PNNL-12247

Challenge Team Report:

Brookhaven National Laboratory Environmental Restoration Program

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DISCLAIMER

Summary

A Challenge Team reviewed the Brookhaven National Laboratory (BNL) Environmental Restoration (ER) program in March 1999. The purpose of the review was to make recommendations to improve the program's approaches and strategies, with the goal of reducing life-cycle costs and schedule. The Challenge Team consisted of staff from within and outside BNL and was facilitated by staff from Pacific Northwest National Laboratory (PNNL). During the one-day meeting, the Challenge Team gathered observations, perceptions, and recommendations about the BNL ER program.

The major findings and recommendations resulting from Challenge Team activities are as follows:

- The overall conclusion is that the BNL ER program has accomplished much and is well positioned to move aggressively towards closure. Seven removal actions have been completed. A record of decision (ROD) has been reached on Operable Unit IV, and interim soil cleanup has been completed. The remaining three RODs are under negotiation now.

- With the completion of the Remedial Investigation/Feasibility Study (RI/FS) phase and the start of remedial actions, there are opportunities for changes that can improve the program and reduce life-cycle costs:

  The ER program should accelerate the transfer of cleanup operations and maintenance and other non-core activities (e.g., pump and treat operations, waste management, and groundwater monitoring) from ER to the landlord to reduce ER costs.

  As remedial action starts, the numbers of samples and suite of analytes should be evaluated with the intent of reducing the numbers of both. The possibility for reduction in the number of samples and analytes as well as quality assurance samples should be assessed.

  The design of remedial action should actively include consideration of minimization of operations, maintenance, and waste disposal costs.

  A change in contract strategy (currently under way) away from basic ordering agreements for remedial investigation related work toward competitively bid work among prequalified design-build contractors with a focus on facilitating closure could reduce life-cycle costs.

  A strategic plan for the ER program that reflects a site-wide perspective (instead of operable unit by operable unit) and a closure focus should be developed. ER program priorities should be off-site contamination (i.e., contaminated groundwater and Peconic River sediments) and risk reduction at the Brookhaven Graphite Research Reactor, followed by other on-site operable units and legacy wastes.

  Management systems and staffing should be evaluated in light of the change to remedial action and closure. Staff should be made aware of career opportunities beyond the investigation phase.

- Technical approaches for the most part appear sound, but a continuing investigation of innovative remedial action technologies may result in program improvements through replacement/augmentation for current deployed technologies.

- The members of the regulatory community, especially New York State, consistently exceed their interagency agreement-stipulated review periods, resulting in delays in progress and adding to the "not getting anything done" perception.

- BNL is an Office of Science Laboratory, and contractor oversight is provided though an on-site area office, the Brookhaven Group (BHG). However, the U.S. Department of Energy Chicago Operations Office (DOE-CH) also through BHG manages Environmental Management.[1] As a consequence, management interfaces are more complex than those at other DOE locations. This complexity adds to the communication required, especially as it relates to planning, reporting, and performance. These interfaces need to be clarified and simplified.

The ER program faces a number of constraints, from the need for a culture change to flat budgets. The RI/FS phase is all but complete, and ER is ready to move into remedial action. The opportunity and basis exists for the needed positive change leading to significant performance improvement.

[1] On 22 April 1999, the Secretary of Energy announced that all Brookhaven National Laboratory programs will report through BHG and DOE-CH.

Contents

Introduction

As part of a management self-assessment, the Brookhaven National Laboratory (BNL) Environmental Restoration Division (ERD) of the Environmental Management (EM) program selected a Challenge Team to evaluate the effectiveness of strategy and implementation of the Environmental Restoration (ER) program. The purpose of the March 1999 review was to make recommendations to improve the program's approaches and strategies, with the goal of reducing life-cycle costs and schedule. The work of the Challenge Team and its major findings and recommendations are documented in this report.

Information on the BNL site, including its geography, relevant entity management relationships, governing agreements, and site restoration status, describes the situation at the time the Challenge Team conducted its work. Next, the objective and approach governing the Challenge Team's activities are described. The outcome of the team's evaluation and discussions then is presented as observations and recommendations. Appendix A provides lists of staff involved in the Challenge Team's evaluation. The agenda and outputs of the Challenge Team meeting are included in Appendix B. Selected raw comments collected during the interviews and the Challenge Team meeting are provided in Appendix C.

