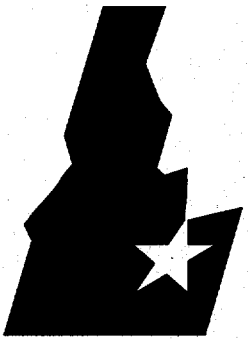
INEL-96/0101

February 1996



Idaho National Engineering Laboratory

Environmental Management Requirements/Defensible Costs Project

Final Report

EM Integration Office

Lockheed
Idaho Technologies Company

INEL--96/0101
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Environmental Management Requirements/ Defensible Costs Project

Final Report

EM Integration Office

Published February 1996

Idaho National Engineering Laboratory
Lockheed Idaho Technologies Company
Idaho Falls Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
Contract DE-AC07-94ID13223

ACKNOWLEDGMENTS

We gratefully acknowledge the many Lockheed Idaho Technologies Company (LITCO)and DOE-Idaho Operations Office (DOE-ID) personnel whose dedicated effort and long hours made this project a success. We especially want to acknowledge the DOE-ID Program Directors, LITCO EM Directors, Subject Matter Experts, review board members and presenters, and many individuals who assisted behind the scenes. Your contributions are greatly appreciated.

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DISCLAIMER

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EXECUTIVE SUMMARY

Lockheed Idaho Technologies Company (LITCO) used a systems engineering approach to develop the first formal requirements baseline for Idaho National Engineering Laboratory (INEL) Environmental Management (EM) Programs. The recently signed *Settlement Agreement with the State of Idaho* (Batt Agreement), along with dramatically reduced EM funding targets from Department of Energy (DOE) headquarters, drove the immediacy of this effort. Programs have linked top-level requirements to work scope to cost estimates. All EM work, grouped by decision units, was scrubbed by INEL EM programs and by an independent "Murder Board." Direct participation of upper level management from LITCO and the DOE-Idaho Operations Office ensured best information and decisions. The result is a scrubbed down, defensible budget tied to top-level requirements for use in the upcoming DOE-Headquarters' budget workout, the Internal Review Board, the FY98 Activity Data Sheets submittal, and preparation of the FY97 control accounts and out-year plans. In addition to the remarkable accomplishments during the past eight weeks, major issues were identified and documented and follow-on tasks are underway which will lead to further improvements in INEL EM program management.

1.0 PROBLEM

The Environmental Management (EM) Integration effort has developed the technical path forward for the EM programs at the Idaho National Engineering Laboratory (INEL). This path forward, developed by subject matter experts (SMEs) from each INEL EM program, outlines the integrated treatment, storage, and disposal activities necessary to comply with the recently signed *Settlement Agreement with the State of Idaho* (Batt Agreement), the *Federal Facilities Agreement/Consent Order* (FFA/CO), and the *INEL Site Treatment Plan* (STP) and associated Consent Order implementing the Federal Facilities Compliance Act (FFCA).

Projected costs were based upon existing budget documentation, i.e., control accounts, which in turn were based on historical methods for performing the work. These documents, however, did not clearly identify the scope and associated funding necessary to ensure legal and regulatory compliance. As a result, projected costs exceeded the INEL's budget targets, as highlighted during the preparation of the 1996 Baseline Environmental Management Report (BEMR) in November 1995.

FY98 Activity Data Sheet (ADS) Guidance from Department of Energy-Headquarters (DOE-HQ) requested specific information on compliance costs. This request necessitated an urgent effort to establish defensible cost projections that are more closely aligned to current budget target prior to submitting FY98 funding requests and ADS to DOE-HQ in mid-April 1996.

2.0 PROJECT OBJECTIVES

An Integrated Project Team (IPT) was chartered to address these issues. Constrained by an eight-week schedule (see Figure 2-1), this project had three distinct objectives:

1. Develop an integrated INEL EM program requirements baseline, with compliance with the Batt Agreement and other legal and statutory requirements as the primary drivers.

2. Establish a defensible work scope tied to compliance milestones and requirements, and eliminate all activities for which no firm requirements exist.

3. Develop defensible cost estimates for all remaining EM activities.

The philosophy behind meeting these objectives is shown in Figure 2-2. First, a requirements baseline is established by identifying and decomposing external driving requirements and translating those requirements into internal derived requirements based on enabling conditions and key program assumptions. Program activities can then be tied directly to established requirements to ensure regulatory traceability and establish a defensible scope of work. This also allows programs to identify those activities for which no firm requirements exist. Defensible cost estimates are developed by using appropriate estimating techniques and tying anticipated costs back to defensible work scope activities.

Achieving these objective will (1) establish a solid basis for INEL prioritization and ADS preparation activities, (2) provide INEL programs with the information needed to help DOE understand what work and funding level is required to ensure legal and regulatory compliance, and (3) increase the credibility of the INEL, crucial for the future of this laboratory in an era of decreasing budgets and increasing requirements.

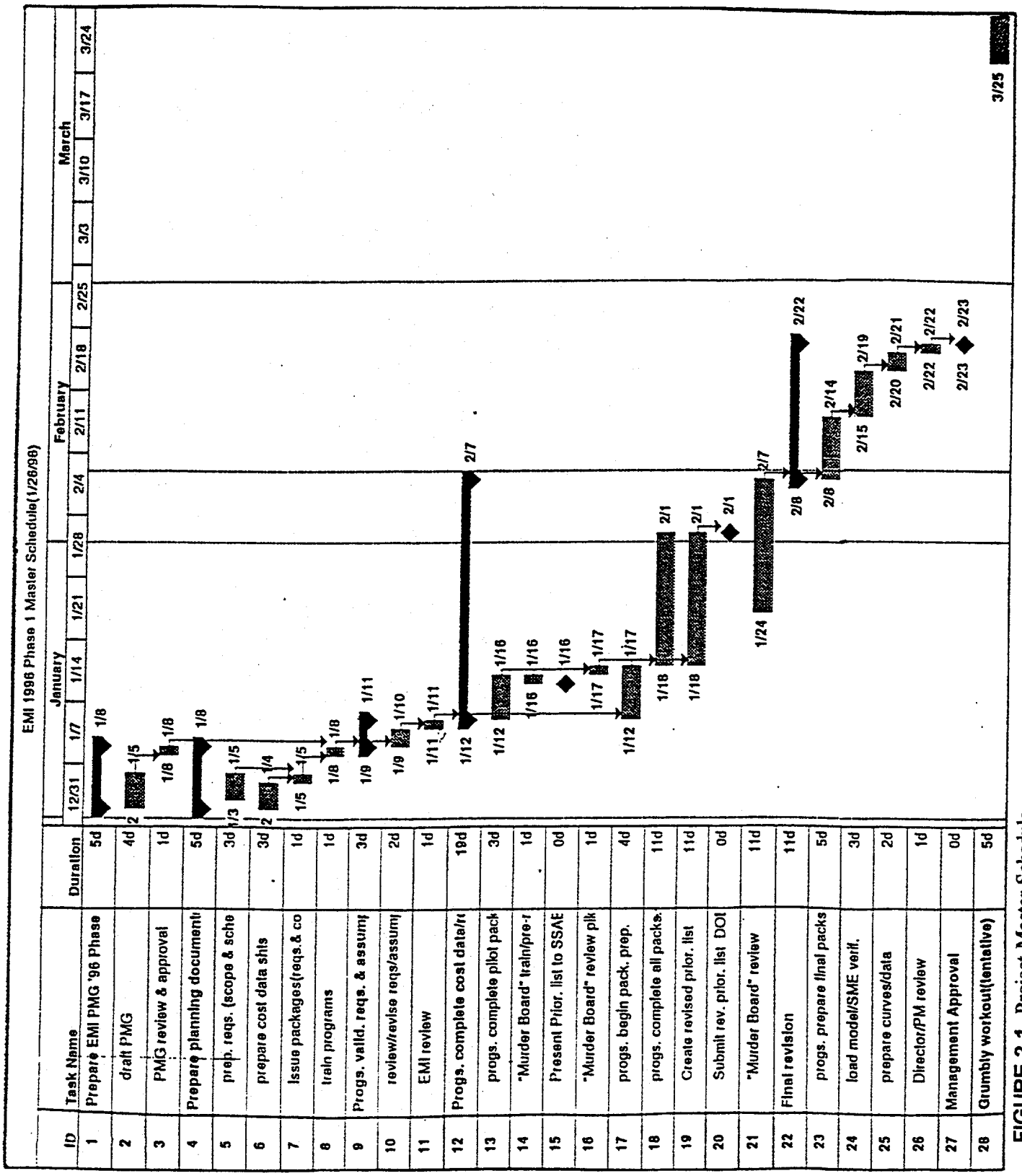


FIGURE 2-1. Project Master Schedule

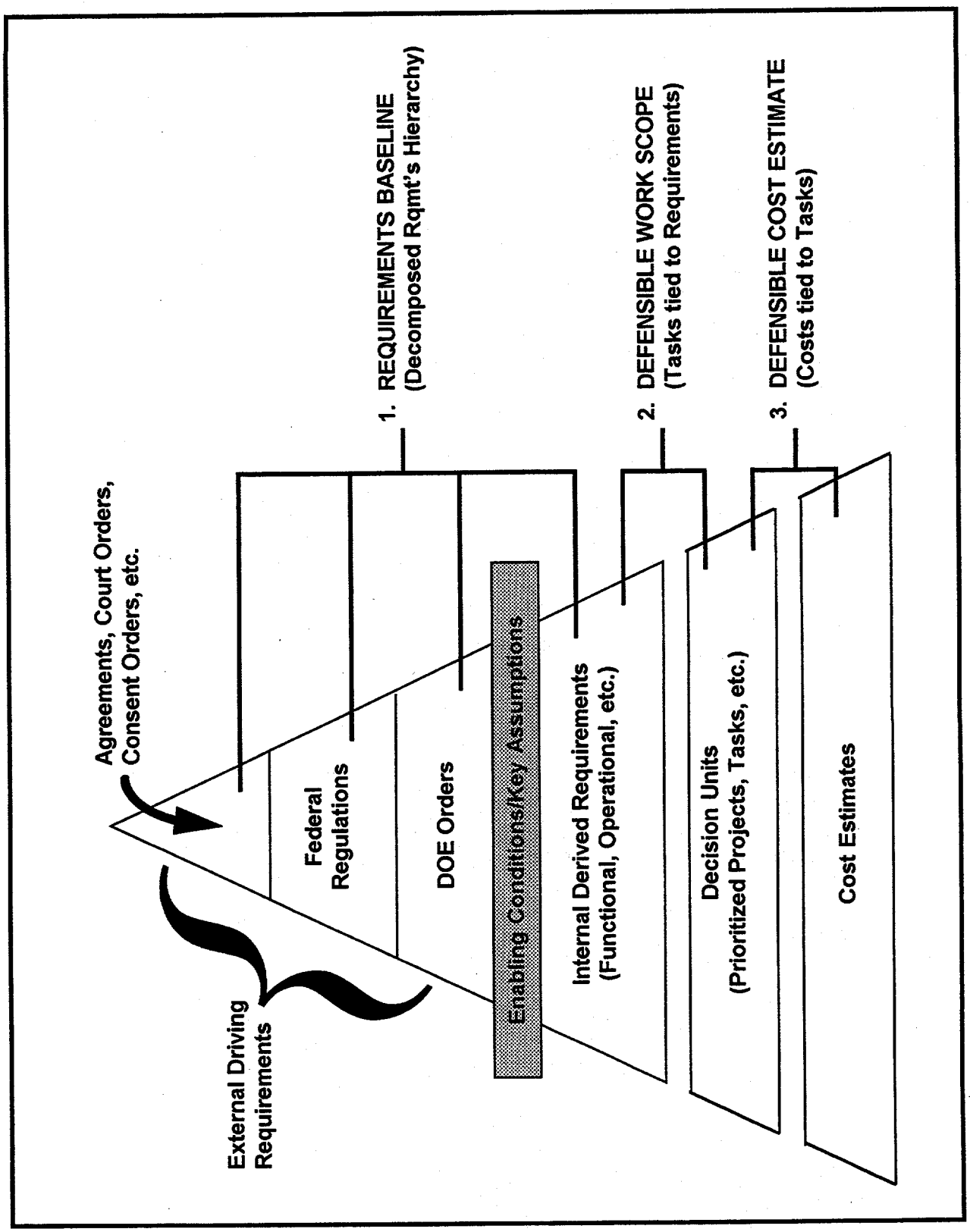


FIGURE 2-2. Establishing INEL EM Program Defensibility

3.0 APPROACH

To ensure the proper level of discipline and formality, *EM Integration Program Management Guidelines* (PMG) were prepared to govern EM Requirements/Defensible Costs Project activities. The PMG was formally issued under INEL document number INEL-96/0037 and will not be duplicated in this report. The roles and responsibilities of project participants, as outlined in the PMG, were key to success.

Based on the lessons learned from previous EM integration efforts, it was imperative that this project receive the full cooperation and participation of Lockheed Idaho Technologies Company (LITCO) EM Directors and their DOE-Idaho Operations Office (DOE-ID) counterparts. From the onset, the Senior Integration Team consulted LITCO EM Directors and DOE-ID EM Program Managers in developing the strategy to meet project objectives. The team leaders in turn briefed senior LITCO and DOE management to assure the overall path forward was on track with management expectations. SMEs were designated to represent and coordinate the EM program involvement in carrying out the project tasks. The integrated participation by the various EM program was crucial to the success of the effort. A list of these key LITCO and DOE-ID participants is shown in Appendix A.

Due to the short duration between problem definition and the start of the ADS preparation cycle, a short-term (eight-week) and long-term (follow-on) approach was developed to meet project objectives. The eight-week effort extended through February 15, 1996 and consisted of completing those activities necessary to adequately prepare the FY98 ADS. Follow-on activities address those issues necessary to prepare for the FY98 Internal Review Board (IRB) and complete the FY97 INEL EM program control accounts and out-year planning.

A flow chart of the overall process to complete the tasks described above is shown in Figure 3-1. The eight-week effort is shown in the upper part of the Figure and represent the activities covered in this report. Follow-on activities are also briefly discussed to provide an understanding of the intended path forward.

3.1 Eight-Week Project

Short-term objectives for providing a requirements baseline, required work scope, and defensible cost estimates were constrained by an eight week schedule to support the ADS preparation cycle. Based on identified work scope from previous EM Integration, ADS preparation, and prioritization activities, Decision Units (DUs) were created as a means of consolidating and managing the multiple EM activities being addressed. Each DU, comprised of one or more blocks of information defining a planned task or activity, contains all the work elements necessary to meet a specific milestone or company objective. As such, DUs offered a good stepping stone to create a first cut requirements baseline that could be directly tied to the existing control account and prioritization data.

3.1.1 Develop Requirements Baseline

Three objectives existed for developing an EM program requirements baseline: (1) provide an initial requirements baseline to support development of a compliance-based work scope and defensible cost estimates appropriate for the ADS submittal, (2) instill requirements management into the INEL business culture, and (3) lay the foundation for a formal requirements management system for the future.

The first two objectives were met through the development of Decision Unit Requirements Documents (DURDs), which tie top level requirements (i.e., Batt Agreement, STP Consent Order, and FFA/CO) to individual DUs or scopes of work. A sample DURD appears in Appendix B.

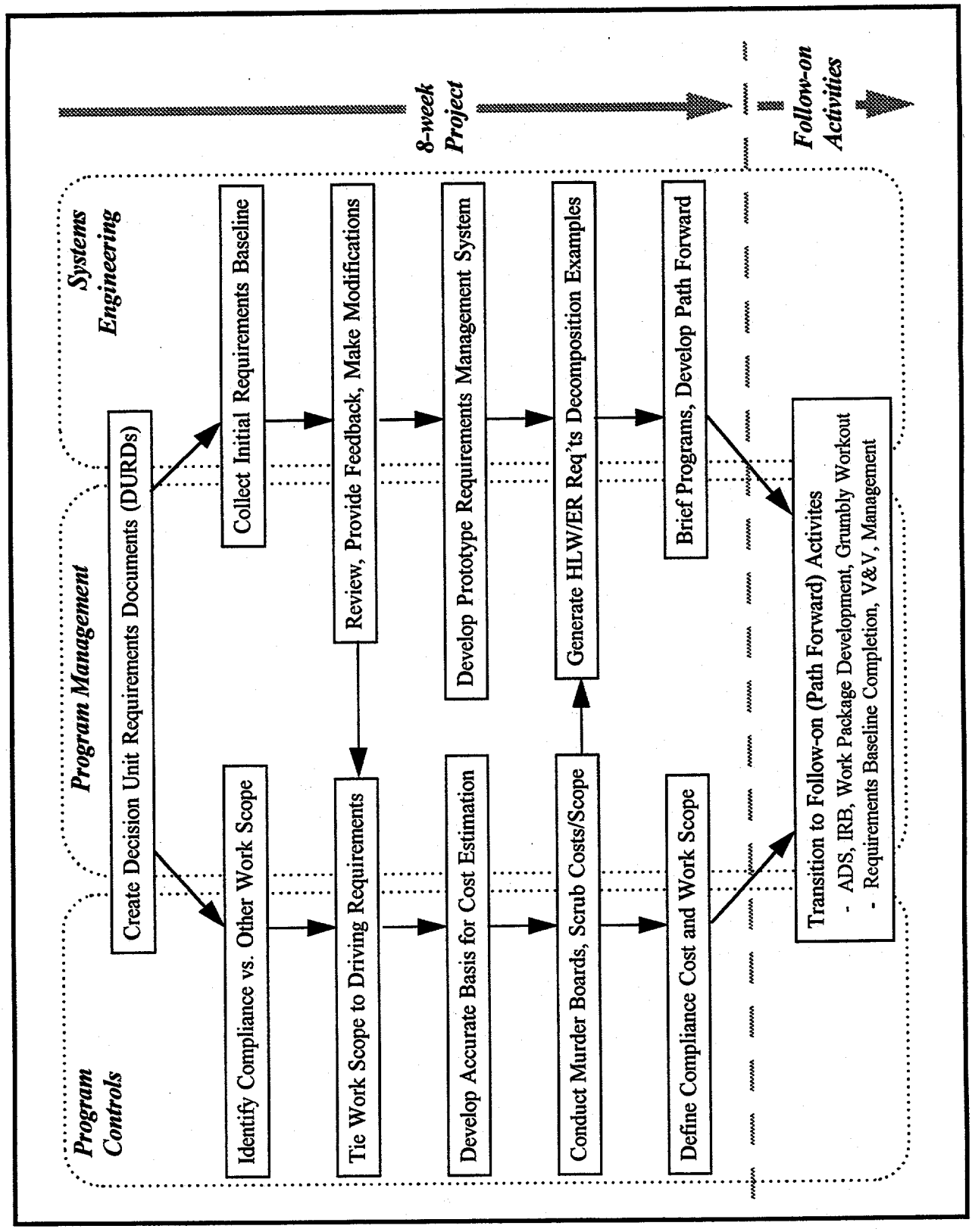


FIGURE 3-1. Project Process Flow Diagram

The *Draft Environmental Management Integrated Plan (EMIP), Revision B*, completed in October 1995, collected many of the requirements and was used as a starting point for the DURDs. These DURDs provided a basis for individual programs to define appropriate and defensible task scopes tied to compliance requirements and to budget. They also serve as the foundation for building a detailed requirements baseline for the future.

The objective of providing a foundation for formal requirements management was met by designing a formal Requirements Management System (RMS). The structure for an RMS, based on input from the DURDs, was driven by Senior Management expectations that a requirements baseline be developed showing how requirements drive work scope and how work scope, in turn, drives cost estimates. The information needed to support the above expectation was modeled to determine the data structure necessary for implementation, and a prototype RMS application was developed to manage EM requirements.

To develop the RMS further, Systems Engineers worked extensively with SMEs from the High-level Waste (HLW) and Environmental Restoration (ER) programs (TAN ground water remediation) to establish a comprehensive requirements hierarchy for each of the two programs. Existing documentation was used to identify requirements, constraints, and assumptions used by the programs to develop high level scope statements and derived requirements for lower level or supporting tasks. This interaction, in parallel with the Murder Board activity described in Section 3.2.4, has begun the transition toward a requirements-driven business culture at the INEL by requiring the programs to base their cost estimates on and defend them according to the requirements identified in the DURDs.

3.1.2 Establish Compliance-based Work Scope

Using ADS preparation guidance documents from DOE-HQ (see Appendix C), individual program representatives reviewed DURDs and divided DUs into compliant and non-compliant (i.e., other essential management funtions) control accounts and work packages. Programs were also directed to determine whether compliance activities were 'investment'(where significant life-cycle costs are reduced by earlier completion) or 'insurance' (being done as an added task to assure success of a current compliance activity) in nature. Compliance with the Batt Agreement, the INEL STP Consent Order with the State of Idaho resolving FFCA provisions for mixed DOE waste, and the FFA/CO were given top priority. Programs were then asked to consider similar compliance requirements that were not final but in negotiation, followed by other management priorities, DOE orders, etc.. The following items were combined with the DURDS to form initial DU cost packages that accurately reflect the scope, requirements, assumptions, and driver categories appropriate for each supported activity.

