

## **"The INEL Approach"**

Environmental Restoration Program Management and Implementation Methodology

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## **ABSTRACT**

The overall objectives of the INEL Environmental Restoration (ER) Program management approach are to facilitate meeting mission needs through the successful implementation of a sound, and effective project management philosophy. This paper outlines the steps taken to develop the ER program, and explains further the implementing tools and processes used to achieve what can be viewed as fundamental to a successful program.

The various examples provided will demonstrate how the strategies for implementing these operating philosophies are actually present and at work throughout the program, in spite of budget drills and organizational changes within DOE and the implementing contractor.

A few of the challenges and successes of the INEL Environmental Restoration Program have included: a) completion of all enforceable milestones to date, b) acceleration of enforceable milestones, c) managing funds to reduce uncosted obligations at year end by utilizing greater than 99% of FY-95 budget, d) an exemplary safety record, e) developing a strategy for partial Delisting of the INEL by the year 2000, f) actively dealing with Natural Resource Damages Assessment issues, g) the achievement of significant project cost reductions, h) and implementation of a partnering charter and application of front end quality principles.

## **BACKGROUND**

The Idaho National Engineering Laboratory (INEL) was established in 1949 by the U. S. Atomic Energy Commission to build, operate, and test various nuclear reactors and fuel processing plants, and to provide and operate various related support facilities. Since that time, 52 reactors have been constructed, 13 of which are still operable. Today, the INEL also supports other government-sponsored projects including energy, defense, environmental, and ecological research.

The INEL is located 42 miles west of Idaho Falls, Idaho and occupies 890 square miles of the northwestern portion of the Eastern Snake River Plain. The INEL is bound on the northwest by three mountain ranges: Lost River, Lemhi, and Bitterroot. The remainder of the INEL is bound by the Eastern Snake River Plain.

The Environmental Restoration (ER) Program was established in 1989, when the INEL was placed on the National Priorities List. Ten waste area groups (WAGs) were created based on geographical boundaries for management of remediation activities. Contamination the ER Program deals with includes radioactive and mixed waste in soils, groundwater and that buried at disposal facilities.

During the first operational years of the ER Program, it became apparent that careful project management would be essential for the milestones negotiated in the Federal Facilities Agreement and Consent Order (FFA/CO) to be met. The approach described here was not conceived on the first day of operations of the program, but rather is the result of several years of evolution that included the pains of learning, as well as the excitement of success. This approach has helped the INEL ER Program in meeting or beating the enforceable milestones in the FFA/CO.

Environmental restoration programs at other sites can benefit from the INEL ER Program's years of continual learning and improving, by reviewing the approach used at the INEL and incorporating those activities that improve their program. Modeling new processes based on the experience at the INEL will result in reduced schedule durations and related costs for environmental restoration.

### **"The INEL Approach"**

#### **Environmental Restoration Program Management and Implementation Methodology**

### **AN INTRODUCTION TO THE APPROACH**

#### **The Need for Improved Program Management**

The overall objective of the INEL ER Program management approach is to facilitate meeting mission needs. This is accomplished through the successful implementation of a sound and effective project management philosophy.

The INEL ER Program management approach assures the application of sound management principles to provide a disciplined, systematic, and coordinated approach to project management. This results in efficient planning, organization, coordination, budgeting, management, review, and control to achieve INEL ER objectives.

Employing a "value added" approach to guidance implementation ensures that DOE Environmental Management (EM) goals, strategies, and budgets are in alignment. Voids in EM guidance are jointly interpreted by DOE-ID led contractor task teams, and modified as necessary to suit INEL ER Program needs and requirements.

The INEL approach can be best described as systemic. Utilizing the focused principles of teamwork, communication, and consensus building provides the program with unity; thereby, enabling it to function as a fully coordinated, cohesive, and mutually supportive organization.

The INEL ER Baseline represents the successful integration of the program's cost, schedule, and technical work scope. It is from this level that all program elements are established and maintained. From the baseline standpoint, the process of maintaining a balance between the functioning elements of the ER Program (cost, schedule, and technical), and EM goals and priorities are established.

What follows provides some background on how we have developed our program, and focuses on the fundamental elements of our management methodology; describing the operating philosophies and the strategies for implementation.

### **Share Sound Management Philosophies**

There is a strong desire by many organizations to learn how to do things more efficiently, to learn techniques that have substance, to learn useable processes that provide tangible results. They want to learn methods that will help them solve chronic, underlying problems and that focus on principles that bring long-term results. Something beyond typical management basics is needed.

INEL ER experience has proven the benefits of increased understanding through the sharing of information. Through this introduction to the INEL approach, there will be a sharing of ER program background and experience, and opportunities to demonstrate how to use the operating philosophies and strategies associated with their application. How these implementing strategies and operating philosophies can be adapted to suit many circumstances will also be demonstrated.

