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MEMORANDUM FOR DISTRIBUTION

FROM: CHARLES E. ANDERSON
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ENVIRONMENTAL MANAGEMENT

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SUBJECT: Protocol for EM Operations Funded Project Performance Baselines and their External Independent Review

The attached Protocol will govern the review and validation of Environmental Management (EM) Operations Funded Project Performance Baselines and is provided for your use and implementation.

If you have any questions or comments concerning this protocol, please call Ms. Karen Guevara, Director, Office of Project Planning and Controls, Office of Environmental Management at (202) 586-4144 or Mr. Suneel Kapur at (202) 586-0110, Office of Engineering and Construction Management.

Attachment

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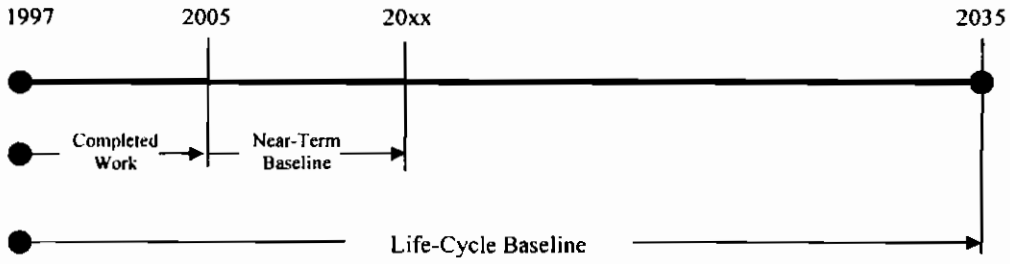
PROTOCOL FOR EM OPERATIONS FUNDED PROJECT PERFORMANCE BASELINES AND THEIR EXTERNAL INDEPENDENT REVIEW

In a recent initiative EM "projectized" the activities, schedule, and resources required to complete the EM mission at each DOE site. The EM project list is comprised of activities (PBSs) to which EM is applying the DOE's project management principles and policies. Unlike the line-item construction projects that require an OECM validated performance baseline prior to requesting line-item construction funds, EM's PBSs are funded under operations budget accounts. Even though DOE Order 413.3 does not restrict operations funded work to have a validated baseline in place prior to start of cleanup, the Department has put in place the same level of project management discipline in the planning and execution of EM cleanup work by requiring that each EM PBS have an OECM validated baseline prior to Acquisition Executive approval.

The development of the EM operations funded project baselines presents a number of challenges not typically found in capital asset construction projects. The duration of many of the operations funded project baselines are in excess of 10 years with many continuing to year 2035. Cost estimates for cleanup activities and operations that far into the future are highly dependent upon a set of present-day assumptions for escalation rates, current and emerging technologies, regulatory issues, and success of near-term activities. The cost and schedule basis of near-term efforts work typically have a higher confidence level than work far into the future. As noted in Department's Report to Congress dated June 2004, OECM will generally "validate" only the near-term portion of each project. The remaining portion of the life-cycle baseline to meet the final site closure date may encompass many years of work. This later portion of the life-cycle baseline will be reviewed for its reasonableness, generally at a summary level.

EM Operations Funded Project Baselines



When EM projectized its activities in 2003, the cleanup work was already in the execution phase. This protocol has been written to formalize a review structure for future work and establish a standard set of expectations for performance baselines so that (1) EM sites develop their baseline documentation consistently across the complex; and (2) consistent criteria are used for project execution, review and reporting.

Protocol for EM Performance Baselines

1. The EM operations funded projects (PBSs) will be formally brought into compliance with the DOE O 413.3 and DOE M 413.3-1.

2. OECM's Standard Operating Procedure (SOP) for conducting EIRs will apply to EM operations funded projects. Tailoring of the lines of inquiry and the required documentation will be done as appropriate to support CD-2/3 reviews. See Attachment 1 for an example of typical inquiry topics for a CD-2/3 EIR.

