USED TO ESTABLISH THE FORMAT AND TO REVIEW THE CONTENTS.

PLEASE NOTE THAT THE LESSONS LEARNED AND APPENDICES ARE DRAFT DOCUMENTS AND MAY BE REVISED PRIOR TO FINAL ISSUE. APPENDIX "A" IS NOT INCLUDED, BUT WILL BE IN THE FINAL DOCUMENT. ALSO, WE BELIEVE THAT THIS DOCUMENT ADDRESSES THE LESSONS LEARNED INFORMATION RECEIVED FROM DOE.

WE NOW FEEL THAT THE DOCUMENT IS PREPARED SUFFICIENTLY TO REQUEST YOUR REVIEW AND COMMENTS.

PLEASE PROVIDE YOUR COMMENTS TO ME BY NOON FRIDAY, JULY 17, 1998.

THANKS IN ADVANCE FOR YOUR SUPPORT.

ADMIN RECORD

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Rocky Mountain
Remediation Services, L.L.C.

. . . protecting the environment

DRAFT

**Lessons Learned
For The
Building 123 Decommissioning Project**

**Prepared By:
Kaiser-Hill, L.L.C.
and
Rocky Mountain Remediation Services, L.L.C.**

REVISION 0

JULY 1998

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ACRONYMS

ASD	Analytical Services Division
AR	Administrative Records
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
D&D	Deactivation & Demolition
DOE	U.S. Department of Energy
DQOs	Data Quality Objectives
ER/QA	Environmental Restoration/Quality Assurance
ERE	Environmental Readiness Evaluation
FRSP	Final Radiological Survey Plan
HASP	Health and Safety Plan
HEPA	High-efficiency particulate air
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Program
K-H	Kaiser-Hill, L.L.C.
LO/TO	Lockout/Tagout
MCL	Maximum Contaminant Level
PAM	Proposed Action Memorandum
Pb	Lead
PCBs	Polychlorinated biphenyls
PEP	Project Execution Plan
PM	Project Manager
POC	Point-of-Contact
ppb	parts per billion
PU&D	Property Utilization Disposal
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RE	Radiological Engineering
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RFP	Request for Payment
RLCR	Reconnaissance Level Characterization Report
RMRS	Rocky Mountain Remediation Services, L.L.C.
RO	Radiological Operations
SAPs	Sampling Analysis Plans
SOW	Statement of Work
WBS	Work Breakdown Structure
WEMS	Waste and Environmental Management System

LESSONS LEARNED FOR THE BUILDING 123 DECOMMISSIONING PROJECT

1.0 INTRODUCTION AND PROJECT SCOPE

The purpose of this report is to summarize Lessons Learned from the Building 123 Decommissioning Project.

Building 123 was constructed in 1953 and was used as an analytical laboratory, dosimetry and instrument calibration facility. The building also was used for medical research, storage for all radiological health records, office space for radiation health specialists, and a laboratory for calibration of criticality alarms.

The decommissioning of Building 123 was done according to the *Proposed Action Memorandum for the Decommissioning of Building 123* (PAM), Revision 6, dated March 26, 1998. The PAM provides a detailed description of the decommissioning tasks for Buildings 113, 114, 123, and 123S. These tasks included decontamination of radiologically-contaminated facility systems, partial closure of Resource Conservation and Recovery Act (RCRA) Unit 40, and characterization of Individual Hazardous Substance Sites (IHSS) 121 and 148.

Decommissioning of Buildings 113, 114, 123, and 123S was conducted in several phases. A description of each major task is provided below:

- Relocation of building tenants, and removal of furniture, equipment, and excess chemicals.
- Characterized for hazards and potential contamination. *The Reconnaissance Level Characterization Report for Building 123* (RLCR) (October 1997) identifies the type, quantity, condition, and location of both confirmed and potential sources of radioactive and hazardous substances which were present in Building 123.
- Strip-out of equipment and building materials which were contaminated with radioactivity, hazardous wastes, and hazardous materials. This included asbestos abatement, closure of the components of RCRA Unit 40 in Building 123, and disconnection of utilities.
- Completion of final radiological surveys and approval by U.S. Department of Energy (DOE).
- Demolition of Buildings 113, 114, 123, and 123S.
- Characterization of IHSS 121 and 148 was initialed in accordance with the *Soil Sampling and Analysis Plan to Characterize Individual Hazardous Substance Sites (IHSS) 121 and 148 at Building 123*.

A project-specific *Health and Safety Plan* (HASP) was prepared outlining the overall safety strategy for the decommissioning effort. Attention to safety was given highest priority and the project was completed with an excellent safety record.

All waste generated during decommissioning of Buildings 113, 114, 123, and 123S was handled in accordance with the project *Waste Management Plan* (WMP) and applicable site procedures. All waste characterization, packaging, shipment and documentation was supervised by a full-time Environmental Coordinator/Waste Management Specialist. All low-level, hazardous, and mixed waste was packaged and staged appropriately, and was tracked in the Waste and Environmental Management System (WEMS).

An Environmental Readiness Evaluation (ERE) was conducted by Kaiser-Hill, L.L.C. (K-H) and DOE. The ERE team phased the assessment to match the three key phases of the project: building strip-out, asbestos abatement, and demolition.

2.0 EXECUTIVE SUMMARY

Building 123 was raised without serious personnel injuries or environmental impact, but the project experienced several unknown site conditions which impacted the budget and schedule. This document presents some important lessons learned which can assist Project Managers for future demolition projects. An executive summary of key lessons is provided below.

1. The Planning Phase of the Building 123 Decommissioning Project was incomplete and/or non existent.
 - The integrated, resource loaded, schedule was not given sufficient input and review from performing organizations and not maintained sufficiently during the execution phase.
 - The Risk Analysis and Contingency Analysis did not address all potential areas of change. Several key assumptions were not included in the Project Execution Plan (PEP).
 - Changing Project Team members during the life cycle of the project was disruptive and affected continuity and efficiency.
 - Project planning documents were not as complete as they should have been due to limited preparation time and limited access to the facility.
2. Characterization of Building 123 was not allocated sufficient time and budget which resulted in an incomplete reconnaissance survey and report of the building hazards and contamination.
 - Access to the facility was limited which restricted the accuracy and completeness of the surveys.
 - The building was occupied during reconnaissance characterization work.
 - Limited intrusive sampling was allowed (for lead (Pb), asbestos (Be), Polychlorinated Biphenyls (PCBs), etc.) since the building was occupied.
 - The characterization report was not updated to include new information on hazards and contamination as the information became available.
3. There was not an informal nor a formal facility transition/turnover performed.
 - There was not a transition plan was developed to turn over the facility.
 - There was not a walkdown/inspection conducted between the exiting tenants and the new facility manager with a Memorandum of Understanding written and signed by the two parties.
 - The decommissioning Project Team accepted the facility without full knowledge of the condition of the building.
 - The building utility systems were reported as working when in fact several maintenance tasks were necessary to complete deactivation.

- The facility was not secured to prevent unexpected “drop off” of excess materials and chemicals.
4. Execution of the field work was complicated for the following reasons:
- There were three separate subcontracts awarded to support the schedule, making the management of and site integration of the two subcontractors complicated and confusing.
 - There were numerous unexpected schedule impacts such as:
 - Abandoned duct with perchloric acid,
 - Asbestos insulation found in concrete block wall,
 - Increased volume of low level asbestos due to additional contamination found,
 - Encountered unknown substances in the scrubbers, process ducts and process waste lines,
 - Room 111 - had to scabble 140 square feet due to additional contamination; and
 - Found a “room within a room” (in Room 135) which was constructed of Asbestos-containing material (ACM).
5. Numerous changing radiological requirements caused the project to experience schedule delays and rework.
- Field supervision was not consistent as the Foreman was changed daily during the initial startup.
 - There was confusion between what DOE, Radiological Engineering (RE) wanted and needed and what the Project Team Radiological Operations (RO) was performing and delivering.
 - Data was not being collected consistently nor managed and tracked effectively.
6. Final radiological surveys had to be much more detailed than planned. The Final Report changed from Class III (10%, no grids) Radiation Survey requirements to Class I (100%, 1 meter grids) due to additional contamination found.
- Unknown isotopes found that required the work to be suspended until the contamination was identified.

3.0 LESSONS LEARNED - AREAS OF SUCCESS

The Project Team(s):

Observation:

Did an effective job in managing the site’s activities and on overseeing safety. Project personnel exhibited a positive awareness towards safety.

Enhancement:

Maintain a high awareness of safety and reinforce safe work practices up to and including the conclusion of sub-contractor demobilization.

Observation:

Developed and maintained an open line of communication with the state regulatory agencies. Copies of approval documents were faxed directly to the Kaiser-Hill Project Manager's office from the state personnel.

Enhancement:

Keep customers and stakeholders informed (e.g., DOE and CDPHE) of project plans. Maintain a Correspondence / Document Transmittal Log throughout the project, listing all items delivered and received directly from regulatory agencies.

Observation:

Ensured that Radiological Engineering representation as included in the Project Team meetings during the planning and scheduling of the project.

Enhancement:

Maintain a RE and Radiological Operations presence on the jobsite throughout planning and during field activities.

Observation:

The Project RE group chose to use the Multi-Agency Radiation Site Survey and Site Investigation Manual (MARRSSIM) as the basis for the final radiation survey plan. At the time of the decision, this was a draft document. MARSSIM is now final and will soon be the guidance document used onsite.

Enhancement:

Continue training plant personnel MARSSIM and the requirements of this document.

Observation:

Contracted an independent Subcontractor to review the Perchloric Acid Hoods and Duct Removal Procedure. The input received from the expert was used to modify the procedure to enhance safety. Additional tasks were incorporated to improve safety during the work.

Enhancement:

Using third parties Subject Matter Experts, to independently review work tasks that are not considered routine, needs to be included in work plans.

Observation:

Performed several inspections of the facility early in the planning phase with support organizations such as Plant Power, Utilities, and Property Utilization and Disposal (PU&D).

Enhancement:

Continue to perform inspections of a facility during the planning and characterization and during the execution phase of a project.

Observation:

Set-up a detailed charging matrix using suffixes to capture and categorize costs for future use when reviewing total costs for specific tasks.

Enhancement:

Set aside separate charge numbers for separate tasks or phases of the project to keep costs distinct, not just to suffixes.

Observation:

Used an Accountability Board, and Sign-In Log to control the project site. This helped ensure the safety of those working in and around the building. A training matrix was also used in conjunction with the Sign-In Log to ensure that people entering the site were either trained or properly escorted.

Enhancement:

Ask for input from Security to control access to the site for security.

Observation:

Ensured that a Plan of The Day (POD) was used to plan, schedule, and prepare for future work. This POD assisted in having the lockout/tagout (LO/TO) work performed without delay, and having resources in place when needed prevented additional delays.

Enhancement:

Keep the POD short and concise. Team members need to update the status **only**, and not go into specific detail unless warranted. The POD needs to not take more than 20 minutes.

Observation:

Responded expeditiously in support of changes to contract documents. There were very few delays as a result of needed changes to procedures, Construction Field Change (CFC) Notices, and Engineering Change Requests (ECRs).

Enhancement:

Distribute the Document Tracking Logs (e.g., ECR Logs, CFC Logs) to the Project Team members for their use and information.

Observation:

Assigned one person to manage the requests of the ERE Team. This helped to expedite and to organize the review. The Project Team was very flexible in supplying additional documents when asked. The ERE team who support the Project Team is completing the ERE package.

Enhancement:

Concentrate on the priority of ERE requirements and deliver documents that need review as soon as possible. Include an ERE team member in reviewing documents as they are being prepared.

Observation:

Utilized a State Certified Health Specialist to perform daily visual inspections of asbestos abatement and to manage the clearance air monitoring. This action helped the Asbestos Abatement Contractor and the Strip-Out Contractor to work without delays and to ensure compliance with State and Federal Asbestos Abatement Regulations.

Enhancement:

Housekeeping and inspection can always be improved. The use of a Friday clean-up day for example, keeps the site safe, and enhances performance.

Observation:

Ensured that there was never a decision to proceed with a work task if there were any unanswered questions concerning an activity. Several times work was stopped where there was a safety question, and work was not restarted until all parties were in agreement with the resolution of the issue; even if it impacted the schedule.

Enhancement:

Always utilize craft, and/or other direct workers to participate in the work planning, safety planning, and development of corrective actions.

