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Environmental Management

Safety ▪ Performance ▪ Cleanup ▪ Closure

Standard Review Plan (SRP)

External Technical Review Report





Corporate Critical Decision (CD) Review and Approval Framework Associated with Nuclear Facility Capital and Major Construction Projects

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External Technical Review (ETR) Process Guide

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1.0 INTRODUCTION

1.1 Purpose of Process

This document has been developed to guide individuals and teams who will be involved in External Technical Reviews (ETR) of U.S. Department of Energy's Office of Environmental Management (DOE-EM) projects. This Process Guide is intended to provide Program Offices, Site Offices, and site contractors as well as external technical review teams an understanding of the review process, requirements, and expectations. The guidance herein supplements implementation of Standing Operating Policies and Procedure (SOPP) 26, which was issued in April 2008 for ETRs. This Process will be modified periodically as guidance for ETRs evolves.

ETRs will be requested by the Federal Project Director or Headquarters EM staff and approved by EM-1, EM-2, EM-3, or EM-20. ETRs should be conducted to reduce the technical risk and uncertainty of DOE-EM projects. This Guide and SOPP 26 should be used when planning and conducting ETRs.

This guide provides general policy guidance regarding initiation and approval of ETR requests. Detailed guidance is provided for the remainder of the ETR process (i.e., after the ETR request is approved and before the ETR issues are submitted for tracking). The detailed guidance defines objectives, supporting activities, and responsible personnel/organizations for the three major components of the ETR process. Specifically, these components are:

- Pre-assessment planning
- Onsite Activities
- Reporting

1.2 Background

The DOE-EM was established in 1989 to achieve the safe and compliant disposition of legacy wastes and facilities from defense nuclear applications. A large majority of these wastes and facilities are 'one-of-a-kind' and unique to DOE. Many of the programs to treat these wastes have been 'first-of-a-kind' and unprecedented in scope and complexity. This has meant that many of the technologies needed to successfully disposition these wastes were not yet developed or required significant re-engineering to be adapted for DOE-EM's needs. Thus, throughout its existence, DOE-EM has required a strong technology component – focused on developing and adapting technologies to enhance safety, effectiveness, and efficiency – to accomplish its mission.

Although the Department has made great progress toward safely disposing of the legacies of the Cold War (e.g., the cleanup of the Fernald, Rocky Flats, and Mound sites), much remains to be done. While past accomplishments often provide a guide for future success, the unique nature of many of the remaining challenges will require a strong and responsive applied research and engineering program. To address this need, DOE-EM has placed this responsibility within the DOE-EM Engineering & Technology Program.

The objective of the DOE-EM Engineering & Technology Program is to reduce the technical risk and uncertainty in the Department's clean-up programs and projects. Risks are known technical issues that could prevent project success. Uncertainties are indefinite or unpredictable technical aspects of a project. To reduce those risks and uncertainties, the Applied Research and Technology Development and Deployment component of this program will provide technical solutions where none exist, improved solutions that enhance safety and operating efficiency, or technical alternatives that reduce programmatic risks (cost, schedule, or effectiveness).

Technical risks are identified by the projects, programmatic and external technical reviews, technical readiness assessments, and the DOE sites.

DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, provides the DOE with project management direction for the acquisition of capital assets. The accompanying goal of this Order is delivering projects on schedule, within budget, and fully capable of meeting mission performance, safeguards and security, and environmental, safety, and health standards. The Order recognizes that reviews are an important project activity and must be planned as an integral part of the project and tailored as appropriate to project risk, complexity, duration, and Critical Decision or phase. These key reviews include:

- Mission Validation Independent Project Review
- Mission Need Statement Review
- Acquisition Strategy Review
- Technical Independent Project Review
- External Independent Review (EIR)
- External Independent Readiness Review
- Operational Readiness Review or Readiness Assessment

ETRs are not required by DOE O 413.3A. However, Section 9.5 of DOE Manual 413.3-1 states that "technical reviews are necessary when there is uncertainty in the outcome of a project effort. If a design [technology, process, or system] is new, untried, or unproven….then a review by….knowledgeable peers is in order." The focus of the ETR is different than the DOE O 413.3A reviews. The DOE O 413.3A EIRs are focused on broad-based project management aspects (i.e., scope, cost, and schedule). ETRs are focused on technical risks and uncertainties.

The DOE-EM program believes strongly in reducing the technical risk of its projects and has initiated external technical reviews as one of several steps to ensure the timely resolution of engineering and technology issues. EM is working closely with Federal Project Directors to review such issues as technology development, systems integration, design, operations, maintenance, and nuclear safety. Cyber and physical security could also be reviewed, as needed. EM has completed several successful reviews using expert engineers and scientists from private industry and academia. Additional external technical reviews will be conducted to support key project decisions and will be a mainstay of the EM program.

In the National Academies of Science (NAS) 2007 report, *Assessment of the Results of External Independent Reviews for U. S. Department of Energy Projects*, it was acknowledged that projects benefit from the effort expended in preparing for external independent reviews and independent project reviews. This benefit increases as the size, complexity, and inherent risks of the project increase. The report stated the value and cost-effectiveness of external independent reviews would be enhanced if they were (1) planned more carefully with the broader involvement of all stakeholders, (2) tailored in a more flexible manner using a collaborative process, and (3) integrated into the complete portfolio of peer reviews that are used to monitor and support DOE projects. These conclusions and recommendations resulting from the NAS 2007 report can be applied to External Technical Reviews.

Feedback from the ETRs completed to date indicated that the ETR process could be improved through the development of general guidance and standard formats by which technical issues may be readily compared, summarized, trended and tracked in support of reducing technical risk across all projects. Existing review processes (DOE EM & SC, NNSA, NASA, and NAS), common ETR practices within DOE-EM, and the former Tiger Team Assessment process (Reference *Tiger Team Guidance Manual*, February 1990) were considered during the

development of this standard ETR process.