Through the collective experience of its participants, the INEL ER program has come to possess the tools, and lessons learned, and so on, that has enabled the development of quick, economical, and environmentally sound processes that work, and that can be shared with others. There is also recognition that good communication and feedback are a key element in the continuous improvement process. The interaction and discussion that takes place in sharing information with others is an invaluable means of renewing and validating our operating philosophies.

Through sharing of background and experience, the learning curve can be lessened for others, providing something that will save time and money, and ultimately increase functional effectiveness.

Stepping back, we have identified what elements have been present in each of the implementation steps taken in development of the ER program.

The result of this retrospective examination is a list of operating philosophies which when properly applied, along with the implementing tools and processes described in this paper, have allowed ER to build a successful program.

## INEL Operating Philosophies

- Goal oriented approach (this is the key element and is also the first step)
  - Clearly defined objectives
  - Flexible assumptions
  - Finite scope
  - Value added concepts
  - Cost effective, efficient
- Teamwork (partnering)
  - Communication
  - Consensus building
  - Contractor integration
  - Unity of cause and purpose
- Process oriented
  - Systematic
  - Coordinated approach
  - Work to fill voids in guidance requirements
  - Develop processes which are complimentary to existing (successful) processes
- Incremental development
  - Recognize this is an evolutionary process
  - Improve process continuously
  - Incorporate flexibility to suit program dynamics
- Disciplined approach (commitment)
  - Compliance with established processes
  - Consistency
  - Integrity/quality
  - Credibility

## Why These Philosophies Work

A sound management methodology, and a strategy to implement that methodology, is essential to ensuring that program management is reliable, well organized, consistent, and successful. A successful program embodies the successful integration of these operating philosophies along with the program's cost, schedule, and technical work scope. Using this approach, all program elements can be established and maintained from a central point of control. From that standpoint, the process of maintaining a balance between the functional elements (cost, schedule, and technical) and program goals and priorities can be easily achieved.

These operating philosophies stimulate a willingness and the capability to deal with exceptions encountered in building and using the various systems and processes, accepting that there are known incongruencies, but not allowing those incongruencies to distract from maintaining discipline with other systems/processes.

The following demonstrates how ER deals with the many influences on our program through the use of the operating philosophies, along with examples of the processes and tools developed to accomplish this. This in turn will help define the goals which make up "What is ER Program." Also included is a description of how the implementing strategies and operating philosophies can be established, or rather instilled within the various existing processes. The approach is a flexible application, and can be applied to a finite program or "fuzzy" program.

## **INEL OPERATING PHILOSOPHIES**

### **The First Approach: Goal Oriented**

The primary step is to be goal oriented. You must have established goals and a strategy to know where you want to go. You will need to develop a finite scope, define knowns, deal with unknowns as changes, and utilize assumptions. All actions taken need to be "value added" actions. Considering the many requirements placed on us from outside, it is important to use what is useful, modify it when necessary, but don't produce just to produce or to fill a square.

When the Federal Facilities Agreement was negotiated, the project managers from each of the stakeholders wanted the quickest and smartest cleanup possible. The negotiating team made of personnel from the U.S. Department of Energy, U.S. Environmental Protection Agency, and the State Environmental Agencies had a common goal. This goal was to ensure that releases or threatened releases were thoroughly investigated in accordance with the National Contingency Plan and that appropriate response actions were undertaken and completed as necessary to protect human health and the environment. Because the agreement is representative of the common goals of the team, the CERCLA process works quickly with regulators and performers communicating and moving forward.

### **Flexibility**

This approach encourages timely remedy selection, flexibility for remedial action, and contingencies to respond to new information discovered during investigations. Through flexibility, implementing strategies and operating philosophies can be adapted to suit many circumstances. Flexibility allows all of the other approaches to work.

Flexibility means to be willing to deal with exceptions, and building systems to accept exceptions as if they are inevitable. However, this should not distract from maintaining discipline with systems or processes; if the exception becomes the rule, it may be time to change the system or process.

Defining the technical scope and schedule for remedial action involves the approval of various outside agencies. ER Program management has the administrative flexibility to deal with external regulatory authorities in a timely and responsive manner. Flexibility encourages timely, outcome oriented remedy selection for remedial actions, and an ability to respond to new information discovered during investigations.

### **Teamwork**

The process of identifying who is on the team is critical to your success. Teams should include regulators, government representatives, and performing organizations as the principle team participants in the development of the scope of work.

It has been our experience that facilitated retreats have assisted in bridging the adversarial attitudes that existed at the beginning of the program. Communication is much easier if the participants can place a face with the name of a regulator.

Facilitated retreats have been used as a tool to develop better communication skills and to exchange information among participants in the decision process. A given benefit is that the parties to establish communication face-to-face in an atmosphere of neutrality; they are no longer talking to a stranger over the phone. This communication also allows members to establish a collective understanding of the program and its long range goals. Participants in the retreats have also been able to jointly define success in the completion of the project.