> ***Major Task Scope Statements***—Work scope statements defining the tasks, drivers, milestones, assumptions, and deliverables necessary to meet DU requirements were prepared for each control account and work package contained in the DU.
>
> ***Logic and Schedule***—Logic diagrams showing the sequence of activities necessary to complete tasks were developed and submitted. Alternatives to logic diagrams were acceptable as long as requirements, sequence schedules, key milestones, and interfaces for the scope of work could be determined.

3.1.3 Develop Defensible Cost Estimates

Following extensive training (see Appendix D), programs were directed to prepare defensible cost estimates for each DU. SMEs coordinated the work to assure consistency with the direction of the program's Director, DOE-ID Program Manager, and the Senior Integration Team.

To encourage a higher level of creativity and new thought, budget targets were set at the DU level. The targets were not given as "budget allocations" as has been done in the past, but rather as a tool to put the severity of the budget problem in perspective for the EM project managers. The following data were added to the DU cost packages for Murder Board review:

> ***Basis of Estimate***—A summary Basis of Estimate (BOE) for each activity was required to demonstrate defensibility of the estimates. The programs representatives were instructed to use the cost estimating standards shown in Appendix E and base the estimates on defensible units of work directly tied to activity logic.
>
> ***Resource/Cost Diagrams***—Cost details for the estimate were to be shown in a resource/cost table that explicitly defined the number of full-time equivalents (FTEs) by labor type, applicable non- labor, etc. for each year in the FY98-2002 ADS window.

3.1.4 Murder Board Review

EM project managers were asked to present and defend their work packages before Murder Boards, composed of senior INEL managers and personnel from both LITCO and DOE-ID independent of the programs being reviewed. Board membership included representatives from Navy programs, Special Manufacturing Capability (SMC) programs, the Advanced Test Reactor, and LITCO EM Directors and their DOE-ID counterpart Program Managers. The mission of the Murder Boards was to provide an independent review of INEL EM DU cost packages to assure defensible cost estimates and requirements flow-down for those activities necessary for legal and regulatory compliance. A sample DU cost package containing DURDs, major task scope statements, logic and schedule data, bases of estimate, and resource/cost diagrams appears at the conclusion of Appendix G, *Murder Board Process*, and as part of the *Planning and Cost Estimate Training* materials contained in Appendix D.

Four Murder Boards, representing each EM-related directorate at the INEL, reviewed a total of 93 DU cost packages on January 17, and from January 24 through February 7, 1996. These packages defined work scope, compliance drivers, and funding needs for FY98-2002. Each package was reviewed for clarity of activity descriptions, appropriateness of estimated resource needs, definition of regulatory drivers, and maturity of cost estimate. Opportunities for activity consolidation and elimination of apparent duplication were also identified. Issues raised during the Murder Board review process were classified as either short-term or long-term, recorded on a Murder Board Checklist (see Appendix F), and loaded onto a database for tracking. Specific details of the Murder Board process are described in Appendix G.

3.2 Follow-on Activities

As shown in Figure 3-1, follow-on activities will continue beyond the eight-week project described herein to complete the ADS cycle and prepare the FY97 control accounts and out-year planning. Follow-on activities are described in detail in the *Path Forward* section of this document (see Section 5.1) and include:

- Resolving identified issues
- Improving cost estimates targeted at key EM areas
- Completing a comprehensive requirements baseline for EM programs
- Implementing change control on the established requirements baseline
- Updating the INEL Master Schedule, including all necessary logic ties, based on DURDs and revised scopes of work
- Preparing activity data sheets for submittal to the IRB.

4.0 RESULTS

Murder Board results regarding the defensibility of DU cost packages, cost comparisons between past and current budget projects, and identified issues are summarized below. The technical path forward originally proposed in the EM Integration Plan is now articulated at the planning and budgeting level, and, as a result, the credibility of INEL funding requests has risen dramatically. Both from a technical standpoint and a cost basis standpoint, the INEL is poised to become the model DOE site for cost effective identification and integration of EM activities.

4.1 Decision Unit Package Defensibility

DU cost packages were awarded a score of 1 through 5 to indicate level of Murder Board confidence with the cost estimate basis. A rating of 1 indicates that the cost and resource estimates are based in large part on historical data and that more work is needed for the package to be defensible in light of current budget realities. A rating of 5 indicates a well prepared package, containing precise activity descriptions tied closely to regulatory drivers and a highly defensible cost estimate.

85% of the DU cost packages were rated 3 or above, with almost half being rated between 4 and 5. DU ratings, shown in the second column of the DU Action Status Log (see Appendix H), illustrate the level of rigor used to prepare the packages and the quality of the resulting cost estimates and allow program representatives to target specific areas (i.e., those work packages receiving ratings of 1 or 2) for future improvement.

4.2 Cost Comparisons/Reductions

During the course of the review, the Murder Boards evaluated the flow-down of compliance and regulatory requirements of each DU to establish a basis for cost estimates. As described in Section 4.1, each DU cost package was rated by the Murder Boards based on the quality and maturity of the cost estimate. Cost estimates from this eight-week activity are compared to previous estimates (including the Full Treatment Alternative from the March 1995 integration effort) and to proposed DOE-HQ targets in Figure 4-1. It is readily apparent that increased funding is required to implement the Batt Agreement; however, as a result of the efforts reported here, costs have been reduced to near Full Treatment Alternative levels.

Cost reductions were made in a number of ways. First, each costed activity was tied to a specific compliance milestone or requirement, and those activities not directly traceable to a regulatory driver were deleted. Second, the historical approach to doing business was challenged. For example, rather than the multiple layers of review and verification used in the past, programs evaluated their activities based on true risk to the environment and human health; as a result, low risk activities will be less frequently audited and resulting data managed to a lower level of rigor. Finally, less conservative assumptions as to the outcome of future negotiations and the interpretation of non-specific requirements were made to allow more flexibility in meeting compliance milestones. One key assumption is that DOE will allow a graded approach on DOE Orders and full relief from unnecessary or costly Orders.

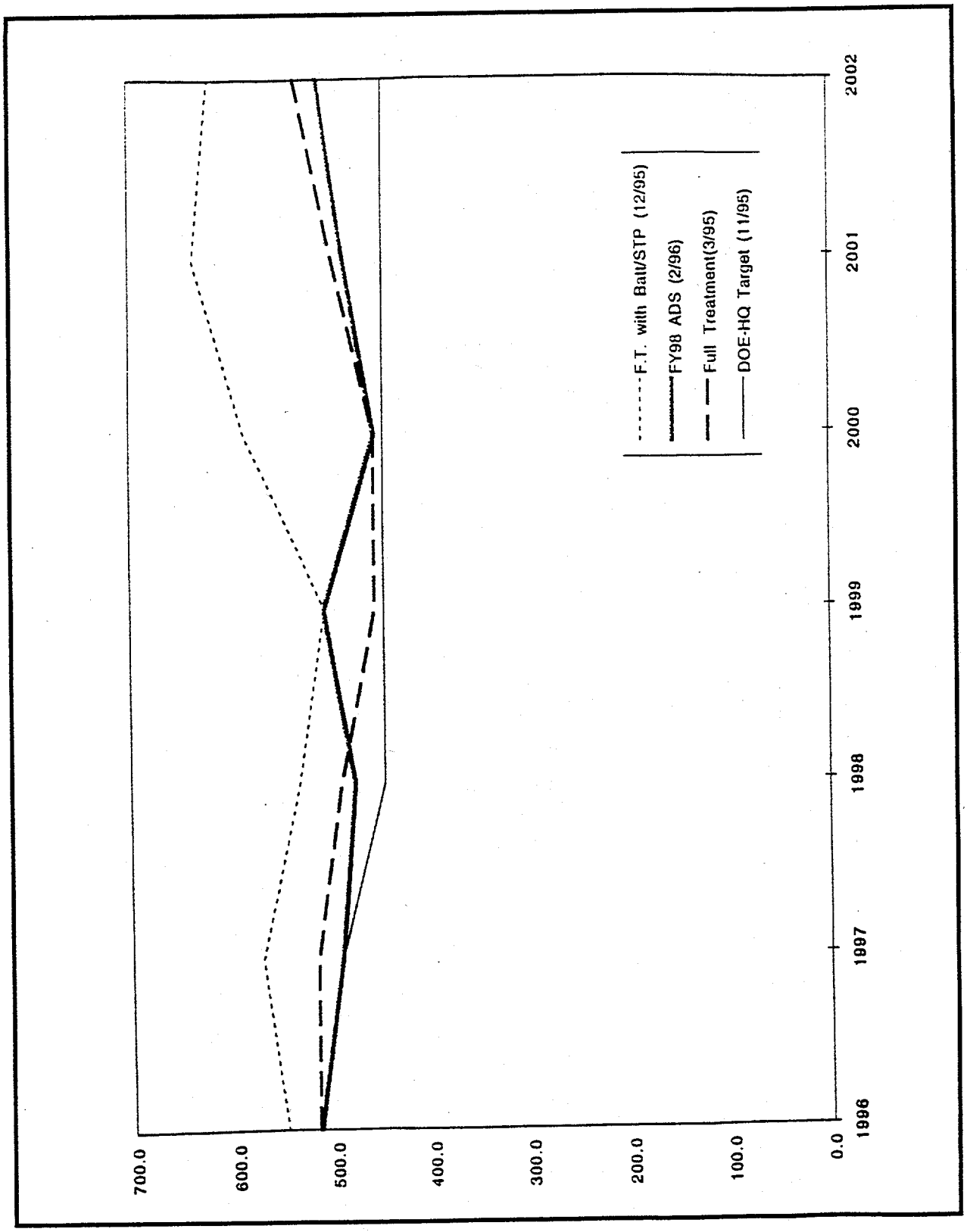


FIGURE 4-1. INEL EM Program Budget Comparisons

4.3 Identified Issues

Murder Board secretaries recorded identified issues that potentially cross-cut multiple decision units, as well as Murder Board recommendations for either short-term or long-term corrective action by individual programs. Issues were then assigned to the designated LITCO Director for final resolution and close-out.

4.1.1 Short-term Issues

Short-term issues were required to be resolved and incorporated into the planning assumptions to be used by the programs in a time frame that would support preparation of the FY98 ADS. An action tracking form was prepared for each DU cost package to record all short-term and long-term (major) programmatic issues associated with the DU evaluation. The subsequent progress of each issue was reported, for tracking purposes, to the Murder Board Chairs and the SMEs via a DU Action Status Log (see Appendix H). Short-term issues included: inconsistencies in the documentation; lack of supporting documentation, such as benchmark analyses when available; failure to incorporate anticipated results from on-going cost savings initiatives into out year budget projections; erroneous categorization of activities as compliance-driven; and identification of potential duplication and cost reduction opportunities.

4.1.2 Major (Long-term) Issues

Major issues require resolution prior to initiation of FY97 control account development, but were not achievable prior to the development of the ADS. This included such items as the need for activity based costing for those projects with level of effort cost profiles and suggestions for doing business more efficiently than currently practiced, such as consolidation and optimization of available resources and activities. These issues require significant management attention and are generally outside responsibility of individual programs. A listing of major issues, along with initial assignment of actions, appears in Appendix I; a synthesis of these issues is presented below.

Policy—Policy issues address the fundamental way of doing business at the INEL.

- *ASSUME ACCEPTABLE PROGRAMMATIC RISKS*—Due to the legacy of nuclear operations at the site, many activities continue to be conducted with degrees of conservation (i.e., zero risk) that are no longer necessary due to the phase-out and shutdown of many of the operations. Numbers of Quality Assurance audits, layers of oversight, subcontracting procedures, safety analysis requirements, National Environmental Policy Act (NEPA) requirements, radiation control requirements, maintenance requirements, DOE orders, etc. need to be reassessed based on a graded approach commensurate with the true risk of the activities being conducted. The "overconservative" culture that has been inbred from the past has also manifested itself in the response to environmental requirements and permits; a graded approach needs to be applied there as well.

- *ASSURE CONSISTENCY OF CHARGING PRACTICES*—Inconsistency in the basic charging structure for INEL work makes it difficult to determine the actual cost of doing the work and clouds management's ability to make defendable decisions. Fundamentally, criteria need to be established from the top down that allow the actual cost of doing work to be measured consistently across the INEL. The criteria would drive a consistent approach for determining what is Direct versus Indirect funded, how General & Administrative funds are applied, subcontracting costs, etc. As a rule, services used by an organization should be paid for by that organization. Thus, waste management and treatment services should be on a cost recovery basis, as should support services at the INEL.

- *ELIMINATE STOVEPIPED PLANNING AND FUNDING*—Notwithstanding integration efforts over the past year, the INEL still is fundamentally planning within funding stovepipes, resulting in numerous inefficiencies, redundancies, and inconsistencies in assumptions. The current efforts must be continued to assure an integrated requirements driven baseline is achieved to resolve this problem.

- *PROVIDE FULL COST RECOVERY FOR LONG-RANGE PLANNING*—The three issues discussed above make calculating the costs of planning alternatives or actions difficult. In spite of this difficulty, requirements must be established to assure that consistent data are used for planning future actions based on all the costs of the alternatives being considered. For example, a decision to bring a new activity to a given INEL facility must include as part of its criteria the Surveillance & Maintenance costs for that facility during the interim time it takes for the activity to start.

Defensibility of Cost Bases—Issues regarding the defensibility of cost bases for activities address the way control accounts are built and defended.

- *SELECT APPROPRIATE COST ESTIMATE PRACTICES*—Based on Murder Board reviews, a fundamental understanding of true activity based costing is still lacking in the programs. Appropriate training needs to be conducted site-wide to assure this is accomplished consistently and that appropriate cost estimating techniques and resources (see Appendix E) are employed, as required.

- *COLLECT SUPPORT-TYPE ACTIVITIES INTO A COMMON PACKAGE*—DU cost packages, as currently constructed, spread support activities throughout the site, leading to appearances of duplication, excessive use, etc.. It would be more defensible if the services or functions were collected in one package with multiple customers and funding sources, rather than in separate work packages specific to an individual program or project.

- *USE RETURN-ON-INVESTMENT*—Cost pay-backs and return-on-investment analyses need to be used as a matter of course to justify new or continuing activities.

- *SCRUB ALL COSTS*—The Murder Boards reviewed only EM Direct-funded activities. All INEL costs, Indirect and DOE included, should be scrubbed and reviewed in a similar manner to assure consistent application of the principles discussed here.

Consolidation and Integration—These issues address potential duplication or redundancies identified by the Murder Boards, as well as significant opportunity for integration and consolidation to increase productivity. Examples include: consolidating program controls functions; consolidating stores/warehousing; efficiently integrating lab services; consolidating site support services and maintenance; consolidating site operations activities; integrating how the Price-Anderson Act is being handled; consolidating Waste Minimization activities and waste management locations; and consolidating the myriad redundant data bases, geographical information systems (GISs), and tracking systems.

The Issues Management procedure, outlined in the *EM Integration Project Management Guideline*, INEL-95/0037, will be used for documenting, tracking, resolving and closing out issues like those discussed above. This process will ensure that issues are resolved in a timely manner, and that agreed-upon actions for resolving identified issues are properly documented and controlled.

5.0 CONCLUSION

The EM Requirements/Defensible Costs Project was the next logical step toward performance excellence at the INEL. All EM programs were able to gain site-wide perspective of legal and regulatory compliance issues, validate work scope and eliminated activities not tied to firm requirements, and scrub down budgets to reflect actual costs of completing work scope activities. As a result, the INEL will be able to accomplish the additional scope imposed by the recently signed Batt Agreement, the FFCA Consent Order with the State of Idaho, and the FFA/CO with only a minimal amount of additional funding—a level close to the Full Treatment Alternative (ref: *Integration of EM Activities at the INEL*, INEL-95/0148) presented to DOE-HQ in March, 1995 (see Figure 4-1). The existing INEL scope plus the scope of the Batt Agreement, the FFCA Consent Order, and the FFA/CO was reduced over the 5-year ADS window (FY98-FY02) from approximately $2.9 billion to $2.5 billion, resulting in a savings of over $400 million.

Success in implementing the resulting plan depends in large degree on the INEL's ability to go forward with a new way of doing business, e.g., pushing back on unnecessary requirements, assuming acceptable programmatic risk, and obtaining full support of DOE-ID and DOE-HQ.

5.1 Path Forward

5.1.1 Resolve Issues

Recommendations were provided by the Murder Boards to individual programs for corrective action of both short-term and major issues. Short-term issues needed resolution prior to February 15, 1996, in order for programs to proceed with ADS preparation; these issues have been addressed and are now being considered as part of the ADS preparation cycle. Those DU cost packages receiving ratings of 1 or 2 will be revisited to ensure defensibility with established scope and identified requirements. Major issues were those which couldn't be resolved in the short-term but require resolution to establish the overall path forward and prepare the control accounts for FY97. Resolution of major issues will be addressed in parallel with the ADS development and review activity. The major issues were both program specific and cross-cutting. These issues, listed in Appendix I, will be resolved to support the path forward and the development of FY97 control accounts.

5.1.2 Complete Comprehensive Requirements Baseline

During the eight-week project, each major program was able to determine and document the top-level requirements set that drives the scope of work done at the INEL. A comprehensive requirements baseline that links every EM cost account to a requirement and the assumptions surrounding each requirement will be completed by decomposing those top-level requirements into a complete set of functional and operational requirements for each program. Additionally, change control standards will be implemented to ensure consistency and defensibility. This will provide the basis for finalizing the FY97 control accounts and for program life-cycle planning.

5.1.3 Prepare Activity Data Sheets (ADS)

In the time period from February through May, 1996, the INEL EM ADS are being prepared, submitted, reviewed and defended before the DOE-HQ IRB. The key drivers are for INEL EM programs to have defensible cost bases for their activities and for those activities to be linked to requirements, with emphasis on achieving legal and regulatory compliance. The LITCO EM Directors and their counterpart DOE-ID Program Managers, having participated in the Murder Boards themselves, are also better able to review and defend their applicable ADS submittals. The reprioritization of the DUs is being conducted as a parallel

activity based on risk and a better understanding of what needs to be done to maintain compliance with legal drivers. In addition, final DURDs and revised scopes of work, including all necessary logic ties, are being tied to the INEL Master Schedule based on resolution of identified issues. Lessons learned from the review of the ADS with DOE-HQ and the IRB will be factored into the future path forward and the development of the FY97 control accounts and INEL EM integrated life-cycle plan.

APPENDIX A
LIST OF KEY PARTICIPANTS

EMI Primary Contacts

Program/Waste Stream	LITCO		DOE-ID	
Team Leads	Greg Frandsen/Thayne Judd		Lori Fritz/Alice Williams	
30 NO	Brew Barron		Jerry Lyle	
SNF	Toney Mathews/Arvid Jensen	Gary McDannel	Pete Dirkmaat	Bob Stump
HLW	Richard Gurley	Brent Palmer	Pete Dirkmaat	Tom Wichmann
60 Facility Dispositioning	Richard Gurley	Doug Preussner	Mark Arenaz	Dan Sanow
60 NO — ICPP Infrastructure	Toney Mathews	Jim Hopla	Mark Arenaz	Clayton Ogilvie
30 WO	Jud Ellis			
TRU	Jim VanVliet	Jay Davis	Joel Case	John Medema
MLLW	Jim VanVliet	Jay Davis	Joel Case	John Medema
LLW	Jim VanVliet	Jay Davis	Joel Case	John Medema
Other WO	Jim VanVliet	Jay Davis	Joel Case	John Medema
40 ER	Kathy Falconer	Adam Owen/ Carol Mascarenas	Lisa Green	Carol Hathaway
40 Facility Disp. (D&D)	Kathy Falconer	Scott LaBuy	Lisa Green	Carol Hathaway
60 SS	Billy Childers			
SW Infrastructure	Taft Albright	Jon Tillo	Mark Arenaz	Clayton Ogilvie
50 TD	Bill Guyton			
Technology Development	Bob Snelling	John Beller	Tom Williams	Pat Trudel

APPENDIX B
SAMPLE DECISION UNIT REQUIREMENTS DOCUMENT

Decision Unit Requirements Document

Program: TRU Waste

Decision Unit: WO 104 RWMC TRU Waste Certification/Storage

CAP(s) associated: 1.2.2.1.1.1.1 RWMC TRU Characterization and Certification
1.2.2.1.1.1.2 TRU RWMC Storage

EMI Identification Number: 9000, 9001
Description: Maintain SWEPP in operational readiness to support WIPP Transuranic Waste Characterization Program; Provide SWEPP production operation examination and certification capability to characterize waste for WIPP; Provide Intrusive Characterization capabilities to examine both Debris and non-Debris type wastes; Provide production operation capabilities to assemble payloads and load Trupact-II transporters destined for WIPP; safely store CH and RH TRU waste; operate the Drum Venting Facility ; reconfigure all waste stored in the ASB-II and C&S to RCRA compliant storage in the RWMC Waste Storage Facilities and perform RCRA closure activities on ASB-II and C&S buildings.