Observation:

Workers were invited and participated in Manager meetings to discuss upcoming work tasks. In two cases, Union Representatives suggested actions that eliminated work tasks, reduced exposure to work hazards, and saved the project time and budget.

Enhancement:

Again, craft personnel are paramount in planning work tasks.

Observation:

The first topic of each POD meeting was safety. The team discussed the tasks to be worked for the day, and reviewed the tasks planned for the next two to three days. A lessons learned topic from another facility that pertained to the project was presented and discussed.

Enhancement:

Safety is the site's number one priority. Practice safe work ethics, and do not compromise.

Observation:

The Project Team worked closely with the Shift Superintendent in making plant announcements concerning vehicle and pedestrian traffic. There were no instances of problems due to closing down sidewalks and roads.

Enhancement:

Keep support departments and supporting organizations informed of the project status. Ask for support as early as possible to minimize project impacts.

Observation:

Reacted assertively in managing unknown site conditions, and controlling work situations that could have impacted worker safety.

Enhancement:

Do not assume that all bases are covered. Assume that there will continually be unanswered questions needing to be dispositioned.

4.0 LESSONS LEARNED - AREAS OF IMPROVEMENT

4.1 SAFETY - LESSONS LEARNED

Safety should be the number one priority for every project performed at RFETS. Just saying the words "Be Safe" is not enough. Project team members and workers can sense that safety is paramount by the actions taken by the project managing personnel.

Safety is never to be compromised during a project regardless of pressures such as meeting a tight schedule, costs control, and the completing of field work leading to subcontractor demobilization.

Observation:

The Project Team was pushed to work extended hours in an attempt to meet scheduled milestones and deadlines which caused problems such as poor decision-making, missed assignments, and could ultimately lead to a safety incident.

Enhancement:

The safety record for the project was very good, but it is not a recommended practice to work extended hours for long periods of time.

Observation:

Near the completion of the project, there appeared to be instances where safety awareness was not at the same level. This caused a situation to where safety being priority one for the project to be questioned.

Enhancement:

Do not minimize any issue or incident during project execution, especially during the final stages, including demobilization. Review tasks scheduled to work at the POD and identify all potential hazards to be aware of. Place particular emphasis on safety at the end of the project when people have a tendency to rush to complete the work.

Observation:

Project personnel were observed without the proper Personal Protective Equipment, entered the fenced-in work area and had to be directed out of the construction zone. There could have been an accident due to inadequate controls of the site that is preventable.

Enhancement:

Signage can always be improved that clearly designates, "DO NOT ENTER" areas. Warning signs can be placed along the path around and leading to a site that notifies the general population of what routes are closed and where the detours are.

4.2 PLANNING - LESSONS LEARNED

Initial planning can make or break a project in the meeting of the project schedule and controlling costs.

Invest the time and budget needed in order to deliver a complete and concise Project Plan. The investment will pay greater dividends as the project passes through the life cycle to close-out.

Another Lessons Learned included in the Planning section is to perform a Risk Assessment / Needs Analysis prior to completing the Project Planning document.

4.2.1 General

Observation:

The Risk Analysis was not adequate in that all areas were not discussed and covered. The Project Plan addressed what is to be looked at and if an event or item is encountered, but not in sufficient detail to allow the project to manage unknowns accordingly. This caused the project to experience numerous work stoppages, schedule delays, and cost growth.

Enhancement:

Invest the time and money during the planning and characterization phase of a project to perform a risk analysis that the Project Team accepts as being complete and adequate in the areas of concern and that are addressed so that action plans can be written.

Observation:

The project did not perform an adequate Risk Analysis/Contingency Analysis to support encountering unknown and changed site conditions. The project did not adequately plan for surprises (exterior and interior building contamination, lead paint, hidden heating, ventilation, and air conditioning (HVAC), ducting contaminated with perchloric acid, unknown hazardous wastes, and the complexity of the perchloric hood disassembly).

Enhancement:

Develop a contingency plan which can manage unknowns until detailed characterization is complete. Have the schedule and budget reflect the risks associated with the unknowns. Update the plan through the life of the project.

The plans need to state that if this particular instance is encountered, then the remediation plans are as follows: (for an example)

This allows the worker to remediate the problem without having to shut down work.

Observation:

The Project Team had a high rate of turnover and the team did not include adequate representation of critical departments in the early planning phases. The Project Manager (PM) position was held by several different people. Each change shifted the culture of the project enough to cause repetition and/or rework of some tasks. Personnel were reassigned to other projects because there were not adequate, qualified staff to support this project and other concurrent projects.

Enhancement:

The core members of the team needs to remain with the project through completion. The efficiency of the project will be enhanced if team members are knowledgeable of the history, the original scope, and are involved in decisions from beginning to completion. Implement a strong matrix of project support personnel to ensure consistency.

Representatives from all support groups needs to be included in the early planning phases. Keep track of meeting attendance and note what areas are not being supported. Document what areas need additional support, coverage, then formally request support from the specific department. Staff augment the needed support. Project personnel need to be briefed on the policies, procedures and work parameters required to provide a finished product, in writing, prior to estimating scope of work.

Include participation from the facility operations personnel into the planning and scheduling. Include the landlords/tenants in developing the schedule for relocation and facility transfer before they leave the area or are reassigned.

Include an RO Foreman on the Project Team. The foreman's duties need to include the identifying and assigning the responsibility for tracking the type, number and condition of instruments, the training of individuals assigned to the project working radiological issues, and the productivity/schedule of the work to be completed. Dedicated Radiological Control Technicians (RCTs) needs to be assigned to the project throughout the execution stage.

The Project Team needs to participate in the development and review of all significant project documents so that all documents are consistent, and that everyone understands the scope of each document. This will assist to ensure documents are consistent with the project plan.

Prepare and maintain a list of project personnel. Include their phone number/pager/radio numbers, and responsibility. Keep this up-to-date throughout the life cycle of the project. Staff augment from off-site if temporary support or services are required. Identify and define the area of Roles and Responsibilities for each team member and maintain an Action Items List from the Weekly Project Team meetings.

4.2.2 Project Execution Plan (PEP)

Observations:

The project did not have an adequate characterization of the building prior to preparing the PEP and other project-specific documents. This caused the project to experience numerous scope changes, schedule delays, and work stoppages.

The PEP (budget, schedule, and assumptions) and several other project-specific documents were developed prior to characterization being completed and it was assumed that there was little contamination in the building. As a result, the PEP did not establish realistic schedules and budgets for the project. The PEP was also developed prior to finalization of the Final Radiological Survey Plan and therefore, did not include all of budget and schedule needed to complete this effort.

Enhancements:

The PEP needs to be a living document which is a dynamic document needing to be revised to reflect when required developing project knowledge. At a minimum, develop one PEP for the preliminary, characterization stages of the project; and a second PEP, more detailed PEP based on the results of the characterization for the execution of work.

Complete the building transition from tenant use to decommissioning status. After the building is empty, then the reconnaissance survey/characterization work can be completed. After the RLCR and facility characterization is completed, then plan, estimate and schedule the project. This allows the Project Team to have accurate data available to complete project planning.

Observation:

The PEP did not adequately list assumptions which supported the schedule and budget. As a result, the schedule and budget did not reflect the unknowns and risks associated with the project causing schedule delays and cost control problems.

Enhancement:

Ensure the PEP and all other project and documents reports clearly state all assumptions per the Risk and Needs Analysis. Do not assume that the information is known. If it is not written down, contained in a document, it does not exist.

Observation:

The Davis-Bacon determination was completed too early in the planning stage of the project and prior to any building characterization. It was assumed that the building had little to no radiological contamination, and many other contaminants had not been identified at that time. This caused the Project Team to divide the work and led to two separate contracts for decontamination work.

Enhancement:

The Davis-Bacon determination needs to be made after facility characterization, is complete so that work forces used (either "Davis-Bacon covered" or "non-covered") are qualified to handle the scope of work.

4.2.3 Project Controls

Observation:

Costs for work activities and support groups were not tracked in a manner that accurately captured where costs were incurred. The plan to use various suffixes with one charge number to separate and track costs could not be used effectively when a new site accounting system was implemented midway through the project. This has caused identifying costs incurred for specific tasks to be difficult and to be not as accurate as desired.

Enhancement:

Organize the Work Breakdown Structure (WBS) to have separate charge numbers (not just a suffix) for cost collection and tracking of specific tasks. Include this information in the PEP.

Observation:

The project schedule was not maintained at the level needed through project completion. This caused confusion when reporting and tracking the status of performance.

Enhancement:

Develop and maintain a detailed, integrated, resource located project schedule, identifying the critical path. The schedule needs to be updated no less than weekly, and summarized to the WBS level (for integration with accounting).

Observation:

The site does not have an adequate method to track Deactivation and Demolition (D&D) costs. This caused the Project Team to develop their own system that was not consistent with other projects. Historical benchmark information would help develop better cost and schedule estimates.

Enhancement:

Track and categorize cost data to be utilized in estimating future decommissioning and demolition costs. Some of the items that would be significant to capture are listed below:

- The actual work that took place versus the original scope of work contracted.
- The actual costs by the contractor to perform the work (such as: removal of hoods, RCRA closure flushing, removal of process waste lines, etc.).
- Time and costs necessary to prepare each project document.
- Sampling and analytical costs.

Observation:

Procurement activities (payments, change orders, charge card expenses) were not coordinated with the Project Controls personnel which resulted in unexpected vendor charges being incurring each month.

Enhancements:

All procurement activities needs to be coordinated with the Project Controls. Individual Subcontracts need to be tracked monthly and coordinated with Project Controls (to include contract value, payments/accruals, and modifications pending). A schedule of values, be developed by the subcontract and reviewed and approved monthly by the PM, Subcontractors, and the Project Team Controller. PMs need to be updated weekly on project status. Have Planning, Budgets, and Integration review the Request for Payment (RFP) with the PM each month.

Project costs be controlled by one single Point-of-Contact (POC), the PM, who is also the Contract Technical Representative.

4.2.4 Environmental Readiness Evaluation (ERE)

Observation:

After the project planning was complete, it was directed by DOE per a technical letter dated 6/30/97, that the project would be subject to a pilot audit program called an Environmental Readiness Review.

The Environmental Readiness Evaluation (ERE) was not a planned process during initial planning and budgeting. There was no procedure or document which outlined the ERE process, and as a result, there was little consistency in the evaluations during different phases of the project. Review techniques used by various ERE personnel were inconsistent which caused schedule delays. The Project Team delayed the ERE team in their review by not having completed documents.

Enhancements:

The K-H/DOE ERE process must proceduralize the review. An outline checklist, of the ERE review requirements needs to be developed, so that the Project Team can plan, schedule and budget for completing an ERE.

Include the ERE representative during the planning phase of the project, and have that individual assist the project team in completing the packet prior to delivery to the Audit team.

Projects that will be subject to an ERE must be notified prior to preparation of the PEP, to ensure the schedules and budgets have the time for reviews, approvals, and hold points.

4.2.5 Engineering/Integrated Work Control Program (IWCP)

Observation:

The responsibilities of project personnel and Subcontractors were not definitized. As a result, there was some confusion about who was responsible for completing certain tasks such as maintaining the IWCP, directing work at the site, and authorizing various day-to-day changes which caused schedule delays in the field.

Enhancement:

Responsibilities of project personnel and of the Subcontract personnel needs to be clearly defined in the Division 1 Specifications of the RFP.

Observation:

The project encountered several unforeseen site conditions. This was primarily due to a limited characterization report, poor as-built documentation for the facility, and limited access to the facility before writing the Statement of Work (SOW) because the facility tenants were still occupying the building. This caused the project to experience several change orders and work delays.

Enhancement:

Plan, schedule, and invest the time needed in detailed engineering walkdowns as soon as the facility is unoccupied, and during the planning/engineering phase so it is not necessary to rely on the as-built drawings for aboveground structures and systems. Update the project documentation as new information is made available, and continue to perform investigative walkdowns as new areas are made accessible.

Observation:

Several engineering change orders were prepared to provide temporary electrical power for construction trailers that caused delays in completing the mobilization of the Subcontractor.

Enhancement:

Schedule for the temporary electrical and telephone for the Subcontractor to be completed before the Subcontractor mobilizes. Make the Subcontractor completely responsible for all their own temporary power using generators and cell phones, or make arrangements before the subcontract mobilizes with Plant Power and Communications. Identify the number of trailers that will be allowed on the project site and designate the location of placement in the General Conditions of the RFP.