3. In approving the near-term performance baseline the Acquisition Executive (AE) will use the results of the EIR and OECM's validation of the near-term baseline; and in approving the life-cycle baseline the AE will use the results of the OECM's EIR and endorsement of the reasonableness of the life-cycle baseline. Near-term baselines normally, but not necessarily equate to the contract period of performance and should in most cases be at least two years.

4. A single EIR will usually be conducted at a site that will cover all the PBSs. An EIR will be conducted for each new segment of the life-cycle baseline. This will generally coincide with a new contract.

5. OECM will conduct EIRs of all EM operations funded projects greater than **$20** million prior to CD-2/3.

   - In advance of each EIR, senior contractor executive and the site office manager through EM headquarters shall provide signed certification that all required documentation is available and will be provided and that the site is fully prepared to support the EIR. This definitive certification will be relied upon by OECM in scheduling the EIR activity. Both the contractor and the site manager will be held accountable for their certification.

   - The Federal Project Director (FPD) will provide supporting program/project documentation of the near-term and life-cycle performance baselines to OECM and the EIR team 5 weeks in advance of the on-site review.

   - The EIR team will recommend if the scope, cost, and schedule making-up the performance baseline for the near-term "contract period" of each PBS can be validated and performance baseline for the life-cycle "closure period" can be endorsed as reasonable.

   - In general, the EIR team will evaluate and recommend whether to validate the near-term baseline for each individual PBS; however, it may be appropriate in some instances to evaluate the composite near-term baseline that makes up a site-wide baseline.

6. Each site's EM program will develop an integrated project and funds management plan based on contract negotiations, that includes a detailed scope, cost and schedule performance baseline for the near-term activities and a summary-level cost and schedule performance baseline for the remaining portions of each PBS.

   - Project baselines must include, but are not limited to, establishing scope, cost and schedule, a resource loaded schedule, work breakdown structure and an execution plan. The project performance baseline must be supported with detailed analysis and documentation that establish the basis for cost and schedule. For example EM project baselines must address:

     - Regulatory requirements in addition to technical and safety requirements.

     - Risk management through risk identification, analysis, and mitigation. Performance baselines must include a contingency analysis that uses the results of uncertainty scores[1] and associated assumptions - Risk assessment and mitigation actions will be incorporated into risk-adjusted cost estimates, project schedules, and the project work breakdown structure (WBS). The nature of the risks will dictate whether they are included in the EM liability determination or are included in the project baseline for each PBS.

   - Other requirements for project baselines are:

     - In addition to the contractor's management reserve for normal project risks, EM will include a separately identified contingency estimate for unfunded risks based on uncertainty score determinations.

     - A structured change control process shall be put in place that ensures the integrity of the approved performance baseline.

     - The performance baseline will reflect the work plans developed within the contract framework and will be used to manage and measure progress.

   - A performance-based contract may challenge the contractor to do more work within the available funding profile (that may require re-sequencing of planned activities) than just the core scope in order to maximize the incentive fee. This flexibility may be provided to the extent that the contractor completes core-scope within the contract dollar threshold and period of performance.

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[1] EM employs the concept of an unfunded contingency, which is calculated using a Monte Carlo statistical analysis with an uncertainty score developed by the field. This is part of the EM environmental liability audit that covers the EM program risks and the associated unfunded contingency.

7. The review of risk assessment, contingency analysis, and uncertainty scores will be part of the OECM EIR.

8. The FPD and the contractor shall use an Earned Value Management System (EVMS) to manage, control, and measure progress and performance. Each contractor's EVMS must be reviewed and certified as compliant with the American National Standards Institute (ANSI) EVMS standard (ANSI/EIA-748- 1998). OECM is responsible for the EVMS certification program.