2.0 OVERVIEW OF EXTERNAL TECHNICAL REVIEWS

2.1 Purpose

The purpose of an ETR is to reduce technical risk and uncertainty. ETRs provide pertinent information for DOE-EM to assess technical risk associated with projects and develop strategies for reducing the technical risk, and provide technical information needed to support critical project decisions. Technical risk reduction increases the probability of successful implementation of technical scope. In general, an ETR assesses technical bases, technology development, and technical risk identification and handling strategies.

Objectives of Reviews

The three key objectives of an ETR are:

1. To determine if the technology, process, system, or design under review will meet project objectives and requirements,

2. To identify any issues (showstoppers) preventing successful implementation of the technology, process, system, or design under review, and

3. To identify issues or data needed to support critical or other project or program decisions.

The specific objectives of ETRs may vary, but generally include:

- Determining if technical objectives are well known and defined
- Determining if alternatives have been identified and effectively evaluated
- Determining if technology development is well planned and executed
- Determining the adequacy of quality assurance and scientific investigation
- Determining if technical bases are substantial and adequately documented
- Validating the technical basis and appropriateness of the technology, process, system, or design to technical risk reduction
- Determining if the technology can be deployed and implemented.

An ETR is not a contract or management review, nor is it an External Independent Review of a project baseline.

2.2 External Technical Reviews Defined

External Technical Reviews are independent reviews advisory to DOE (i.e., not the site or project contractor) that focus on technical scope and risk. The ETR is conducted by personnel who are independent from the project team implementing the technical scope and external to the office responsible for the technical scope. Rigorous ETRs enable DOE-EM to trend technical risk and implement technical risk reduction strategies. ETRs enhance project execution through timely identification of technical issues and corresponding response actions. Further, ETRs bolster assurance that technical issues have been thoroughly addressed and thereby support project management's bases for critical decision approvals. While not an explicit ETR objective, ETRs afford another opportunity to identify safety issues.

ETRs can be conducted at any stage of a project, but the scope of those ETRs will vary depending on the stage of the project. For example, to support Critical Decision (CD)-0, an ETR could be conducted to identify technical risks and the need for new technologies and applied research. To support a CD-1 decision, an ETR of the project's technical alternatives or conceptual design could be conducted. To support CD-2/3, an ETR of the project preliminary and/or final design could be conducted. To support CD-4, an ETR of certain operations or safety issues could be conducted.

The value of conducting ETRs is recognized throughout DOE-EM and requests originate directly from EM or the Field Office. At that point, EM or the Field Office will define the general scope and key lines of inquiry for the ETR. Requests initiated by the Field Office are routed to the Office of Engineering and Technology (EM-20), the Chief Operations Officer (EM-3), and the Principal Deputy Assistant Secretary (EM-2), respectively, for approval. EM-20 notifies the Field Office when an ETR request has been fully approved. (This does not preclude the Field Office from conducting independent reviews of project issues, as needed.) Requests initiated by EM-1 require no additional approvals and are routed directly to EM-20 who notifies the Field Office of the requested ETR. EM-20 assigns a sponsor for the ETR, who participates as an active member of the ETR team and/or acts as a liaison between the team and DOE-Headquarters. The ETR team completes its work with the issuance of the final team report. However, closeout of an ETR does not occur until all issues identified by the team are compiled in an approved Issue Response Plan. DOE EM-20 has the responsibility for tracking and validating the closure of ETR issues. The expectation is that Field Offices and Projects will forecast, schedule and fund all ETRs as a general policy.

The ETR process diagram, an EM Standing Operating Policy and Procedure, is depicted in Figure 1. Associated detailed guidance is provided in Section 3.0 of this document. The ETR process is divided into three stages: Pre-Assessment Planning, Onsite Activities and Reporting. Table 1 correlates these three stages to steps in the SOPP. The remainder of this section provides a summary of the three stages.

Table 1 Comparison of ETR Guide Stages to ETR SOPP

ETR Stage	Corresponding SOPP Step
Pre-Assessment Planning	*Begin* – Notify Field of ETR *End* – ETR Team Begins Work
Onsite Activities	*Begin* – ETR Team Begins Work *End* – Notify field/EM-20/EM management of readiness to brief
Reporting	*Begin* – Prepare ETR draft report *End (ETR Team)* – Distribute ETR Report *End (ETR)* – Issue(s) closeout document