4.2.6 Subcontracts

Observation:

The project did not make provisions for lost time due to weather and other delays at no fault of the Subcontractor which caused the owner to pay for the delays. The budget did not have a contingency fund to pay for this cost.

Enhancement:

Specify a set number of lost time hours caused by the owner, and add this to the performance period in the subcontract. Schedule for weather delays. Specifically detail in the RFP, time lost due to weather is not the responsibility of the owner, but that any expenses or costs due to weather delays are the responsibility of the Subcontractor.

Observation:

The Asbestos Abatement Subcontractor consistently charged for extra consumables on change orders at various rates. There was no incentive for them to shop for low prices on these items in the subcontract which caused a cost impact on the project budget.

Enhancement:

Subcontracts needs to clearly define how consumables are charged for under change orders. Limitations for these costs (a fixed unit rate) be established in the Subcontract. When an unforeseen change occurs, the Subcontractor can turn in a not to exceed estimate for the work based on these costs. A CFC can still be used to expedite the work, but the Subcontractor would be responsible for the bid. Update the General Conditions of the RFP requesting that Subcontractors provide specific unit rate costs for the specified items.

Observation:

There was an issue with the DOE Realty Officer over the cost audits received by the Site for recycle materials. It was not clear what actual economic benefit there was for the recovery of recyclables which caused the project to prepare additional cost estimates after the credit was received.

Enhancement:

Issue written instructions/rules for the pre-bid walkdown to all parties. Specifically identify in the RFP that two bid prices are to be submitted for recyclable materials. One bid where the Subcontractor does not retain the recycled material. The second bid is that the Subcontractor does have the right to recover as much recycle materials that they deem is economically beneficial. The second bid price needs to reflect this credit.

Observation:

Three subcontracts were issued for this project: one for strip-out, asbestos abatement, and demolition. However, a significant amount of work conducted under the subcontracts occurred simultaneously. Coordination between the different parties was difficult and interferences occurred which caused work stoppage and clear definitization of responsibility difficult.

Enhancement:

Issue one subcontract for the entire scope of the project. Develop a Fixed Price, Turn-Key SOW. Dividing a project into phases needs to be carefully considered. Phases may not be distinct enough to avoid complicated sequencing problems (and additional costs) which can occur with multiple Subcontractors.

Observation:

The asbestos abatement subcontract for Building 123 was combined with an abatement project in another facility. This created unnecessary complications in preparation of deliverables, requests for payment, fulfilling training requirements, and adapting to schedule changes since the two facilities had completely different bid documents, scopes, radiological conditions and project constraints. This situation caused the project to experience schedule delays because the Subcontractor did not have the trained resources to support both projects.

Enhancement:

Project subcontractors need to be separate from any other subcontracts or projects to avoid conflict and competition for resources. Each contract needs to be enforced individually and the responsibility to support a project is the Subcontractors.

4.2.7 Project Documents

Observation:

Requirements of the Comprehensive Environmental Response and Liability Act (CERCLA) administrative process were not clearly identified during the planning stage of the project. As a result, CERCLA Administrative Records (AR) were not adequately maintained and controlled in the beginning of the project.

Enhancements:

Determine the CERCLA administrative requirements during preparation of the Decision Document. Assign one team member the responsibility for tracking records prepared for the project and ensuring that the records are maintained and controlled as required. Maintain a log showing the status of documents prepared, which will be forwarded to the AR, and identify who is responsible for each document.

Train the team members in the requirements for controlled documents and AR requirements at the beginning of the project.

Observation:

The PAM, Sampling Analysis Plan (SAP) and RCRA Closure Plan were revised several times. Some revisions were necessary due to changes in the project scope. Several revisions were necessary to incorporate untimely comments on documents which had been finalized. This caused the project to assign the team members additional work to revise the documents and thus limiting their time to support field activities.

Enhancements:

Establish a single POC for departments reviewing documents such as Site Operations, Site Compliance, DOE/RFFO, Environmental Compliance, etc. These POCs will consolidate comments from their organization and be responsible for submitting a single set of comments to the project's document author. If a review by a legal representative is necessary, again, a single POC for Legal (K-H, DOE, and RMRS) also needs to be identified. Multiple reviews by different attorneys ensures multiple, and at times, conflicting direction.

Procedures for controlled documents needs to be managed and documented by all personnel making comments, since comments and their resolution must be tracked and archived.

Include in the schedule, time for reviews and signatures by all parties involved, and receive in writing any all requests, directions, and requirements made for incorporation into project documents. Have the review times agreed to before completing the project schedule.

Observation:

The project had to prepare several project documents that were not originally included in the schedule or budget, such as the Concrete Sampling and Analysis Plan, and the project-specific HASP. This caused field support resources to limit their time on the jobsite to write, revise, and complete the additional documents.

Enhancement:

Provide the Project Team with a listing, checklist, or schedule including all documents required for the successful completion of the project. Obtain the requirements during the initial planning of a project and include in the planning documents.

Observation:

The Decision Document (PAM) for Building 123 originally included IHSS characterization. However this characterization was not adequately planned or funded to meet the characterization requirements for determination of remediation requirements. This resulted in confusion in the project commitments and the requirements detailed in the PAM. The IHSS SAP underwent significant revisions to clarify the actual characterization scope of the D&D project. This caused additional moneys to be costed to correct the confusion and to ensure that the documents were consistent.

Enhancement:

Bound the scope of D&D projects to removal of buildings and ensure that the RFCA documents (the PAM in this case) match this scope. IHSS characterization and remediation needs to be managed by the ER Department to ensure these tasks meet all regulatory and permit requirements. Take the time needed to write, review, and complete project documents that identify and control project work tasks.

Observation:

Almost 20 documents (plans and reports) were prepared for the Building 123 project. Many of these documents discussed similar topics (i.e., building description and history, health and safety, building hazards, the main project scope, etc.). The accuracy of the information began to change when repeated and summarized in slightly different forms several times. This caused the project additional time and money to manage these documents.

Enhancements:

When preparing the project documents, avoid repeating similar information in each document. Keep the documents as brief and concise as possible, and refer to a master project document containing the applicable information.

- Describe the buildings in one document instead of repeating or paraphrasing that summary.
- The WMP could also be just a table in the PAM, not an entirely separate document.
- Described the health and safety only in the HASP, RCRA Closure only in the RCRA Closure Plan, etc.
- Review the applicability of issuing one document that covers different areas of work tasks for a project.

4.3 CHARACTERIZATION - LESSONS LEARNED

Project Characterization must be clearly defined, investigated, concise and complete before the final project budget and schedule are established.

If a project is unable to complete the needed surveys for characterization because of limited access or due to other mitigating circumstances, clearly state the limitations and assumptions in the project planning documents.

4.3.1 General

Observation:

The RLCR was not completed in sufficient detail. There was an unrealistic schedule placed on completing the report. This was compounded by the fact that the facility was still in operation at the time of the survey, limiting access to many areas, and making it difficult to collect destructive samples. This caused the project to encounter numerous unknown site conditions which impacted the schedule and budget.

Enhancement:

Schedule adequate time to ensure proper characterization. This will reduce the number of unexpected surprises that are inherent to building decommissioning. The more complete the characterization, the more accurately the schedule and budget can be prepared. Finish the characterization report after deactivation (facility transfer to D&D) is complete. Allow the sampling team to take intrusive samples of the entire facility, if required.

Observation:

The project did not have a detailed, guidance plan for the characterization activities. This caused the Project Team to write and manage several similar documents, increasing the time and money needed to complete these tasks.

Enhancement:

Identify what sampling operations are subject to sampling analysis requirements and which ones need only identify Data Quality Objectives (DQOs) and which ones follow prescribed processes (e.g., asbestos characterization, radiological). Generate RFCA Standard Operation Protocols or at least detailed guidance covering standard characterization operations regarding D&D operations (asbestos characterization, Be, PCBs, lead paint, lead paint characterization, etc.) to ensure defensible sample results. Include contingency tasks in the plan if unknowns are encountered. A standard format for building characterization, retention and management of records, DQOs, etc. is needed.

ER/Quality Assurance (QA) personnel needs to develop guidance documents on DQOs for characterization on projects and the format of the SAPs during the planning phase.

Observation:

The project did not coordinate with the Analytical Services Division (ASD) regarding the type, quantity, sample analysis, and analysis turn-around time of samples collected for the project. ASD was not prepared to analyze the types of samples being collected for characterization. The on-site labs would not accept concrete core samples of the building slab because they had no way to prepare the sample (grind) for analysis. This caused significant schedule delays to the field work in waiting for lab results.

Enhancement:

Involve the ASD in developing the sampling documents so that the labs are prepared to handle the sample media and analytical requirements of the project. All necessary sampling techniques and required turn-around times needs to be clearly identified in the sampling plan and integrated into the project schedule.

Observation:

The characterization reports did not include all assumptions and did not identify areas which were not accessible at the time of the inspection. This caused the project to spend unplanned for costs and to experience schedule delays.

Enhancement:

Ensure characterization reports, and all other project reports, clearly state all assumptions and what limits there were in conducting sampling activities.

Observation:

The Project Team was not allowed to collect destructive samples during the RLCR survey due to operation of the laboratories in the facility. This caused the RLCR to be incomplete and not reflect accurately what hazards there were within the facility. The incomplete RLCR caused the project to experience numerous schedule delays and cost impacts.

Enhancement:

Plan for and schedule destructive sampling techniques in the facility during the characterization phase of the project. If unable to do so, clearly state the limitations and assumptions in the project planning document.

Observation:

Paint samples were not originally analyzed for PCBs because historical information presented suggested there were none. Recovering the samples for subsequent analysis cost additional time and expense.

Enhancement:

Paint samples need to be analyzed for PCBs as well as lead and heavy metals during the initial characterization phase. Do not assume no hazards exist, spend the money up front to ensure that the information used to plan a project is as accurate and complete as possible. Plan and schedule for the analytical data needed to decommission a facility.

4.3.2 Radiological Characterization

Observations:

The project did not have a working, real-time database for radiological survey data. There was a lag between the time data was collected, when it was reviewed, and determination of a problem areas needing resurveying. This contributed to schedule delays and cost impacts.

Overall preparation and control of the radiological survey field documentation was not controlled or consistent between each technician.

Enhancements:

"Final survey data" needs to be correlated with the survey instrument calibration data concurrently. The data needs to be entered and reviewed on a daily basis to identify problem areas early in the final survey phase. Use one survey form to collect data so that the information is consistent throughout the project.

Assign a single POC in the field who is responsible for the survey plan being followed as written and that data is not lost, and collected at the end of each shift. Have each technician's name on every data sheet so that if there are any questions, the responsible party is identified.

Observations:

The site did not use the latest technology for radiological operations (equipment, engineering, controls, data management, etc.).

The process of physically obtaining surveys and counting swipes is a time intensive operation. The use of one automated swipe counter (Tennelec) was a definite bottle neck in completing of the surveys in a timely manner. Present Site instrumentation is not suited for D&D work. This caused the project to experience schedule delays, cost impact, and the need to perform resurveying of areas previously completed.

Enhancements:

The levels of the radiological surveys need to be established at the onset of the project. The use of more up-to-date radiological monitoring equipment can greatly reduce the time and effort in this area.

Again, have the technicians fill out the data pages, sign, date and time the forms then check after that that the forms are completed correctly and have been turned into the single POC.

The experienced personnel needs to identify the manpower and equipment necessary to complete the work in a manner that supports the project schedule. Spend the time and money needed to write the Final Radiological Survey Plan (FRSP) including for contingencies to allow the technicians to continue working if a changed site condition is encountered. Sufficient manpower and equipment resources needs to be assigned to work tasks to ensure on-time completion of work.

Observations:

The project did not have release criteria established for all potential isotopes at the beginning of the project. Elevated activity on the floors was attributed to Thorium through gamma spec performed by offsite contractors. This was not anticipated nor planned for in the survey plan.

DOE/RFFO approval/concurrence was required for establishing the release criteria. The presence of Thorium resulted in unique beta release limits for the building structure which changed as other areas of unknown contamination were encountered. It took approximately one month for a response from the date of the request.

There was limited capabilities on-site for timely isotopic identification. These situations caused the project to experience schedule delays and incur unplanned for costs.