#	Requirement (Work Scope)	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS, INV, INS
1	Provide production SWEPP operation capabilities to examine and certify waste for WIPP.	1.2.2.1.1.1.1.01 TRU Waste Exam and Cert Ops	Batt Agreement B.1(a) requires first shipment sent to WIPP or other facility by April 30, 1999Batt Agreement (B.1.a) requires 3100 cubic feet to be shipped out of the State of Idaho by December 31, 2002	A , I	ABS 98% INS 2%

#	Requirement (Work Scope)	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS INV INS
2	Provide production operation capability for Intrusive Characterization of both Debris and non-Debris waste.	2.1.1.1.1.03 Intrusive Characterization	Batt Agreement (B.1.a) requires 3100 cubic meters to be shipped out of the State of Idaho by December 31, 2002 WIPP QAPP requires Intrusive Characterization of 10% certified waste shipped to WIPP.	A, I	ABS 95% INS 5%
3	Receipt , storage and surveillance of INEL generated TRU waste.	1.2.2.1.1.1.2.01 TRU Handling and Storage	RCRA part B permit , 40CFR264 (some off-site TRU waste may be received under STP)	C , I	ABS 92% INS 8%
4	Drum Venting operations	2.1.1.1.2.02 Drum Venting	Batt Agreement (B.1.a) requires 3100 cubic meters to be shipped out of the State of Idaho by December 31, 2002	A , I	ABS 92% INS 4%
5	Relocate 100% of TRU Waste stored in air support buildings by Jan 1, 1998	1.2.2.1.1.1.2.01 TRU Waste Hndlg and Store 1.2.2.1.1.1.2.03 TRU Ops Recon of ASBs	State of Idaho Consent Order dated April 1992	B , I	ABS 95% INS 5%
6	Perform RCRA closure of ASB-II and C&S buildings	1.2.2.1.1.1.2.04 ASB Preclosure Activities	State of Idaho Consent Order dated April 1992	B , I	ABS 64% INS 36%

#	Requirement (Work Scope)	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS, INV, INS
7	Provide production Trupact-II and payload assembly to prepare Certifiable waste for transport to WIPP.	1.2.2.1.1.1.2.06 TRU Waste Transportation	Batt Agreement B.1(a) requires first shipment sent to WIPP or other facility by April 30, 1999 Batt Agreement (B.1.a) requires 3100 cubic meters to be shipped out of the State of Idaho by December 31, 2002	A , I	ABS 40% INS 60%
8	Complete shipment of all TRU waste to WIPP by December 31, 2018	Although scope in this DURD contributes to the success of meeting this milestone, Work packages in FY-03 thru FY-16 not yet developed will reflect this scope.	Complete shipment of all TRU waste to WIPP by December 31, 2018 Batt Agreement (B.1) Requires completion by target date of December 31, 2015 and no event later than December 31, 2018	A , I	NA

#	Requirement (Work Scope)	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS, INV, INS
9	Prepare and ship a running average of 2,000 cubic meters of waste per year to WIPP. 1-1-2003 thru 12-31-2015	Although scope in this DURD contributes to the success of meeting this milestone, Work packages in FY-03 thru FY-16 not yet developed will reflect this scope.	Batt Agreement (B.1.c)	A , I	NA

Specific Assumptions: All feedstock to meet the 15,000 DEQ's will come from accessible storage, no retrieval from earthen covered storage will be required. TSA-RE will begin operations FY-2003. Single shift production operations at SWEPP using the modified process flow which includes 10% gamma spectrometer measurements, reduced exam times at the gamma system, no container integrity system exam and no drum aspiration in the Type1 (starts 4th Qtr 1997). Intrusive Sampling/ Characterization will be done at RWMC. Trupact-II loading will be single shift operations with increased manpower shipping on average 268 drums per month. WCF will not be constructed. Only WIPP certifiable drums will be vented. WIPP will open on schedule (April 1998) or DOE-HQ will identify an alternative shipping location. WIPP will provide adequate Trupact-II casks and transporters to meet our production rates. All drums that pass our visual integrity inspections will be acceptable for shipment (WIPP WAC Type 7A container requirements will be satisfied).

Strategic Direction for Decision Unit:

TRU WASTE STRATEGY

1. The construction of the Waste Characterization Facility is being canceled. ANL-W will support characterization activities through FY 1997 and in the meantime, portable characterization assemblies would be procured and installed at RWMC for operation in October 1997.
2. The Transuranic Storage Area - Retrieval Enclosure would not be started up until October 2002. The modifications to support the retrieval on Pad 2 would be

completed as soon as possible using existing LICP funding (preferably no later than 2001). Startup would be accelerated earlier if the drum acceptance rate at SWEPP can not be achieved as planned.

3. SWEPP would begin production operations in the fourth quarter of 1997 and would operate on single shift operation. Operation levels would be based on certifying 65 drums per week.
4. The Phase I characterization would be accelerated to support a completion date of September 1997. INEL funding would be increased to support the costs not covered by the WIPP Test Program.
5. The Matrix Depletion Testing would be completed by September 1997 to support SWEPP production operations.
6. Feedstock to meet the 15,000 certified drums by December 2002 will primarily be provided from the readily accessible waste drum inventory. Acceptance rate estimated at 71%.
7. Recovery of the PREPP designated waste containers will be used to increase the available WIPP certifiable inventory (1420 particulate and 1103 free liquid).
8. The shipping rate to WIPP is expected to be 268 drums per month.
9. Intrusive drum characterization would begin at RWMC in October 1997.
10. The TRUPACT-II loading will be single shift operation with increased manpower (one SWEPP technician for leak testing).
11. The Payload Assembly will be a separate operation from the TRUPACT Loading Facility and will be performed in the TYPE I module.
12. Containers will not be required to be vented for handling or storage at SWEPP, and no aspiration is required in the Type I module following the venting operation. The drums will be aspirated as required to support TRUPACT transport.
13. The modified SWEPP examination process will be implemented to minimize the examination of drums at the various examination stations. These modifications include 10% gamma spectrometer measurements, reduced exam times at the gamma system, no container integrity system exam, and no drum aspiration in the Type 1.
14. Only WIPP certifiable drums will be processed through the Drum Vent Facility.
15. The RWMC Part B Permit will be revised to support the modified SWEPP process. This permit modification process will also include renegotiating the permit requirements for the characterization of containers of unknowns to include a modified characterization schedule in order to meet the Governor's Agreement.
16. Changes to the WIPP WAC and QAPP will be negotiated and approved by WIPP. Areas of concern include Type A packaging, the 100% gamma measurement, the hazardous waste codes, TRUPACT-II leak testing, examination batch sizes, and data review/reporting.
17. WIPP will open in April 1998 to accept INEL waste.
18. The current database with manual data entry is inadequate to meet operational requirements and will need to be upgraded.

19. Structurally sound containers will be acceptable by WIPP and will not require overpacking for disposal at WIPP.
20. Compliance with the Governor's Agreement is dependent on WIPP opening or DOE-HQ identifying an alternate storage site.

FY 1996

1. Do not startup TSA-RE
2. Accelerate Phase 1 Characterization at ANL-W
3. No Waste Characterization Facility
4. Identify and procure comprehensive Data Management System
5. Identify and procure intrusive characterization equipment
6. Procure spare parts and replace existing examination equipment
7. Fund the RAL upgrade at ICPP
8. Design 14 pack handling equipment
9. Complete the Drum Headspace Gas Sampling System installation in DVF
10. Start the Part B Permit modification
11. No new storage modules required

FY 1997

1. Finalize the WIPP WAC to support production in July 1997
2. Startup SWEPP in the fourth quarter
3. Install comprehensive Data Management System
4. Install and startup intrusive characterization equipment at RWMC
5. No TSA-RE retrieval
6. Complete the Part B Permit modification

FY 1998 - 2001

1. No TSA-RE retrieval
2. WIPP opens in April 1998 and shipments begin
3. Two shipments per week at 33 drums per shipment
4. Conduct intrusive characterization sampling at RWMC
5. Matrix depletion study supports increased wattage values for TRUPACT-II shipments (FY 98)
6. SWEPP examination can be performed through single shift operation
7. Complete the waste reconfiguration from the air support buildings (1/98)

FY 2002

1. Commence TSA-RE retrieval startup
2. WIPP shipments continue at two shipments per week (33 drums per shipment)
3. Conduct intrusive characterization at RWMC
4. SWEPP continues single shift operation

FY 2003

1. Complete shipping of 15,000 drums out of Idaho (12/31/02)
2. Commence TSA-RE retrieval
3. Place SWEPP in standby operation
4. AMWTF will be operational (3/03)

APPENDIX C
DOE-HQ DRIVER CATEGORIES FOR COST ESTIMATING AND ADS PREPARATION

DOE-HQ DRIVER CATEGORIES FOR ADS PREPARATION

Indicator	Title	Description
A	Required by a Compliance Agreement	This category includes activities driven by compliance agreements as well as program support/management activities that directly support agreement milestones.
B	Required by a Court Order	This category includes activities taken to comply with consent decrees or court orders, as sell as program support/management activities that directly support compliance with these decrees/orders.
C	Required by a Federal Statute of Regulation (including permits in place)	This category includes activities driven by the Federal Facility Compliance Act. This category also includes program support/management activities that directly support compliance with these laws.
D	Required by a State of Local Statute or Regulation (including permits in place)	This category includes activities necessary to comply with State of local statutes, regulations, or RCRA in cases where RCRA administration has been delegated tot he State (in some cases, both the State and EPA administrator parts of RCRA). This category also includes program support/management activities that directly support compliance with these laws.
E	Required by DOE Order—Environment, Safety, and Health	This category includes activities required to meet one or more internal DOE environment, safety and health requirements, though these activities are not specifically required by environmental or other law. Failure to fully fund this activity will likely result in violation of an internal environment, safety and health order or requirement or could cause serious safety concerns. Internal environment, safety and health orders not specifically required by environmental or other law and an Atomic Energy Act related guideline (e.g., radiological protection guideline). This category also includes program support/management activities that directly support compliance with DOE environment, safety and health orders.
F	Required by DOE Order—Management and other	This category includes all actions taken in response to DOE orders designed to implement best management practices. Program support/management activities (such as DOE staff, support contractors, budgeting, planning, facility operation, etc.) Are included in this category when the primary activity to be supported does not fall under categories A, B, C, D, or E above.

Indicator	Title	Description
G	Required by Agreements-in-Principle or Agreements with Indian Nations	This category includes activities that are not required by either environmental law or internal environment, safety and health requirement, but that are essential to meeting requirements of Agreement-in-Principle or agreement with Indian Nations.
H	Required to Meet a Proposed Compliance Agreement (in negotiation, but not yet signed)	This category includes proposed or ongoing activities that are required by the projected provisions of a proposed compliance agreement. Activities required pursuant to existing compliance agreements should be part of category A.
I	Other Essential Management Functions	This category includes activities that are not required by either environmental law or internal environment, safety and health requirement, but that are considered essential to effective site operations. "Best management practices," for example, would fall within this category. Other examples include: • non-legally driven decontamination and decommissioning of a surplus facility; • non-compliance related research and development activities designed to develop and apply innovative technology to clean up and treat waste in a more timely and cost-effective manner; • a process improvement for the purposes of non-mandatory pollution prevention, or to make an activity better, faster, safer, cheaper; • worker training (reflects the elimination of K-12 education funding); and • technology transfer activities, and any other activity not identified in the categories above.

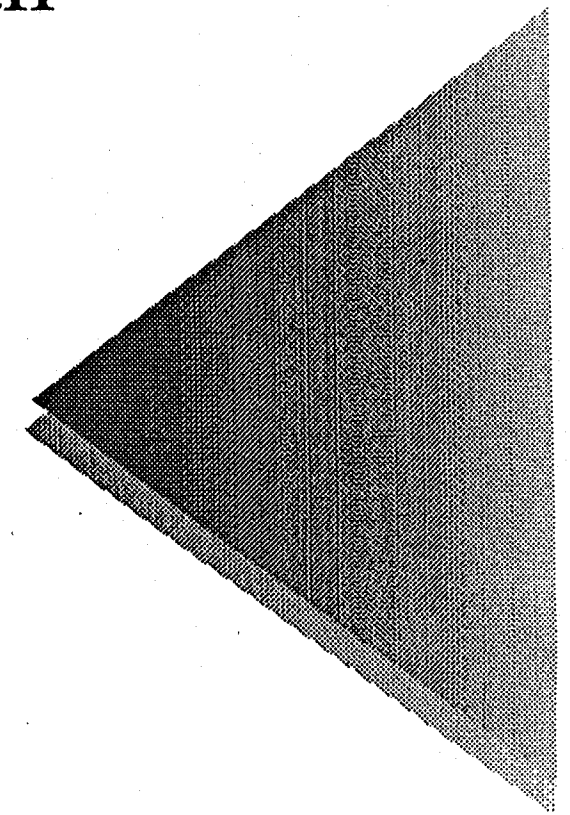
APPENDIX D
PLANNING AND COST ESTIMATE TRAINING

Charter

- Crystal clear understanding of INEL Environmental Management Program defined in terms of requirements
  - requirements baseline
- Defensible budget estimates
  - cost baseline

Issues Facing INEL EM Program

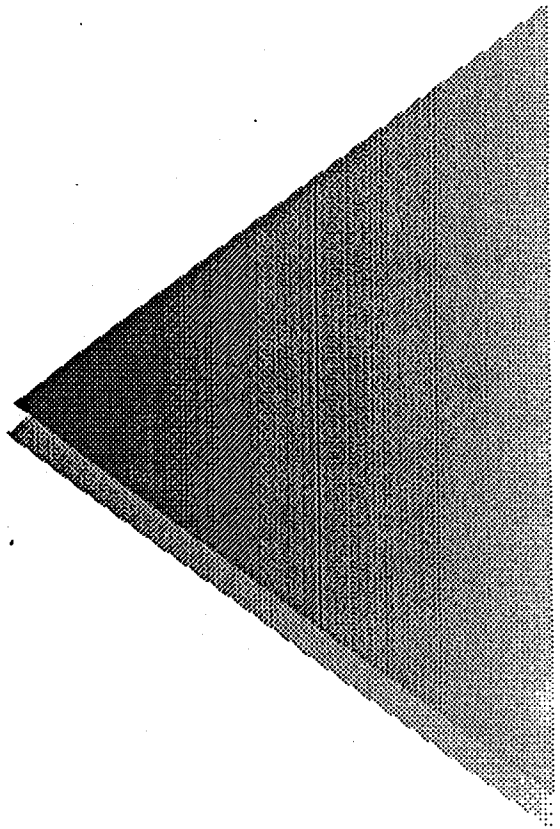
- Projected funding will not cover all program costs currently identified
  - Perception that we have "fat" budget numbers
  - Credibility of our cost estimates is poor
  - Costs not tied to firm requirements



- Batt agreement to be funded as top priority
  - Batt agreement maintains current funding target
  - No additional funding probable

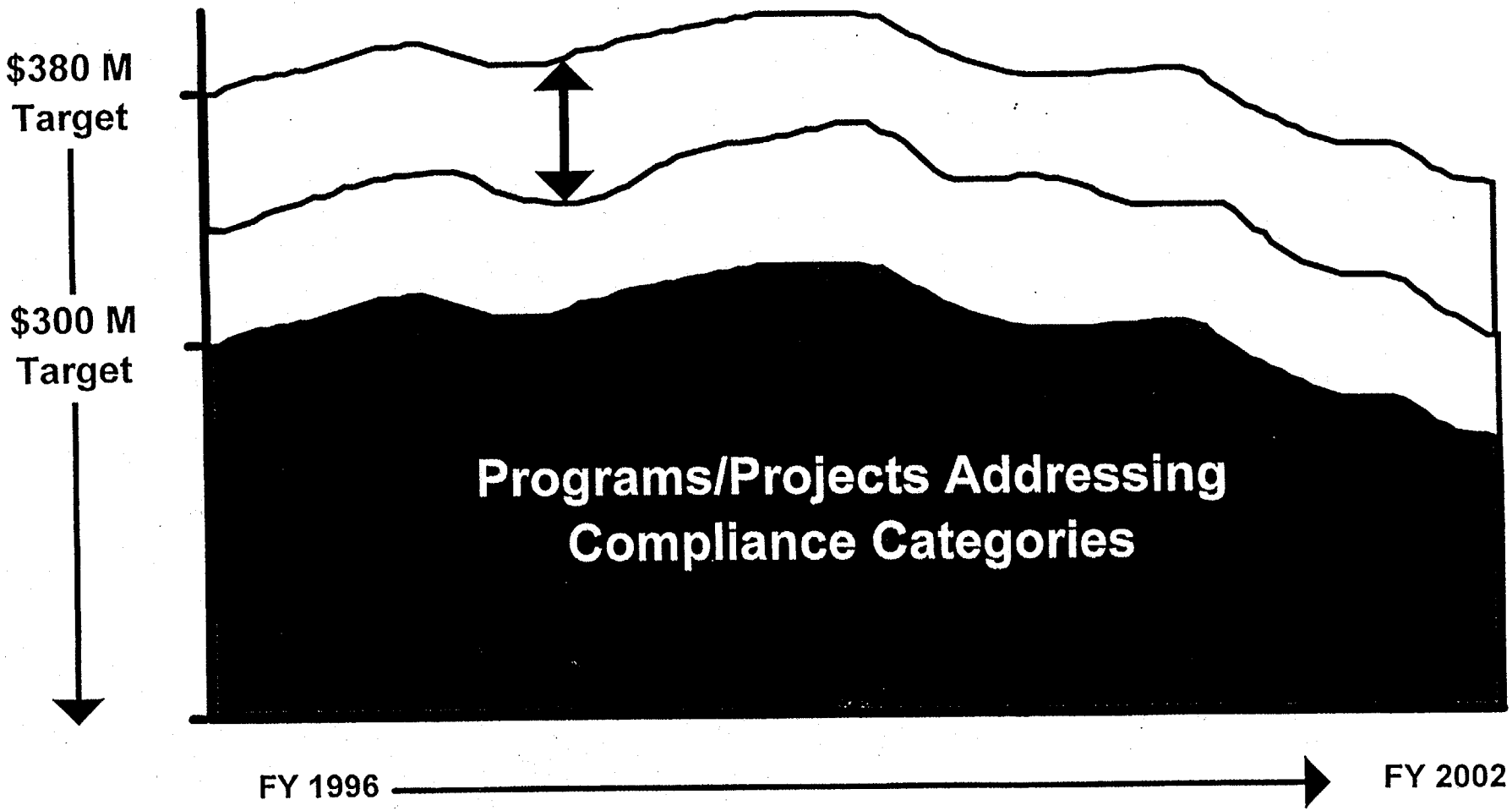
Deliverables

- Establish an INEL requirements baseline
  - Decision unit requirements documents
  - Path forward outline
- Develop defensible cost estimates
  - 100% basis-of-estimate for compliance scope
  - Master schedule for compliance scope
  - Revised priority list
  - Cost curves
  - Path forward outline
- *Rolls up to*
  - *Waste stream flow chart*
  - *Multi-year top level schedule*
  - *Yearly cost profile*



Constraints

- Work within the following targets:
  - $400 M budget request target
  - $300 M target for compliance (decrement target)
- Project must be complete by February 15
  - Grumbly workout in late February
  - ADS preparation must start



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THE TASKS

The Primary Task is Development of "Basis of Estimate" Documentation to Support Completion of EM Compliance Milestones

> **Programs with existing planning documentation will scrub/revise as NECESSARY to meet target dollars**
>
> **Program without planning documentation will develop new basis of estimate packages**