The Challenge Team and this report are part of an initial management step in evaluating and improving the effectiveness of the BNL ER program. Future use of this approach will depend on BNL management's evaluation of its benefits.

Background

Brookhaven National Laboratory was founded in 1947 on Long Island, New York, at the site of the former Camp Upton. During World Wars I and II, the U.S. Army used the camp. Between the wars, it was a Civilian Conservation Corps camp. The Laboratory now is owned by the U.S. Department of Energy (DOE) and is managed and operated by Brookhaven Science Associates (BSA), a not-for-profit association of the State University of New York at Stony Brook and the Battelle Memorial Institute. BSA took over management of BNL, including the environmental programs in November 1997. The DOE Brookhaven Group (DOE-BHG) performs contractor oversight and site management. Although BNL's Environmental Management (EM) program is part of the Chicago Operations Office (DOE-CH), DOE's Office of Science is the landlord and lead program office.

The BNL site is at Upton in Suffolk County. It is approximately 60 miles east of New York City. Suffolk County's population is approximately 1.3 million, of which more than 400,000 live in the same township (Brookhaven) as the Laboratory.

The site occupies approximately 5,265 acres (8.23 square miles) on the western edge of the Peconic River watershed. Surface water draining from the site constitutes a major tributary of the river. BNL's principal facilities are concentrated in the center of the site and occupy about 900 acres. The remainder of the site is largely wooded.

The Laboratory's current principal mission is to conduct basic and applied research in the fields of high-energy nuclear and solid-state physics; fundamental material and structures properties; interactions of matter; nuclear medicine; and environmental sciences. The ER Division's overall environmental restoration objective is to protect human health (including protection of site workers and the surrounding

public) and the environment. The site is expected to be used as a DOE national laboratory for the foreseeable future.

Past research activities conducted by BNL, as well as other site activities dating back to Camp Upton, have resulted in soil, groundwater, and structures being contaminated with radioactive and chemically toxic materials. Cleanup efforts began in 1991 and are conducted under a 1992 Interagency Agreement (IAG) signed by the U.S. Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC). The IAG integrates cleanup requirements under the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response and Liability Act (CERCLA), and state regulations.

Nearly 30 areas of concern have been identified on the BNL site. These now are grouped into five entities called *operable units* (OUs):

- I/VI - Waste Management Areas, Landfills, Upland Recharge
- II/VII - Alternating Gradient Synchrotron, Scrap Yard, Aerial Survey
- III - Potable and Supply Wells and Spills
- IV - Central Steam Facility
- V - Sewage Treatment Plant.

Six removal actions have been completed; the seventh will be completed in FY99. Interim remedial actions have been completed for OU IV, and all OUs now are in the Feasibility Study (FS)–Proposed Plan or Record of Decision (ROD) stage. The schedule is to have all RODs signed in 1999 and remediation implemented by 2006 or earlier.

Approach

A one-day Challenge Team meeting was held on March 17, 1999. Dr. Thomas L Page from PNNL and Mr. John Meersman from BNL served as the co-leaders of the meeting. Other members included staff from PNNL and BNL as well as from outside organizations (Appendix A).

The objective of the Challenge Team was to contribute to the improvement and/or validation of the BNL ER program approaches and strategies through application of self-assessment and continuous improvement principles. The scope of the Challenge Team was limited to operable units addressing contaminated soils, groundwater, waste disposal, and legacy wastes. An additional objective was to bring outside experience and technical resources to the BNL EM program, to ensure that the ER program is capitalizing on the best experience and technical resources from within the DOE national laboratory complex.

The approach for this meeting was to review the BNL ER program in an open and frank forum and establish a dialog that drew on outside and site experience for suggestions on how to reduce or improve the program's life-cycle costs and/or schedule. The agenda and outputs of the Challenge Team meeting are included in Appendix B. Selected raw comments collected during the meeting are in Appendix C.