Enhancements:

The FRSP needs to be approved before finalizing the final budget and schedule. The plan needs to identify the limits, boundaries of release, and suspected isotopes. Also, address and specify plans for handling unknown or unanticipated isotopes. Specifically state that if this condition is encountered, then perform the tasks.

Have the RE plan for and identify how isotopes are going to be managed with a contingency plan detailed into how unknowns are going to be dispositioned.

Observation:

Radiological controls for work conducted by the Subcontractors had not been determined prior to award of the contracts which resulted in several change orders to cover unplanned costs.

Enhancement:

Determine radiological controls that will be required by Radiological Work Permits prior to submitting the RFP and award of subcontracts.

Observation:

There was not any Site D&D specific policies and procedures for radiological characterization, release and documentation. The technical basis for free release criteria was not clearly established, documented and agreed upon by all parties prior to final survey which resulted in weekly changes to the survey plan thus delaying field work and incurring downtime costs.

A procedure was not in place at the project site for isolation and control of areas undergoing final radiation surveys prior to demolition which resulted in a Radiological Deficiency Incident Report (RDR) which impacted the schedule and budget..

Enhancement:

A project-specific procedure for final radiological surveys needs to be developed. The procedure needs to address postings, training, and the controls that are then included in the work plan for the site's decommissioning program.

4.4 FACILITY TRANSITION - LESSONS LEARNED

During the Facility Transition and dispositioning of equipment, project expectations must be clearly established and formally agreed to.

The RFETS policy for the transitioning and dispositioning of a facility and all associated capital equipment needs to be included in the plans for the decommissioning activities.

Observations:

The transition of building ownership was not well planned or documented. Meetings set to walkdown the facility with Operations were canceled three separate times.

Significant amounts of equipment, furniture, chemicals, and laboratory wastes, and sources remained in the building after transition of the facility to the D&D Project Team. The remaining items then became the responsibility of the project to remove and disposition. These tasks were not included in the project scope, schedule or budget. The result was the project team having to perform tasks that the individuals were trained for, expending money and schedule on unplanned for tasks, thus delaying the start of strip-out activities.

Enhancements:

Do not accept a facility until the transition process is complete (i.e., the walkdown conducted, a memorandum of understanding written, agreed to, and signed by both parties).

Closely inspect the building to ensure that all interior property is removed, screened and dispositioned prior to the building turnover and maintain proper documentation of this process.

Assign a single point of contact to manage the relocation of equipment, waste, personnel, chemicals and to ensure documentation is complete.

Observation:

Building systems were not tested for operation prior to building turnover. Additional resources were required for maintenance of the building systems after transition of ownership to support decommissioning activities (i.e., repairs to process waste pumps and solenoid valves needed for the perchloric rinse and RCRA Closure rinsing). Systems being reported as operational were not verified, and as a result, several utility systems needed repairs and replacement before work could begin thus delaying the start of several tasks.

Enhancements:

There are two options that may be utilized to make the transition between operations and decommissioning more efficient:

- 1) Prior to the facility transfer from operations to the D&D Project Team, inspect building systems that may be necessary for deactivation and decontamination of the building. Ensure these systems are operating, and that maintenance is complete before accepting the building. If not, include in the project scope to repair the systems needed to support decommissioning.
- 2) Configuration control, modifications, maintenance, and repairs could be performed by the project. Schedule and budget must be set aside for this option if utilized. The building would not have to meet all existing plant operating procedures (configuration control, modification documentation, quality control of repair materials, etc.). Only maintenance and repairs to systems critical for decommissioning would be necessary.

Completely identify the costs and schedule impacts for systems repairs to incorporate into the project's baseline schedule and budget. Do not assume that the needed systems are operational, always verify prior to accepting.

Observation:

After transition of the building to the D&D project, additional waste, equipment, and materials were discovered in the building that were stated as being removed prior to transition.

Enhancement:

Develop and implement a security plan that limits access and deters "midnight dumping". Obtain all of the building keys or change the building locks during transition to the decommissioning project team.

Observation:

Resources were not originally allocated for a Shift Operating Engineer, Facility Manager and LO/TO Manager which resulted in confusion as to whom was responsible for signatures and for scheduling support work.

Enhancement:

Ensure budget is allocated for these positions during development of the PEP and clearly define responsibilities during facility transition.

Observation:

Time and funding were used to survey, relocate, and store items of little value. Several times more money was spent on salvaging an item than the salvageable amount of the item.

Enhancement:

Items of minor value (i.e., lock cores, fire valves, doors, overhead pipe runs) needs to be discarded or removed during demolition if the value is less than the cost to be retained rather than being processed through the system for storage at the PU&D facility. The value of these items does not justify the labor costs for salvage. Have PU&D make disposition decisions on equipment and property as soon as the schedule allows.

4.5 PROJECT EXECUTION - LESSONS LEARNED

Roles, responsibilities, levels of authority, chain of command, and signatory status needs to be clearly defined and enforced throughout the project execution phased of a project.

Accountability, reporting and overall management of a project is to reside with a single individual. This is the Project Manager of the project.

4.5.1 General

Observations:

There were several people directing work in the field which led to confusion and conflicting direction in some instances. Some team members had numerous people directing their work. For example, the Asbestos Abatement Subcontractor had to answer to both the Strip-Out/Demolition Subcontractor and to the Owner's Representative.

There was also some inconsistency in personnel who were responsible for maintaining the IWCP package, and as a result, it was not always updated as required.

Enhancements:

Designate one person (Owner's Representative) to direct work and approve changes in the field so that they can coordinate the proper reviews of changes and modifications.

Individuals needs to be identified that are authorized to make changes to the IWCP package and only those individuals needs to make the corrections needed.

Observation:

Housekeeping could have been improved. Housekeeping is extremely important when a facility has contaminants such as asbestos or lead. The result of poor housekeeping can become a safety problem and/or lead to other work issues.

Enhancement:

Clearly define who is responsible for site housekeeping with standards and frequencies in all subcontracts.

Observation:

Project personnel were not consistently trained to meet requirements of supporting work for the project which resulted in delays to field work and unplanned for costs. Personnel who were trained, worked extended hours to support field activities leading to undue stress and fatigue.

Enhancements:

Determine the required training for project personnel during the planning phase. Develop a training matrix for all project personnel (Owner's Representatives, Subcontractors, and visitors) depending upon their duties.

Thoroughly review training requirements in the RFP for the Subcontractor prior to issuance of the contract.

Clearly state that it is the Subcontractors responsibility to support the project with trained personnel.

Make the Subcontractor responsible for the cost of training all of their own personnel, and for training as many people as necessary to complete the task. Make sure it is clearly stated in the RFP that the Subcontractor is responsible for the cost of training any new employees and for retraining employees that do not pass training courses.

Observation:

The project experienced delays waiting for a LO/TO Administrator and Verifier which impacted costs.

Enhancement:

The Facility Representative needs to provide the LO/TO Administrator and Verifiers. During active strip-out activities, a full time LO/TO Administrator and verifier needs to be available until the utilities are disconnected.

Observation:

The deactivation of the fire sprinkler system was delayed as a strip-out activity, which required extended freeze protection measures.

Enhancements:

The fire sprinkler system needs to be deactivated as soon as possible to decrease costs for maintenance and freeze protection.

Several lessons learned have been prepared for freeze protection by other projects. These are summarized below:

- Physical and operational changes to facilities and systems resulting from deactivation activities and process changes can cause increased vulnerability to freezes. When deactivation and other configuration changes occur, building specific freeze protection programs, room areas, and systems must be reviewed to ensure that appropriate measures are taken to prevent freezing of equipment and systems due to the changed configuration.
- Out-of-service/out-of-commission liquid containing systems must be thoroughly drained to prevent freezing.
- Personnel directly involved in or overseeing D&D and closure activities such as engineers, engineering managers, D&D supervisors, construction managers, and building operations personnel need to be informed and aware of the role they play in freeze protection.

4.5.2 RCRA Closure

Observation:

The Project Team invested a significant amount of time and effort into developing, and revising a closure plan for a RCRA unit within Building 123. However, the RCRA Closure could have been planned, conducted, and approved under the RFCA Decision Document (the PAM). The project developed two separate documents, which used significantly more resources than were required to prepare the documents, manage the reviews, control the documents, and to have two public comment periods.

Enhancements:

Close any RCRA Units using the RFCA Description Document, rather than preparing a separate RCRA Closure Plan.

Assign a knowledgeable compliance expert to review the project scope and participate in planning tasks necessary to meet regulatory and permitting requirements.

Closure standards for RCRA units and especially for piping and sumps needs to be determined on a case-by-case basis with the CDPHE. For example, Tier 1 standards may be more appropriate than Tier 2 soils and not MCLs for drinking water. In addition, RCRA closures needs to include the language that, "Units that do not meet RCRA Clean Closure Standards will be deferred to ER. ER will conduct an ER Ranking of these areas and determine which, if any, will require soil remediation based upon a risk assessment".

Observations:

The RCRA Closure Plan required that RCRA systems which were decontaminated to meet MCLs for drinking water to achieve clean closure. These levels are unrealistically low for an old process waste system which will be abandoned permanently and never used for drinking water. Some components of the RCRA unit did not meet the MCLs. In one situation, the State was consulted and an agreement was made that the additional contamination required no further action (the MCL for Nickel was exceeded by 11 ppb). In another situation, acceptance had to be obtained from the State to defer closure of the underground piping and one sump to the remediation stage of the project (the MCL exceeded by 41 ppb in the sump, the MCL for Pb was exceeded by 6.7 ppb and the MCL for Chromium was exceeded by 488 ppb.). The time and resources spent working with DOE and the State would have been saved if more realistic, and legally acceptable, standards had been established.

The RCRA Closure Plan for the RCRA Unit 40 allowed for the use of the debris rule to clean close elements of the process waste line. However, after plan was approved, the CDPHE interpreted the debris rule as being inappropriate for those portions of a unit that remain in place. Modifications to the subcontract documents had to be prepared and implemented to comply with the new guidance which caused a significant cost impact and schedule delay.

Enhancements:

Use the rinsate standard as found in the site permit to achieve RCRA clean closure of any portions of a unit that may remain in-place for a period of time, instead of using the debris rule.

- The State originally required that the Building 123 RCRA Closure meet Rocky Flats Cleanup Agreement (RFCA) Tier II standards, which are the Maximum Contaminant Levels (MCLs) for drinking water.
- After decontamination and testing, the MCLs were not achieved for all components of the system.
 - The lead standard was exceeded by 41 pounds per billion (ppb) in one sump and 6.7 ppb in the underground pipe.
 - The chromium standard was exceeded by 488 ppb in underground pipe.

Enhancements:

1. Do not perform a final closure of a process waste system that will never be used again, to drinking water standards.
2. Continue to work with the Colorado Department of Public Health and the Environment (CDPHE) as the agency is working with Rocky Flats Environmental Technology Site (RFETS) to apply more reasonable standards. For example:
 - a) CDPHE allowed one sump in Building 123 to be considered "clean closed" where the drinking level for lead was exceeded by a small amount.
 - b) CDPHE will allow deferral of the other components of RCRA Unit 40 which did not meet the MCLs (one sump and underground pipe) to the environmental restoration phase.
 - c) CDPHE has allowed RFETS to close the Building 207 Clarifier to RFCA Tier 1 standards, which are less stringent than Tier II.

Lessons Learned:

1. Work with CDPHE to determine closure standards on a case-by-case basis. If underground piping or soil contamination associated with a RCRA unit does not meet the closure criteria established, propose deferring closure to Environmental Restoration (ER) and do not attempt to close under RCRA.
 - If underground piping or soil contamination associated with a RCRA unit does not meet the closure criteria established, propose deferring closure to Environmental Restoration (ER) and do not attempt to close under RCRA.

4.5.3 Asbestos Abatement

Observation:

The asbestos containing floor tile in the halls was damaged during the equipment strip-out phase which caused the contractor to work overtime to place a protective barrier over the tiles.

Enhancement:

Install a protective surface (thin metal sheeting, plywood, or plastic) over asbestos containing tile at the beginning of a strip-out phase to prevent damage to asbestos containing tiles.

Observation:

A RCT decided that a HEPA fan was not needed for a small floor tile removal project because of the possibility of radiologically contaminating the unit. However, the HEPA fan was necessary as an engineering control for the asbestos abatement activity. This change contributed to a fiber release which caused the Subcontractor to wipe down the walls in the area of the fiber release.