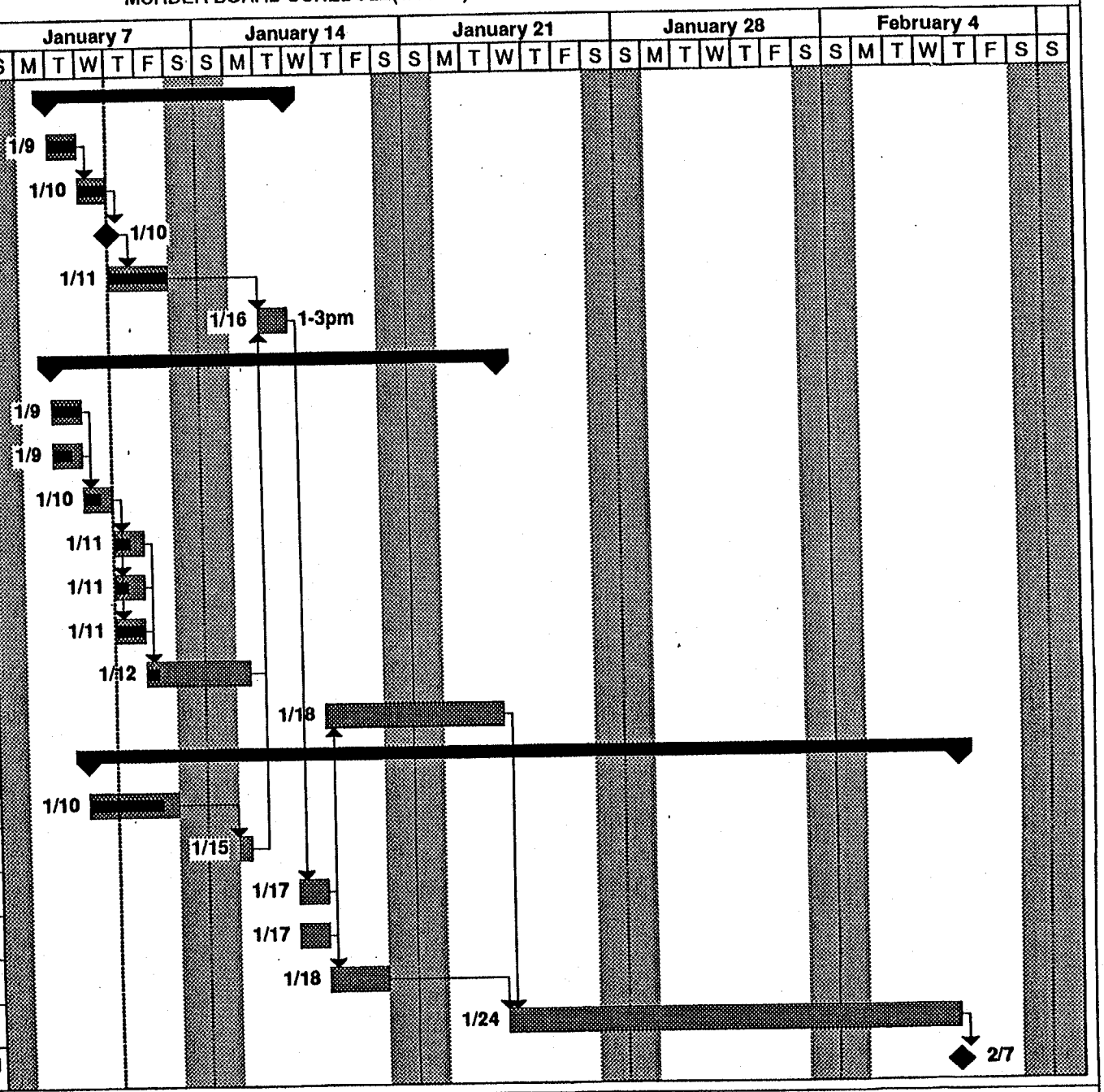
The Secondary Task is Development of "Basis of Estimate" Documentation for all Other Work Scope (as time permits)

All FY 1997 Through 2002 Work Scope Must Have a Defensible Basis of Estimate

FOCUS: UNDERSTAND COMPLIANCE COSTS AND DO WORK FOR LESS MONEY

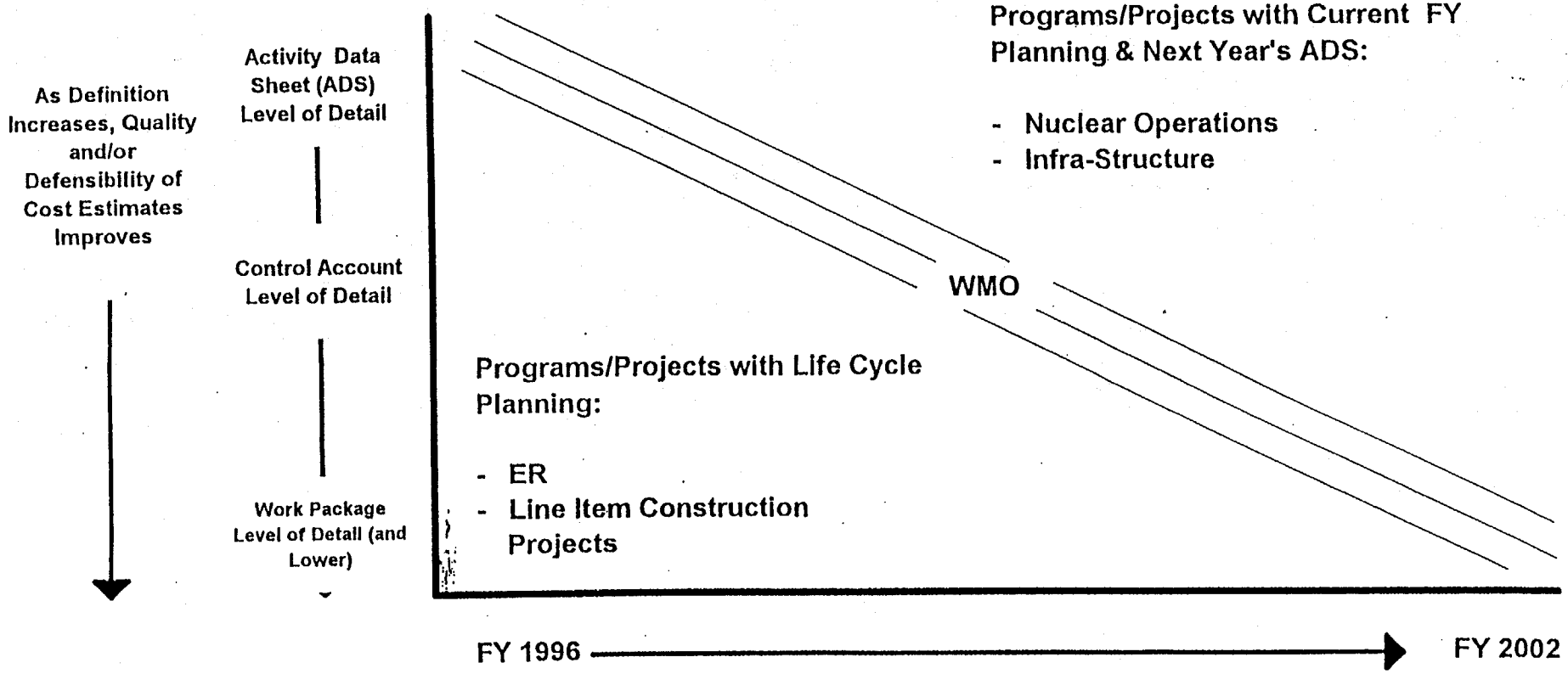
MURDER BOARD SCHEDULE(1/11/96)

ID	Task Name	Duration
1	**Select and Train Murder Boa**	6d
2	Propose board member ca	1d
3	Review/gain approval fm S	1d
4	Lyle/Barron/Ellis appoval	0d
5	Notify board members	2d
6	Train Boards	1d
7	**Prepare/approve board plan.**	11d
8	Prepare strawman plan	1d
9	prepare review cklists	1d
10	Review plan/cklists	1d
11	Prepare Tally Team mode	1d
12	Prepare final proc./cklists	1d
13	Revise plan	1d
14	Prepare training materials	1.5d
15	Revise proc. based on pik	4d
16	**Conduct Boards**	21d
17	Prepare pilot Board Schec	3d
18	Issue sched at POD/boarc	3h
19	Conduct pilot boards	1d
20	Prepare reg. board scheds	1d
21	Issue reg board scheds to	2d
22	Conduct Boards	11d
23	Boards complete	0d



ATTACHMENT C

Presumed Level of Detail Represented in Current EM Planning



EM INTEGRATION
BASIS OF ESTIMATE PACKAGE DEVELOPMENT AGENDA

Basic Process

Cost Definitions

Decision Unit Composition

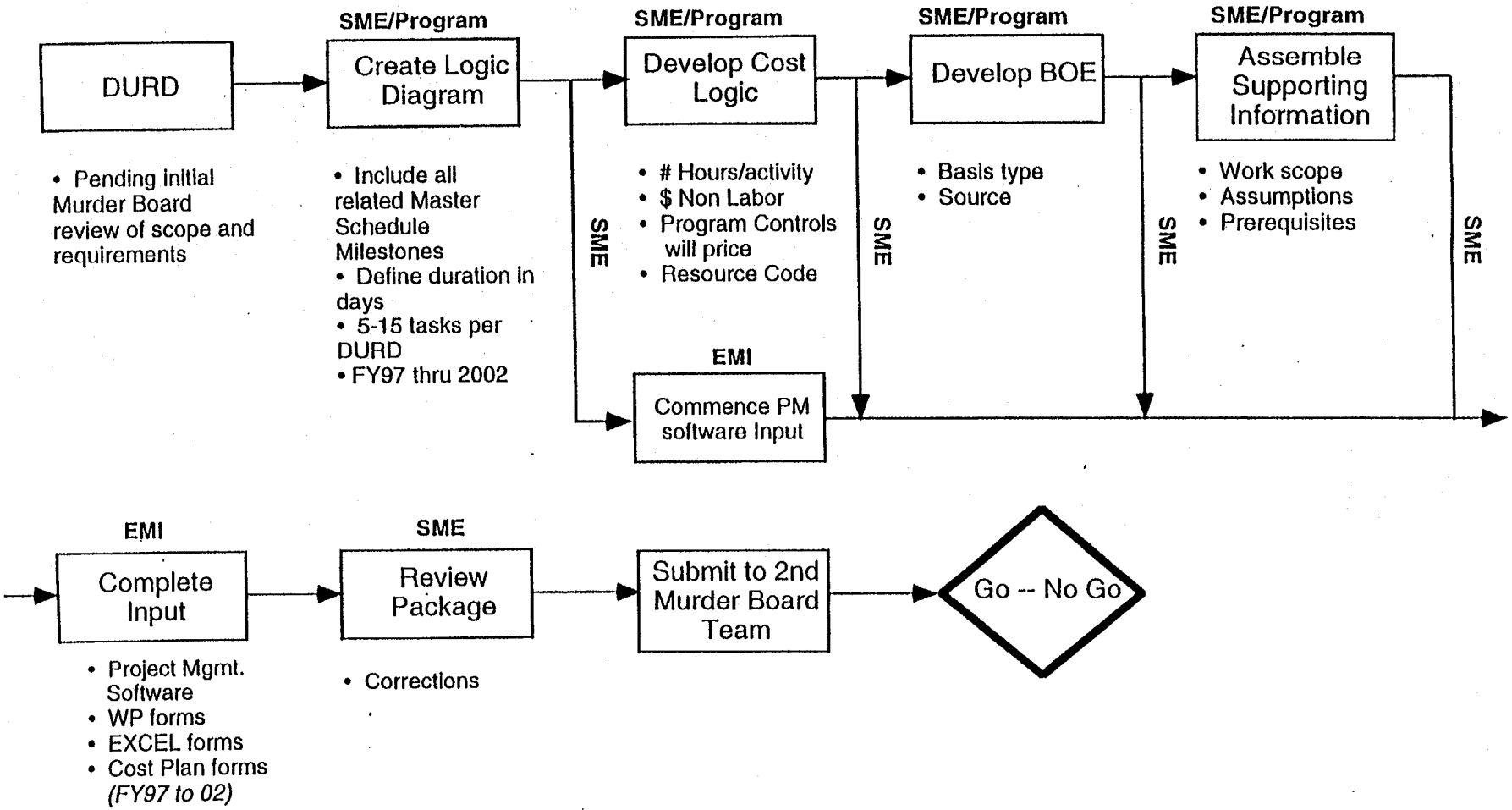
Instructions on How to Complete the Tasks

Example Basis of Estimate Package

Cost Estimating Help

Closing Remarks

Defensible Baseline Document Preparation - Phase I



BOE - Basis of Estimate
DURD - Decision Unit Requirements Document

COMPLIANCE DEFINITION

Compliance = Work Scope Required to Complete Milestones Which Fall Into Priority 1 and 2 Compliance Categories

Compliance =	**Technical Work Scope**	**(Driver Priority Basis of Estimate Package)**
+	**Support**	**(Allocated to Package by % and Basis of Estimate Defended by EMI Cost Estimating Team)**
+	**Facility ("Hotel" Costs)**	**(Facilities to Support Driver Categories Will be Estimated Separately)**

SUPPORT DEFINITION

Support Costs Include the Following:

Management
Administrative Support
Budget Support
Schedule and Planning Support
Cost Estimators
Work Control Planners - Core Team Support
Document Control
Configuration Management
Trainers
Tech Writers and Editors
Quality Assurance Oversight
ES&H Oversight
Engineering Services
Analytical Services
Nuclear Safety Programs

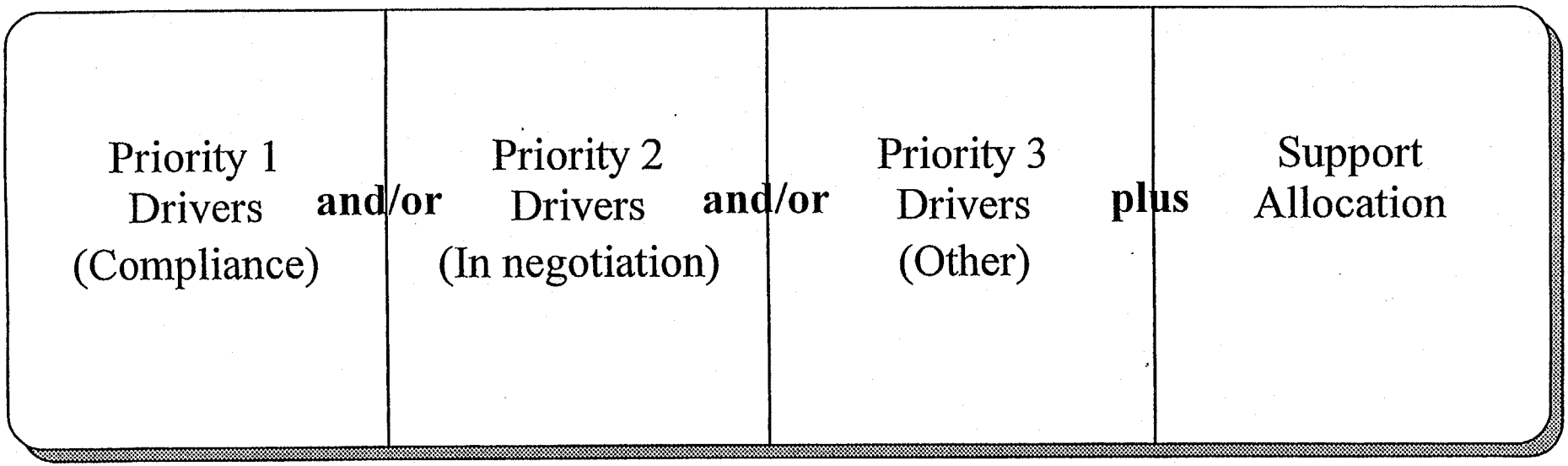
DO NOT INCLUDE THESE COSTS IN EITHER COMPLIANCE OR NON-COMPLIANCE WORK SCOPE. FUNDING FOR THESE ACTIVITIES WILL BE ALLOCATED TO THE DECISION UNIT AT A LATER DATE

FACILITIES DEFINITION

Work Scope Must Include Identification of the Facilities where work is performed

Facilities Required to be Operational to Support Work Scope Will be Estimated by Most Knowledgeable Organizations

Decision Unit Composition



Decision Unit Requirements Document

DRAFT

Program: HLW
Decision Unit:: NO126
CAP(s) Associated: 1.2.3.2.1, 1.2.3.2.5.new
EMI Identification Numbers: 3000, 3001, 3002, 3039
Description: Stored HLW Product (includes calcine solids storage, CPP-666 HEPA filter storage, and liquid HLW storage). A new HLLW Tank Farm, if needed, is also included as well as Interim storage for immobilized HLW product (1.2.3.2.5.new)

#	Requirement	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS, INV, INS
1	Provide liquid and calcine storage operations to support HLW calcination by 3/31/97.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	STP Table 5-1	A	abs
2	Provide liquid and calcine storage operations to support treatment for calcine and HLW by 9/30/2019.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	STP Table 5-2	A	abs
3	Provide liquid and calcine storage operations to support treatment of HLW so it is ready to be moved out of Idaho by 2035.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	Batt C3, E1	A	abs
4	Provide liquid storage operations to support HLW evaporator operations to reduce Tank Farm volume.	1.2.3.2.1.1.A	Batt E3	A	abs
5	Provide liquid and calcine storage operations to support calcining all non-sodium HLW by 6/30/98.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	Batt E4	A	abs
6	Provide liquid and calcine storage operations to support calcining all SBW by 2012.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	Batt E5	A	abs
7	Accelerate efforts to provide for calcine treatment completion by 2035.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	Batt E6	A	abs
8	Provide safe, inspectable storage at CPP-666 for used HEPA filters	1.2.3.2.1.2.2.A	RCRA	D	abs
9	Complete RCRA closure of CPP-666 hazardous waste tanks	1.2.3.2.1.2.2.A	RCRA	D	abs

Specific Assumptions: The HLW evaporator will start up and operate successfully at the expected rates. The calciner will operate on an 18-month on, 12-month off schedule. The first campaign calcines a blend of

MURDER BOARD GOALS

Ensure that Priority 1 cost estimate packages only address Compliance requirements

(Or Priority 2 Packages only address requirements for Compliance in Negotiation, etc.)

Review the scope of work to ensure that it is necessary to accomplish the requirements identified

Review resource estimates to determine the maturity of the cost estimate

Evaluate thought process and data application process

Look for ways to reduce costs in packages

DIRECTIONS FOR COMPLETION OF A BASIS OF ESTIMATE PACKAGE

Identify all Work Scope That is Driven by Requirements Necessary to Priority 1 and 2 Compliance Driver Categories

Eliminate All Work Scope That is Outside of Priority 1 and 2 Compliance Driver Categories

Scrub All Work Scope to Eliminate Non-Essential Activities

Identify the Eliminated Non-Compliance and Non-Essential Work Scope and Explain Impacts of Elimination

Identify Facilities Where the Work is Performed

If You Have no Priority 1 or 2 Work Scope, You Still do the Above Steps for Presentation to the Murder Board

HOW TO STRUCTURE THE WORK SCOPE

Start With the Decision Unit

Analyze and Group Related Requirements

Establish the Compliance Work Scope

Determine the Major Tasks Required to Achieve the Requirements

Establish the Non-Compliance Work Scope

Determine the Major Tasks Required to Achieve the Requirements

PRESENTING WORK SCOPE
FOR A DECISION UNIT REQUIREMENT

Present Scope Descriptions for Each Major Task

Assemble a Logic Diagram Which Shows the Required Sequence of Tasks and Milestones

Present Task Schedule Dates/Durations on the Logic Diagram

Present a Cost Estimate for Each Task

Milestones Presented Will Match Those Shown in the Master Schedule

Decision Unit Requirements (Scope and Schedule) Tactical Plan
Decision Unit: ARA D+D
CAP(s) associated: 3KNA2R000
EMI Identification Number: ER 124
Description: D+D of ARA

#	Requirement	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category A-I	ABS., INV., INS.
1	D+D ARA Building	3KNAR2R00 3KNAR2C00 3KNAR2P00	EXAMPLE	3-I	90% ABS 10% INV
2	D+D Substation IV, ARA-615	NONE	EXAMPLE	3-I	100% ABS
3	D+D 1st Warehouse	NONE	EXAMPLE	3-I	100% ABS
4	D.D 2nd	NONE	EXAMPLE	3-I	100% ABS
	Warehouse				

Specific Assumptions:

ENVIRONMENTAL MANAGEMENT
ESTIMATING PACKAGE COVER SHEET

Decision Unit Title:	Hypothetical DU 1072	**Start Date:**	Oct 1, 1997
Priority:	3	**Finish Date:**	Jan 10, 2002
Driver Category:	I	**Prepared By:**	Team

Decision Unit Estimate - Dollars in Thousands

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
Technical Cost		1,450	902	1,246	1,291	600	5,488
Facility Costs			*To be provided by EM Team*				
Support Costs			*To be provided by EM Team*				

Complete below only if backup documentation will come from current planning:

Req No.	WBS No	Control Account, Work Package Title	Priority Driver	Estimate FY 97-02
1	1.2.02.2.1.1	3KNAR2R00 - WP	3-I	$ 566.K
1	1.2.02.2.1.1	3KNAR2C00 - WP	3-I	$ 884 K
1	1.2.02.2.1.1	3KNAR2P00 - WP	3-I	$ 3,439 K
2	1.2.02.2.1.2	New Planning - NO WP available	3-I	$ 600 K
3,4	1.2.02.2.1.2	New Planning - No WP available	3-I	$ 500K

ENVIRONMENTAL MANAGEMENT
MAJOR TASK SCOPE STATEMENT

Decision Unit Title:	Hypothetical Example - DU 1072	**Start Date:**	Oct 1, 1997
Priority:	3-I	**Finish Date:**	Jan 10, 2002
		Date:	Jan 15, 1995
		Prepared By:	Team

SCOPE OF WORK: (concise description of objective and work to be performed; include description of Major Tasks)

D&D work scope includes (1) D&D of ARA 605, 606, 614; (2) Asbestos removal + D&D of ARA-615, remove floor/foundations at ARA 601, 602, 605, 606, 614, 615; (3) D&D ARA 604, 613 roof, walls, floors/foundations, D&D ARA-II Substation, tanks, canal utilities, and (4) D&D floors/foundations at ARA-IV Substation @ ARA-615 and (5) D&D Substation VII, ARA-615