The outcomes expected of Challenge Team activities include recommendations, suggestions, and considerations that will reduce life-cycle cost and schedule and increase the efficiency and effectiveness of the ER program.

Challenge Team Feedback

The outcomes of the Challenge Team's--observations and perceptions of the ER program collected during the meeting--are highlighted in this section in *italics*. The findings are discussed, and recommendations resulting from the discussions are presented for specific topics from the meeting agenda.

Environmental Restoration Program Overview

Flat Budget

Like other DOE sites, *Brookhaven National Laboratory is required to plan and execute its ER program within the context of a flat budget.* Success under this scenario will require a well-defined outcome-focused plan, clear prioritization of objectives aligned along a critical path, and a well-disciplined project management approach in working to the plan. Changes to the plan, after scope, schedule, and budget have been agreed to and work has been started, must be handled by a disciplined process for change control. New initiatives or new scope (e.g., the Peconic River plutonium issue) cannot be added to existing scope, schedule, and budget agreements without appropriate adjustments to all three to accommodate the changed direction. The ER project management change control approach includes performance trending and a Baseline Change Proposal procedure.

Environmental Restoration Strategy

The current strategy is based on integrated risk ranking of all OU's for allocation of funding, risk reduction through removal actions, and end-state completion by 2006, with long-term operation and institutional control by the landlord. This approach, however, fails to provide an overall view of the interrelationship of the activities and their relative importance to achieving program goals. This approach also tends to lead to incremental gains rather than strategic or even breakthrough solutions focused on risk reduction. Similarly, it does not capture cost efficiencies that may be gained from site-level integration of activities.

The ER program would benefit from a clear, brief articulation of its integrated side-wide plan to complete its cleanup mission. This should be a big-picture document focused on reducing risk. The types of questions it should answer are

- What is your overall plan to complete the ER program?
- What do we do now, versus doing later? Why?
- How do the parts fit together?
- If you had another $20 million, what would you do with it? Why?

There is a perception among the public that not enough progress has been made to date in cleaning up the site. In this strategy, as in all communications, the program status message must be clear:

"We are not starting, we are finishing!"

The simple story needs to take credit for progress and risk reduction and to show how planned actions will demonstrate further progress resulting in completion of the program.

Getting the RODs signed is of high priority. Their signing begins to bound future costs and frees the ER program for action and demonstrable progress.

Current off-site contamination as well as on-site contamination that could leave the sites are priorities because it is here that potential risk to the public and environment, real and perceived, exists. The longer the question of plutonium contamination of the Peconic River remains open, the more public concern will raise, again questioning the Laboratory's regard for public health.[2] The Brookhaven Graphite Research Reactor is important because of its visible potential for further environmental contamination that would exacerbate site conditions.

The changes required in the character of the ER program as it moves into remedial action will provide further opportunity for cost-avoidance and savings. Expeditiously moving through the CERCLA process to mature remedial actions will allow for transfer of operations and maintenance of these functions to the landlord, thereby demonstrating progress, get costs off ER books, and allow ER leadership and staff to better focus on final cleanup. At the same time, ER program staffing levels and contracting strategy should be evaluated for opportunities to avoid and save costs. BNL ER management processes are addressing these issues.

Staff and Culture

The BNL ER program management recognizes its work must be projectized through the introduction of state-of-the-art project management tools and project management techniques. That process has started, but it is not yet imparted to and institutionalized among all ER Program staff. Environmental cleanup projects, by their nature and intent, need to be driven to closure in a timely and deliberate fashion. The clearly stated objective of the ER program must be to complete cleanup as quickly and cost-effectively as possible. The implication of this for staff is that they must be committed to working themselves out of this job in the same manner (quickly and effectively). The emphasis should be on developing a committed staff who focus on the management (as opposed to performance) of closure actions and who understand the project nature of their assignment. At the same time, the ER program must openly and effectively address job loss fears of ER staff. A career generally cannot be made of cleaning up one site. Those interested in ER for a career should be assisted in finding non-BNL jobs as they complete assigned tasks. Alternative career paths should be identified, as possible and appropriate, for staff who wish to remain with BNL. For example, those who lead the effort to design and install remedial actions may wish to move to the landlord function during the operations and maintenance phase.