Enhancements:

Specifically, any change to the Asbestos Abatement Project Plan (Asbestos Abatement Plan), no matter how apparently insignificant, requires a written change and the approval from the Owner's assigned Facility Manager.

A field modification to any plan, procedure, or subcontract requires the review and concurrence of the Subject Matter Expert or responsible person. It is the responsibility of the Owners Representative, and all personnel aware of a proposed change to have the required people review the change and prepare the appropriate documentation (e.g., an ECR, revision to the IWCP, Asbestos Abatement Plan, etc.).

Observation:

The qualified, State Certified, Industrial Hygienist for the Asbestos Abatement Subcontractor could not analyze their own air samples with a mobile lab at the work site, as is routinely done in industry. According to the *Acquisition Procedure for Requesting Commodities and Services, Site Procedure 1-W36-APR-111*, all sample analysis must be conducted by an approved laboratory (approved supplier). As a result, the samples had to be transmitted to the RFETS ASD, and then sent to an approved lab off-site for analysis. A Property Release Evaluation and chain of custody documentation had to be prepared for each set of samples, which would not have been necessary if the samples were analyzed at the work-site. This caused the site to wait longer to receive results of their personnel samples and area air quality samples.

Enhancement:

State and Federal regulations establish qualifications for the analysis of air monitoring samples for asbestos abatement. *Acquisition Procedure for Requesting Commodities and Services*, Site Procedure 1-W36-APR-111, needs to be revised to allow analysis of air monitoring samples for asbestos by personnel and laboratories that meet the state and federal qualifications.

4.5.4 Work Parameters

Observation:

Building 123 was not controlled from the stand-point of excluding those without the same level of training as the workers. This resulted in having individuals onsite without the needed training which is a safety concern.

Enhancement:

Risk Analysis and Needs Analysis needs to be performed prior to lead to project planning, which accurately identifies the level of control necessary.

Observation:

A great deal of effort was invested in containing hazards during the active strip-out work activities and in separating debris so as to minimize the low-level waste, and to free release a greater amount of sanitary waste. Initially, significant time was spent on additional surveys and segregation when it was actually more cost-effective to declare waste as being low-level waste.

Enhancement:

Make decisions during the planning phase and after the characterization is complete, regarding the classification of waste and disposal.

Observation:

During execution of the project, different work forces worked different schedules which made coordinating work tasks difficult. There was too many instances of lost-time due to conflicting schedules between onsite personnel and the subcontractors.

Enhancement:

Establish the same working hours for all personnel (the owner's Project Team, RCTs, Subcontractors) during the execution stage of a project. State in the RFP what the work hours are and make it a contract requirement. Consider negotiating with union authorities to establish project-specific working hours. Also, consider negotiating changes in break, lunch, and end of shift to increase productivity (e.g., moving morning break time to the lunch break, and move the afternoon break to the end of the shift).

Observations:

The lack of D&D programmatic documents has resulted in an inconsistent approach to the way that projects or plans are developed and implemented. This may be improved with a D&D policies handbook, but if the handbook does not receive the correct input from affected organizations it will become problematic.

Enhancement:

Programs and procedures are being developed for D&D projects by K-H and RMRS, and will address characterization as this is the key task in planning, scheduling, and cost estimating. The Project Team must develop a consistent approach to implementing all activities.

Observation:

The waste streams were not adequately identified before the start of the project. Other wastes were encountered that were not planned for and there was not a contingency plan to handle this situation which resulted in changes to the WMP, and additional costs in training the subcontractor personnel to handle the waste.

Enhancement:

Write and distribute for review a Waste Management Contingency Section into the Project Waste Management Plan that addresses what actions are to be taken if unknown and/or unanticipated wastes are encountered.

5.0 REFERENCES

Asbestos Characterization Report, Addendum to Building 123 Inspection, Revision 1, June 6, 1997.

Building 123 Decommissioning Project Execution Plan (PEP), Revision 4, September 11, 1997.

Building 123 Decommissioning Project Health and Safety Plan, Revision 1, February 1998.

Certification of Partial Closure, RCRA Unit 40, Building 123, May 1998.

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Concrete Sampling and Analysis Plan to Characterize the Building 123 Slab, Revision 0, December 1997.

Lead Characterization Report, Revision 0, May 1997

Proposed Action Memorandum for the Decommissioning of Building 123 (PAM), Revision 6, March 26, 1998.

Reconnaissance Level Characterization Plan for Building 123, Revision 0, September 1997.

Reconnaissance Level Characterization Report, Revision 0, October 1997.

Soil Sampling and Analysis Plan to Characterize Individual Hazardous Substance Sites (IHSS) 121 and 148 at Building 123, Revision 1, May 1998.

Waste Management Plan for Building 123, Revision 1, March 1998.

APPENDIX A
**INDEPENDENT ASSESSMENT OF THE PERCHLORIC FLUSHING
PROCEDURE**

APPENDIX B

RADIOLOGICAL OPERATIONS AND RADIOLOGICAL ENGINEERING SUMMARY OF PROBLEMS AND SYMPTOMS

APPENDIX "B"**LESSONS LEARNED BUILDING 123
MAY 20, 1998****Introduction:**

RMRS took over the responsibility for Rad Operations and Rad Engineering from SSOC on March 27, 1998. With this change in responsibilities RMRS also assumed responsibility for the D&D of building 123. This project was originally scheduled for completion in February of 1998, but due to a number of identified problems was not completed until late May.

This project has been important as one of the first major building closures at RFETS under Kaiser-Hill's leadership and the lessons learned from this project will be very helpful in the successful efforts of future building closures. On May 20, 1998, The Program Compliance organization of RMRS held a "lessons learned" meeting to learn from the 123 project. Another meeting was later held with the RCTs involved in the project and that input has been added to this report.

This information will be shared with others resulting in the eventual development of a set of action plans targeted at the improvement of building closure projects. Learning's from Building 123 will be immediately applied to the work on Buildings 886, 779 and T-1.

MEETING PARTICIPANTS:

Terry Overlid
Kevin Daniels
Rick Roberts
Bruce Watson
Vern Guthry
Jeff Barroso
Mark Mattheis
Dean Stewart
Rock Neveau
Gerry Anderson
Chip Sawyer
Michalene Rodriquez
John Miller

What Went Well:

- Building is down
- Remediation identified and completed quickly
- No substantial injuries (1 OSHA)
- DOE assessment – no technical issues – free release
- DOE orders clarified for radiological release
- Move of Rad organization to RMRS
- Rad organization can succeed
- Teamwork grew stronger with project
- Jeff, John and Michalene deserve lots of credit
- New technology – used and implemented quickly
- Alignment of players helped speed up new technology
- Data recovery
- Personal commitment was strong
- Controls stayed in place – in spite of schedule slips
- Excellent support from K-H
- Implemented "MARSSIM" (very significant!!)
- Raised standards of performance
- Increased level of expected quality

What Went Well (continued)

- Good detective work
- Final survey plan was technically defensible; laid groundwork for new procedures
- NW report was a good document
- Applied painful lessons learned from East wing report
- Stayed away from blame
- Identified areas for improvement
- 123 can become a reasonably good success story
- Group really worked hard to keep it moving

Corrective Action Implemented During the Project

- Improved field supervision of RCTs
- Recognition of resources required
- Changed importance of resource assignment
- DMR'd (procedure revisions)
- New forms – procedures
- Training of RCTs
- 5 o'clock meeting provided some corrective action
- Rad operators change to RMRS (Bruce arrives)
- Put full time foreman on project (Chip)
- Changed the format for RCT data
- Formed a project team within RMRS
April 6 → May 20, 1998
- Team had a focus
- Organized around the importance of closure
- Good idea of what was acceptable
- Minimized road blocks
- Changed business-as-usual mentality
- Scope event – taking building walks from a class 3 to a class 1
- SSOC provided independent review
- Increased internal review
- New instrumentation used

Problems and Symptoms Identified (Group 1)

1. Inconsistent survey performance & documentation
2. MARSSIM Implementation – midpoint – too late
3. Changing expectations & directions from customer
4. Produced low quality Rad data
5. Poor document control process
 - no central control collection coordination
 - control was at wrong level (RCTs)
6. Characterization Surveys. NOT performed at right time and in process surveys
7. Release Surveys standards are different now then when B123 went from lab to office space
8. Survey implementation plan was not followed
9. Multiple RMRS Project Manager and K-H "HELP"
10. Background Survey Study was not well-characterized and well-defined
11. Building assumed to be a non-Rad risk – by the Project & Rad Engineering –
12. No dedicated RCTs, foremen and Rad Engineer Support Team
13. Manual entry of survey data – under-utilizing computer capabilities
14. Forms and Format developed as project progressed
15. No procedural basis for assessing bulk media samples
16. Building not in 1 physical state for final surveys (Floor Tiles removed)
17. Gave out raw data to K-H and DOE without good prior review

Problems Group 1 (continued)

18. Issued Preliminary Reports prior to proper internal reviews. Need more structured customer relationship on deliverables
19. Use of Shonka Instrument had limited value due to physical limitations and crossover areas to manual surveys
20. Lack of Analytical Lab support – radio-chemistry and gamma spec. (in situ)
21. Project Schedule was improperly resource loaded
22. PODs took away from work from getting done
23. Lack of airborne baseline survey
24. Pre-training of all workers (asbestos, fall protection, lead, etc.)
25. Know who your "buddy" is!
26. Programmatic weaknesses in Site Rad Con program

Problem Summary (Group 1)

- No D&D procedure and technical basis established
- Inadequate overall Document Control – surveys to final report
- Technology Utilization – surveys, instrumentation, onsite computers and state-of-the-art Rad instruments
- Project management issues
 - No strategic Plan
 - No project Plan
 - Poor project Implementation/POPs
 - Poor project Documentation (report)
 - Delayed project Closure
 - Dedicated Team established too late
- Analytical lab support

Problems and Symptoms Identified (Group 2)

1. Inconsistent supervision
2. Assumption that Bldg. 123 would be easy
3. No established protocol or program for the final Rad survey
4. Sequence of events not well defined
5. Poor characterization
6. Parallel actions with surveys and release
7. Multiple surveys due to lack of planning
8. Relocation of building occupants was too slow
9. Funding allocation was not timely
10. Early review of survey work was not done
11. Correction was done in too large of pieces
12. Did not understand the magnitude of the project
13. Lack of capability to perform gamma-spec and isotopic detection on site and in a timely manner
14. Lack of direction for the RCTs
15. Poor method of collecting RCT data and inadequate survey equipment
16. Poor data flow path
17. No established method for phasing the project
18. Too many single points of contact
19. No project team
20. Poor maintenance of the scope of work
21. P.O.D. timing delayed the morning work schedule
22. Inadequate training for the RCTs
23. Site standards need to be updated

Problems Group 2 (continued)

24. No dedicated crew of RCTs
25. RCTs not involved in the planning
26. Inadequate workforce
27. Inadequate preparation for remediation
28. Inadequate equipment
29. Limited project management skills in D&D work
30. Inability to meet the schedule
31. Inability to resolve comments
32. Customer had different priorities
33. QC involvement was lacking

Problem Summary (Group 2)

1. Inadequate D&D skill and experience
2. No established protocol or program for D&D work
3. Limited resource availability
4. Limited Project Management expertise
5. Limited understanding of customer expectations
6. Inadequate equipment and instrumentation available on site

Problems and Symptoms Identified by the RCTs

1. **Lack of communication (written and verbal)**
 - What is the completion date?
 - What is the critical path item?
 - No plan of action – just assignments
 - Final survey plan was unknown to most
 - Rules kept changing
 - Rules for the project were established by Rad Engineering
 - Project was viewed as “not important” and “no big deal”
 - Sporadic crew. RCTs were switched out often with no concern for consistency
 - Management needs to have more involvement with the crew leaders
2. **Lack of Supervision**
 - Crew leaders had to function as foremen
 - RCTs experienced anger, frustration and apathy due to lack of support
 - Management came by asking “why” instead of explaining the path forward
3. **Lack of Organization**
 - Surveys lost
 - More work was assigned per day than could be done
 - Too many construction workers would “hang out” in 113
 - Too many managers would “walk in” to 113
4. **Insufficient Resources: Computers, Calculators and Instruments**
 - Bldg. 113 was not adequate to accommodate the resources needed for the tasks assigned
 - Front end planning was not realistic
 - Too much management in Bldg. 113
5. **Lack of D&D Experience with unrealistic project expectations**
6. **Management did not use the historical knowledge of the RCTs to assess the radiological issues that would be faced with building 123.**

Consensus Summary of Problems Identified from Building 123

1. No RMRS D&D programs and procedures for radiological characterization, release and documentation. Technical basis for release criteria not established and agreed upon by all parties prior to final surveys. This resulted in frequent changes in expectations and project direction.
2. Limited RMRS radiological D&D technical knowledge and experience. Training at all levels was not sufficient to support the timely completion of the project.
3. Limited capabilities on Site for timely isotopic identification.
4. A Radcon project team was not assembled at the front end of the project. Rad/Ops (RCTs) and Rad/Engineering needed to be included in the overall planning process.
5. Weak overall preparation and control of documentation.
6. Insufficient project integration led to poor communication, inconsistent direction and delayed implementation.