ASSUMPTIONS: (identify assumptions made when developing work scope)

(1) EA will be approved and in place 10-Sep-97
(2) IIA will be approved and in place 60-Sep-97; no New Rad or Haz materials will be encountered during demolition
(3) EA will be in place 10-Sep-94; interface with Independent Verification Contractor satisfied
(4) No new Rad or Haz materials will be encountered during demolition
(5) EA approved 10-Sep-01

PRODUCTS/DELIVERABLES (what is produced or delivered as a result of milestone completion)

(1) Partial D&D of ARA-605, 606, + 614
(2) Removal of asbestos from ARA-615, and partial D&D of ARA-601, 602, 605, 606, 614, and 615
(3) Complete D&D of ARA-604, 613
(4) Complete D&D of AAA-IV Substation
(5) Complete D&D of VII

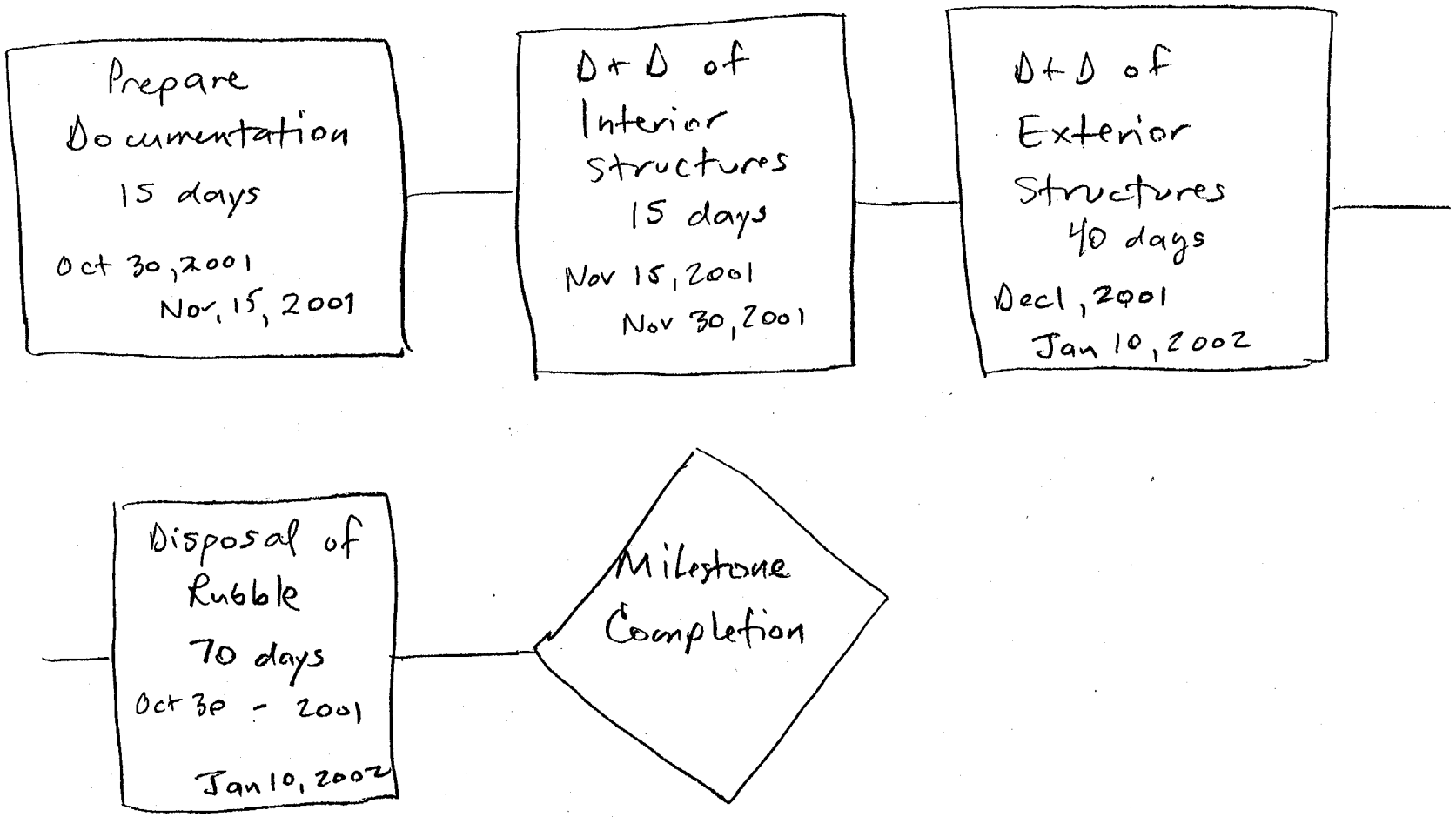
MILESTONES: (what programmatic milestones are supported/ must list all compliance milestones related to the major task)

(1) See attached WP
(2) See attached WP
(3) See attached WP
(4) Complete D&D of ARA-IV Substation
(5) Complete D&D of ARA-VII Substation

PREREQUISITES: (those items restraining the milestone)

(1) None
(2) Equipment removed from, and demolition of roof + walls for ARA-605, 606, + 615 completed
(3) Completion of pre-D&D tasks @ ARA-604, 613; location of ARA-II SS tanks, utilities
(4) Equipment removed from ARA-IV substation
(5) Equipment removed from ARA-VII Substation

New work Scope Item, WBS 1.2.02.2.1.2, Requirement #2
No work package currently in baseline



ENVIRONMENTAL MANAGEMENT
DECISION UNIT BASIS OF ESTIMATE

Decision Unit Title:	DU 1072 / 4 elements of work scope	**Start Date:**	Oct 10, 2001
Priority:	in WBS element 1.2.02.2.1.02,	**Finish Date:**	Jan 10, 2002
Driver Category:	No WP currently in baseline	**Prepared By:**	Team

ID NO.	MAJOR TASK DESCRIPTION	BASIS OF ESTIMATE EXPLANATION
A	Prepare Documentation **EM Driver Category:** 3-I **Facility where work is performed:** ARA-615	Historical cost for similar work scope @ ARA-601 (3KNAR1001, fall, 1994), scrubbed to reflect reductions in admin, tech support, engineering
B	D+D of Interior Structures **EM Driver Category:** 3-I **Facility where work is performed:** ARA-615	Private sector benchmark of 400 cy @ $40/cy, plus 50% adder for INEL Safety and winter conditions (ref. D.D doc. 10011, INEL cost Doc 2002). Requisition #72-B (see attached) Includes photobook + note logs
C	D+D of Exterior Structures **EM Driver Category:** 3-I **Facility where work is performed:** ARA-615	Private sector benchmark of 4000 cy @ $100/cy, plus safety + weather adders (see above). Requisition # 72-C (see attached) Includes photobook, note logs
D	Disposition of D+D Rubble **EM Driver Category:** 3-I **Facility where work is performed:** ARA-615	Offsite disposal of 4400 cy @ $25/cy. Requisition # 72-D (attached). Fixed Price transport $27.K, Req. # 72-E

LOCKHEED MARTIN IDAHO TECHNOLOGIES

RESOURCE/COST ESTIMATE FORM

TYPE THE ESTIMATE NAME OVER THIS TEXT: Hypothetical Example — DU 1072
DECISION UNIT TITLE: Hypothetical Example — DU 1072
MAJOR TASK TITLE: ARA-615 Substation IV D+D
ESTIMATE NUMBER: NA
REVISION NUMBER: NA
DATE PREPARED: 15-Jan-96
REQUESTOR'S PRGM CNTRL REP: Mr. Snurdley
WORK PACKAGE NUMBER: None - new scope
TYPE OF ESTIMATE: Planning

ESTIMATOR: Team
ESTIMATORS ORGANIZATION NUMBER:
ATTACHMENTS: NONE

A	B	C	D	E	F	G	H	I	J	K	L
		Identification of Resource Type		Identification of Resource Quantities and Rates							
				Labor			Non-Labor				
Activity No.	Activity Description (Work Scope Description that ties to Identifying No. to the left) (Major Tasks)	Resource Code	Specific Resource Description	Hours	Rate/ Hour	Labor $ Total	Unit	Qty	Unit Cost	Non-Labor $ Total	Dollar Totals
						$0				$0	$0
A	Prepare Documentation					$0				$0	$0
						$0				$0	$0
	SWR		Sr. Engineer	200		$0				$0	$0
			Admin Support	30		$0				$0	$0
						$0				$0	$0
	IPS		Jr. Engineer	80		$0				$0	$0
						$0				$0	$0
						$0				$0	$0
B	D+D Interior structures		Sr Eng - Proj oversight	100		$0				$0	$0
			Jr Eng - Field Mgmt	100		$0				$0	$0
						$0	each	1	16,000	$0	$0
			Subcontract - Demolition			$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
C	D+D Exterior structures		Sr. Eng	300		$0				$0	$0
			Jr. Eng	300		$0				$0	$0
						$0	each	1	400,000	$0	$0
			Subcontract Demolition			$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
D	Disposition D+D Rubble		Jr. Eng	200		$0				$0	$0
						$0	each	1	110,000	$0	$0
			Subcontract			$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
ESTIMATE TOTALS				0		$0				$0	$0

Attachment 5

HOW TO RATE PACKAGE QUALITY

Confidence Rating	Quality and Basis of Estimate
5	The scope of work has been well defined and detailed backup documentation is available. The cost estimate has a well founded basis such as documented historical costs or firm vendor quotes. Uncertainties are minimal to non-existent.
4	The scope of work is well defined, but is provided with less detail. Most of the cost estimate is based on documented historical costs or outdated quotations supplemented with some experienced engineering judgment. Uncertainties are apparent, but small.
3	The scope of work is moderately well defined but lacks detail. The cost estimate is based on an approximately even distribution of documented historical costs or quotations and experienced engineering judgment. Uncertainties are moderate.
2	The scope of work is only partially defined but lacks significant detail. The cost estimate is based mostly on engineering judgment. Uncertainties are moderately high.
1	There is insufficient data to develop a sound scope of work. The cost estimate is based completely on engineering judgment. Uncertainties are high.

COST ESTIMATING SUPPORT

How to Build a Defensible Cost Estimate

Definitions

Methodologies

Cost Estimating Tools

Basis of Estimate

HOW TO BUILD A DEFENSIBLE COST ESTIMATE

Clearly Identify Scope Elements

Subdivide into Logical Breakdown of Subelements

Use Acceptable Methods to Establish Defensible Resource Requirements (Labor Hours and Non-Labor Dollars) for Each Subelement

Make Assumptions, as Necessary, to Fill in Where Work Scope and Resource Requirements are Uncertain - Be Prepared to Defend the Assumptions

Provide Defensible Basis of Estimate Explanations for Lowest Subelements Presented

PROGRAM CONTROLS WILL PRICE THE WORK SCOPE AFTER COMPLETION OF THE MURDER BOARD REVIEW

A PROJECT COST ESTIMATE IS A FORECAST OF THE FINAL RESULT

It is Based Upon the Work Scope

Assumptions are Used, as Necessary, to Fill in Where Work Scope is Not Defined

It is Calculated to Predict the Final Actual Cost

A PROJECT COST ESTIMATE IS DEFINABLE

It Is	It Is Not
A Forecast of the Final Cost	The Actual Final Cost
Based on a Set of Assumptions That Remain Fixed During the Entire Project	A Measure of How an Organization is Performing
Is No Better That the Information on Which it is Based	A Budget
A Calculation of the Risk and Uncertainty Associated with the Project	An Elimination of Uncertainty or Risk

METHODS OF ESTIMATING

Bottoms-up Technique

Generally, a work statement and set of drawings or specifications are used to "takeoff" material quantities required to perform each discrete task performed in accomplishing a given operation or producing an equipment component. From these quantities, direct labor, equipment, and overhead costs are derived and added thereto.

Specific Analogy

Specific analogies depend upon the known cost of an item used in a prior system as the basis for the cost of a similar item in a new system. Adjustments are made to known costs to account for the differences in relative complexities of performance, design, and operational characteristics.

Expert Opinion

May be used when other techniques or data are unavailable. Several specialists can be consulted until a consensus cost estimate is established. (This is the least credible and should be used only when no other technique or data are available.) If this technique is used, the names and credentials of at least three experts will need to be provided, along with an "average" of their respective opinions.

BASIS OF ESTIMATE

Provides a Text Explanation to Document Source of Costs:

- **Project files**
- **Transmittals**
- **Scope Definition Meetings**
- **Design Documentation**
- **Subject Matter Experts**

COST ESTIMATE CHECKLIST

Are Mathematical Extensions and Additions Correct?

Check for Scope Omissions and Oversights?

Are Labor Hours Reasonable When Compared Against Schedule Durations?

Are Subcontracts Clearly Identified and Referenced?

Are Vendor Quotes Clearly Identified and Referenced?

Has the Estimate Been Reviewed for Completeness by Peers?

Are Costs Estimated in FY 1996 Dollars?

COST ESTIMATING REFERENCES

Nationally Accepted Trade Publications

INEL Cost Estimating Guides

INEL Cost Estimating Professionals

Historical Data

- **Site-Specific Tasks**
- **Private Sector Examples**

Vendor Data

- **Catalogues**
- **Quotations**

COST ESTIMATING HELP

Jim Lucas	**526-6479**
Diane Stoddard	**526-5484**
Terry Sivill	**526-9273**

EMI Primary Contacts

Program/Waste Stream	LITCO		DOE-ID	
30 NO	Brew Barron		Jerry Lyle	
SNF	Toney Mathews/Arvid Jensen	Gary McDannel	Pete Dirkmaat	Bob Stump
HLW	Richard Gurley	Brent Palmer	Pete Dirkmaat	Tom Wichmann
Other NO	Toney Mathews	Brent Palmer	Pete Dirkmaat	Tom Wichmann
60 Facility Disp. (S&M Deact.)	Richard Gurley	Doug Preussner	Mark Arenaz	Dan Sanow
60 NO — ICPP Infrastructure	Toney Mathews	Jim Hopla	Mark Arenaz	Clayton Ogilvie
30 WO	Jud Ellis			
TRU	Jim VanVliet	Jeff Mousseau/Jay Davis	Joel Case	John Medema
MLLW	Jim VanVliet	Jeff Mousseau/Jay Davis	Joel Case	John Medema
LLW	Jim VanVliet	Jeff Mousseau/Jay Davis	Joel Case	John Medema
SCW	Jim VanVliet	Jeff Mousseau/Jay Davis	Joel Case	John Medema
Other WO	Jim VanVliet	Jeff Mousseau/Jay Davis	Joel Case	John Medema
40 ER	Kathy Falconer	Adam Owen	Lisa Green	Carol Hathaway
40 Facility Disp. (D&D)	Kathy Falconer	Scott LaBuy	Lisa Green	Carol Hathaway
60 SS	Billy Childers			
SW Infrastructure	Taft Albright	Jon Tillo	Mark Arenaz	Clayton Ogilvie
50 TD	Bill Guyton			
Technology Development	Bob Snelling	John Beller	Tom Williams	Pat Trudel

EMI
Greg Frandsen/Thayne Judd
Alice Williams/Lori Fritz

EM Requirements/Defensible Cost Project
Murder Board Conceptual Makeup

Type	Board A NO Review Pilot-2/Reg.-21**	Board B WO Review Pilot-1/Reg.-25**	Board C Inf./Deact. Review Pilot-1/Reg.-23**	Board D ER/D&D Review Pilot-1/Reg.-25**
Board Chair	Lisa Green	Jim Lake	Bob Secondo*	Chris Clark
Board Members				
Regulatory Affairs	Mary Willcox	Bart Richards	Keith Kristofferson	Steve Birrer
Technical DOE	Edward Ziemianski/ Don MacDonald	Craig Hansen/ Tom Wichmann	Max Covington	Bill Leake
Technical LMIT	Dave Hutchison	Ben Reyes	Jim Bruce	Bill Gay/ Doyle Batt
Financial (DOE or LMIT)	Dean Groetzinger	Bill Lloyd	Colleen Fry	Mark Searle
LMIT Director/ DOE Program Manager	Jim VanVliet/ Joel Case	Richard Gurley/ Kathy Falconer/ Pete Dirkmaat	Arvid Jensen/ Tom Williams	Toney Mathews/ Mark Arenaz/ Taft Albright
Support				
Board Secretary	Carol Hathaway	Susan Krusch	Keener Earle	Jo Ferguson
Administrative Support	Niel Christiansen	Greg Goltz	Natalie Jenson	Gloria Udy

* Senior Board Chair

** Approximate number of packages assumed to be reviewed in each phase.

TEAM EFFORT REQUIRED

Programs

- Continual budget drills for last year
- "Overworked/underpaid"
- Technical Experts
- Need paradigm shift

Murder Boards

- Not here to murder the program people or their technical capability
- Not here to murder or cuts specific costs
- Here to murder old way of doing business
- Here to murder perception that we're 'fat'
- Here to help the programs see how to change
- Need help to:
  - Scrub requirements
  - Scrub logic and scope
  - Scrub BOE

APPENDIX E
COST ESTIMATING TECHNIQUES

Overview of Accepted Cost Estimating Techniques

The cost estimation process must begin with a clear and complete knowledge of the work to be performed or accomplished. The source document for this is the Decision Unit Requirements Document.

All cost and schedule duration estimates should be based upon sound principles, quantitative estimates, and be fully documented. The documentation will state clearly and concisely the rationale behind the estimates, the origin of the quantitative elements used in producing the estimation rates, and the final rates used in the budget formulation process. For work with defined milestones and end-products, the cost estimates should be detailed and precise. For work classified as basic research (i.e., where there is no identifiable end-product or deliverable), which does not allow for detailed estimates, the detail should be provided to the lowest level possible.

The following cost estimating techniques can be used to develop a basis of estimate:

Bottoms Up—Generally, a work statement and set of drawings or specifications are used to checkoff material quantities required to perform each discrete task performed in accomplishing a given operation or producing an equipment component. From these quantities, direct labor, equipment, and overhead costs are derived and added.

Specific Analogy—Specific analogies depend upon the known cost of an item used in prior systems as the basis for the cost of a similar item in a new system. Adjustments are made to known costs to account for differences in relative complexities of performance, design, and operational characteristics.

Note: Using INEL historical data as a source for known costs is not automatically acceptable, as the costs are perceived to be "fat" (e.g., more hours were spent because more resources were assigned to the work than were needed). If historical INEL costs are to be used, this concern will need to be addressed. Referencing prior year costs, plus escalation, is not acceptable.

Parametric—Parametric estimating required historical databases on similar systems or subsystems. Benchmarking data from other sites or private sector industry is a good source for data. Statistical analysis is performed on the data to find correlations between cost drivers and other system parameters, such as design or performance parameters. The analysis produces cost equations or cost estimating relationships which can be used individually or grouped into more complex models.

Cost Review and Update—An estimate is constructed by examining previous estimates of the same program or project for internal logic, completeness of scope, assumptions, and estimating methodology. The estimates are then updated to reflect the cost impact of new conditions of estimating approaches.

Trend Analysis—A cost efficiency index is derived by comparing originally projected contract costs against actual costs on work to be performed to date. The index is used to adjust the cost estimate of work not yet completed. This is useful if the planning to date is considered to be good.

Expert Opinion—Expert opinion may be used when other techniques or data are unavailable. Several specialists can be consulted until a consensus cost estimate is established. This is the least credible method and should be used only when no other techniques or data are available. If this technique is used, the manes and credentials of at least three experts will need to be provided, along with an average of the respective opinions.

APPENDIX F
MURDER BOARD CHECKLIST AND RECOMMENDATION FORM

Murder Board Checklist **Decision Unit _____**

Murder Board: Date:
Primary Technical Contact:

LOGIC:

1. Type of logic submitted (circle all that apply):

   box diagram/activity schedule/resource chart/other (specify)

Comments:

2. Does logic adequately portray activities to be accomplished within the package scope and time window?
( ) Yes
( ) No
Comments:

3. Are descriptions of each activity at appropriate level of detail for cost estimating?
( ) Yes
( ) No
Comments:

4. Are the following clearly identified for each activity?

   All milestones or specific deliverables which drive activities
   ( ) Yes
   ( ) No

   Activity durations
   ( ) Yes
   ( ) No

   Logic links between activities
   ( ) Yes
   ( ) No

   Links between activities and cost estimate data
   ( ) Yes
   ( ) No

Comments:

IDENTIFICATION OF PRIORITY:

Note: It is acceptable to have non-compliance activities discussed in the package. However, they must be clearly segregated from compliance activities. Further, category A (Batt/STP) must be easily identifiable.

Compliance means priority 1 (categories A-D) and priority 2 (category H). Non-compliance means priority 3 (category I) and priority 4 (categories E-G).