In addition, the ER program needs a strong project management ethic, embraced by all ER staff, of planning each piece of work carefully, working the plan (and only the plan), tracking performance, and implementing an effective change control process. The addition of project engineering and project planning and control functions would provide help greatly. This approach is not common in research and development organizations, and DOE laboratories typically do not have the administrative infrastructure necessary to support its addition. It is, however, an attribute of successful and effective project organizations. It is an effective way to gain budget flexibility under constrained fiscal conditions and to ensure progress toward agreed-to objectives. Many of the tool and procedures to do this are being incorporated into the ER program. However, the required cultural change is not complete among BNL and BHG staff.

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[2] At the time of the Challenge Team meeting, the supplemental sampling of the Peconic River was planned.

As part of a project management focus, the ER program contracting strategy needs to be focused on key program outcomes and objectives. Properly structured, it can be a source of innovation and commercial best practices that, when imported into the program, will increase its effectiveness and reduce life-cycle cost.

Regulators

The regulators, especially the NYSDEC, are perceived as contributing to the slow rate of progress by their tardy reviews and reluctance to move forward in the face of (always) incomplete data. Again, this is a common phenomenon elsewhere in the country. Environmental restoration, by its very nature, is uncertain, and it is always tempting to ask for more data and to approach decisions with caution. Here, the use of "value of information and observational approaches" is a means to focus and limit additional characterization data to that which is key to affecting the outcome. If additional data will not change the proposed approach, then the case for collecting them is weak.

Regardless of when in the course of cleanup it occurs, RI requires large numbers of samples analyzed for large suites of analytes. The analytical requirements of remedial action are different, and the frequency and numbers of samples and analytes can be reduced to avoid cost. Likewise, the number of blanks, duplicates, and quality assurance samples often can be reduced. Care should be taken to clearly specify and periodically review the data quality objectives for analytical programs.

The ER program needs a comprehensive near-term regulatory strategy focused on getting the RODs signed and implemented. This strategy should identify how decisions are made (both informally and formally), as well as identify key decision makers and the information they will need, including the role of elected officials in expediting the ER program's progress and ultimately successful outcome.

DOE and BNL Interfaces

The interfaces among DOE-CH, DOE-BHG, and the BNL ER program should be examined with the intent of more clearly defining roles and responsibilities and streamlining and simplifying them, as part of an overall improvement in the management system and processes. In part, this effort should result in reducing the number interactions among staff of the various organizations and raising the involvement to more a senior level. The goal should be common agreement and knowledge of the ER program goals, priorities, outcomes, and expected performance. Once these goals and priorities are established, everyone supports them until they are changed, and they are changed deliberately. Any new crises must be identified as such, and new budget/scope developed for it.

A desirable outcome would be for DOE-BHG and the BNL ER program each to have the same objectives and each be measured by the same metrics. In all cases, DOE should focus its guidance and expectations on what should be done, not on how it is done. The BNL ER program should focus on how to accomplish the work and its progress.

In the end, all parties involved in the cleanup of the BNL site--DOE-CH, DOE-BHG, BNL senior management, and BNL ER program staff--should have a common vision, understanding, and commitment to the ER programs objectives, outcomes, approaches, and schedule, and should be able to communicate that as necessary. ER program managers are responsible for establishing and maintaining this vision.

Specific Agenda Item Feedback

Remedial Design Approaches

The ER program currently uses basic-ordering-agreement contractors for various RI/FS functions, e.g., characterization, groundwater modeling, etc. ER project staff typically prepare the Remedial Design Work Plans, including any required additional data collection or characterization needs, and competitively bid the design and construction work as separate packages, with the design contractor typically providing construction oversight. Plant Engineering is typically used for the mechanical, electrical, and control systems work. Once the treatment system is installed, operations and maintenance functions are turned over to Plant Engineering.

The Challenge Team suggested developing a succinct description of each list of prioritized projects including identifying decision points. Project needs for all OU projects should be prioritized so that the next priorities would be readily identified should additional money become available, or costs avoided so that additional scope could be performed. The ER program should continue to monitor technology developments for possible application. The ER program should also evaluate the use of "value of information and observational approaches" as a means to focus and limit additional characterization data to that which is key to affecting the outcome. If additional data will not change the proposed approach, then the case for collecting them is weak.