Other Good Ideas from the discussion

- Representatives from the 123 lessons learned team should meet with key individuals from 779, 886 and T-1 to share corrective actions that can be applied immediately.
- All action plans should include corrective actions that can be implemented within the next 2-3 months.
- All major project plans involving completion criteria should be reviewed with Clegg, Hank and Fred prior to the initiation of work. If appropriate, the customer should be present for these project reviews with senior management.

Action Plans

The first phase of the Lessons Learned Action Plan is included below. **The preliminary work has been assigned and is due back for review by June 30, 1998.** Completed action plans will include the following:

- A Problem statement with an identified measurable outcome.
- 3-5 scenarios for possible corrective action.
- Recommended corrective action to be taken with an explanation for the selection.
- Action steps to be taken.
- Defined milestones and a completion schedule.
- Resource requirements needed.
- Benefits to be gained by RMRS from plan implementation.

Problem statement	Champion	Comments	Due
<p>1. No RMRS D&D programs for rad characterization, release and documentation. Technical basis for release criteria not established and agreed upon by all parties prior to final survey. This resulted in frequent changes in expectations and management direction.</p>	<p>Jeff Barosso</p>	<p>Possible future actions:</p> <ul style="list-style-type: none"> • SSOC and RMRS develop separate plans • Pass problem to K-H • Repeat mistakes of 123 • Develop site procedures as a team effort <p>Recommendation: Assemble a joint team to develop a plan for the preparation and use of D&D procedures.</p> <ul style="list-style-type: none"> • Procedures to be approved by K-H and forwarded to DOE for endorsement. • Procedures should be reviewed by the state. • Each site project would have a specific survey plan approved by K-H and reviewed by the state. • Survey work would be reviewed in phases to identify needed mid-course corrections 	<p>6-30</p>
<p>2. Limited RMRS radiological D&D technical knowledge and experience. Training at all levels was not sufficient to support successful project completion.</p>	<p>T. Overlid</p>	<p>Supporting Information:</p> <ul style="list-style-type: none"> • Survey methodology should be 100% instead of representative • MDS (isotopic) • MARSSIM • Lead radiological personnel had limited previous D&D experience • Final survey package scheduled to take 3-5 days. It took 3-5 weeks • Project had significantly greater magnitude than expected <p>Possible Corrective Action:</p> <ul style="list-style-type: none"> • Implement MARSSIM training • Include methodology and MDS's in D&D program and procedures • Establish core D&D Rad team (SMEs) 	<p>6-30</p>
<p>3. limited capabilities on site for timely isotopic identification.</p>	<p>B. Watson</p>	<p>Supporting Information:</p> <ul style="list-style-type: none"> • Gamma-spec program • 4 week turn around for isotopic results • failure rate of Electra • LLW all of the interior walls and cabinets due to time on paint samples <p>Possible Corrective Action:</p> <ul style="list-style-type: none"> • Identify and review available new technology • Evaluate the need for qualitative isotopic I.D. capabilities • Evaluate gamma-spec/wet-chem on site • Develop wish list for RSDIC approval • Instrumentation/D&D facilities 	<p>6-30</p>

Problem statement	Champion	Comments	Due
<p>4. A Radcon project team was not formed at the front end of the project. Rad Ops.(RCTs) and Rad Engr. Personnel need to be included in the overall planning process.</p>	<p>T. Overlid</p>	<p>Supporting Information:</p> <ul style="list-style-type: none"> • Unable to characterize the building properly. Changed from class 3 to class 1 • Resource loading was inadequate. 4 vs 12 RCTs • Lack of scheduling. Survey work took 3-5 weeks instead of 3-5 days. Shonka needed to be brought in earlier. • Removal of equipment and preparation of the building were too slow • Survey plan package needed to be developed and approved ahead of time <p>Possible Corrective Action:</p> <ul style="list-style-type: none"> • Implement a D&D core team to plan, coordinate and implement new D&D projects. 	<p>6-30</p>
<p>5. Weak overall preparation and control of documentation</p>	<p>M. Mattheis J. Smith</p>	<p>Supporting Information:</p> <ul style="list-style-type: none"> • Lost paper work throughout the project • Multiple revisions • Did not follow site procedures • Incomplete documentation • Poor quality documents • Lack of clarity around documentation expectations. <p>Possible Corrective Actions:</p> <ul style="list-style-type: none"> • Standardize maps and forms • Develop a standardized document control process • Develop an archival and retrieval process. 	<p>6-30</p>
<p>6. Insufficient project integration led to poor communication, inconsistent direction and delayed implementation.</p>	<p>F. Hughes</p>	<p>Supporting information:</p> <ul style="list-style-type: none"> • No clear project management assignment • Frequent changes in leadership at all project levels • Changes in project completion criteria and schedule • Communication of an integrated project team approach <p>Possible corrective actions:</p> <ul style="list-style-type: none"> • D&D project handbook • IWCP procedure • Establish an executive oversight to review project plans prior to project initiation. • Increased emphasis on project management skills needed to manage D&D projects 	

DRAFT - APPENDIX "C"

B123 D&D PROJECT LESSONS LEARNED ACTION PLAN

B123 LESSONS LEARNED		Feasible/Desired Y/N	Existing Process Y/N	Priority ¹	Comments	Possible Actions Needed	Resources	Actionee	ECD
4.1 SAFETY									
1	Minimize Extended Work Hours	Y	Y	A	<ul style="list-style-type: none"> Adequate Planning should minimize OT I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Ensure Projects Plan & Schedule address the Review ASP Team Selection & Qualifications for Roles & Responsibilities discussion Include discussion in CPI Manual 	PM Action per Project ASP Project Lead	PM	
2	Continual emphasis on Safety	Y	Y	A	<ul style="list-style-type: none"> I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Ensure Project Plan & Schedule address POD & Safety Meetings Include discussion in CPI Manual 	CPI Manual Project Lead	Ned Hutchins	
3	Entry into Project area by inadequately protected personnel	Y	Y	A	<ul style="list-style-type: none"> I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Consider other means of entry barrier, i.e., locked gates. Include discussion in CPI Manual Evaluate need for Security Plan Template 	PM Action per Project	Ned Hutchins	
4.2 PLANNING									
4	Conduct Planning Risk Analysis	Y		A 2	<ul style="list-style-type: none"> Risk Analysis was not adequate Discussion on Risk Analysis covered in CPI Manual I agree with LL Report Recommendations. 	<ul style="list-style-type: none"> Ensure Project Plan & Schedule address this. Evaluate Need for Template/Example Review D&D Checklist for Element 	PM Action per Project	PM	
5	Conduct Risk Analysis/Contingency Analysis	Y		A 2	<ul style="list-style-type: none"> Risk Analysis/Contingency Analysis to deal with Project uncertainties was inadequate. Discussion on Risk Analysis covered in CPI Manual I agree with LL Report Recommendations. 	<ul style="list-style-type: none"> Ensure Project Plan & Schedule address this. Evaluate Need for Template/Example Review D&D Checklist for Element 	PM Action per Project	PM	
6	Minimize/Eliminate Project Team Turnover	Y	Y	A	<ul style="list-style-type: none"> Turnover affects many projects. Consider Using a Priority Code on projects to distinguish more critical projects than others. I agree with LL Report Recommendations - however, some projects are more critical than others. Fighting for resources will always be a problem. 	<ul style="list-style-type: none"> Ensure Negotiations and MOAs are established with Functional Organizations regarding assignments, Roles & Responsibilities. Communicate the Project structure to all Project Team, including SMEs. Review ASP Team Selection & Qualifications for Roles & Responsibilities discussion Include discussion in CPI Manual 	PM Action per Project	PM	
							ASP Project Lead	TJ Wirth	
							CPI Manual Project Lead	Ned Hutchins	

**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED

	Feasible/ Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actionee	ECD
7	Part/Y	Y	A 1	<ul style="list-style-type: none"> Lack of Characterization lead to multiple scope changes. The LL Report suggests linear phasing of the Project's key activities which is not always feasible. Assumptions, barriers, Risk/Contingency Analysis is key to managing uncertainty. Discovery issues cannot be preplanned. If adequate characterization is done, then discovery issues are minimized. PM should use historical documentation as well as interviews with prior workers from the building. This may include calling individuals if they have left the site. 	<ul style="list-style-type: none"> Ensure Project Plan and schedule adequately address this Develop Characterization Process Review ASP for characterization guidance & discovery issues. Evaluate the feasibility of a Phased-Approach in the PEP See Case for Action 1, 2 & 3 for Characterization Also see Item 16 below 	PM Action per Project Characterization Project Lead ASP Project Lead	PM Tom Scott TJ Wirth	
8	Y	Y	A	<ul style="list-style-type: none"> See 7 above. Guidance Provided in the CPI Manual 	See 7 above.	PM Action per Project	PM	
9	Part/Part	Y	3	<ul style="list-style-type: none"> Early determination of DB is necessary for initial budgeting purposes. Most budgets are established before authorization to begin planning is given (need estimates for subcontracted or in house work). However, this is an INFORMAL determination. Consider Phased Budgeting - that is prepared budget & schedule for characterization, and estimate for planning and execution, but caveat the planning & execution with the outcome of the characterization. This can be worked with DOE up-front so that if a BCP is needed, its already anticipated and partially pre-approved 	<ul style="list-style-type: none"> Ensure the PEP identifies assumptions on the ability to make DB determinations only when adequate characterization is at a certain stage. Provide discussion of a Phased-Approach in the PEP 	PM Action per Project	PM	
10	Y	Y	A	<ul style="list-style-type: none"> Project Controls has always been an issue. PM Consider having a full time assigned PC on the Project team to maintain budget tracking and schedule updates. 	<ul style="list-style-type: none"> Ensure project control mechanisms are in place for the project Review/modify existing Project Controls template for inclusion into the CPI Manual. 	PM Action per Project	PM	
11	Y	Y	A	<ul style="list-style-type: none"> See Item 10 above, 15 below 	<ul style="list-style-type: none"> See Item 10 above, 15 below 	CPI Manual Project Lead	Ned Hutchins	
						PM Action per Project	PM	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED

	Feasible/ Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actonee	ECD
12	Y	Part	A 3	<ul style="list-style-type: none"> Cost Tracking is part of the PC responsibilities. What needs to happen is a sharing of information for other D&D projects. Need to Consider tie-in to the WebSite See Item 10, 12 above, 15 below 	<ul style="list-style-type: none"> See Item 10 above, 15 below See Case for Action 3 	PM Action per Project Site Issue	PM	
13				<ul style="list-style-type: none"> Coordinate Procurement Activities with Project Controls 	<ul style="list-style-type: none"> See Item 10, 12 above, 15 below 		PM	
14	Y		A	<ul style="list-style-type: none"> ERE process is part of ensuring the activity is ready for execution. 	<ul style="list-style-type: none"> Ensure ERE is included in Project Plan and Schedule Verify ERE process completion Verify ERE Checklist in Place 	PM Action per Project	PM	
15	Y	Y	A 1	<ul style="list-style-type: none"> Delineation of Roles and Responsibilities of Subcontractors should be spelled out in the Division 1 Specifications. I agree with LL Report Recommendations Also See Item 6 above 	<ul style="list-style-type: none"> Ensure R&R are delineated and communicated to the Project Team Review Contract/RFP Template for possible wording changes. Review CSI Process for wording Review ASP for wording Place discussion in CPI Manual 	PM Action per Project	PM	
16	Part/Y	Y	1	<ul style="list-style-type: none"> Reliance on As-Built drawings were not reliant characterization data. The project needs to verify but cannot do so until the building is unoccupied. Consider performing characterization during off hours where equipment or furniture can be moved or opened. 	<ul style="list-style-type: none"> Ensure Project Plan and schedule adequately deal with characterization Ensure technical issues are discussed in the assumptions section, e.g. cannot do destructive testing in areas where labs samples are being analyzed Evaluate the feasibility of conducting off-shift characterization where intrusive or destructive testing may be necessary. Develop Characterization Process See Case for Action 1, 2, 3 and Item 4 above 	<ul style="list-style-type: none"> CSI Project Lead ASP Project Lead CPI Manual Project Lead PM Action per Project 	<ul style="list-style-type: none"> H. Saunders TJ Wirth Ned Hutchins PM 	
17	Y	Y	3	<ul style="list-style-type: none"> RFP/Contract template from Procurement stipulates temporary power requirements based on PM input. PM needs to ensure hookups are identified in Plan and Schedule 	<ul style="list-style-type: none"> Verify RFP/Contract Template wording under Terms & conditions. 	<ul style="list-style-type: none"> Characterization Process Lead PM Action per Project 	<ul style="list-style-type: none"> Tom Scott PM Procurement 	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED		Feasible/ Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actionee	ECD
18	Establish Weather Delays Criteria	Y	Y	3	<ul style="list-style-type: none"> Specify # of hours Owner will pay due to loss time issues Specify in contract Sub is responsible for schedule regardless of weather delays I agree with LL Report Recommendation 	<ul style="list-style-type: none"> Evaluate Contract language in General Conditions. 	PM Action per Project	PM Procurement	
19	Establish Fixed Rate for Consumable Charges	Y	Y			<ul style="list-style-type: none"> Look at possible performance incentive language in the contract for the Subcontractor to keep costs low Specify a fixed unit rate for consumable costs in the contract 	PM Action per Project Site Issue	PM Procurement	
20	Establish process for 2 bid, one with recovery of Recyclables, one without	Y/Part	Y			<ul style="list-style-type: none"> Look at Contract template for standardizing requirement for two bids 	Site Issue	Procurement	
21	Consolidate/Minimize use of multiple Subcontracts for Multiple Scopes of Work	Y	Y	A	<ul style="list-style-type: none"> The LL Report Recommendations looks feasible Monitoring and Tracking multiple scopes of work within several contracts for one project is difficult and leads to scope changes and mis-communication among additional costs, etc.. It is the PMs call on how to do the project, however, serious consideration to the LL Report Recommendations should be taken 	<ul style="list-style-type: none"> Consider one subcontract for entire scope of work using Phases to distinguish separate scopes of work. Have the Subcontractor purchase needed services for individual pieces Discuss issue with WAD Manager Include discussion on Procurement strategies in CPI Manual 	PM Action per Project	PM	
22	Use of separate contracts for same scopes of work across the site.	Y	Y		<ul style="list-style-type: none"> Subcontractors having same scope of work in one or more contracts at several locations across the site could pose problems associated with resource allocation, cost tracking, etc. 	<ul style="list-style-type: none"> Ensure enforcement of contract in regards to resources allocation Discuss enforcement strategies with Procurement Include discussion on Procurement strategies in CPI Manual 	CPI Manual Project Lead	Ned Hutchins	
23	Identify CERCLA requirements during planning phase.	Y	Y	A	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. Individual can perform periodic checks throughout the duration of the project to ensure team is following requirements 	<ul style="list-style-type: none"> PM should enlist the support of individuals knowledgeable in CERCLA when planning and scheduling work to ensure adherence to requirements. Develop Characterization Process Review ASP for guidance Include discussion on Procurement strategies in CPI Manual Develop Closure Path process/procedure 	PM Action per Project Site Issue CPI Manual Project Lead	PM Procurement	
							PM Action per Project	PM	
							Characterization Project Lead ASP Project Lead CPI Manual Project Lead	Tom Scott TJ Wirth Ned Hutchins	
							Develop Closure Path process/procedure	Ted Hopkins	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED		Comments	Possible Actions Needed	Resources	Actionee	ECD
Feasible/Desired Y/N	Existing Process Y/N	Priority				
24	Y	A	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs (POCs) in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. Per SDRM, POC are identified for KH and each primary contractor. Consider use of these individuals for review/comment Adequate characterization and review of characterization data by the Project Team and SMEs should have concluded the need for the Concrete Sampling and Analysis Plan and HASP ASP provides a list of required planning elements CPI Manual provided possible Project support documents PM responsible for ensuring all requirements are in place PM responsible for ensuring all requirements are in place Project Team should participate in development and overall review of project documentation Repetitive information in multiple project documentation is time consuming to generate, and leads to possible mistakes and inconsistencies, and multiple / unnecessary revisions when core information changes. Consideration of Integration or linking (pointing to) similar information in one master document should be made 	<ul style="list-style-type: none"> PM Action per Project 	PM	
25	Y	1		<ul style="list-style-type: none"> PM should enlist the support of individuals knowledgeable in these areas when planning and scheduling work to ensure adherence to requirements. Develop Characterization Process Review CPI Manual list of elements Look at inclusion into Project Templates Review/Integrate with ASP See Case for Action 1, 2 and 3 	PM	
26	Y	A 2/3		<ul style="list-style-type: none"> Characterization Project Lead CPI Manual Project Lead ASP Project Lead 	Tom Scott Ned Hutchins TJ Wirth	
27	Y	A 3		<ul style="list-style-type: none"> PM Action per Project 		
4.3 CHARACTERIZATION						

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED		Comments	Possible Actions Needed	Resources	Actionee	ECD
28	Schedule adequate time for characterization (destructive) and generate RCLR only after deactivation	<ul style="list-style-type: none"> See Case for Action 1 (1) (2) and Item 4.2 (7) (16) above. 	<ul style="list-style-type: none"> Ensure Plan and schedule addresses this. Look at D&D Schedule Templates 	PM Action per Project	PM Pat Ervin	
29	Develop guidance plan on DQOs for characterization activities and standard format for SAPs	<ul style="list-style-type: none"> A standard format for building characterization, retention, and management of records, DQOs, etc is needed. Need to coordinate with ER See Case for Action 1 (1) and Items 4.2 (7)(16) above 	<ul style="list-style-type: none"> Develop Characterization Process Look at possible Template Coordinate with ER on requirements Provide list of requirements in CPI Manual 	Characterization Project Lead CPI Manual Project Lead	Tom Scott Ned Hutchins	
30	Coordinate types of sampling needed for the project with the Analytical Projects Office	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. 	<ul style="list-style-type: none"> PM should enlist the support of individuals knowledgeable in sampling when planning and scheduling work to ensure support from necessary organizations or need for alternatives. Develop Characterization Process 	PM Action per Project	PM	
31	Clearly state assumptions and limits in Characterization Sampling Plans	<ul style="list-style-type: none"> See Case for Action 1 (1) (2) and Item 4.2 (7) (16) above. 	<ul style="list-style-type: none"> Ensure Plan and schedule covers this. Develop Characterization Process 	Characterization Project Lead	Tom Scott	
32	Obtain destructive characterization data	<ul style="list-style-type: none"> See Case for Action 1 (1) (2) and Item 4.2 (7) (16) above. 	<ul style="list-style-type: none"> Ensure Plan and schedule covers this. Develop Characterization Process 	PM Action per Project Characterization Project Lead	PM Tom Scott	
33	Identify all necessary analysis on samples prior to shipping for analysis	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. 	<ul style="list-style-type: none"> Ensure enlistment of support from SMEs knowledgeable in sampling when planning & scheduling Develop Characterization Process 	PM Action per Project Characterization Project Lead	PM Tom Scott	
34	Implement more timely rad survey assessments	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. 	<ul style="list-style-type: none"> PM should enlist the support of individuals knowledgeable in sampling and planning and scheduling work to ensure support from necessary organizations It's within the PM purview to establish a POC for this purpose. This would be included in the Projects Organization Chart and Individual Roles & Responsibilities Ensure Plan and Schedule address this. Develop or Review existing Rad Survey Plan Template/Guidance 	Characterization Project Lead PM Action per Project	Tom Scott PM	
				Radiological Safety	Wil Zurlicene	

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B123 D&D PROJECT

LESSONS LEARNED ACTION PLAN

B123 LESSONS LEARNED		Feasible/Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actionee	ECD
35	Identify required Rad personnel and equipment resources	Y	Y	A	<ul style="list-style-type: none"> See 4.3 (34) above 	<ul style="list-style-type: none"> See 4.3 (34) above 	See 4.3 (34) above	Wil Zurliene	
36	Establish Release Criteria	Y	Y	2	<ul style="list-style-type: none"> See Item 4.2 (7), 4.3 (34) above 	<ul style="list-style-type: none"> Consider the feasibility of a standardized Radiological Final Survey Plan Template which contains the release criteria for all possible isotopes at the site. 	Radiological Safety	Wil Zurliene	
37	Identify Rad controls and include in Contract	Y	Y	A	<ul style="list-style-type: none"> Scoping Issue Minimum set can be established 	<ul style="list-style-type: none"> Ensure SOW includes criteria Evaluate feasibility with Rad Protection 	PM Action per Project	PM	
38	Establish Free Release Criteria	Y	Y	A 2	<ul style="list-style-type: none"> I'm not sure how this is different than any other free release activity. Why does a separate procedure need to be written for the project. There should be a specific survey Plan for how the final surveys are to be handled See 4.2 (7), 4.3 (34,36) above 	<ul style="list-style-type: none"> Review CPI Manual for listing of a survey plan 	Radiological Protection CPI Manual Project Lead	Wil Zurliene Ned Hutchins	
4.4 FACILITY TRANSITION									
39	Establish Transition Turnover standard	Y	Y		<ul style="list-style-type: none"> Agreements and a standard should be instituted for facility turnover I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Establish protocols /procedure (or Memorandum of Agreement- MOA) and have current and future Facility Owner agree 	PU&D	Rick Perry	
40	Establish functionality of facility systems needed for D&D	Y	Y		<ul style="list-style-type: none"> I agree with LL Report Recommendations Systems removed or deactivated that are needed for D&D cost time and money to re-activate or re-install. 	<ul style="list-style-type: none"> Coordination with Current & Future Facility Owner should be made prior to Deactivation efforts to ensure systems needed for D&D are not shut down or torn out Establish protocols /procedure (or Memorandum of Agreement- MOA) and have current and future Facility Owner agree Assess needed systems for D&D and budget and plan for repairs as necessary for D&D work Develop Characterization Process 	PM Action per Project PU&D PM Action per Project	PM Rick Perry PM	
41	Ensure security at project site	Y	Y	A	<ul style="list-style-type: none"> If the area is unable to be secured, "dumping" may occur. 	<ul style="list-style-type: none"> Ensure appointment of an individual to ensure security of the area. Evaluate possible template/example for Security Plan 	Characterization Project Lead PM Action per Project CPI Manual Project Lead	Tom Scott PM Ned Hutchins	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