5. Are non-compliance activities included in workscope and/or associated cost estimate?
( ) Yes (List on attached Murder Board Recommendation Sheet)
( ) No

6. Can Category A (required by Batt/STP) activities be clearly distinguished?
( ) Yes
( ) No
Comments:

QUALITY OF COST ESTIMATE:

7. Was contingency included in the cost estimates?
( ) Yes How much?
( ) No
Comment: (if yes, it should be removed)

8. How were support costs estimated?
( ) Percent based at _ % of _____ ( ) using historical costs
( ) Other (specify)
Comments:

9. Are there assumptions that significantly affect cost estimate?
( ) Yes
( ) No
Comments:

10. Do overall resource levels appear appropriate to workscope?
( ) Yes
( ) No
Comments:

11. For the following, rate between 5 (excellent) and 1 (poor):

__ Quality of workscope definition
__ Quality of estimate basis
(Vendor quotes/independent estimates = 5, SWAG/unrefined historical = 1)
__ Quality of detailed, backup documentation
(Activity based = 5, level of effort = 1)
__ Level of certainty
(risk associated with assumptions/chosen compliance strategy)
__ Confidence that cost estimate is the absolute minimum needed for compliance

____ OVERALL RATING OF COST ESTIMATE QUALITY AND MATURITY

COST REDUCTION OPPORTUNITIES:

12. Were activities identified that could be eliminated or reduced if current practices/management direction or DOE orders could be changed?
( ) Yes (List practices/orders on attached Murder Board Recommendation Sheet)
( ) No

13. Were "Insurance" or "Investment" activities noted which could be eliminated to reduce cost?
( ) Yes (List on attached Murder Board Recommendation Sheet)
( ) No
Comments:

14. Is there work in this package which appears to duplicate work in another package reviewed by the board?
( ) Yes (List on attached Murder Board Recommendation Sheet)
( ) No

15. Is there work in this package which appears to duplicate work in other EM/Site programs?
( ) Yes (List on attached Murder Board Recommendation Sheet)
( ) No

16. Can you identify any additional consolidation opportunities?
( ) Yes (List on attached Murder Board Recommendation Sheet)
( ) No

Murder Board Recommendation Sheet **Decision Unit ___**

Page __ of __

For use by board secretary to document findings, answers to checklist questions, recommendations and required actions. Include as many sheets as needed to capture data.

Murder Board: Date:

Primary Technical Contact:

Item	Recommendation

APPENDIX G
MURDER BOARD PROCESS

cc: (w/ Attach.)

BOARD MEMBERS

Board A — NO Review
Lisa Green
Mary Willcox
Edward Ziemianski/Don MacDonald
Dave Hutchison
Dean Groetzinger
Jim VanVliet/Joel Case
Carol Hathaway
Niel Christiansen

Board B — WO Review
Jim Lake
Bart Richards
Craig Hansen/Tom Wichmann
Ben Reyes
Bill Lloyd
Richard Gurley/Kathy Falconer/Pete Dirkmaat
Susan Krusch
Greg Goltz

Board C — Infrastructure/D&D Review
Bob Secondo
Keith Kristofferson
Max Covington
Jim Bruce
Colleen Fry
Arvid Jensen/Tom Williams
Keener Earle
Natalie Jenson

Board D — ER Review
Chris Clark
Steve Birrer
Bill Leake
Bill Gay/Doyle Batt
Mark Searle
Toney Mathews/Mark Arenaz/Taft Albright
Jo Ferguson
Gloria Udy

PARTICIPANTS*

30 NO
Brew Barron
Gary McDannel
Brent Palmer
Bob Stump

30 WO
Jud Ellis
Jeff Mousseau
Jay Davis
John Medema

40 ER
Adam Owen

40 Facility Dispositioning (D&D)
Scott LaBuy

60 Facility Dispositioning
Doug Preussner
Dan Sanow

60 NO — ICPP Infrastructure
Jim Hopla
Clayton Ogilvie

60 SS
Billy Childers
Jon Tillo

50 TD
John Beller
Bill Guyton
Bob Snelling
Pat Trudel

* Only key participants listed. Programs may include others as desired.

cc: (w/o Attach.)

Greg Baker
Bruce Hamilton
Jerry Lyle
Alice Williams

LOCKHEED MARTIN

Lockheed Idaho Technologies Company

INTERDEPARTMENTAL COMMUNICATION

Date: January 11, 1996

To: EM Requirements/Defensible Cost Project Board Members and Participants

From: for Greg Frandsen, MS 3207
Lori Fritz, MS 1118

Subject: MURDER BOARD PROCESS - GBF-3-96

This memo is prepared to help clarify the Murder Board Process. The basic plan for the boards is included as Attachment A. The plan will be validated in a series of pilot boards to be held on Wednesday, January 17. The schedule for this pilot phase is included as Attachment B. To put this into context, the overall schedule for Murder Board activity is shown in Attachment C. Board A, the Nuclear Operations Board, will review one Nuclear Operations (NO) package in the morning (SNF or HLW) with the rest of the boards observing. All board members and NO representatives necessary for the review should be in the morning session. In the afternoon, the boards will meet individually with their program reviewing one pilot package each. Lessons learned from this pilot process will be incorporated into the regular review process scheduled 1/24–2/7. At the conclusion of the pilot session, the Murder Board chairs will receive input from the program being reviewed on the sequence/schedule for the regular board review. This initial schedule should be resolved by Friday, 1/19/96. An initial listing of decision units by board is included as Attachment D for this purpose. The schedule will be formally issued COB, Friday 1/19/96.

In preparation for the pilot board, programs should assemble pilot packages using the format of Attachment E. As stated above, they should also prepare a draft schedule to be worked out with the board chair using Attachment D and the assumption of reviewing two packages per day.* Packages may be swapped between boards with mutual consent as long as no conflict of interest exists.

Training for board chairs, members, and support staff (secretary and administration) will be 1–3pm, Tuesday, 1/16/96 in the NYC main area. The board process will be discussed in detail at that time. There will be an optional 3–4pm board "get acquainted" meeting after the training at the board chair's discretion.

If there are any question, please call Keener Earle of my staff at 525-5637.

Attachments:
As Stated

---

* More than two per day may be scheduled if sufficiently similar.

EM Requirements/Defensible Cost Project
Murder Board Conceptual Plan

1. *Mission* — Provide an independent review of the INEL EM activities to assure defensible cost estimates and requirements flow down for those activities necessary for compliance with agreements, consent orders, laws, and regulations as a first priority, and other activities as a second priority. Assure that the first priority compliance items are properly broken into 'absolute', 'insurance', and 'investment' components.

2. *Requirements*

   a. Murder boards will be established so that 85* Decision Unit Requirements Documents (DURDs) and their applicable cost basis may be reviewed/scrubbed as follows:

      Pilot phase — 1/17 (1 package from each EM Directorate — 5 pilot packages)**

      Regular phase — 1/24–2/7 (11 working days) — assume 80 packages remaining.

   b. Murder board representatives will be inherently independent of the programs they review.

   c. Results of murder board will be maintained on formal checklists/minutes and will be statused and rolled up on a daily basis.

   d. Murder board composition shall be balanced between DOE and Lockheed and have technical, financial, and regulatory affairs representation.

3. *Process* — The below process is run on a trial basis with review of pilot packages on 1/17. The schedule for board reviews with the programs is set at this pilot phase by the applicable board chair. The below process may be modified because of the pilot phase. Based on the expected number of packages discussed in Section 2, four boards will be required processing two packages per day.

   a. Programs provide the 10 copies of the documentation package no later than 1600 of the day before the board is scheduled to the board secretary. Boards pre-review the packages prior to the board (see suggested daily schedule).

   b. Programs present the packages to applicable murder board (process to be defined) at the scheduled time.

   c. Murder board reviews the package with a checklist (to be developed) — approving/rejecting appropriate parts as necessary.

   d. Board secretary maintains checklist and minutes — obtains sign off at end of day from board chair and gives copy to program representative/Tally Team.

---

* Number is approximate based on current number of decision units. This number will be revised based on assessment of DUs as to missing items and compliance impact.

** The only exception is SNF and nuclear fuels, which submit one pilot package between them.

e. Murder board chairs, secretaries, and a Tally Team representative meet at end of day to discuss the day's results, resolve disputes, revise the process as required, etc.

f. Tally Team archives information and maintains an up-to-date status of the board results.

4. ***Roles and Responsibilities***

Murder Board Chair — Voting member. Responsible for the overall board attendance and results, including the conduct of the board and approving the results. Board results obtained by consensus of voting board members. Non-consensus items will be resolved with senior board chair at closeout. Chair works directly with program interface to schedule/re-schedule the reviews as required. Chair has latitude to schedule ad hoc meetings, presentations, etc. as necessary to accomplish tasks. Decision unit assignments may be exchanged between boards as long as no conflict of interest exists.

Senior Board Chair — Responsible for conducting the daily murder board closeout meeting and resolving disputes from murder boards (with consensus of board chairs). If no consensus is resolved, has decision authority as required.

Board Secretary — Non-voting board member. Maintains formal murder board results, meeting minutes, and board schedules for board chair. Responsible for gaining approval for same from board chair, providing administrative support to the board as necessary, and assuring the Tally Team and participating program gets the results on a daily basis. Attends daily board closeout in support of board chair — modifies board results based on dispute resolution as required. Is supported by administrative aid as required.

Board Members — Voting members. Support board chair in review process as directed. Approval of packages will be consensus of voting board members.

Tally Team — Responsible for maintaining the running status and total of board results and archiving the information. A Tally Team representative attends the daily closeout meeting with the board chairs and secretaries.

5. ***Board Membership***

(See attached). LMIT Directors and applicable DOE-ID program managers will participate in the boards <u>indicated</u> as voting board members. They may <u>not</u> participate as a voting board member in any other board.

6. ***Board Locations***

Board A — NYC Conference Room 1
Board B — NYC Conference Room 2
Board C — NYC Main Bullpen
Board D — NYC Secondary Bullpen

7. ***Conceptual Daily Board Schedule***

(See attached).

Conceptual Murder Board Daily Schedule

0730 – 0900	Board pre-review of first package
0900 – 1100	Presentation of first package by program and board review
1100 – 1130	Board discussion/results finalization
1130 – 1200	Lunch
1200 – 1330	Board pre-review of second package
1330 – 1530	Presentation of second package by program and board review
1530 – 1600	Board discussion/finalization
1600 – 1630	Break (distribute review package to board members for next day)
1630 – 1730	Board closeout meeting (NYC Conference Room 1) (Board chairs, secretaries, and Tally Team representative)

EM Requirements/Defensible Cost Project
Murder Board Conceptual Makeup

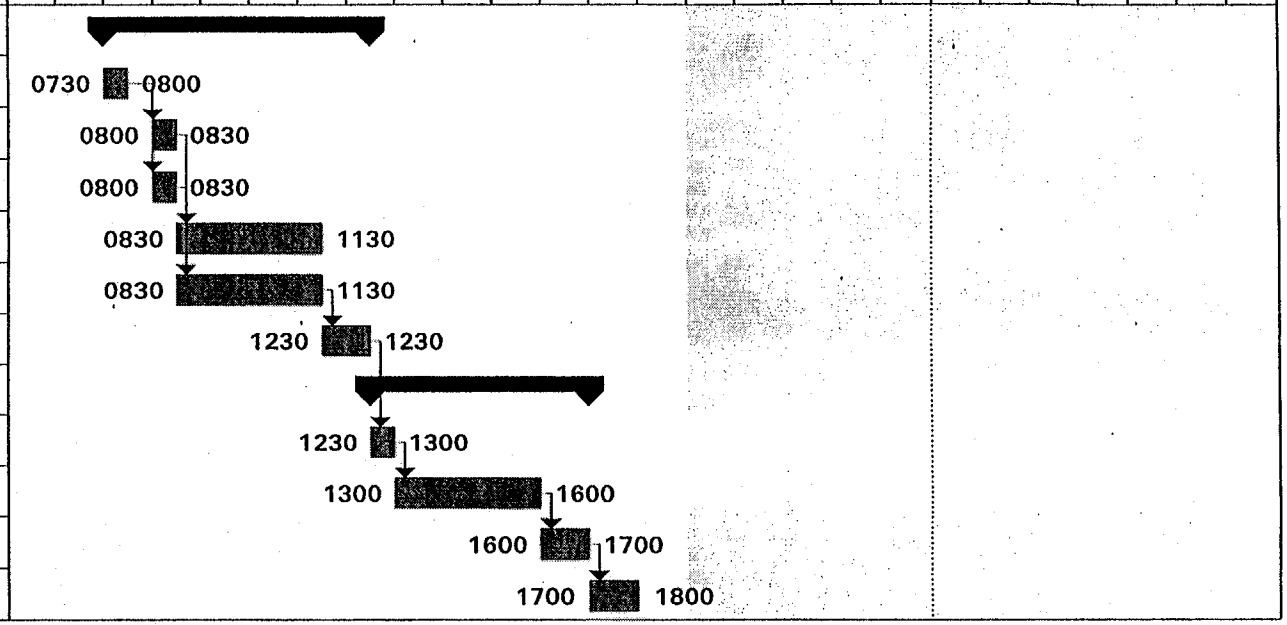
Type	Board A NO Review Pilot-2/Reg.-21**	Board B WO Review Pilot-1/Reg.-25**	Board C Inf./Deact. Review Pilot-1/Reg.-23**	Board D ER/D&D Review Pilot-1/Reg.-25**
Board Chair	Lisa Green	Jim Lake	Bob Secondo*	Chris Clark
Board Members				
Regulatory Affairs	Mary Willcox	Bart Richards	Keith Kristofferson	Steve Birrer
Technical DOE	Edward Ziemianski/ Don MacDonald	Craig Hansen/ Tom Wichmann	Max Covington	Bill Leake
Technical LMIT	Dave Hutchison	Ben Reyes	Jim Bruce	Bill Gay/ Doyle Batt
Financial (DOE or LMIT)	Dean Groetzinger	Bill Lloyd	Colleen Fry	Mark Searle
LMIT Director/ DOE Program Manager	Jim VanVliet/ Joel Case	Richard Gurley/ Kathy Falconer/ Pete Dirkmaat	Arvid Jensen/ Tom Williams	Toney Mathews/ Mark Arenaz/ Taft Albright
Support				
Board Secretary	Carol Hathaway	Susan Krusch	Keener Earle	Jo Ferguson
Administrative Support	Niel Christiansen	Greg Goltz	Natalie Jenson	Gloria Udy

* Senior Board Chair

** Approximate number of packages assumed to be reviewed in each phase.

Pilot Board Schedule for WED 1/17/96

ID	Task Name	Duration
1	**Conduct 'pilot' pilot board**	**0.46d**
2	POD	0.5h
3	Board A prereview 1st packa	0.5h
4	Boards B,C,D also review pa	0.5h
5	Board A conduct 1st review	3h
6	Boards B,C,D observe	3h
7	Discuss results (lunch in)	1h
8	**Conduct pilot boards**	**0.38d**
9	Boards prereview packages	0.5h
10	Boards conduct pilot reviews	3h
11	discuss review scheds/result	1h
12	**Conduct pilot closeout mtg**	1h



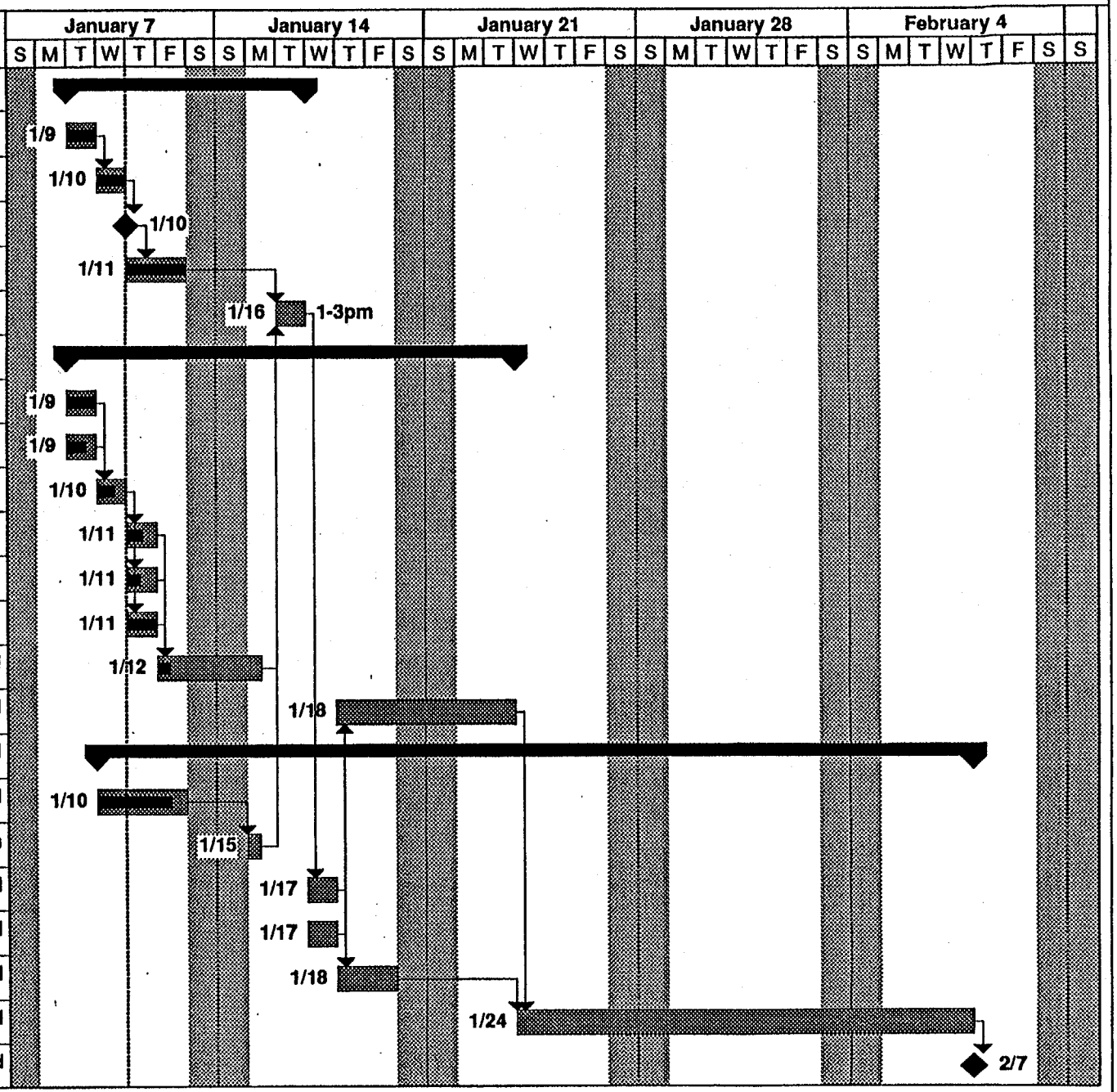
NOTE: ONLY NucOPs reps attend AM Board--arriving no later than 0800.
Other programs arrive at 1230 for their Boards.
All pilot packages to be delivered COB 1/16 to Susan Krusch for Board pre-review..

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ATTACHMENT 13

MURDER BOARD S .EDULE(1/11/96)

ID	Task Name	Duration
1	**Select and Train Murder Boa**	6d
2	Propose board member ci	1d
3	Review/gain approval fm S	1d
4	Lyle/Barron/Ellis appoval	0d
5	Notify board members	2d
6	Train Boards	1d
7	**Prepare/approve board plan.**	11d
8	Prepare strawman plan	1d
9	prepare review cklists	1d
10	Review plan/cklists	1d
11 .	Prepare Tally Team mode	1d
12	Prepare final proc./cklists	1d
13	Revise plan	1d
14	Prepare training materials	1.5d
15	Revise proc. based on pik	4d
16	**Conduct Boards**	21d
17	Prepare pilot Board Schec	3d
18	Issue sched at POD/boarc	3h
19	Conduct pilot boards	1d
20	Prepare reg. board sched:	1d
21	Issue reg board scheds to	2d
22	Conduct Boards	11d
23	Boards complete	0d



ATTACHMENT C

Tentative Listing of Decision Unit Packages by Board

NOTE: The attached list is as of Thursday, January 11th and indicates substantially more units than anticipated. Programs should group similar scope units together as practicable in their proposed schedules so that they can be reviewed in parallel in a single morning or afternoon session.