Contracting and Procurement Strategies

Currently the ER program uses basic-ordering-agreement contracts with local firms for RI, FS, remedial design, modeling, and similar efforts. Bid packages are kept large where possible to take advantage of the break in overheads on contracts over $600K. For remedial actions, design-build contracts have been considered but rejected because staff felt they were not cost-effective due to prolonged duration resulting from flat funding. Design-build-operate has not been evaluated, and operations and maintenance of remedial systems are generally assigned to Plant Engineering. The ER Program is now recompeting these contracts and, for future work, intends to replace them with a group of prequalified contractors. Work will be assigned to these contractors on the basis of competitive bid.

The Challenge Team suggested re-evaluating design-build and design-build-operate contracts as well as fixed price and fixed unit cost contracting. Contracts and, hence, contractors should be outcome- and performance-based. ER should consider performance awards for contractors who complete contracts early and under budget and penalties for those who do not. The Challenge Team also suggested investigating use of other federal contracts, e.g., U.S. Army Corps of Engineers and other DOE contracts. Contracting approaches must contain provisions for flexibility so that costs can be avoided and the savings applied to meet overall cleanup objectives as necessary.

Remedial Action Implementation Approaches

The ER program currently uses competitively bid groundwater treatment system design and construction, with Plant Engineering managing construction. Plant Engineering has also performed some soil remediation, e.g., Bldg 830 underground storage tank and soil remedial action. Larger soil remediation projects, extending over four or five years, would be done by contractors. Contractors would also be used to characterize, package, treat, and dispose of boneyard wastes.

The Challenge Team suggested that scheduling remedial actions in parallel rather than always in series, or at least in overlapping series (to gain lessons learned), might provide reductions in both time and money. A "systems" view should be taken for groundwater remediation, taking into account sequencing of activities on adjacent OUs, transport onto the site, and mpacts of leaking sanitary water lines and sewers.

Waste Disposal Strategies

The Waste Management division oversees the ER Division's waste disposal. BNL is currently conducting a comprehensive laboratory-wide inventory of legacy wastes and surplus materials. All waste must be disposed of off-island, and transportation can be a concern. Some excavated wastes (e.g., from the chemical and animal hole) and some liquid wastes (purge water) remain on site. The remaining chemical pit wastes will be sent to a subtitle D landfill , but ER is waiting on a waiver from DOE.

The Challenge Team questioned why chemical hole waste were being disposed of if the exposure from the contamination is less than 15 mrem/yr. The Work Group suggested having a plan in place to minimize generation of waste in the first place to reduce disposal requirements and developing an optimized and integrated waste disposal path. Bulk disposal, e.g., roll-off and railcars, should be evaluated to reduce costs. The Work Group also cautioned against creating any "new" legacy wastes by not having an identified disposal pathway and budget before the wastes are generated.

Environmental Services Integration

This year, the ER Division is integrating groundwater monitoring for remediation purposes with the site-wide environmental surveillance monitoring. An integrated quality assurance project plan is being prepared, and the same procedures and database will be used. Future plans include developing integrated data quality objectives (DQOs).

The Work Group suggested efficiency gains could be obtained by managing all groundwater monitoring (sampling, analysis, and interpretation) as a single project with a single set of procedures. A carefully developed set of DQOs should be used to minimize quality control costs.

Challenge Team Process

The Challenge Team process is a useful approach within the self-assessment context and provides ER managers with an outsider's view of strengths, weaknesses, and opportunities. This was the first time the ER program was looked at in this way. Preparation time and time allocated for the review were short, and it was not possible to obtain the ER organization's performance objectives and indicators as a basis for the review. It also was not possible to benchmark the BNL ER program against others or to perform a detailed review of opportunities for using specific new technology or innovative approaches to more effectively achieve program objectives. Nevertheless, this review should provide a basis for future evaluations of the ER program's performance level and status against objectives, desired performance, and indicators.