Comments

42	Identification of Project Resources	Feasible/Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources		Actionee
							PM Action per Project	Characterization Project Lead ASP Project Lead	
43	Determine value of equipment vs time and cost of salvage.	Y	Y	A	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. A guide should be established that identifies type of equipment that cost of salvage is too high or salvage return is high. 	<ul style="list-style-type: none"> PM should enlist the support of knowledgeable individuals in these areas. Ensure Plan and Schedule address this. Develop Characterization Process Review/Modify ASP, Team Section Coordinate with PU&D to establish clear criteria for standard types of equipment that may be found in any building Establish protocols /procedure for minimum standards of salvage 	PM Action per Project	Characterization Project Lead ASP Project Lead	PM Tom Scott TJ Wirth Rick Perry
4.5 PROJECT EXECUTION									
44	Establish one individual in the field that all direction for work and approval for changes are routed through	Y	Y	A	<ul style="list-style-type: none"> This is always within the purview of the PM to establish Roles and responsibilities See 4.2 (6), 4.4 (42) 	<ul style="list-style-type: none"> Ensure Contract establishes R&R Review/Modify ASP, Team Section Review CTR procedure/training 	PM Action per Project ASP Project Lead Training	PM Action per Project ASP Project Lead	PM TJ Wirth
45	Establish responsible person for housekeeping	Y	Y	A	<ul style="list-style-type: none"> I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Review/Modify ASP, Team Section See Item 4.2 (6), 4.4 (42), 4.5 (44) above 	PM Action per Project	PM Action per Project	PM TJ Wirth
46	Establish Project Team training	Y	Y	A	<ul style="list-style-type: none"> I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Ensure Contract has specified training requirements Review Procurement Contract Template for Training language Review Training discussion in ASP/CPI Evaluate need for Training Plan Template 	PM Action per Project	D&D Projects	PM Gary Coles
47	Identification of Project Resources (Facility Manager, LO/TO, etc)	Y	Y	A	<ul style="list-style-type: none"> The ASP identifies use of teams and SMEs in the planning and development of Plans and schedules. This ensures incorporation of necessary requirements and practices into planning documents. 	<ul style="list-style-type: none"> PM should enlist the support of knowledgeable individuals in these areas. Ensure Plan and Schedule address this. Review/Modify ASP, Team Section Include discussion in CPI Manual See Item 4.2 (6), 4.4 (42), 4.5 (44) above 	PM Action per Project	ASP Project Lead CPI Manual Project Lead	TJ Wirth Ned Hutchins PM
48	Establish need for facility systems for D&D	Y	Y	A	<ul style="list-style-type: none"> I agree with LL Report Recommendations 	<ul style="list-style-type: none"> Coordination with Current & Future should be made prior to Deactivation efforts to ensure systems needed for D&D are not shut down or torn out Assess needed systems for D&D & budget & plan for repairs as necessary for D&D work Develop Characterization Process See 4.4 (39, 40) 	PM Action per Project	ASP Project Lead CPI Manual Project Lead	TJ Wirth Ned Hutchins PM Tom Scott

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED		Feasible/ Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actionee	ECD
49	Streamlining Project documentation and determination of closure standards	Y	Y	2/3	See Case for Action 1, 2	See Case for Action 1, 2	See Case for Action 1, 2		
50	Use RCRA Closure rinsate standard instead of debris rule				<ul style="list-style-type: none"> Need to define the requirements during characterization Hazard Identification and establishment of controls is part of the hazards assessment process. Key organizations should be participating in this process and establishing controls according. If subs are doing all the Hazards assessment, highly consider independent evaluation by safety oversight groups ASP establishes requirements and guidance for conducting HAS ASP requires use of SMEs for HAS 	<ul style="list-style-type: none"> Have WM evaluate this process and determine application for future projects Ensure dissemination of safety controls Re-evaluate how Hazards Assessments and Controls development were conducted for this project Include discussion in assumption section of project plan Develop Characterization Process Verify existence of Asbestos Abatement procedure and existence of controls 	Waste Management	Ted Hopkins	
51	Establish Asbestos containing furniture/equipment protective measures.	Y	Y	A I	<ul style="list-style-type: none"> If subs are doing all the Hazards assessment, highly consider independent evaluation by safety oversight groups ASP establishes requirements and guidance for conducting HAS ASP requires use of SMEs for HAS 	<ul style="list-style-type: none"> Ensure dissemination of safety controls Re-evaluate how Hazards Assessments and Controls development were conducted for this project Include discussion in assumption section of project plan Develop Characterization Process Verify existence of Asbestos Abatement procedure and existence of controls 	PM Action per Project	PM	
52	Establish and disseminate hazards controls throughout Project Team	Y	Y	A I	<ul style="list-style-type: none"> Communication is key to successful project. Having a POC to make field decisions on changes is critical Use of signs/job aids can aid communications Hazard Identification & establishment of controls is part of the HA process. Key organizations should participate in HA process & establishment of controls. If subs are doing all the Hazards assessment, highly consider independent evaluation by safety oversight groups ASP establishes requirements and guidance for conducting Has ASP requires use of SMEs for HAS 	<ul style="list-style-type: none"> Establish clear lines of authority and responsibilities for field changes Evaluate language in Plan and Contract for use of job aid in communicating Look at pre-ev language for hazard control dissemination Re-evaluate how Hazards Assessments and Controls Development were conducted for this project 	Characterization Project Lead Site Issue	Tom Scott	
							PM Action per Project	PM	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 LESSONS LEARNED		Comments	Possible Actions Needed	Resources	Actionee	ECD		
Item #	Lesson Learned	Priority	Existing Process Y/N	Feasible/Desired Y/N				
53	Review/Revise Site procedure 1-W36-APR-1111 to allow for analysis of samples that meet state and federal qualifications.	1			<ul style="list-style-type: none"> This appears to be feasible, however, further investigation is warranted. There may be other regulatory drivers that will not allow this. Currently, sample analysis must be done in accordance with approved site processes See Item 41 above 	<ul style="list-style-type: none"> Coordinate with Analytical services (APO) and Procurement on this issue. Have Asbestos Abatement List of Certified Contractors updated. Evaluate alternative methods. Include discussion in CPI Manual on strategies for services See Item 41 above 	<ul style="list-style-type: none"> Procurement Ned Hutchins 	
54	Control of Trained/Untrained workers at jobsite				<ul style="list-style-type: none"> See Item 41 above 	<ul style="list-style-type: none"> Site Issue CPI Manual Project Lead 		
55	Determine classification of waste/debris based on cost of containerizing, separation, salvage				<ul style="list-style-type: none"> May want to consider doing cost benefit analysis (without longterm lifecycle costs of LLW storage) Once a PM is assigned, PM have to negotiate limited resources. Memos of agreed-upon assignments (R&R) and project structure has to be communicated immediately. 	<ul style="list-style-type: none"> Waste Management PM Action per Project 	<ul style="list-style-type: none"> Rick Perry PM 	
56	Obtain agreement on Standard Work schedules for Project Team	A	Y	Y	<ul style="list-style-type: none"> Ensure R&Rs are identified and agreed upon. Ensure RFP specifies Work schedules Review/Modify ASP, Team Section See Item 4.2 (6), 4.4 (42), 4.5 (44) above 	<ul style="list-style-type: none"> ASP Project Lead 	<ul style="list-style-type: none"> TJ Wirth 	
57	Establish D&D Handbook for project planning	1		Y	<ul style="list-style-type: none"> See Case for Action 1 and 2 A D&D Handbook needs to be integrated with P&I PM Handbook, the ASP, CPI, and IWCP, COOP 	<ul style="list-style-type: none"> See Case for Action 1 and 2 CPI Manual Project Lead 	<ul style="list-style-type: none"> Ned Hutchins 	
58	Identify waste streams prior to work execution	A 1	Y	Y	<ul style="list-style-type: none"> Lack of Characterization lead to multiple scope changes. The LL Report suggests linear phasing of the Project's key activities which is not always feasible. Assumptions, barriers, Risk/Contingency Analysis is key to managing uncertainty. Discovery issues cannot be preplanned. If adequate characterization is done, then discovery issues are minimized. PM should use historical documentation as well as interviews with prior workers from the building. This may include calling individuals if they have left the site. 	<ul style="list-style-type: none"> PM Action per Project Characterization Project Lead 	<ul style="list-style-type: none"> PM Tom Scott 	

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 CASE STUDY RECOMMENDATIONS		Comments	Possible Actions Needed		Resources	Actioneer	ECD		
Case for Action 1	Feasible/Desired Y/N	Existing Process Y/N	Priority ¹	Part	Comments	Resources	Actioneer	ECD	
1	Y	Y	A 2	Part	<ul style="list-style-type: none"> Information scattered throughout multiple programmatic documentation. Ideally, one document should ID all and provide templates. PCI- Manual has list of possible elements needed for a project. ASP has list of planning requirements. Pre-activities need to be ID'd 	<ul style="list-style-type: none"> PM Action per Project Review CPI List for Template feasibility Review List for Sequencing Integrate with Kitchen's subs effort Develop Document Templates Develop Schedule Templates Obtain input/agreement with other programs on templates. See Case for Action 2 	<ul style="list-style-type: none"> Site issue Establish Working Group (3-5 people) to ID & Build templates. Approx 3 to 6 month effort depending on # of templates needed 	PM Pat Ervin	
2	Y	N	A 1	N	<ul style="list-style-type: none"> ASP requires characterization as part of the planning process. PCI Manual also requires Plans & schedules should reflect adequate time for characterization. 	<ul style="list-style-type: none"> Need to ID various data to be characterized and provide guidance/templates for level of characterization needed and pointers to data collection points/documents. Develop Characterization Process Work with program owners to ID documents needed for D&D (Rad, H&S, NS, Chit, Waste, Eng, etc) 	<ul style="list-style-type: none"> PM Action per Project Establish Working Group to Develop Characterization Process 	PM Tom Scott	
3	Y	Y	A 1	Part	<ul style="list-style-type: none"> IASP Addresses this through selection of Planning Teams, (Need to address Nuc Ops Role) Plans & schedules (resources loads with constraints) should reflect teams preparation with these stakeholders 	<ul style="list-style-type: none"> Modify Site Infrastructure e.g., - P&I Handbook - CPI Manual - ASP (IWCP) Team Selection & Qualifications section. 	<ul style="list-style-type: none"> PM Action per Project. P&I PM Handbook Lead CPI Manual Project Lead ASP Project Lead 	PM Larry Leach Ned Hutchins TJ Wirth	
4	Y	N	A 1	N	<ul style="list-style-type: none"> This implies a systematic and standardized process for review and approval of D&D documents. To do so would require agreement from all parties on those documents to be reviewed, their format, content, and review times 	<ul style="list-style-type: none"> ID all stakeholders and request input from Program on what documents are typically reviewed/approved. Review current Infrastructure for necessary documentation & Kitchens info Modify Site Infrastructure as necessary. Need to address Nuc Ops role 	<ul style="list-style-type: none"> PM Action per Project for now, implemented by team input and agreements during planning. 	PM Pat Ervin	

4- Should be being done by PM now, 1 - First Priority, 2 - Second Priority, 3 - Third Priority
Note: Several actions may have same priority due to parallel efforts

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**B123 D&D PROJECT
LESSONS LEARNED ACTION PLAN**

B123 CASE STUDY RECOMMENDATIONS		Feasible/Desired Y/N	Existing Process Y/N	Priority	Comments	Possible Actions Needed	Resources	Actionee	ECD
5	Application of the Graded Approach	Y	Y	A 1	<ul style="list-style-type: none"> ASP establishes Graded Approach to Planning CPI provides list of possible project support plans 	<ul style="list-style-type: none"> Look at consolidation/Integration with Site Infrastructure - ASP/IWCP - CPI Manual See Case for Action 2 	PM Action/Decision CPI Manual Project Lead ASP Project Lead Site Issue - See Template discussion.	PM Ned Hutchins TJ Wirth Pat Ervin	
6	Define purpose of ERE and ERE Roles and Response.	Y	?		<ul style="list-style-type: none"> Establish ERE process with defined roles and responsibilities. Consider levels needed for Type I, II, and III facilities. 	<ul style="list-style-type: none"> Establish ERE process/procedure. 	CPI & Engineering	Steve Crowe	
7	Project Impact due to deviation from parameters	Y	?		<ul style="list-style-type: none"> Is this different from a scope change? 	<ul style="list-style-type: none"> Establish process in CPI-Manual, look into contractual 	CPI Manual Project Lead	Ned Hutchins	
CREATE DOCUMENT DEVELOPMENT TEMPLATES									
8	Create Type I, II, III boilerplate templates based on graded approach (See Case for Action 1 also)	Y	Part	A 1	<ul style="list-style-type: none"> ASP drives graded approach - Some templates in existence in P&I PM Handbook, CPI-Manual 	<ul style="list-style-type: none"> One full set of planning elements identified for Site Infrastructure Review List for Sequencing Integrate with Kitchen's subs effort Develop Document Templates Develop Schedule Templates Obtain input/agreement with other programs, stakeholders on templates publish in CPI-Manual (and Intranet) 	PM Action per Project <ul style="list-style-type: none"> Site issue - Establish Working Group (3-5 people) to ID & Build templates. Approx 3 to 6 month effort depending on # of templates needed 	PM Pat Ervin	
RESTRUCTURE INFORMATION MEDIUMS									
Case for Action 3									

A-Should be being done by PM now, 1 - First Priority, 2 - Second Priority, 3 - Third Priority
 Note: Several actions may have same priority due to parallel efforts

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