Figure 1 ETR Standing Operating Policies and Procedures Diagram

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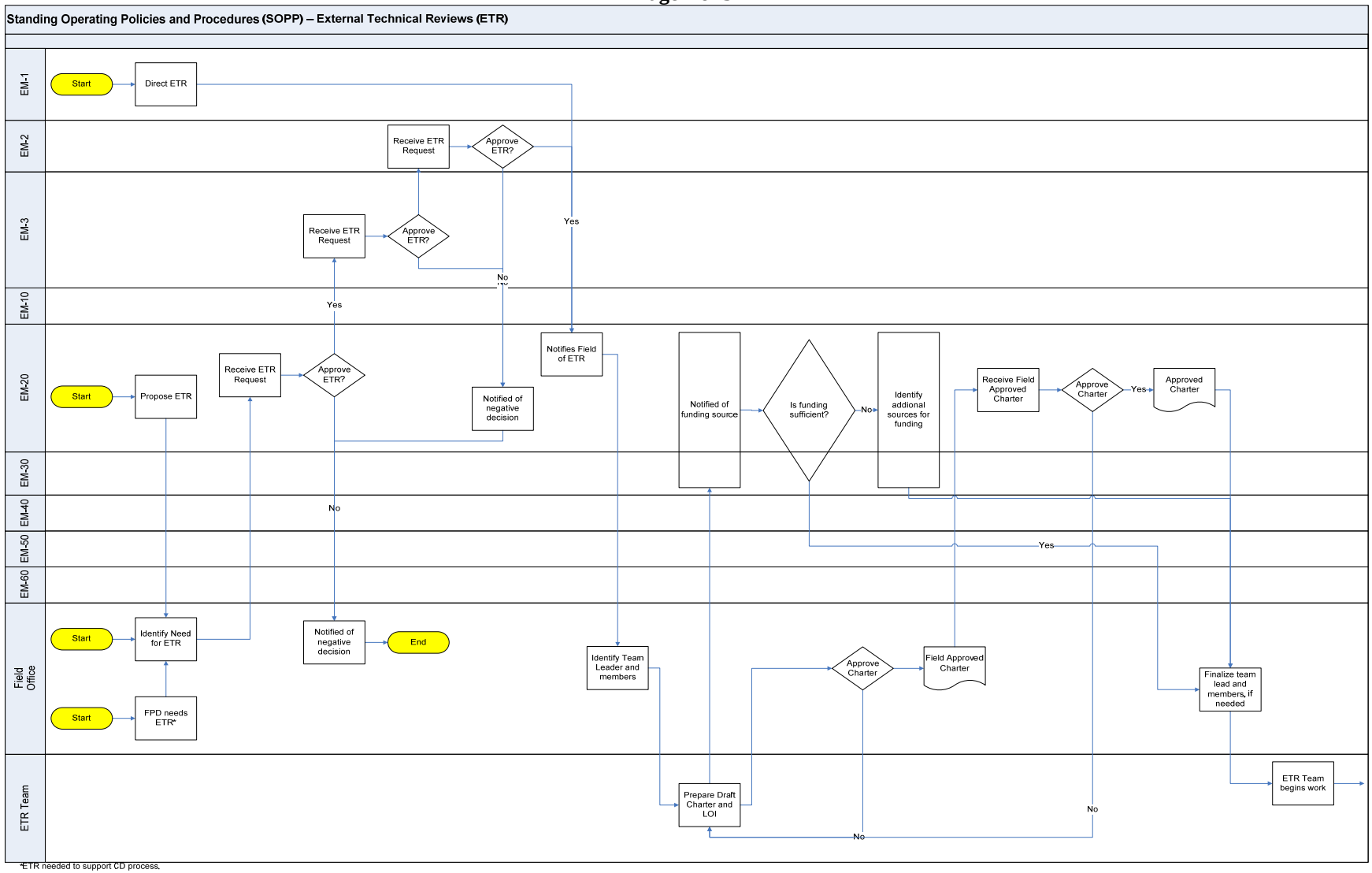

*ETR needed to support CD process.
** Briefing will be held before final report is issued.

Figure 1 ETR Standing Operating Policies and Procedures Diagram

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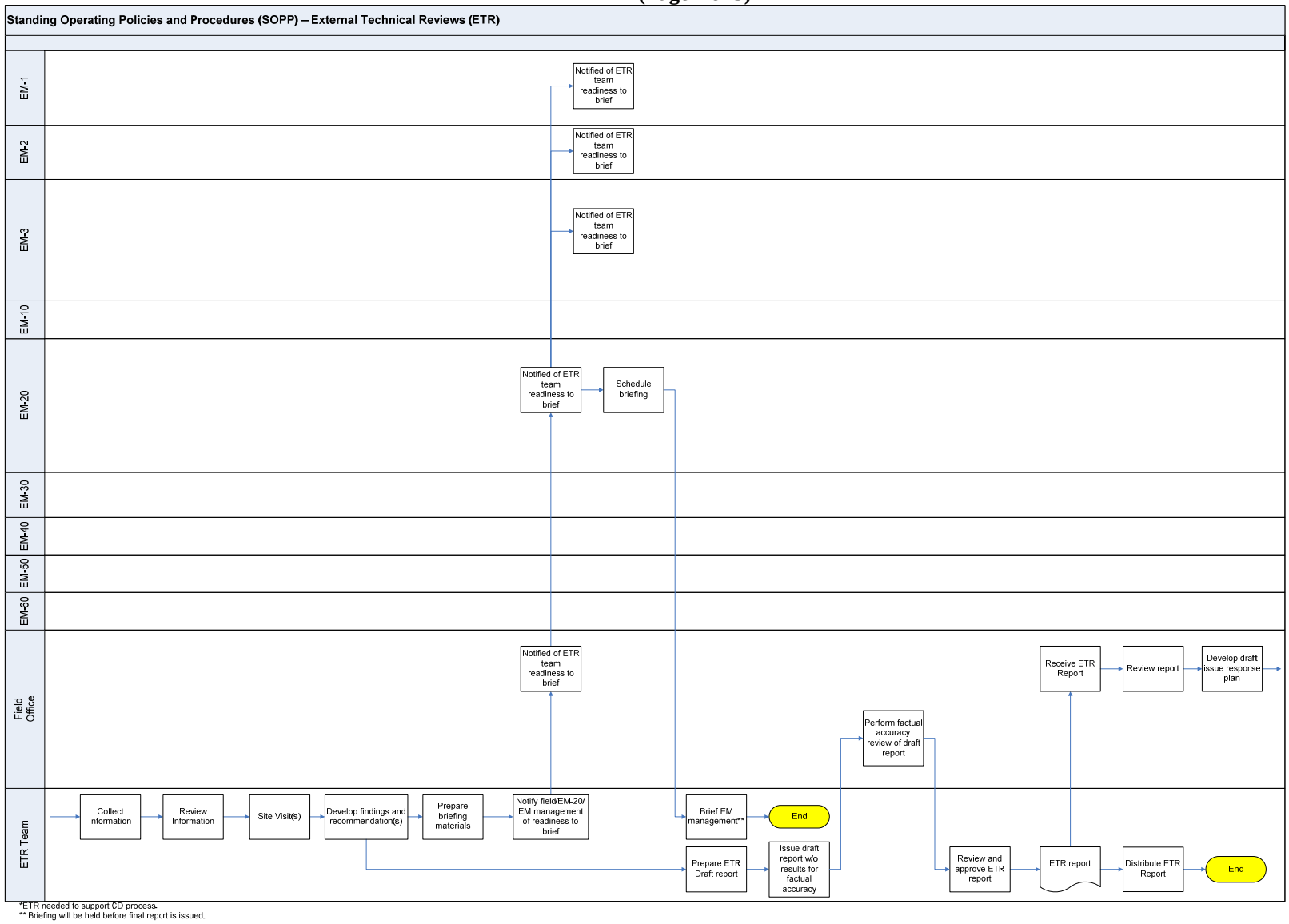