Conclusion

The ER program faces a number of constraints, from the need for a culture change to flat budgets. The RI/FS phase is all but complete, and ER is ready to move into remedial action. The opportunity and basis for needed change leading to significant performance improvement exists.

Finally, it should be noted that BSA has recognized many of the BNL ER program shortcomings and has developed plans and tools to address them. This Challenge Team process is one of those tools.

Appendix A

The Challenge Group:
Team Members, Work Group Meeting Attendees

Appendix A

The Challenge Group: Team Members, Work Group Meeting Attendees

Challenge Team Members

Michael Kane	Horne/DOE-CH	(423) 482-8949
John Meersman	ERD	(516) 344-8632
Mark Montgomery	PNNL	(530) 677-6980
Tom Page	PNNL	(509) 372-4550
Winston Porter	Horne Engineering	(703) 777-9800
Russ Wyer	BHI	(509) 375-4666

Work Group Meeting Attendees (March 17, 1999)

Bill Dorsch	ERD	(516) 344-5186
Arthur Harris	ERD	(516) 344-2899
Mike Hauptmann	ERD	(516) 344-4202
Michael Kane	Horne/DOE-CH	(423) 482-8949
John Meersman	ERD	(516) 344-8632
Mark Montgomery	PNNL	(530) 677-6980
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Gail Penny	DOE	(516) 344-3429
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Appendix B

Work Group Meeting

Appendix B

Work Group Meeting

In this appendix, the agenda for the Work Group meeting is presented first, followed by documentation of the output from the meeting.

Agenda

AGENDA

Challenge Group for BNL Environmental Restoration Program
March 17, 1999
Berkner Hall, Meeting Room A

8:30 – 9:00 **Introduction**

9:00 – 10:00 **Environmental Restoration Program Overview**

10:00 – 11:00 **Remedial Design Approaches**

11:00 – 12:00 **Contracting and Procurement Strategies**

12:00 – 1:00 (Working Lunch)
Remedial Action Implementation Approaches

1:00 – 2:00 **Waste Disposal Strategies**

2:00 – 3:00 **"Out of the Box" Approaches**

4:00 - 4:05 **Plus/Delta**

4:05 - 4:30 **Summary/Action Items**

Meeting Output

Output of the Work Group meeting was recorded as the meeting progressed. The results included issues identified, "out-of-the-box" approaches, a meeting evaluation exercise, and action items. These items are presented here.

Issues Identified

- The ER program is not recognized or given credit for the work accomplished (risk reduced) to date.
- It is important that the status of the ER program be communicated and recognized, i.e., it is not at the start, but in mid-completion.
- The diversity of the project participants (DOE, BNL, regulators, etc.) results in multiple agendas and expectations for strategies and tactics
- The program needs to change the perception accomplishments versus studies and budget constraints.
- Identified constraints include budget and regulators, especially the State.
- BNL has a complex site management situation that involves multiple parties BSA-subcontractors, BSA, BHG, Chicago Operations, DOE-HQ. Decisions are hard to come by.
- The decision making process within DOE and the regulatory agencies is complex.
- Take a post-ROD focus (assume RODs signed):
  - How would you manage a design/construct project to completion?
  - Do you have a project management organization?
  - Do you have a project management culture?
- Community perceptions regarding
  - Groundwater plumes, sand filters, continued risk to Peconic River
  - Community interactions/understanding
- Need a systems engineering approach to managing the site, that is, it is site management, not management of contracts or OUs.
- Community involvement in Lab decision-making process
  - -How does BNL more effectively involve the community in site wide decisions?
  - How can community involvement be uses to pressure the State into more expeditious action?
  - How do you identify windows of opportunity for community involvement?
- Delays for any reason lead to increased scope.
- Chicago Operations' expectations and their management:
  - Sign the RODs and move on.
  - Use additional money for new scope, not for working on scope already in progress.

- A total project cost mentality is needed.

Out-of-the-Box Approaches

- The hangup is regulatory approval. Therefore, recommend DOE make support contractors available to federal/state agencies to expedite the process. The downside is the contractors' agenda and hence "spin" to their comments.

- Issue with regulators--requires in response a clear regulatory strategy, particularly for the State.