9. The FPD and the contractor shall identify measurable performance outcomes. Performance will be measured and performance metrics provided monthly to the appropriate executive official. Executive-level management reviews will be conducted for all major operations funded projects quarterly to facilitate early identification of problems and to focus attention on solutions.

10. The FPD shall report cost and schedule performance, in the DOE Project Assessment and Reporting System (PARS) after the baseline has been approved. Portfolio performance metrics showing performance and trends are provided to the Deputy Secretary on a monthly basis.

11. In the monthly assessment of project performance OECM will take into consideration the estimate of unfunded contingency established at the time of baseline validation in determining the overall project assessment.

Attachment 1

EIR Scope of Review and Required Documentation

The following 15 Lines of Inquiry are an example of tailoring the Standard Operating Procedures for conducting an External Independent Review for an EM operations funded project in support of a combined CD-2/3 EIR. Tailoring of these Review Elements may be performed to suit site-specific conditions

1. **Contract Cost and Schedule (near-term) and Life-Cycle Cost and Schedule:** Provide an overall assessment of the Contract Cost and Schedule for the near-term performance baseline of each PBS as well as the life-cycle baseline. [The same review elements will be considered in both the near-term and the life-cycle baselines. The near-term baseline must be supported by more details (more rigorous analysis and basis for cost and schedule estimates) for a recommendation to validate the near-term baseline. Fewer details and more assumptions may be appropriate for a determination of reasonableness for the remaining life-cycle baseline.] As part of this assessment, address each of the following review elements. It is expected that the summary findings from each of these elements will lead to the overall assessment of the Performance Baselines.

    1.1 Cost and schedule review of the specific WBS elements selected from the near-term baseline for detailed analysis. These are generally those that have high costs and/or high risk.

    1.2 Review of the Work Breakdown Structure. This summary should focus on whether all near-term project work is included in the baseline, and whether the WBS is consistent with the resource-loaded schedule (See review element 3).

    1.3. Review of System Requirements. This summary analysis should focus on whether all requirements have been addressed (i.e. included in the cost and schedule) and whether requirements are sufficiently defined to develop reasonable cost estimates and schedule and satisfy all regulatory requirements and agreements. (See review element 6.)

    1.4 Review of the Risk Assessments. This summary analysis should specifically address whether the contractor's contingency estimate and the unfunded EM contingency estimate are sufficient to mitigate the risks identified in the near-term Performance Baseline and support the life-cycle baseline reasonableness. This review should include evaluation of the completeness in identification of risks and the associated costs, the risk mitigation activities planned, and the costs for the mitigation activities. (See review element 4.)

1.5 Preliminary Design Review and Disposition of Comments (if applicable). This summary analysis should discuss whether an adequate design review has been conducted, and whether the Performance Baseline (cost and schedule) has been revised as appropriate. (See review element 5)

1.6 Basis for Design (if applicable). The summary analysis should assess whether there is a reasonable basis for design, including whether there is a reasonable likelihood that the cost and schedule are adequate to ensure that the system/project will meet performance specifications. (See review element 5)

1.7 Review of Critical Path(s). This summary should discuss whether the Critical Path Schedule is integrated with the WBS, and reflects reasonable schedule durations consistent with the cost estimate. The summary should also discuss the site-wide baseline as well as the individual projects, including evaluation of reasonableness of the total schedule float.

1.8 Review of the Funding Profile. This summary analysis should compare the funding profile with the cost, and provide an assessment of whether the costs and funding are adequately aligned to successfully execute the project.

2. **Resource Loaded Schedule**. For selected Work Breakdown Structure (WBS) elements within the project (typically, those constituting significant cost and scope), the EIR team will perform a detailed review of the resource loaded schedule for the near-term baseline and an assessment of the reasonableness of the life-cycle summary schedule. The review should include an analysis of the activities, durations, logic ties, constraints, float, and sequencing of activities for each WBS element. It should also include an analysis of the basis for cost estimates, estimating methods and reasonableness of assumptions.