Figure 1 ETR Standing Operating Policies and Procedures Diagram

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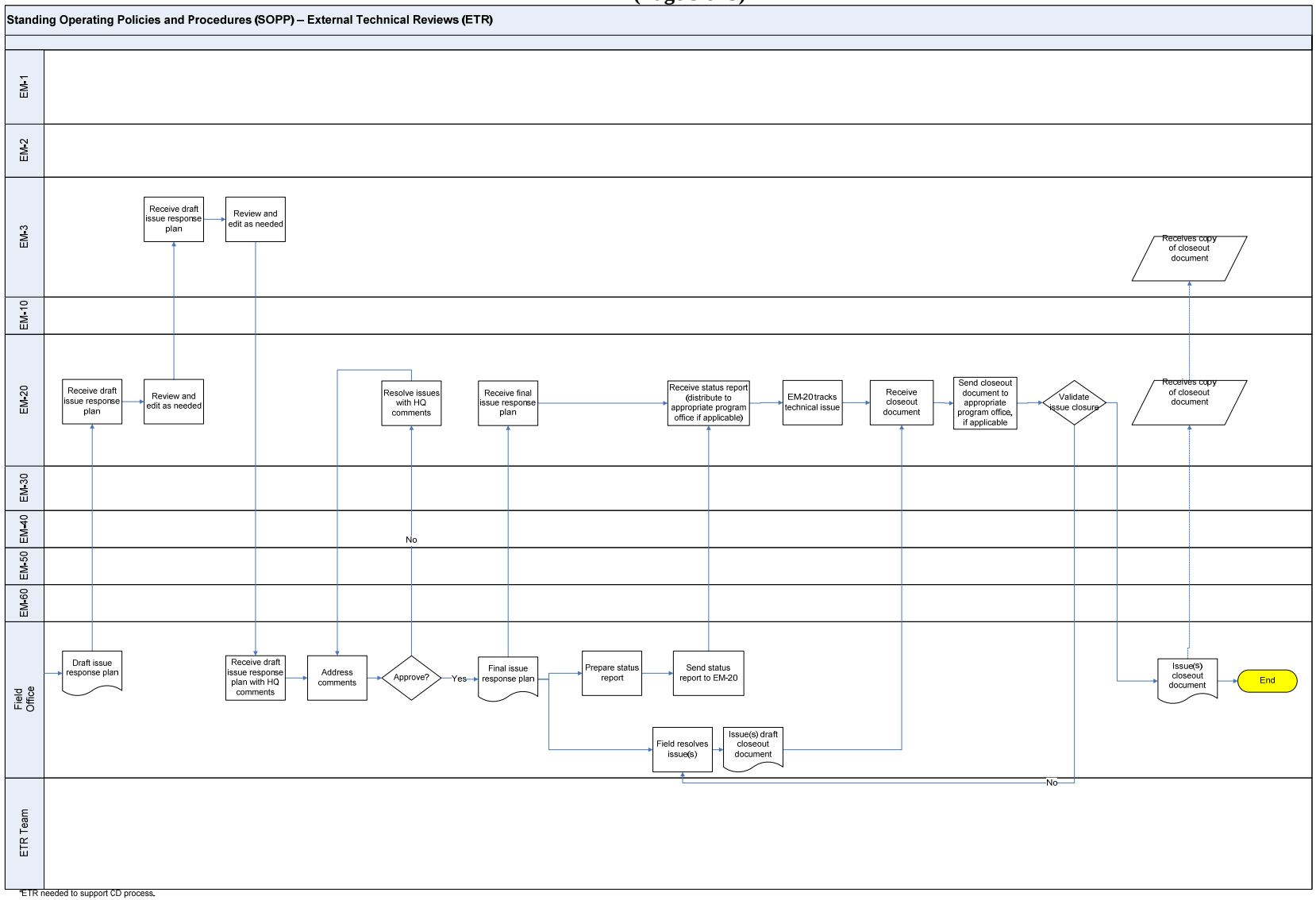

*ETR needed to support CD process.
**Briefing will be held before final report is issued.

The pre-assessment planning stage (Section 3.1) begins when EM-20 notifies the Field Office that an ETR request has been approved or that EM-1 has requested the initiation of an ETR. Pre-assessment planning involves selection of the ETR team, development of a Charter and Lines of Inquiry, and reviewing pertinent technical scope documentation. The pre-assessment planning stage ensures pertinent information is documented and communicated to the requester and the Field Office responsible for implementation of the technical scope. This pertinent information includes but is not limited to:

- Goals and objectives of the review
- ETR team membership
- Primary points of contact
- Period of performance
- Funding
- Technical scope documentation required prior to the onsite review
- Agenda and general process for conduct of ETR
- Lines of inquiry
- ETR Deliverables to be provided at conclusion of the review

The Onsite activities stage (Section 3.2) begins when the team arrives at the site to conduct the review. Onsite activities involve conducting a Kick-Off Meeting, conducting interviews and documentation reviews, drafting a list of identified issues, briefing DOE EM management on the results, and conducting a Close-Out Meeting. The onsite activities stage ensures appropriate data is gathered to assess the technical scope and identify associated technical issues. At the conclusion of the onsite activities stage, the ETR team provides a list of issues/recommendations. These recommendations are focused on reducing the technical risk associated with the reviewed technical scope.

The Reporting stage (Section 3.3) begins after onsite activities are completed. Reporting involves the ETR team drafting and issuing the final ETR report. The field office prepares the Issue Response Plan for all issues identified by the ETR team. The reporting stage ensures that technical issues identified during the ETR are accurately documented and the action plan for responding to the issues is documented.

2.3 Key Roles and Responsibilities

ETRs are conducted by teams comprised of personnel who are subject matter experts in technical areas relevant to the technical issue under review. Expertise required for the ETR should consider the following: 1) process or technology functionality and efficacy (e.g., engineering, chemistry or other science basis), 2) nuclear and chemical safety, and 3) environmental requirements. Additionally, ETR team personnel are independent from the entities responsible for decision-making and implementation of the technical scope being reviewed. Team membership should include individuals (subject matter experts) from a variety of sources (federal, contractor, academia, industry, etc.). The key is to find the best people available.