- Consider bulk disposal--roll-off , railcars, etc.

- Consider tritiated water to be a national resource: provide, sell to DP.

- ERD needs to move proactively and plan to work into new scope (staff future careers). Suggestion: develop a Keep-It-Clean program, eliminate segmentation among related BNL efforts.

- Cleanup costs and time may be reduced by developing ACLs for plumes where water has been supplied.

- Reduce management effort by establishing a consolidated (DOE-CH, BHG, DOE-HQ, BNL) management team.

- Reindustrialization – Zone property now for future use, clean to those "industrial" requirements, keep other areas clean, especially where recharge occurs.

- Work with DOE to establish "ROD-certain dates"; if not then approved by regulators, implement ROD-consistent removal actions in lieu of ROD-directed RAs.

- Identify and prioritize procedures that are needed and develop and implement only those that add highest value.

- Educate the public (taken broadly to include Congress) to develop broad support for the program success and to maintain and improve budget support.

- Develop a Hanford-type project schedule and tracking approach that highlights completed as well as to-do work.

- Prepare a simple story of the program's strategy, logic, and approach to cleanup.

- Plan ahead to make sure that data collected during RD/RA address identified performance acceptance criteria.

- Focus always on meeting the cleanup objective, not on the interim steps.

- State publicly that "Characterization is complete--we are now in the remedy phase!"

- Verify cleanup standards/requirements for disposal of glass/chemical/animal hole soils.
- Use contractors who use new technology at any point in the process where it adds value.

Plus Delta Exercise

The Plus Delta exercise evaluated the Work Group process in terms of what was good (Plus) and what could have been done better (Minus). Exercise results are summarized in the following table.

Plus
Lunch
Facilitator
L2
Validation (of program)
Good Participants
Participation
Minus
Region II EPA's co-located
Too Broad (Need more focus and discussion)
Identify specific, current issues, problems (Challenge group sequel)
More pre-planning
Other experience, more DOE complex, DoD, other

Summary/Action Items

Future Topics

- Waste Management
- Remedial Technologies
- BGRR
- Challenge the broad assumptions, vis-a-vis cleanup levels.

Theme for next time: How to become an exceptional program within existing constraints.

Appendix C

Captured Raw Comments from Work Group Meeting

Appendix C

Captured Raw Comments from Work Group Meeting

Comments made in response to the Challenge Team's activities are listed in the appendix, categorized as perceptions and recommendations.

Perceptions

Environmental baseline for offsite contamination is natural attenuation with no new plume growth. Source control needs to be assessed if this baseline is to be feasible.

Desire is to end RI/FS phase but management would like to maintain PA/SI capabilities because new problems continue to be discovered. May be best to have this capability through a subcontractor.

General complaint about reports are that they are too long and are difficult to read. This is a legacy of the SuperFund program where litigation ruled and everything had to be covered and documented. Proposed plans are generally more reader-friendly. A similar companion document to the RI/FS reports may have a value, or an expanded Executive Summary.

All hazardous wastes and RA contaminants must go "off-island." BNL has not shown much interest in waste minimization or pollution prevention. Good opportunity for a P2 program.

Waste disposal is a serious cost (both CERCLA and current waste) because of "off-island" policy. Waste reduction/minimization should be considered. Rad soil segregation prior to disposal is planned. Water treatment through carbon or resin filters should be considered.

Budget is stable at about $20M/yr until 2006--with the chance of additional yearly funds.

Currently work goes to prequalified contractors. New approach will be to qualify a few contractors and bid work tasks (good idea, will result in cost savings). However, the site history currently resides with the contractors and would have to be brought into BNL (i.e., hire project engineers) for new approach to work. Cost savings may be offset by higher personnel costs.

Need a better database system. Current system is not user-friendly, not available to public, and not well organized.

Baseline has recently been revised to ask for more time and money. "That's not going to happen."

Baseline is out of control, costs not well defined, nor is the strategy (not unexpected with the conflicting priorities).

Need better community relations. Lab needs to be more proactive and accountable (?).

Program success definition: All treatment systems operating, BGRR cocooned, all activity (radioactive?) above free-release levels is removed from site. An EMS (environmental management system) is in place along with SBMS and an ISO 14001 certification.