The generation of the formal ER Partnership Charter is the result of an off-site retreat conducted for all ER Program Waste Area Group Managers and Project Managers. The retreat was successful in developing a greater understanding of the shared values and responsibilities that must exist between DOE-ID and Lockheed Idaho Technologies Company, in order to fulfill the Program's goals.

The elements of the Charter are founded in the development and use of sound communication skills, and the use of same to facilitate completion or achievement of the ER Program goals. We are continually investigating effective ways to further develop and enhance the communication and facilitation skills of all ER Program participants, in order to maximize the progress made in implementing our Charter to date.

### **Process Oriented**

The ER Program has developed strong hierarchy of processes or strategies which allow us to build the ER Baseline and to maintain it. This hierarchy of processes is auditable and consistent (back to the baseline). Each respective process is interrelated and complimentary of the others. Maintaining a "value added" management approach, each process has a specific fit and function. The result is an increased capability to respond to the natural dynamics of the program.

The Federal Facilities Agreement establishes a procedural framework and schedule for developing, prioritizing, implementing, and monitoring appropriate response actions in accordance with CERCLA, RCRA, and Idaho Hazardous Water Waste Management Act.

Preliminary Scoping Guidance documents were developed to facilitate implementation of the specialized sections of the facility agreement. All parties (contractors, DOE, and Regulators) agree to use the appropriate approach and assumptions to evaluate sites and minimize costly sampling and analysis plans and reduce RI/FS requirements. The success of these rapid decision processes has allowed completion of all enforceable milestones on or ahead of schedule and on or under budget. ER has also been able to close over half of the sites in just under three years.

### **Successful Program Management and Implementation Processes**

The INEL has focused on the development of a single integrated baseline which can respond to all DOE program and project management control requirements. The INEL ER Program Baseline represents the successful integration of the programs cost, schedule, and technical work scope.

Numerous processes or mechanisms have been developed in order to organize the various elements of the ER program into a whole. All program elements are established and maintained at this level. These "baseline tools" regulate the scope, schedule, and budget for the ER Program, and provide the means for the program to more efficiently address issue and concerns, and to support the requirements and interests of DOE-HQ, regulatory agencies, and various other ER stakeholders.

### **Hierarchy of Baseline Development Processes**

The ER Program has developed a strong hierarchy of processes or baseline tools which allow us to build the ER Baseline and to maintain it. This hierarchy of processes is auditable and consistent (back to the baseline). Each respective process is interrelated, and complimentary of the others. A "value added" management approach is maintained, and each process has a specific fit and function. An increased capability to respond to the natural dynamics of the program is the result.

- ***Life Cycle Planning (LCP) Process***—Replaces annual rebaselining efforts by allowing updating and refining of the baseline only when changes to the program requirements, assumptions, or resource availability are required.
- ***INEL ER Code of Accounts***—Links a uniform cost estimating process with accounting system(s) to facilitate cost capture (prior to COA being used, Cost Estimate Basis Sheets are used to document cost basis).
- ***INEL ER Unit Price Book***—Maximizes the use of historical data and site experience through a unit price guide. The cost estimating focus group concentrates efforts to establish credibility, consistency, duration, and so on, relative to cost estimating system management for the INEL ER Program.
- ***Project Risk/Contingency Analysis***— Develops contingency for the cost baseline to account for uncertainties, risk, and potential growth in scope that may result from unforeseen and unpredictable conditions. This process, which may be iterative, is performed by the Project Manager/CAM level down to the work package/task level, and ultimately establishes the cost baseline for the Control Account.
  - Task levels are based on "level of confidence" in scope of work—not dollars
  - Applied and controlled at the program level
- ***Configuration Control/Baseline Management***
  - Uniform application of change control philosophy
  - Uniform hierarchy for change control
  - Change control scope oriented baseline element—one baseline
  - Increase in programmatic understanding re: definition of Work Scope, integrated baseline reconciliation (periodic/all participants)
  - Expedite submittal process through increased use of "redlines"
  - DOE-ID ownership of all changes and DOE-ID concurrence required to "sponsor" Level 2 changes
  - Uniform baseline reports
  - Tie traceability back to funding
  - Improved BCP process
  - Increase quality of Baseline documentation.
- ***Uniform Milestone Guidance/Scheduling Process***—Utilizes pre-negotiated milestone criteria that was determined through discussions with DOE-HQ, EPA, State, DOE-ID, Stakeholders, etc. Specific milestone coding, structure, and nomenclature with standardized milestone configuration management and controls. Utilizes standard logic.