There are two functions within the ETR team: Team Leader and Team Member.

The Team Leader is selected by the Field Office, in consultation with EM-20, to organize and direct the conduct of the ETR. Consequently, the Team Leader should have participated in previous technical reviews.

Team Members are selected by the Field Office to objectively review the technical scope

and identify issues within their specific areas of expertise. For an ETR of significant technical scope, Team Members may serve as focus area leads for a subteam of reviewers.

In addition to the ETR team, a project liaison function in the field is crucial to ETR success. The Project Liaison is assigned by the Field Office and serves as the conduit for communication between the Field Office and the ETR team.

DOE EM-20 has ownership of the ETR process and tracking technical issues resulting from the conduct of ETRs. To facilitate their role, DOE EM-20 should assign a sponsor who will be responsible for review ETR documents, coordinating the interfaces between the ETR team and DOE EM organizations, and tracking technical issues.

Specific roles and responsibilities of the ETR Team Leader, Team Members and the Project Liaison are provided in Section 3.1.1.

2.4 Tailoring and Timeline for External Technical Review

The guidance provided in this document is generic to all ETRs. Specifically, all ETRs will be formally planned, executed and documented. Planning is documented in a Charter. Lessons learned from previous ETR indicate that upfront planning is essential to having a successful ETR. Execution consists of Kick-Off/Close-Out meetings, interviews and documentation reviews. Documentation includes an ETR Report of issues/recommendations and an accompanying Issue Response Plan. However, there are instances that require tailoring of the process. Conduct of an ETR under a compressed schedule and untimely availability of appropriate reviewer expertise are instances requiring tailoring. The following are considerations when tailoring the ETR:

- Is the scope manageable for review within the constrained time?
- Are there uncertainties applied to the ETR results?
- Is there uncertainty associated with ETR conclusions due to limited review time or limited availability of reviewers?
- Can appropriate reviewer expertise be acquired (contracted) to meet the compressed schedule?

A typical timeline for the ETR process is provided in Figure 2. This timeline assumes ETRs are forecast on an annual schedule.

Figure 2 Typical ETR Timeline

Activity	Typical Time Frame (relative to 'Begin Review')
Team Selection	-8 weeks
Consultant contract & funding (as required)	-8 to -6 weeks
Charter issued	-8 to -6 weeks
Pre-Assessment Meeting (optional)	-6 weeks
Advanced Material Reviewed	-2 weeks
Begin Review (onsite activities)	0
Complete Onsite Review/ Presentation to Field Office	+1 to +2 weeks
Summary to DOE-EM	+2 weeks
Draft Report	+4 weeks
Review and Comment resolution	+6 weeks
EM Management Exit Briefing	+6 weeks
Final Report issued	+8 weeks
Issue Response Plan completed for tracking	+10 weeks

3.0 EXTERNAL TECHNICAL REVIEW PROCESS

3.1 Pre-Assessment Planning

1. An ETR is requested by DOE Program Office or the Field Office for a specified project or technical issue. It is expected that an annual schedule of ETRs will be established. EM approves ETR.
2. The Field Office selects a Team Leader and Team Members for conduct of the review. The Team Leader and Team Members are independent from the project team implementing the technical scope and external to the office responsible for the technical scope. The Team Leader should have participated or led a previous technical review, and should be knowledgeable of the technical area. Selection of Team Members is based on the scope of the review. Refer to Team Leader and Team Member roles and responsibilities in Section 3.1.1. Refer to Team Selection criteria in Section 3.1.2.
3. The Team Leader assesses the need for additional reviewers and initiates the appropriate acquisition actions to ensure the additional support is available for the review.
4. The Team Leader assesses the need for a pre-assessment onsite visit. The purpose of the pre-assessment onsite visit is to provide the team an overview of the technical issue and request documentation for advance review. However, if this purpose can be accomplished by some other means (e.g., teleconference, emails, or the team's existing familiarity with the technical issue), the Team Leader may determine that a pre-assessment onsite visit is not needed. An on-site visit should be required for Team Members unfamiliar with the site and its issues.
5. If a pre-assessment onsite visit is needed, the Team Leader contacts the Field Office (the organization to be reviewed) and schedules a visit.
6. The Team Leader requests in writing the documentation needed for advance review from the Field Office.
7. The Team Leader, with input from Team Members, develops a Charter containing the elements detailed in Section 3.1.3 and Attachment A.
8. The Team develops lines of inquiry (LOI) to ensure the scope of the charter is adequately addressed. Attachment B provides suggested lines of inquiry. Additional guidance regarding lines of inquiry is provided in Section 3.1.4.
9. The Team confers with the Field Office and DOE EM-20 to determine the funding source for the ETR. It is expected that funding for ETRs will be provided by the Project or Field Office.
10. The Team Leader submits the Charter and LOI to the Field Office and DOE EM-20 for approval.
11. If previously scheduled, the Team attends the pre-assessment onsite visit.
12. Upon receipt of requested advance review documentation, the Team conducts document reviews.
13. Table 3 provides a listing of implementation tips for the pre-assessment planning stage.