Murder Board Review DUs (Draft)

Board A - Nuclear Operations		Board B - Waste Operations		Board C - Infra./Deact.		Board D - ER/D&D	
23	Total DU Packages for review	26	Total DU Packages for review	23	Total DU Packages for review	27	Total DU Packages for review
DU #	Title	DU #	Title	DU #	Title	DU #	Title
NO103	Alternative Calcination Tech Dev	WO101	Environ. Monitoring	INF103	Elect Dist Upgrd	ER101	SFE-20/740 D&D
NO108	DPC Prep & Stor Proj	WO102	Pollution Prevent.	INF104	Emerg Response Fac.	ER103	LOFT - MTA D&D
NO109	CPP-666 Fuel Stor Ops	WO103	ES&H Oversight	INF105	Medical Fac	ER104	TAN/TSF D&D
NO111	PBF/ARMF/MTR Fuel Trans	WO104	RWMC TRU Char & Cert	INF106	Line Item Plan	ER105	ETR D&D Assess & Cleanup
NO112	CPP-603 Fuel Trans	WO105	RWMC TRU Waste Ret	INF107	Gen Purpose Cap Equip	ER106	ARA III D&D
NO113	ICPP Dry Fuel Stor Ops	WO106	TRU Tech Dev	INF108	GPPs	ER107	ARA I D&D
NO114	SNM Management	WO107	TRU Program Support	INF109	SW Base A	ER109	1-10 Comp RI/FS
NO115	CPP-603 Fuel Stor Ops	WO108	WERF Ops	INF110	SW Base B	ER110	TAN Groundwater
NO116	Nuclear Fuel Tech Dev	WO109	MLLW Tech Support	NO101	Deact. Fac. S&M	ER111	OU 2-12 Comp RI/FS
NO117	National SNF Program	WO110	MLLW Lead Prog	NO102	ICPP Subsidiary Waste Treat	ER112	OU 3-13 Comp RI/FS
NO118	Nuclear Fuel Prog Mgt	WO111	MLLW Private Sector Prog	NO104	ICPP Landlord Serv	ER113	OU 4-12 Landfill Capping
NO122	HLW Disp Tech Dev	WO112	LLW Ops	NO105	ICPP Utilities	ER114	OU 4-13 Comp RI/FS
NO123	HLW Fac Const	WO113	RWMC Reg. Comp	NO106	ICPP CFSGF	ER115	WAG 5 Comp RI/FS
NO125	NWCF	WO114	RWMC TRU Fac Support	NO107	ICPP Internal Waste Mgt	ER116	Pit 9
NO126	Stored HLW Product	WO115	RWMC TRU Ops Support	NO110	TAN Base Ops	ER117	WAG 7 Comp ROD
NO—	HLW Program Support	WO116	RWMC LLW Fac Support	NO119	ARMF/MTR/PBF/Facility S&M	ER118	OU 7-06 GW Pathway Mon
NO—	FSV Procur/Ops	WO117	RWMC LLW Ops Support	NO120	WCF RCRA Closure	ER119	OU 7-08 OCVZ
NO—	National SNF Checkbook	WO118	RWMC Cap Equip	NO121	Rover Deact.	ER120	OU10-06 Rad Cont Soils
NO—	ANL-W Treatment (??)	WO119	WCSF	NO—	ICPP Base Support (HLW)	ER121	OU 10-03 Ordnance Removal
NO—	DOE Program Dir (??)	WO120	WO GPPs	NO—	ICPP Base Support (SNF)	ER122	OU 10-04 Comp RI/FS
NO—	TMI Facility	WO121	MLLW WROC Ops	NO—	ICPP Sec. Fac. LICP (was INF101)	ER123	OU 5-05/6-01
NO—	CPP-666 Rerack	WO122	WROC Comp/Reg Support	NO—	ICPP EUSU LICP (was INF102)	ER124	TRU Pits and Trenches
NO—	Nuclear Fuel Proj Support	WO123	WROC Fac/Ops Support	INF—	FDF	ER130	OU 2-12 Monitoring
		WO124	Packaging & Trans			ER135	OU 7-12 Pad A Limited Act
		WO125	FFCA STP			ER—	ARMF D&D (post 98)
		WO—	Apportioned Support Activities			ER—	ER Program Mgt
						ER—	TAN-CTF D&D (post 98)
Bold	Nominated by Program to be pilot case						
							Activities below will either be completed in FY97 or will not begin until 2003. There will not be a review of these packages at this time.
The following have no identified DURD:						ER102	CPP-601 Assess (post-2002)
NO124	Major Mods - Nuclear Fuels					ER108	WCF Assess (post-2002)
ER125	MTR D&D					ER129	OU 1-08 TSF Hq Removal ('96/97)
						ER131	WAG 4 Track 2's ('96/97)
						ER132	CFA 712 French Drain Rem ('96/97)
						ER133	WAG 5 TRack 1's ('96/97)
						ER134	OU 5-02 PBF-26 TC Rem ('96/97)
						ER—	BORAX-V D&D ('96-97)
						ER—	ARA II D&D ('96/97)
						ER—	CPP-631/709/734 D&D ('96/97)
						ER—	RWMC D&D (post 2002)
						ER—	PBF Area D&D (post 2002)
						ER—	CPP D&D (post 2002)
						ER—	TAN D&D (post 2002)
						ER—	TRA D&D (post 2002)

Mock Review Package

Sample Completed Cover Sheet

Murder Board Review Package
Cover Sheet

Decision Unit: NO 126 Title: Stored HLW Product

Project Manager: B. Palmer Telephone No.: 6-xxxx

Initial Review: [X] Yes [ ] No
Revised Review: [ ] Yes [ ] No

INITIALS		CONTENTS
BP	1.	Cover sheet
BP	2.	Decision Unit Requirements Document
BP	3.	Cover sheet for estimating package
BP	4.	Task scope statement
BP	5.	Logic diagram
BP	6.	Resource/Cost Estimate Form
BP	7.	Basis of Estimate
BP	8.	Documentation supporting the budget estimates
BP	9.	List of references cited in package

(These are not attached to this sample and are self-explanatory)

Blank cover sheet has been attached for your use.

Murder Board Review Package
Cover Sheet

Decision Unit:_____ Title:_____

Project Manager:_____ Telephone No.:_____

Initial Review: [ ] Yes [ ] No
Revised Review: [ ] Yes [ ] No

INITIALS	CONTENTS
_____	1. Cover sheet
_____	2. Decision Unit Requirements Document
_____	3. Cover sheet for estimating package
_____	4. Task scope statement
_____	5. Logic diagram
_____	6. Resource/Cost Estimate Form
_____	7. Basis of Estimate
_____	8. Documentation supporting the budget estimates
_____	9. List of references cited in package

Decision Unit Requirements Document

DRAFT

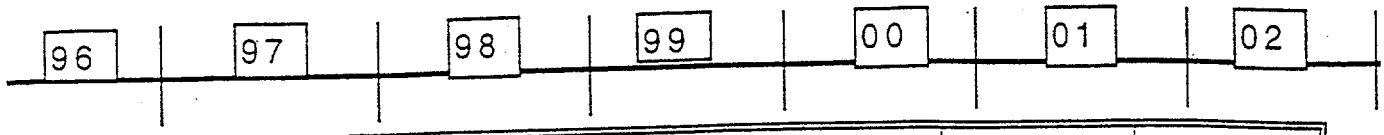
Program: HLW
Decision Unit:: NO126
\P(s) Associated: 1.2.3.2.1, 1.2.3.2.5.new
.ll Identification Numbers: 3000, 3001, 3002, 3039
Description: Stored HLW Product (includes calcine solids storage, CPP-666 HEPA filter storage, and liquid HLW storage). A new HLLW Tank Farm, if needed, is also included as well as Interim storage for immobilized HLW product (1.2.3.2.5.new)

#	Requirement	Work Package(s)	Source Document (eg Batt Agree.)	ADS Category (A-I)	ABS, INV, INS
1	Provide liquid and calcine storage operations to support HLW calcination by 3/31/97.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	STP Table 5-1	A	abs
2	Provide liquid and calcine storage operations to support treatment for calcine and HLW by 9/30/2019.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	STP Table 5-2	A	abs
3	Provide liquid and calcine storage operations to support treatment of HLW so it is ready to be moved out of Idaho by 2035.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	Batt C3, E1	A	abs
4	Provide liquid storage operations to support HLW evaporator operations to reduce Tank Farm volume.	1.2.3.2.1.1.A	Batt E3	A	abs
5	Provide liquid and calcine storage operations to support calcining all non-sodium HLW by 6/30/98.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	Batt E4	A	abs
6	Provide liquid and calcine storage operations to support calcining all SBW by 2012.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A	Batt E5	A	abs
7	Accelerate efforts to provide for calcine treatment completion by 2035.	1.2.3.2.1.1.A 1.2.3.2.1.2.1.A 1.2.3.2.5.new	Batt E6	A	abs
8	Provide safe, inspectable storage at CPP-666 for used HEPA filters	1.2.3.2.1.2.2.A	RCRA needs more specificity	D	abs
9	Complete RCRA closure of CPP-666 hazardous waste tanks	1.2.3.2.1.2.2.A	RCRA	D	abs

Specific Assumptions: The HLW evaporator will start up and operate successfully at the expected rates. The calciner will operate on an 18-month on, 12-month off schedule. The first campaign calcines a blend of

calciner operation after completion of the second campaign. Tank Farm and Bin Set operations are required for essentially all of the operations needed to fulfill the above-listed requirements. Interim storage of immobilized HLW will be required while it is awaiting shipment to a disposal site.

Specific 7 year Decision Unit Scope of Work



Source Req #	Source Req #	Source Req #	Source Req #	Source Req #	Source Req #	Source Req #
Source Req #	Source Req #	Source Req #	Source Req #	Source Req #	Source Req #	Source Req #

Strategic Direction for Decision Unit:

ENVIRONMENTAL MANAGEMENT

ESTIMATING PACKAGE

Major Task Title:		Decision Unit Title:	
Start Date:		Finish Date:	
Effective:		WBS Element No.:	

MAJOR TASK ESTIMATE IN DOLLARS

Description	Prior Years	Current FY _96_	FY _97_	FY _98_	FY _99_	FY _00_	FY _01_	FY _02_	FY _03_	FY _04_	Subsequent FY's	Total
1. Baseline												

Package No.	Control Account, Work Package	Estimate $

Package No.	Control Account, Work Package	Estimate $

ENVIRONMENTA /IANAGEMENT

TASK SCOPE STATEMENT

Date:	Revision No.:	Duration :	Start:	Major Task Title:
Decision Unit Title:			WBS Number:	

Scope of Work: (Concise description of objective and work to be performed.)

Assumptions: (Identify assumptions made when developing Work Scope.)

Products/Deliverables: (What is produced or delivered as a result of Milestone completion?)

Milestones: (What programmatic milestones are supported?)

Prerequisites: (Those items restraining the Milestone.)

RESOURCE/COS TIMATE FORM

TYPE THE ESTIMATE NAME OVER THIS TEXT:
DECISION UNIT TITLE:
MAJOR TASK TITLE:
ESTIMATE NUMBER:
REVISION NUMBER:
DATE PREPARED:
REQUESTOR'S PRGM CNTRL REP:
WORK PACKAGE NUMBER:
TYPE OF ESTIMATE:

ESTIMATOR:
ESTIMATORS ORGANIZATION NUMBER:
ATTACHMENTS:

A	B	C	D	E	F	G	H	I	J	K	L
Activity No.	Activity Description (Work Scope Description that ties to Identifying No. to the left)	Identification of Resource Type		Identification of Resource Quantities and Rates							Dollar Totals
				Labor			Non-Labor				
	(Major Tasks)	Resource Code	Specific Resource Description	Hours	Rate/ Hour	Labor $ Total	Unit	Qty	Unit Cost	Non-Labor $ Total	
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
						$0				$0	$0
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						$0				$0	$0
						$0				$0	$0
ESTIMATE TOTALS				0		$0				$0	$0

BASIS C .STIMATE

Reference a Cost Estimate Guide (CEG) if one exists. In cases where activities are not included in the CEG, provide basis of estimate methodology.

Revision No: _____ Date: _____ Major Task Title: _____

Decision Unit Title:

ID No.	Activity Description	Basis of Estimate Explanation
	EM Driver Category: Facility where work is performed:	
	EM Driver Category: Facility where work is performed:	
	EM Driver Category: Facility where work is performed:	
	EM Driver Category: Facility where work is performed:	

APPENDIX H
SAMPLE ACTION STATUS LOG

DU Review Status

DU ID	DU Title	Date DU Reviewed by Murder Board	Murder Board Score	Number of Short-Term Actions Assigned to Program	Number of Short-Term Actions Completed	Number of Long-Term Actions Assigned to Program	Number of Long-Term Actions Completed	Data Entered into Cost Breakdown Worksheet
NO114	Special Nuclear Materials Management	2/1/96	5.0	3	3	1	1	yes
NO115	CPP-603 Fuel Storage Operations	1/29/96	3.0	6	2	1	0	yes
NO116	Nuclear Fuel Tech. Development	2/2/96	4.0	2	2	2	0	yes
NO117	National SNF Program (w/NO128)	1/26/96	2.0	6	6	2	1	yes
NO118	INEL Spent Nuclear Fuel Program	2/2/96	2.0	7	0	2	0	yes
NO119	ARMF/MTR/PBF Storage Operations	1/30/96	4.0	6	6	3	0	yes
NO108	DPC Prep & Storage Projects	1/24/96	1.0	12	8	0	0	yes
NO109	CPP-666 Fuel Storage Operations	1/17/96	3.0	19	19	1	0	yes
NO110	TAN Storage Operations	1/24/96	4.0	8	6	0	0	yes
NO111	PBF ARMF CFRMF MTR Fuel Trnsfrs	1/30/96	4.0	6	6	3	0	yes
NO112	ICPP-603 Fuel Transfer	1/29/96	3.0	6	2	1	0	yes
NO124	Major Modifications-Nuclear Fuels	2/5/96	n/a	5	2	0	0	yes
NO113	ICPP Dry Fuel Storage Operations	2/2/96	3.0	4	0	4	0	yes
NO127	FSV Procur/Ops	2/2/96	4.0	0	0	0	0	yes
NO128	National SNF Checkbook (w/NO117)							yes
NO129	ANL-W Treatment (NO $)							yes
NO130	TMI Facility (Done in FY-97)							yes
NO131	CPP-666 Rerack	2/5/96	4.0	3	3	2	0	yes
NO132	Nucear Fuel Program Support	2/7/96	3.0	4	0	2	0	yes
	16 SNF DU Packages	16		97	65	24	2	19
NO133	HLW Program Support	2/7/96	2.0	3	0	2	0	
NO102	ICPP Subsidary Waste Treatment	1/25/96	3.0	7	5	4	0	yes
NO103	Alternative Calcination Tech Dev	1/29/96	4.0	1	1	2	0	yes
NO107	ICPP Internal Waste Management	2/6/96	3.0	1	1	3	0	yes
NO122	HLW Disposal Tecn. Development	2/1/96	3.0	4	4	3	0	yes
NO123	HLW Facilities Construction	2/5/96	3.0	3	3	1	1	yes
NO125	New Waste Calcining Facility	2/6/96	4.0	1	1	7	0	yes
NO126	Stored HLW Product	1/17/96	3.0	8	8	0	0	yes
	8 HLW DU Packages	8		28	23	22	1	7
	27 DU PACKAGES - BOARD A TALLY	24		125	88	46	3	26
WO112	LLW Operations	1/31/96	4.0	10	0	3	0	yes
WO126	RWMC Regulatory Compliance	1/31/96	4.0	4	0	1	0	yes
WO116L	RWMC LLW Facility Support	1/31/96	1.0	7	0	1	0	yes
WO117	RWMC LLW Operations Suppport							
WO128	RWMC Capital Equipment	1/31/96	4.0	5	0	1	0	yes

2/12/96, 3:10 PM

DU Rev Status

DU ID	DU Title	Date DU Reviewed by Murder Board	Murder Board Score	Number of Short-Term Actions Assigned to Program	Number of Short-Term Actions Completed	Number of Long-Term Actions Assigned to Program	Number of Long-Term Actions Completed	Data Entered into Cost Breakdown Worksheet
WO120	WO GPP	2/1/96	4.0					yes
	LLW							yes
WO108	WERF Operations	1/19/96	5.0	4	0	1	0	yes
WO109	MLLW Treatment Development	1/25/96	2.0	14	0	1	0	yes
WO110	MLLW Lead Program	1/26/96	3.0	14	0	1	0	yes
WO121	MLLW WROC Operations	1/25/96	3.0	8	0	1	0	yes
WO122	WROC Compliance/Regulatory Sup	1/26/96	1.0	8	0	1	0	yes
WO123	WROC Facility/Operations Support	1/26/96	3.0	11	0	1	0	yes
	MLLW							
WO130	Ntl Programs							
WO132	Special Case Waste							
	NTL/SCW							
WO101	Environmental Monitoring	1/29/96	4.0	12	0	1	0	yes
WO102	Pollution Prevention	1/30/96	1.0	12	0	1	0	yes
WO103	ES&H Oversite (Cancelled / No $)							
WO111	MLLW PSPI Program	1/29/96	5.0	6	0	1	0	yes
WO124	Packaging and Transportation	2/1/96	2.0	8	0	1	0	yes
WO125	FFCA Site Treatment Plan	1/29/96	5.0	7	0	1	0	yes
WO131	Apportioned Support Activities	2/5/96		11	0	1	0	yes
	OTHER							
WO104	RWMC TRU Certification/Storage	2/7/96	5.0	5	0	1	0	yes
WO105	RWMC TRU Retrieval	2/6/96	3.0	7	0	0	0	yes
WO106	TRU Technology Development	2/8/96	3.0	7	0	0	0	yes
WO107	TRU Program Support	2/6/96	4.0	8	0	0	0	yes
WO127	RWMC Regulatory Compliance	2/7/96		8	0	1	0	yes
WO114	RWMC TRU Facility Support	2/7/96	3.0	10	0	3	0	yes
WO115	RWMC TRU Operations Support	2/8/96	4.0	7	0	1	0	yes
WO129	RWMC Capital Equipment	2/7/96		14	0	0	0	yes
WO119	WCSF LICP	2/8/96	4.0	7	0	1	0	yes
	TRU							
	30 Waste Ops DU Packages	26		214	0	25	0	27
	30 DU PACKAGES - BOARD B TALLY	26		214	0	25	0	27
NO134	ICPP Sec Fac LICP (was INF 101)	2/5/96	4.0	4	0	2	0	
NO135	ICPP EUSU LICP (was INF 102)	2/5/96	4.5	5	0	2	0	
NO104	ICPP Landlord Services	1/25/96	2.5	8	0	0	0	

DU R[illegible]v Status

DU ID	DU Title	Date DU Reviewed by Murder Board	Murder Board Score	Number of Short-Term Actions Assigned to Program	Number of Short-Term Actions Completed	Number of Long-Term Actions Assigned to Program	Number of Long-Term Actions Completed	Data Entered into Cost Breakdown Worksheet
NO105	ICPP Utilities	1/25/96	3.0	10	0	4	0	
NO106	ICPP Coal Fired Steam Facility	1/25/96	4.0	3	0	2	0	
NO136	ICPP ES&H/QA Support	2/2/96	n/a / 2.0	11	0	2	0	
NO137	ICPP Tech. Services	2/6/96	4.0	12	0	1	0	
NO139	ICPP Infrastructure Const. (GPP/CE)	2/2/96	3.0	4	1	2	0	
NO138	ICPP Training & Admin. Support	2/2/96	1.0 / 4.0 C/S	26	0	3	0	
	9 ICPP Infrast. DU Packages	9		83	1	18	0	0
NO101	Deactivated Facilities S&M	1/24/96	3.0	9	0	5	0	yes
NO101	Deactivation of Facilities	1/24/96	3.0	2	0	1	0	yes
	Deactivation (SUBTOTAL)							
NO119	PBF/MTR/ARMF/GCRMF Fuel S&M							
NO120	WCF RCRA Closure	1/24/96	4.5	0	0	2	0	yes
NO121	Rover Deactivation	1/24/96	4.0	2	0	0	0	yes
	5 Fac Deact. EM-60 DU Packages	4		13	0	8	0	4
INF103	Electrical Dist Upgrade	1/30/96	Not Rated - Excel	1	0	1	0	yes
INF104	Emergency Response Facility	1/30/96	4.0	3	0	1	0	yes
INF105	Medical Facility	1/30/96	4.0	3	0	0	0	yes
INF106	Line Item Planning	1/29/96	3.0	1	0	1	0	yes
INF107	Gen Purpose Capital Equip	1/29/96	3.0	1	0	1	0	yes
INF108	GPPs	1/29/96	3.0	2	0	1	0	yes
INF109	Site-Wide Base A/B/C	1/26/96	3.0 / 3.5	15	0	7	0	yes
INF110	Site-Wide Base B	1/26/96	4.5 / 3.5 / 2.5	5	0	4	0	yes
INF111	Fac Disp Init (FDI) Combined with INF109)							yes
	8 EM-70 Site-wide Infrast. DU Packages	8		31	0	16	0	9
AA102-A	Analytical Services	2/6/96	3.0	0	0	0	0	yes
AA102-B	Emergency Management	2/6/96	4.0	1	0	0	0	yes
	2 EM-20 (EM-70) DU Packages	2		1	0	0	0	2
	24 DU PACKAGES - BOARD C TALLY	21		127	1	42	0	13
ER101	SFE-20/740 (Post 2002)							
ER102	CPP-601 Assessment (Task Cancelled)							
ER103	LOFT Ancillaries D&D (MTA)	1/26/96	4.0	3	3	3	2	
ER104	TAN/TSF D&D	1/25/96	2.0	0	0	6	4	
ER105	ETR S&M and Cleanup	1/30/96	3.0	0	0	6	3	
ER106	ARA III D&D (Completed in 1996)							
ER107	ARA I D&D	1/29/96	4.5	0	0	1	1	