## Incremental Development

The first step for ER was to recognize that implementation of the program required an evolutionary process, incorporating flexibility, teamwork, and continuous self-evaluation to suit program dynamics. This incremental development applies to both technical development and program management. Problems and issues are viewed from a global standpoint, relative to their effect on the program as a whole, and resolved as they appear on the horizon—at the lowest level manageable. As the program has evolved, we have applied this approach by creating technical work teams for global issues affecting our program (for example, guidance document development, ATSDR, Cumulative Risk Assessment, BSAF, Eco Risk, Land Use, and so on). In addition, a Program Management Systems Development Initiatives (PMSDI) Committee was created to evaluate and make recommendations for program management improvements. These teams or committees are made up of personnel from each of the affected organizations, and are asked to make recommendations for the program by taking incremental development steps to achieve our end goals.

This collective energy can give an issue the broad analysis necessary to resolve complex problems. Issues are resolved at the appropriate level by developing the initial team communications. When concerns arise, those individuals who are most familiar with the process are involved in the resolution of the issue. This approach results in issues being dealt with more efficiently, with less lost time, as the solutions come from personnel who will be directly involved in the outcome. There is often little need to involve upper management in order to address or resolve an issue.

This approach has also been used for a variety of remediation alternatives, for example, all goals (jointly) set by EPA, the State of Idaho, and DOE were met on or ahead of schedule, two (2) Records of Decision were signed in fiscal year 1995, and the removal and transport of NaK waste to Argonne was accomplished. Some sites have been closed via a preliminary scoping process, two interim actions have been completed, and four removal actions were completed. The "decision process" options (Track I and II, RI/FS, IA, RD/RA, Removal Action) allow a variety of remediation alternatives, dependent upon the type of waste and clarity of the project scope.

The approach can be applied to a well-defined project, or a not-so-well-defined project. For example, through the use of life-cycle baseline maintenance a project's technical, cost, and schedule components are refined as information becomes available, rather than to force-fit an undefined project into parameters which are likely to change on completion of scoping investigations.

Regularly scheduled Plan of the Week (POW) Meetings have been established to provide a forum for identifying and discussing technical and program management issues at a level at which they can be more rapidly and effectively dealt with by senior management.

Similarly, Remediation Project Manager (RPM) weekly POW meetings provide a forum for presenting, discussing, and resolving issues with regulatory management.

As an outcome of these meetings, white papers or guidance papers have been created to establish or clarify the ER position on such technical or programmatic issues as LDRD, land use, Eco Risk, and so on.

## Disciplined Approach

The INEL ER Program uses a disciplined approach to manage the program, and each individual part of the program, as a whole. The disciplined approach takes advantage of all of the major approaches in the program: goal oriented, teamwork, process oriented, flexibility, and incremental development.

The INEL ER Program manages its scope, schedule, and budget to an approved baseline. This baseline can only be changed by the change control process. The costs used in the program baseline and in changes to that baseline are controlled based on bottoms up cost estimates.

## **BENEFITS OF "THE INEL APPROACH"**

### **Keys to Successful Baseline Development and Improved Program Management**

Successful baseline development and management was achieved through the focused principles of teamwork, communication, and consensus building providing the program with unity. The baseline enables the program to function as a fully coordinated, cohesive, and mutually supportive organization. Frequently recognized benefits provided by the baseline are:

- Programmatic control via inter-contractor group(s) constantly working to resolve/eliminate issues; routine application of outcome-based approach/strategy
- "Program Level" Coordination and Control, implementing structured and consistent Configuration Management and Control of all three ER Baseline Elements
- Maximized Team approach - Seek to establish common understanding
- Up-front discussion and resolution/solution to process issues and barriers; i.e., Determination of what needs to happen - what needs to be in place

### **Tangible Results**

A few of the challenges and successes of the INEL Environmental Restoration Program have included: a) completion of all enforceable milestones to date, b) acceleration of enforceable milestones, c) managing funds to reduce uncosted obligations at year end by utilizing greater than 99% of FY-95 budget, d) an exemplary safety record, e) developing a strategy for partial Delisting of the INEL by the year 2000, f) actively dealing with Natural Resource Damages Assessment issues, g) the achievement of significant project cost reductions, h) and implementation of a partnering charter and application of front end quality principles.

### **Conclusions**

Share in order to experience improvement. Experience has shown us the benefits of increased understanding through the sharing of information. All successful processes and tools, in and of themselves, are valuable lessons to share. Always recognize that good communication and feedback are key elements in the continuous improvement process. The interaction and discussion that takes place in sharing information with others, is an invaluable means of renewing and validating a programs operating philosophies.

A successful program embodies the successful integration of these operating philosophies along with the program's cost, schedule, and technical work scope. Using this approach, all program elements can be established and maintained from a central point of control. From that standpoint, the process of maintaining a balance between the functional elements (cost, schedule and technical) and program goals and priorities is easily achieved.