3.1.1 Review Team Roles and Responsibilities

Team Leader

- Serve as the ETR Team primary point of contact
- Develops the ETR Charter and lines of inquiry in partnership with the Team
- Be willing and capable of staying onsite during the entire review process, and actively participate in the process described in the Charter. This commitment includes development of written input, and participation in team meetings.
- Organize the team's work and make assignments so that the Team Members' onsite time is well spent and will provide the required products. This will ensure that no single team member, including the Team Leader, will be left to complete a disproportionate amount of work.
- Review the ETR request to assure that specific topics or emphasis requested are properly understood and identified in the Charter. Obtain clarification from the requesting DOE official, as appropriate.
- Support Field Office with recommendations for members of the review team having expertise that is appropriate for the type of review and the project to be reviewed.
- Assign responsibility to Team Members to act as subteam leaders.
- Coordinate arrangements and agenda for review with the Field Office.
- Identify written materials to be provided to Team Members in advance of the onsite visit and required date by which these materials will be available.
- Accept requests for additional information from Team Members following initial review of materials provided in advance; communicate these requests to the Field Office; obtain agreement on time for responses to requests.
- Conduct team conference calls approximately one week (or as needed) prior to onsite visit to confirm arrangements and to clarify questions and potential lines of inquiry among Team Members.
- Coordinate team's arrival. Identify required check-in at site security office and time and place for initial team meeting with project officials.
- Present initial briefing describing review team charge and review process to onsite project participants.
- Participate as a subject-matter-expert as needed.
- Require Team Members to provide summary statements of observations and significant concerns approximately one day before the planned exit briefing to allow team review and discussion.
- Establish responsibilities among Team Members and timelines for completion of detailed write-ups supporting significant concerns and observations, and for submittal of other observations.
- Assign responsibilities and timelines for preparation of summaries and for consistency of comments.
- Conduct and provide a copy of the exit brief for onsite project participants with support from Team Members as appropriate.
- Review and consolidate all Team comments to ensure consistency throughout the report.
- Provide a draft copy of the report to all members of the Review Team for final consensus on the content and to the Field Office for a review for factual accuracy of the observations

included.

- Incorporate team member comments as appropriate as the final authority on the report content. Correct errors in fact identified by the project team review. Since a significant level of effort may be required to incorporate comments, the Team Leader may task Team Members to rewrite their sections as appropriate.
- Approve and issue the final report.
- Conduct exit briefing to key DOE personnel (i.e., EM-1, EM-2, EM-3, Field Office, Federal Project Director) after conclusion of the ETR.

Team Members

- Review all advanced materials provided prior to site review and advise the Team Leader if additional information is needed.
- Conduct a thorough review of the document(s) and personnel interviews. Focus efforts on specified areas and responsibilities.
- Advise Team Leader of project personnel that Team Members will want to interview on site.
- Participate in pre-review conference calls and onsite interviews.
- Be willing and capable of staying onsite during the entire review process, and to actively participate in the process described in the Team Meeting.
- Ensure receipt of all advance documentation and advise the Team Leader if other arrangements need to be made.
- Submit draft input in accordance with this guidance
- Prepare questions resulting from review of advanced material received and provide to Team Leader in advance. Only the Team Leader will coordinate with the site.
- Communicate directly with identified project participants to clarify understanding of material review.
- Seek clarification from project participants concerning perceived omissions or deficiencies.
- Prepare written comments on a timely basis as required by the Review
- Ensure all comments are unclassified and coordinate their comments with an Authorized Derivative Classifier if there is a question.
- Review draft report to assure individual observations are accurately described and to identify possible conflicts with other observations.

Remote Reviewers (if any):

- The Remote Reviewer write-ups/concerns/questions (unclassified) must be provided to the Team Leader prior to the Kick-Off Meeting as outlined in the Review Schedule.
- Review draft report to assure individual observations are accurately described and to identify possible conflicts with other observations.

Project Liaison Roles and Responsibilities:

- Serve as the project and site primary point of contact
- Facilitates ETR logistics (e.g., Coordinates with the Team Leader on arrangements, facilities and resources at the site for the review)
- Ensures site access to ETR Team Members

- Coordinates the project's review of the ETR report

DOE EM-20 Roles and Responsibilities:

- Approves ETR requests
- Approves the ETR Team charter and LOI
- Consults with the Field Office regarding designation of Team Leader and Team Members
- Works with the field office to ensure funding is sufficient for the ETR
- Assigns EM-20 ETR team sponsor. The sponsor may also be a member of the ETR Team.
- Reviews Issue Response Plan
- Tracks technical issues in Issue Response Plan

EM-20 ETR Team Sponsor Roles and Responsibilities:

- Review ETR documents
- Coordinate the activities between the ETR team and the DOE EM organization [i.e. the Office of Regulatory Compliance (EM-10); the Office of Acquisition and Project Management (EM-50), and the Office of Safety Management and Operations (EM-60)]
- Track issues identified during ETR scoping, execution, and closeout, and coordinate with the appropriate EM office
- Validate the closure of issue response plans
- Periodically visits the ETR team to monitor review activities

3.1.2 Team Selection

Key criteria for the selection of the ETR Team are independence and expertise. Team selection should utilize all resources available to DOE. The number of individuals on an ETR Team is based on the scope of the review. The Team Leader and Team Members are independent from the project team implementing the technical scope and external to the office responsible for the technical scope. For example, Team Members should not be contractors affiliated with the project (or competing projects) to be reviewed. Additionally, Team Members should satisfy the following criteria:

(a) no substantial obligations, reporting responsibilities or financial ties (either through current or employment within the past 2 years, or contractual relationships, or otherwise) with the contractors responsible for the project being reviewed,

(b) no substantial obligations, reporting responsibilities or financial ties with contractors responsible for directly competing technologies, projects or proposals with the project being reviewed. All potential conflicts should be disclosed through a "conflicts and bias" statement or form (similar to that used by the National Academies).

In determining the expertise required by Team Members, industrial experts (for operations that are industrial in size and therefore different than many of the Laboratory operations) and experts from other laboratories with similar operations should be considered.

3.1.3 Charter

The ETR Team provides its first formal response to the ETR request via the Charter. The purpose of the Charter is to convey intended technical focus, team membership, lines of inquiry,

cost and schedule. The ETR Team Leader is responsible for developing the charter based upon the general scope of the review provided by DOE. It is expected that the Team Leader will solicit, receive and incorporate input from Team Members. Team member input ensures relevant technical perspectives are reflected in the charter and strengthens team buy-in/support of the path forward. The developed Charter is submitted to DOE EM-20 for approval and allocation of required funding. The Charter should be approved by the EM-20 Deputy Assistant Secretary (DAS) and the responsible Field Office Manager by signing the Approval section of the Charter. DOE approval indicates 1) all relevant subject areas are covered; 2) team membership has been reviewed for conflict of interest regarding particular technology solutions; and 3) lines of inquiry have been reviewed for adequacy. The responsible EM-20 Office Director should also agree, but would not sign the Charter.