APPENDIX I
LIST OF MAJOR ISSUES

MAJOR ISSUES

DECISION UNIT	ISSUE RAISED
NO110: TAN Base Operations	Develop close down plan for Test Area North (TAN). Some programs assume that TAN is open beyond 2001, e.g. cask dismantlement, dry cask loading ACTION: MATHEWS, JENSEN
NO108: SNF Dry Storage Project	Obtain a signed agreement with the Navy on return of their fuel. ACTION: JENSEN
NO102: ICPP Subsidiary	Develop a "necessary and sufficient" plan for support organizations (QA, ES&H, Finance). ACTION: BREW BARRON, JUD ELLIS, LARRY COGGINS, BILL HALLER, PAT BAKER
	Develop a systematic approach to preventive and corrective maintenance: Lack of line management authority, external drivers rather than system needs, acceptability of waiting for equipment failure on a long-term basis. ACTION: BREW BARRON, BILL CHILDERS
	Develop a process to evaluate DOE Order requirements and obtain exceptions or waivers. Clearly show which Orders are to be used as best management practice versus verbatim compliance. ACTION: CARLOS TELLEZ
	Develop a process to modify Part A permits for cost savings. ACTION: CARLOS TELLEZ
NO117: National Spent Fuel Program and Checkbook	Determine whether or not there are direct ties between funding the National Spent Fuel Program checkbook and the INEL funding targets. ACTION: ENOCH MILES (DOE-ID)
WO109: MLLW Technical Support	Evaluate duplicative DOT paperwork requirements. ACTION: MAX RUSKA
WO121: MLLW WROC Operations	Costs to coordinate hazardous waste shipments between generators and TSD facilities seem high ($1.8M) Could this be charged back to generators? ACTION: VANVLIET
WO122: WROC Compliance/Regulatory Support	Review site-wide waste minimization program for potential duplication , e.g. waste minimization activities at the Chemical Processing Plant. ACTION: VANVLIET

DECISION UNIT	ISSUE RAISED
WO123: WROC Facility/Operation Support	DOE Order 4330.4B is expensive to implement. Needs to be revised to reduce costs . DOE thinks that this order has been changed. If true, Programs could realize considerable cost savings. ACTION: VANVLIET
	Rigor of maintenance preparation, work and review is applied consistently for all work at the company level. Implement a graded approach on small or non-essential maintenance jobs (i.e. changing light bulbs) which reflects industry practices. ACTION: BILL CHILDERS
	Develop a company wide plan to implement Price Anderson consistently and effectively across the company. ACTION: CARLOS TELLEZ
	Bargaining unit limitations on who can do what kind of work increases costs. Could multi-discipline craft position be developed to allow fewer people to do multi-craft jobs? A small pool of these people could more efficiently cover small jobs and reduce interface "hand-off" costs. Partitioning of Crafts responsibilities adds to the cost of operations. Management needs to work with Bargaining Unit to evaluate crafts to cross over artificial work scope barriers. For example, it currently takes 6 people to pick up a waste shipment at the ICPP and deliver it to the RWMC. (Also an issue in WO116L) ACTION: PAUL SHELL
	Maintenance costs could be reduced if more risk is assumed. This needs to be a company/DOE agreement on reduced maintenance vs. taking more chances that something will not breakdown. ACTION: JUD ELLIS, BREW BARRON
	Develop written charging guidelines for matrix organizations. (Some charge management time as a percentage of worker time, some only charge management time if manager is actively supporting (managing) that activity. Matrix organization administrative support time is charged the same way. User organizations should only pay for those personnel that they use, not their managers and secretaries unless they add value.) ACTION: PAT BAKER
	Hazardous waste storage facility (HWSF) is slated for closure after FY-1996. Assure that this assumption is consistent across all decision units. ACTION: THAYNE JUDD
	Cost of Environmental checklists for NEPA are driven up by DOE Order. Costs are very high. Programs are not taking full advantage of site EIS and existing categorical exclusions to reduce costs. (Also issue under WO122.) ACTION: VANVLIET
NO106: Coal Fired Steam Generating Station	The Master Facility Plan needs to be upgraded to document the cost of infrastructure. ACTION: TOM MORIARTY

DECISION UNIT	ISSUE RAISED
NO105: Other ICPP Utilities	Consolidate/optimize all facility operations/ technical support and infrastructure staffing. ACTION: MATHEWS
INF110: Site-Wide Base B (Air Permit sub-package)	The funding sources for the air compliance program are too varied and diverse (2 indirect sources and 3 direct sources). These sources need to be consolidated to provide for a better integrated program. ACTION: PAT BAKER
NO104: ICPP Landlord Services	ICPP Electrical Power Costs: This comment addresses the method in which G&A costs are applied to non labor costs. It is the board's understanding that G&A is only to be applied to the first $500K of a subcontract or purchase order; however for such items as power consumption, loop maintenance and demand charges, G&A is applied to all costs. This raises issues as to a fair and equitable distribution of G&A costs to programs as defined by cost type. ACTION: PAT BAKER, BILL GOODWIN
	Review the INEL electrical power program/ costing to reduce costs, e.g. ICPP electrical power shows significant cost originating from the Power Management Group in the Site Landlord Organization. ACTION: BILL CHILDERS
	The cost of doing subcontract work at the INEL needs to be seriously evaluated. Unnecessary requirements drive the cost of bids up unreasonable, many qualified bidders don't even bid. The case in point from this program is the cost of roofing repair subcontracts. ACTION: PAT BAKER, BILL CHILDERS
ER123: OU 5-05/6-01 RD/RA	RadCon Manual changes (PPE requirements & training). Eliminate activities if not cost effective or if management practices change or DOE Orders are changed. (Also issue recorded in ER110.) ACTION: BILL HALLER
WO110: MLLW Lead Program	Re-evaluate the cost effectiveness of the lead cleaning program. Revenue from selling cleaned lead: where does the money go? Can it be given back to the Program, or can contract for cleaning be modified to show profit to vendor for selling it and subtracted from the contract amount? Lead is being decontaminated at ICPP and commercially. Evaluate to determine if process is redundant and if one process is more cost effective than the other. (Also an issue in WO108) ACTION: VANVLIET, ROBERT LAZENBY
	TAN Hot Shop operations costs are high which drive up Waste Operations costs. If TAN operations were more efficient, Waste Operations would be less costly. ACTION: MATHEWS
	Costs for review and audits of vendors after contract is signed may be excessive. Liability may need to be evaluated. Can we do less contractor oversight? ACTION: VANVLIET, ROBERT LAZENBY

DECISION UNIT	ISSUE RAISED
ER105: ETR D&D Assess & Cleanup	Re-evaluate the application of DOE Orders and rigor by which they are being applied to inactive buildings. ACTION: BILL CHILDERS, CARLOS TELLEZ
INF106, 107, and 108: Line Item Planning, GPCE and GPPs	Evaluate a single, company-wide program for GPP, GPCE, and LICP. Consolidate Waste Operations, Nuclear Operations, and EM-60's Landlord GPCE, LICP, and GPP Planning. ACTION: BILL CHILDERS, BREW BARRON, JUD ELLIS
ER107: ARA1 D&D	Evaluate the company and DOE ORR requirements. Reduce scope of the ORR based on previous successful experiences. ACTION: JERRY PAULSON
WO125: FFCA Site Treatment Plan	By commercial standards, the INEL is a small RCRA generator; yet we have a very labor intensive reporting/updating plan, plus quarterly meetings and public comment periods. (until 2002 and beyond when TRU activities start up) . Negotiate state requirements as appropriate and evaluate interpretation of those requirements. ACTION: JUD ELLIS, VANVLIET
	There is not a clear distinction between STP work scope responsibilities at DOE-ID and LITCO. Currently program funds are spent at LITCO to "support" DOE-ID in the Site Treatment Plan interface with the State of Idaho. DOE-ID could do all this work in-house and reduce program cost. Clarify responsibilities. ACTION: JUD ELLIS, JERRY LYLE (DOE-ID)
	For off-site waste streams, could generators pay for technology development or characterization? Evaluate cost recovery strategy to keep these costs out of EM program budgets. ACTION: VANVLIET, SUE SCOBBY
	There are several milestone tracking and reporting systems; master schedulers, Site Treatment Plan reporting, CPAF & PTS reporting, performance measure reporting, RCRA, etc. This should be better integrated to reduce the cost of reporting. ACTION: JUD ELLIS, SUE SCOBBY
	There may be redundancy in reporting and presenting to STP group and SSAB. Can this be better consolidated? ACTION: JUD ELLIS, VANVLIET
	P6 Milestone schedules need to be carefully reviewed by Senior Management to assure we are not committing to over-compliance and to assure that the rate of working off backlogs and processing waste streams is optimized. ACTION: VANVLIET
WO111: MLLW Private Sector Program	Potential overlap exists in the Environmental Restoration Program. Same activities, but for different waste streams. This may be an opportunity for cost savings through integration. ACTION: VANVLIET, FALCONER, GURLEY

DECISION UNIT	ISSUE RAISED
WO101: Environmental Monitoring	DOE order 5400.1 requirements for non-rad environmental surveillance could be reduced or eliminated. ACTION: BILL HALLER, JOHN HOBBS (DOE-ID)
	Could LITCO & DOE set consistent requirements for confidence level and/or statistical validation of data in Environmental Monitoring Program? For example, a 50% confidence level versus a 90% confidence level has very different cost impact. Also, measurements to minimum detection level is very costly compared with measurement to assume compliance level is not exceeded. ACTION: VANVLIET, JOEL CASE (DOE-ID)
	Groundwater program has high public visibility. It is difficult to cite regulatory driver, but is important to public perception. Program should be better coordinated within the INEL for cost savings and to assure that we are not spending program dollars for "good will" purposes, such as tritium plume measurements at southern site boundary. ACTION: VANVLIET, BILL HALLER
	Evaluate and consolidate groundwater measurements taken by the Environmental Monitoring program, the ER program, and the USGS. ACTION: VANVLIET, BILL HALLER
WO112: Low Level Waste Operations	RWMC-LLW program needs to be closely coordinated with the ER program, to assure integration of LLW disposal and CERCLA requirements. ACTION: VANVLIET, FALCONER
	Performance Assessment and Risk Analysis process for LLW and CERCLA site requirements at RWMC must be rectified. ACTION: BOB NITSCHE
	Develop and communicate the RWMC LLW burial ground closure plan (closure in 2009). ACTION: VANVLIET
WO113L: RWMC Regulatory Compliance	Examine opportunity to consolidate company tracking systems for deficiencies. For example, IMEP, PO&A, RadCon, and CTS systems all independently track deficiencies. ACTION: JUD ELLIS, BREW BARRON, BILL McQUISTON, LARRY COGGINS
	Company procedure compliance activity is generating new requirements and insufficient review time is being allowed. This is likely to result in higher cost of compliance. ACTION: CLAUDIA KLINGLER, PAT BAKER

DECISION UNIT	ISSUE RAISED
WO102: Pollution Prevention	Over-compliance in the Waste Minimization/ Pollution Prevention program is having a trickle-down cost impact on facility operations. For example, State of Idaho permit requires update of the Waste Minimization/ Pollution Prevention Awareness Plan on a four year basis and the stand could be a one page letter. However, the program is updating this plan annually and is issuing a fancy bound report of 25 - 50 pages including photographs. These reports requires repeated inputs from facilities and should be minimized to just meet compliance requirements. ACTION: BILL HALLER, VANVLIET
	The paper recycling program at the INEL costs $55K to operate and only generates $20K of revenue. The problem appears to be the cost of the subcontract with the Development Workshop. The program needs to reduce the cost . ACTION: BILL HALLER, ROBERT LAZENBY
WO120: Waste Operations General Plant Projects	Contingency is a necessary part of the General Plant Project and Line Item Construction Project programs and we should encourage this to be shown explicitly in decision units and not targeted for wholesale elimination. ACTION: SUE SCOBBY, ALBRIGHT
WO124: Packaging and Transportation	Examine options for supporting package and transportation infrastructure activities, such as training, management, level of effort consultation to facilities, as a cost center or direct recovery account. ACTION: SUE SCOBBY
WOXX1: Apportioned Support (WO131)	Savings/cost underruns from one program are currently retained in management reserve, up to and including at the Director level. An EM or company controlled reserve could better serve the high-level program priorities. ACTION: JUD ELLIS, GREG FRANDSEN
	Consolidation of program controls organization and process should be considered. ACTION: SHERYL MORTON, RANDY BARGELT, SUE SCOBBY
	Program proposes a direct budget for new business development because of lack of Management Development Organization (MDO) support. MDO needs to evaluate this with regard to company policy and charging practice allowability. ACTION: STEVE WINSTON
	There appears to be multiple redundant layers of safety "independent" review boards. The board suggests that this be looked at by ES&H and that clear policy be promulgated and/or requirements clarified. ACTION: BILL HALLER
	There appears to be multiple redundant audits (program, company, PO&A, Corporate, DOE). This is very cost inefficient. It is suggested that ES&H and QA clarify and/or modify requirements. ACTION: BILL HALLER, LARRY COGGINS

DECISION UNIT	ISSUE RAISED
WOXX1: Apportioned Support (cont.)	Waste Operations should consider consolidation of the Industrial Hygiene Laboratory and HEPA filter testing with CPP and SMC. ACTION: BREW BARRON, JUD ELLIS
WO114: RWMC Engineering and Maintenance	Company should examine division of responsibilities between Site Services and Facility maintenance and site support for a variety of facilities, such as RWMC, TRA and ICPP to assure consistency. ACTION: BILL CHILDERS, JUD ELLIS, BREW BARRON
	Company should examine consistency of application of EM-30 and EM-60 funds across the INEL facilities to maximize use of EM-30 funds for "path forward" activities. For example, ICPP funds facility support services from EM-60, but RWMC funds these same activities from EM-30. ACTION: ENOCH MILES (DOE-ID), JOEL CASE (DOE-ID), BILL LLOYD (DOE-ID)
WO113T: RWMC Regulatory Compliance-TRU	Consider centralization of funding and expertise in areas like TSCA to eliminate duplication . ACTION: BILL HALLER
	RCRA permits are currently far to prescriptive; too many detailed procedures are incorporated verbatim. This increases the cost of compliance, increases cost of permit updates, and forecloses numerous cost-savings opportunities. ACTION: CARLOS TELLEZ
WO104: TRU Waste Characterization and Storage Operations	Company should benchmark environmental regulatory compliance costs against private industry TSD facilities to identify cost reduction opportunities. ACTION: BILL HALLER, VANVLIET
	LITCO, DOE-ID, DOE-HQ and State support is needed to push back on overly restrictive WIPP requirements (such as D001, D002, and D003) in order to meet the Batt schedule. ACTION: VANVLIET
	Cost of INEL Training must be examined. For example, 40 hour RCRA training costs $800 at the INEL, but only $200 at Eastern Idaho Technical College. ACTION: FRANCIS GRANT
	Some programs are extremely dissatisfied with the Dekker Trakker system. Major cost savings, potentially 20%, were identified if Dekker Trakker requirements could be eliminated in favor of a project management system that just meets requirements and is more user friendly. 20% cost savings potential also validated by Chem-Nuclear benchmark activities in Waste Operations. Problems with Dekker Trakker include: poor user interface, marginal error tracking, platform sensitivity, and limited reporting capability. ACTION: PAT BAKER

DECISION UNIT	ISSUE RAISED
WO115: RWMC Operations Support	The Board recommends that the Company scrub Indirect and Cost Center budgets using a similar Murder Board process. ACTION: GREG BAKER, PAT BAKER
NO119: CPP-666 Fuel Storage Operations	Start quantifying the costs for items like showers, and end-of-shift downtime, so that a basis can be established for future labor negotiations: ACTION: BREW BARRON, PAUL SHELL
	Institute a more efficient and effective scheduling/resource management tool to improve productive use of project resources. The current approach allows large chunks of downtime and overlap of resources: ACTION: MATHEWS
NO113: Dry Fuel Storage Operations	Verify that Argonne will take back sodium-bonded fuel. ACTION: JENSEN
NO118: INEL Spent Nuclear Fuel Program	Determine plan and obtain funding for the Batt-required EIS. ACTION: PETE DIRKMAAT (DOE-ID)
NO124: SNF Major Modifications	The issue of funding and tying out-year GPPs to compliance needs to be examined. ACTION: JENSEN, ALBRIGHT
NO125: NWCF	Optimize AEDL analytical support function to assure no duplication. Evaluate a system to capture non-productive time or any slack time is not chargeable to the programs. ACTION: BILL GUYTON
AA1XX- Program Direction	The Board recommends that the ID Program Direction accounts undertake a budget scrub using a similar Murder Board process. ACTION: ALICE WILLIAMS (DOE-ID), PAUL KEELE (DOE-ID)
ER CROSS-CUTTING ISSUES	Record of Decision requirements varied from flexible to extremely prescriptive. ROD negotiation with the State, EPA, and DOE should target flexibility to allow cost savings throughout the implementation process. As an example of flexibility, one ROD allowed a reduction in the number of wells from 8 to 4 (at a cost of approximately $250K each) based on results from sampling. ACTION: ELLIS, FALCONER, LISA GREEN (DOE-ID)
	Evaluate cost of implementing the Radiological Control Manual. The manual is driving up costs in the field. Examples include: radiological control technology is required in areas where a constant air monitor (CAM) can be used; personal protective equipment use is excessive; training is required for subcontract personnel each time they begin a job on site. Personnel may receive the same training several times each year. ACTION: BILL HALLER

DECISION UNIT	ISSUE RAISED
ER Cross-cutting Issues (cont.)	LITCO and DOE-ID need to continue to push DOE-Headquarters for the ability to manage EM funds as a total EM pot without additional EM program constraints. The lack of flexibility is compromising the efficiency and effectiveness for the INEL. ACTION: JERRY LYLE (DOE-ID), GREG BAKER
	Need to reevaluate the criteria and prioritization process for dispositioning of surplus facilities including , and D&D. Reevaluate the rigor application of DOE Orders for surveillance and maintenance of inactive buildings. ACTION: FALCONER
OTHER CONSOLIDATION ISSUES	Need to evaluate opportunity to shutdown LLW disposal at RWMC by shipping waste to Hanford for disposition. ACTION: VANVLIET
	Consider expanding WERF incineration (rely on off-site waste treatment / charge back) ACTION: VANVLIET
	Evaluate opportunities to consolidate INEL Mixed Waste programs. ACTION: GURLEY, MATHEWS, VANVLIET
	Evaluate opportunities to consolidate INEL Hazardous Waste programs. ACTION: GURLEY, MATHEWS, VANVLIET
	Evaluate opportunities to consolidate INEL Low-Level Waste programs. ACTION: VANVLIET
	Evaluate opportunities to consolidate INEL industrial waste programs. ACTION: GURLEY, MATHEWS, VANVLIET
	Evaluate opportunities to consolidate INEL ground monitoring programs. ACTION: FALCONER
	Evaluate opportunities to consolidate INEL EM project controls. ACTION: THAYNE JUDD
	Evaluate opportunities to consolidate RCRA closure with CERCLA work. ACTION: VANVLIET, FALCONER
	Evaluate opportunities to consolidate Facility Transition and D&D. ACTION: FALCONER, STUART NORDBERG
	ER should transition their internal cost estimating group into the LITCO estimating organization. This may apply to other programs as well. Cost estimates are prepared using handbooks developed from past INEL experience; estimate standards are not benchmarked to current INEL practice, DOE complex experience or industry practices. The packages do not explicitly call out contingency; however, there is contingency embedded in the unit rates from the estimating handbook. ACTION: FALCONER, ALBRIGHT
	Geographical Information Systems (GISs) appear in ER and Infrastructure programs. Efficiencies in the data type, quality and management can be found if merged. ACTION: MARK ARENAZ (DOE-ID), FALCONER, STUART NORBERG

DECISION UNIT	ISSUE RAISED
Other Consolidation Issues (cont.)	Evaluate opportunities to move Packaging & Transportation (P&T) and Pollution Prevention (PP) to EM-60. ACTION: SUE SCOBBY
	Need to develop an integrated and cohesive INEL monitoring plan to ensure no redundancy exists between ER, USGS, RCRA, and State oversight monitoring programs. ACTION: FALCONER, LISA GREEN (DOE-ID), CARLOS TELLEZ
	Need to develop a comprehensive plan to ensure that RCRA closures, ER, and D&D activities are fully integrated. These programs direct multiple activities that perform similar functions to meet different regulatory and DOE requirements. Performing these activities in a stovepiped manner can result in satisfying one requirement while contradicting another. It must also be recognized that if D&D activities are not funded the facility surveillance and maintenance costs must be allocated. ACTION: FALCONER, EUGENE PERRY, CARLOS TELLEZ, LISA GREEN (DOE-ID), MARK ARENAZ (DOE-ID), RICHARD CULLISON (DOE-ID)

LITCO EM Directors (listed by last name only):

Taft ALBRIGHT, Construction Management
Kathy FALCONER, Environmental Restoration
Richard GURLEY, High-Level Waste
Arvid JENSEN, Spent Fuel Program
Toney MATHEWS, Nuclear Fuel
Jim VANVLIET, Waste Management