   Note: DOE uses the term resource-loaded schedule to refer to the linkage of scope, schedule, and budgeted cost of specific WBS elements. Near-term estimates are generally supported by "work packages", while future estimates are supported by "planning packages." The ANSI Standard for Earned Value Management System uses the term "resource plan" or "time-phased budget" in lieu of resource loaded schedule.

3. **Work Breakdown Structure**. Assess whether the WBS and the WBS dictionary is complete and incorporates all the near-term work as defined in the contract and whether it is defined in sufficient detail and based on a reasonable breakdown of the contract scope of work. In addition, the remaining portion of the life-cycle baseline should be defined in a summary level WBS. Assess whether the resource loaded schedule is consistent with WBS for the work scope.

4. **Risk Management**. Describe the approach used to identify project risks and assess adequacy of this approach. Assess whether risks have been quantified based on the probability and consequence of occurrence, and have been properly classified as high, medium, and low. Assess whether all appropriate risk mitigation actions have been identified. Review the uncertainty scores and risks associated with those scores. The EIR team will include the unfunded contingency in determining if the near-term baseline can be validated and if the remaining portion of the life-cycle baseline is reasonable.

5. **Design Specifications (as applicable).** Evaluate adequacy of the design including adequacy of drawings and performance specifications, and assess whether they are consistent with system functions and requirements. Assess whether all safety structures, systems, and components (SSC) are incorporated into the design. Review results of the design review and assess whether additional work identified in the review has been incorporated into the WBS and near-term baseline as appropriate. Review selected construction elements, systems, or key project elements posing the more difficult challenges. Assess whether bid packages are sufficiently clear and well defined as to be ready for bid.

6. **System Functions and Requirements.** Assess whether "design to" functions and requirements are complete and are sufficiently defined to develop the design and reasonable cost and schedule estimates. The EIR assessment of requirements should include safety and external requirements such as permits, licenses, and regulatory requirements. The EIR team should evaluate if regulatory activities are properly identified in the resource-loaded schedule and that the duration of those activities are sufficient to maintain the schedule. Determine if all regulatory requirements and agreements are being met and included in the near-term baseline. The EIR team should also assess whether system requirements are derived from and consistent with Mission Need.

7. **Construction/Execution Planning (if applicable)**. Assess adequacy of construction/project execution planning and staffing. Assess logistics including interfaee with operating facilities, infrastructure interfaces, adequacy of lay-down areas, temporary construction facilities, security and badging readiness, and other logistical elements. Federal and contractor staffing should also be reviewed to ensure adequate oversight of the work, including safety, performance, and quality

8. **Hazards Analysis (if applicable)**. Evaluate the quality of the Hazard Analysis and assess whether all scope, schedule, and costs necessary for safety are incorporated into the baseline. Review the classification of SSC's as safety class or safety significant. Assess the Hazards Analysis process. including the use of internal and external safety reviews. Review any Defense Nuclear Facilities Safety Board and/or Nuclear Regulatory Commission interface and discuss the status of their involvement.

9. **Value Management/Engineering**. Assess the applicability of Value Management/Engineering, and whether a Value Management/Engineering analysis has been performed with results being incorporated into the baseline. Also provide an assessment of the Value Management/Engineering process for this project. This will include review of actions, if any, the contractor has taken to accelerate work and improve performance.

10. **Project Controls/Earned Value Management System**. Assess whether project control and reporting systems in use implement the industry standard described in American National Standards Institute (ANSI) EIA-748, *Earned Value Management System*. A separate EVMS certification review will be conducted by the Department

11. **Project Execution Plan (or Equivalent Documentation).** Review the Project Execution Plan (PEP), Project Management Plan (PMP), Annual Work Plan (AWP), and/or equivalent documents and determine if these documents reflect and support the way the project is being managed, are consistent with the other project documents, and establish a plan for successful execution of the project. These documents must include the project description; end state vision, plans and descriptions; program and strategic initiatives; funding requirements; project management approaches; key agreements; schedules; key decisions; deliverables and milestones.