To establish the review schedule a typical review timeline is provided in Table 2 and an example list of schedule activities is provided in Attachment C.

As a minimum, the Charter should contain the elements described in Attachment A.

3.1.4 Lines of Inquiry (LOI)

LOI are the basic set of focused questions utilized during the conduct of the ETR to acquire data that will be used to formulate the conclusions of the review. Development of LOI is a collaborative effort with input from all Team Members. Properly identified LOI support the overall objective of the review and can be reasonably assessed in the time allotted for the review. Typically, a single set of LOI are developed for use by all Team Members. In this instance, individual reviewers perform their assessment from the perspective of their area of expertise. In some instances, it may be necessary to include LOI that are unique to a particular area of expertise. Possible areas for LOI include: the assumptions, methods for selecting an alternative, constraints to possible options, basis for the risk(s), the technical development plan and status, and information supporting key decisions.

There are federal directives that influence the engineering and technical requirements defined for projects. Engineering and technical requirements are inherent concerns of external technical reviews. Consequently, federal directives may be good resources for the development of appropriate LOI. The listing in Table 2, though not all inclusive, is provided to assist Team Members in developing LOI from federal directives.

The phase of the project may be a determining factor when developing LOI. The Review Team should be wary of asking questions about data that does not exist based on the phase of the project. The Review Team may need to revise or add to the LOIs as the review progresses. Attachment B provides a sampling of suggested LOI and the relevant phase of the project.

Table 2 Federal Directives for Consideration during LOI Development

DOE Policies
450.4 Safety Management System Policy
DOE Orders
413.3A Project & Program Management for Capital Assets
414.1C Quality Assurance
420.1B Facility Safety
435.1 Radioactive Waste Management
430.1B Real Property Asset Management
450.1 Environmental Protection Program
460.1B Packaging & Transportation Safety
DOE Manuals
413.3-1 Project Management for the Acquisition of Capital Assets
450.4-1 Integrated Safety Management System Manual
DOE Standards
1189-YR (DRAFT) Integration of Safety into the Design Process
Code of Federal Regulations
10 CFR 830 Nuclear Safety Management
10 CFR 835 Occupational Radiation Protection
10 CFR 851 Worker Safety and Health Protection Program

3.1.5 Documentation for Review

An important aspect of preplanning the ETR is the advance review of pertinent documentation. The Team Leader formally requests the documentation for advance review via the Charter or direct communication. The field Project Liaison is responsible for coordinating the distribution of the requested documentation to the ETR Team. To the maximum extent possible, the requested documentation should be provided to Team Members at least 2 weeks prior to the scheduled review. Submission of the project documentation is expected to be as an entire package and represent a 'static state' of development.

Documentation requested for an ETR varies but generally includes scope documents, technical bases documents, value engineering studies, technology alternatives studies, relevant regulatory information, and DOE or program reference documents. Information provided to the ETR Team should include (a) project objectives and requirements, (b) definition of process interfaces (e.g., initial conditions or feed characteristics, requirements for primary process outputs or endpoints, environmental discharge or emission requirements, project schedule constraints), (c) supporting development and testing data, (d) basis of design and design information to the extent available and relevant. Additionally, proper citations should be listed for each document provided

3.1.6 Onsite Meeting Facilities and Resources

Prior to the onsite review, the Team Leader and the Project Liaison discuss the facilities and equipment needed for the review. Typical considerations regarding onsite meeting facilities and resources are:

- Conference Room (or two) in un-cleared area or in area accessible to un-cleared Team Members with cleared team member escorts if necessary.
- Office space, two (2) additional offices for small group discussions (accessible to un-cleared Team Members with cleared team member escorts if necessary).
- Teleconference capability.
- Two computers with printing capabilities, Microsoft Word and PowerPoint installed.
- Telephone, internet and Fax access.
- Site/project clearance requirements for personnel related equipment such as government and non-government owned laptop computers.
- Site badging process as necessary.
- Security information for site visit.
- Personnel to conduct classification reviews of documentation generated during the review.
- Training required by Team Members for access to facilities.

Table 3 Implementation Tips – Pre-Assessment Planning

Planning

- The Pre-Assessment phase may be compressed, but lessons learned from past reviews indicate the need for detailed up-front planning.
- Define the scope: clearly and concisely, focused on the real problem/issue, and delineate the review scope based on mission or contract objectives.
- Define what is not in the scope.
- Up-front review of documents by the Review Team will streamline the initial meetings at the Project by reducing the need for overviews.
- Establish the report format early in the review.
- Early in the review address how responses to recommendations will be reported and tracked.

Team Selection

- Team Members should be independent of any corporate accountability or responsibilities for managing the project or technical issue being reviewed.
- Team Members should be free of any conflict-of-interest with respect to potential benefit due to recommendations identified during the review.
- Teams are comprised of experts in a variety of disciplines such that the Team can adequately review all relevant issues of the Project or technical issue being reviewed
- The Team Leader should have demonstrated ability regarding preparation, scheduling, organization and execution of review team activities.
- Ensure that there are firm commitments from the Team Members and/or identify any conflicts early.
- Allow time and funding for the acquisition of Team Members through contracts.
- Team size should meet the needs of the review scope.

Team Readiness

- Develop a required reading list for the Team Members and ensure it is completed prior to the on site activities. Allow 1 working day of advanced review per 100 pages of documentation.
- Establish team communication guides early i.e. status calls, distribution lists.

Pre-Assessment Onsite Visit (As needed)

- The purpose is to orient the review team on the technical issue to be reviewed and request documentation for advance review.
- Schedule as early as practical to ensure adequate time for advance review of documentation and team familiarization with the technical issue.
- Scheduled for at least 2 full days.