There is concern over lines of responsibility and direction coming from a number of sources regarding the BNL, BHG, CH management chain. A formalized chain of command and direction documentation must be implemented. Even at the expense of hurting egos.

Cs137 main soil contaminant--need good field screening tool.

EM needs to work backward from endpoint.

Priorities are risk reduction, public health/safety, worker protection, environmental protection, and regulatory commitment.

Public perception is that BNL is not getting anything done.

Could gain efficiency in groundwater remediation by doing related remedial actions in parallel rather than series.

During remedial design, address potential disposal facility waste acceptance criteria during remedial design and any additional characterization of soil/sludge to reduce required sampling activities and better determine where wastes can be disposed of.

Need to change culture of BNL staff to keep the site clean after ER is complete.

How do you transfer accountability for RA O&M to site services? How do you involve plant engineering?

Contractors for ER are all locals. Do they have the same culture as the Lab for wanting to string work out?

Are you taking a systems approach to groundwater treatment and manipulation at the sit? What are the linkages among OUs?

Investigate advantages of alternative contracting scenarios: design-build vs. design-build-operate. Also consider rewards for contractors who complete early and/or under budget and penalties for contractors who don't.

A troublesome problem is the continuing production/discovery of legacy wastes.

Need a long-term consistent strategy or approach to ensure that BNL is dealing with and meeting regulators and public values and not addressing perceptions of those values generated by contaminant fears.

Shorten time between soil excavation and disposal. Avoid stockpiling.

Investigate zoning changes for developing cleanup requirements. Must be able to establish and meet ACLs instead of MCLs. Challenge and change assumptions.

An integrated (consolidated) comprehensive groundwater monitoring program needs to be considered. Currently, groundwater monitoring appears to be associated with individual OUs. A cost savings would be realized by taking a facility-wide approach to monitoring of cleanup. This could result in the abandonment and/or closure of wells and cost savings from fewer samples. Cleanup monitoring could also be consolidated into the site-wide monitoring program for further savings.

Several interviews generated observations concerning the BNL staff. The perception is that staff are not interested in moving on with the program because 1) they are comfortable with RI/FS work and 2) they fear job loss as it transitions from the investigative to the implementation phase and when RAs are complete or in routine operation and maintenance. Environmental cleanup work, by its nature, needs to be driven to closure in a timely and deliberate fashion. Nevertheless, the needs of the staff must be addressed. Staff need to be made aware that there are new opportunities during the subsequent stages and that there may also be opportunities as ER activities are eventually transferred to the landlord. Environmental restoration activities at a single site is not a career option, and BNL should specifically address opportunities for career enhancement and change.

Recommendations

Identify what scope, budget, staff can be transferred from ER to Landlord, Environmental Services, etc.

Get Pu isotope analysis out. Was it fallout or is the Lab the source, how does it compare to fallout level?. Prepare a white paper on Pu worldwide fallout and health consequences.

EM is working on urgent and important and urgent and not important areas. Need to define priorities to complete most important problems, including those not yet urgent.

Need to define goals and priorities and stick with them. Any new crises must be identified as such, and new budget/scope developed for it.

Get the scientists out of the cleanup program and into an appropriate role of new approaches and technologies. Establish a project engineering function along with a project planning and controls function. Look at subcontracting strategy and the need to enhance in-house technical expertise (i.e., project engineers).

Find a new mission/future for the ER staff so they don't drag out the cleanup to maintain their jobs.

Consider moving BGRR from EM to a separate project and determine what is best technical approach to handle it. Answer may not be politically popular.

Develop a progress score sheet that indicates removals, work completions, etc.

Groundwater RA activities need to be coordinated into a unified program. This may result in a modifying of selected RAs.

Determine if the problem with getting reviews from the State is a long-term problem or just a short-term phenomenon that will go away as BNL moves into remedial actions. Develop solutions to solve it.

Look at innovative treatment or disposal technologies that would allow for on-site disposal or otherwise reduce costs (e.g., concentrate, segregate, pretreat). Will require a change in "off-island" disposal policy.

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