12. **Start-up Test Plan (if applicable).** For processing facility type projects with follow-on operational activities, assess whether the start-up test plan identifies the acceptance and operational system tests (through hot [radioactive, hazardous, and/or operating temperatures and pressures] functional testing) required to demonstrate that system meets design operational specifications, and safety requirements. The EIR team should review key tests to ensure that sufficient description is provided to estimate cost and schedule durations associated with these tests. The EIR team should ensure that the start-up test plan identifies how tests will be determined to be successful, and that associated equipment and instrumentation has been included in the preliminary design. Finally, the EIR team should assess whether there is sufficient schedule and contingency for test and equipment failure during start-up testing.

13. **Acquisition Strategy**. Review the acquisition strategy to determine if it is consistent with the way the project is being executed. The EIR team should evaluate any changes in strategy that may impact the project and whether the current strategy represents best value to the government.

14. **Integrated Project Team**. Assess whether the project management staffing level is appropriate, and determine if appropriate disciplines are included in the Integrated Project Team (IPT). Identify any deficiencies in the IPT that could hinder successful execution of the project.

15. **Current Contract.** The EIR team will assess the scope of work in the contract to ensure it is consistent with the PMP (or equivalent documentation), near-term baseline, and performance metrics (gold chart). Any flexibility built into the contract (trading scope, grouping activities, sequencing work, etc.) should be taken into account when evaluating the baselines. (This review item should be coordinated with review items 2 and 3.)

Required Documentation

In general, the following documents or equivalents are required for the near-term operations funded project Performance Baseline EIR. The EIR team may request other associated material to ensure a complete and accurate review is performed.

- Detailed Resource-Loaded Schedule for the near-term baseline
- Detailed Cost Estimate of "near-term" activities for each operations funded project with supporting documentation for cost basis e.g. Vendor/subcontractor quotations for selected work items (normally provided at the on-site meeting); Escalation rates and Escalation Analysis;
- Critical Path Schedule;
- Project Data Sheet, Previous Funding History; Baseline Change Control Process description;
- Summary level schedules and costs for the remaining portion of the life-cycle baseline
- System Functions and Requirements Document (also referred to as the "Design-to" requirements or Design Criteria) (if applicable)
- Preliminary Design Drawings and performance specifications (if applicable)
- Results of and Responses to Site Preliminary Design Review (if applicable)
- Start-up Test Plan (if applicable)
- Hazards Analysis (if applicable)
- Risk Management Plan/Assessment
- Acquisition Strategy
- Final Design Drawings and Specifications (if applicable)
- Results of and Responses to Site Final Design Review (if applicable)
- Construction Planning Document (if applicable)
- Current Contract (Scope of Work)
- Performance Metrics (EM Gold Chart)
- Regulatory Compliance Plan (or equivalent) including Requirements, Processes and Status
- EM Liability Audit and Unfunded Contingency for Site
- Safety Documentation (if applicable)
- Project Execution Plan, Performance Management Plan, Annual Work Plan, and/or equivalent documentation
- End States
- Site schedule
- Final Reports of project/site reviews performed by EM

- Corrective Action Plan matrix showing resolution of all recommendations from EM or previous EIR reviews
- IPT Charter
- Most recent monthly reports (including EVMS/PARS reports, as applicable) (Three Months)
- Value Management/Engineering Report
- QA Plan and ISMP
- NEPA documentation
- Regulatory Consent Orders and Agreements
- Recent correspondence with DNFSB and/or USNRC identifying any issues or concerns and corrective actions taken or planned, if applicable.
- Complete WBS and WBS Dictionary
- Critical Decision approval documentation

Note: In advance of each EIR, each senior contractor executive shall provide, through the site manager and EM headquarters all required documents in support the EIR.