3.2 Onsite Activities

1. The Team Leader and the Project Liaison conduct a Kick-Off Meeting at the review site location. Additional information regarding Kick-Off Meetings is provided in Section 3.2.2.
2. If necessary, the Field Office conducts a tour of site facilities applicable to the scope of the review.
3. The Team reviews pertinent documentation and conducts personnel interviews to assess the identified lines of inquiry. To aid in compilation of issues, each Team Member maintains adequate notes from their information-gathering activities. Additional information regarding interviews is provided in Section 3.2.3.
4. Reviewers submit their identified technical issues to the Team Leader or the subteam leads.
5. The Team Leader is responsible for keeping DOE, the Field Office and Project personnel informed of technical issues as they are identified. This may include periodic meetings during the onsite review period. The frequency and formality of these updates is dependent on the length of the review period and the availability of data and personnel.
6. The Team compiles a list of the technical issues identified during the review.
7. The Team Leader reviews the issues and recommendations to ensure they are within the scope of the charter.
8. The Team Leader conducts a Close-Out Meeting to present the technical issues identified during the ETR. Additional information regarding the Close-out Meeting is provided in Section 3.2.4.
9. The Team Leader conducts an exit briefing with DOE HQ on the identified technical issues.
10. Table 4 provides a listing of implementation tips for the onsite activities stage.

3.2.1 Resources

The Project Liaison ensures that the requested resources are readily available at the start of Onsite Activities. Additional resources and documentation identified after the start of Onsite Activities are communicated to the Project Liaison by the Team Leader. Proper planning is expected to eliminate the need for additional resources; however, the expectation is that the Project Liaison will respond promptly to any additional resource requests.

3.2.2 Kick-Off Meeting

The Kick-Off Meeting marks the start of Onsite Activities. The purpose of the Kick-Off Meeting is to 1) introduce the ETR Team and key project personnel, 2) review the primary objectives of the ETR and the identified lines of inquiry and 3) convey the logistics for onsite activities. The Team Leader and the Project Liaison are responsible for the Kick-Off Meeting. Attendance is usually limited to the Team Members, DOE EM-20, and Project Personnel.

At the Kick-Off Meeting, Project Personnel provide an overview of the Project and its status. This will be in the form of formal presentations by appropriate Project Personnel to the Review Team using support materials such as view graphs, charts, drawings, or photos. Presentations should be concise, allowing for questions and answers within the allotted time. View graphs should be structured consistently from presenter to presenter and be clear and not excessive with information. Detailed information should be transmitted via supplemental handouts. The Review Team is the primary audience for the presentations, but other individuals may attend, particularly

if their presence may be advantageous to any line of questioning from the Review Team. When the agenda calls for discussion time, or at the conclusion of a particular topic presentation, a more informal round-table format is appropriate. These presentations should also address questions submitted by the Review Team in advance. Pre-existing presentations may be utilized if still current.

A sample Kick-Off meeting agenda is provided in Attachment D.

3.2.3 Interviews

During the Review, each individual Team Member conducts his or her own review of documents and personnel interviews. Even though some project personnel provide presentations to the Review Team as a whole, the individual reviewers are responsible for analyzing and assessing the assigned subject matter and providing a written report of their assessed technical issues. To improve efficiency during the interview process, breakout sessions should be scheduled to allow non-related interviews to be held concurrently. To the extent possible, more than one Team Member should be present for all interview sessions.

As interviews and document reviews are completed the details of the review should be documented. The information collected should provide the Review Team the ability at a later date to understand the subject, the observations and enable follow-up if needed.

3.2.4 Close-Out Meeting

The purpose of the Close-Out Meeting is to provide and exit briefing to the Field Office and Project personnel on issues identified through document reviews and personnel interviews during the onsite visit.

At the Close-Out Meeting, the Review Team presents the results of the review in the form of bullets. Comments and recommendations are presented and the Review Team responds to any questions raised by the DOE EM-20, the Field Office or the Project. The Team Leader or individual Team Members assigned to each subject area should make informal presentations that describe the reviews results relative to the Charter, and highlight all technical issues identified during the review. A separate exit briefing with the Field Office may also be arranged as appropriate. Copies of materials presented at the Close-Out Meeting are usually made available to meeting attendees.

The Close-out meeting may also include an exit briefing by the Project of their proposed responses.

A sample Close-Out meeting agenda is provided as Attachment E.

Table 4 Implementation Tips- Onsite Activities

Status Meetings

- Maintain a regular form of communication between the team and the Project such that neither is caught off guard by new information. Typically this is a daily meeting during onsite activities.
- Once issues have been reviewed by the Review Team they should be forwarded to the Project Team. This allows time for communication between the Review Team and the Project Team to clarify the issue.

Issue Capture and Resolution

- Use of a database or tables to capture the issues and responses will facilitate the ability to analyze the review and track open items.
- A standard form for capturing information should be used. Standard items should include: name, e-mail, phone number, scope area / LOI, document identification, specific questions, response, and follow-up items.
- The Review Team should have a process for handling differences in professional opinions.

Observation Categories

- Observations should be categorized based on their significance. Suggested observation categories could be:
    - Severe Technical Issues – Observations that would prevent the technology from being fully developed to meet mission needs. These observations should be considered fatal flaws that cannot be resolved.
    - Technical Issues – Observations requiring resolution to ensure the technology will successfully meet mission needs.
    - Areas of Concern – Observations that may require design modifications to the technology deployment or additional testing to resolve technical concerns.
    - Opportunities for Improvement – Observations that would improve the ability to meet mission needs or offer alternative solutions to technical problems.
    - Good Practices - Items that are commendable and deserve recognition.

3.3 Reporting

1. The Team prepares the draft ETR Report. Additional information on the content of the Report is provided in Section 3.3.1 and Attachment F.
2. Team Members review the draft report to ensure identified issues have been accurately captured in the report.
3. The Team Leader provides the report to the Field Office for a factual review. Additional information regarding factual review is provided in Section 3.3.3.
4. As applicable, the Team Leader revises the draft report based on the factual review.
5. Team Members review the revised draft report.
6. The Team Leader conducts an EM Management exit briefing.
7. The Team Leader approves and distributes the final report to DOE EM-20, the Field Office, and other appropriate parties
8. The Field Office drafts an Issue Response Plan and forwards to DOE EM-20. Additional information regarding Issue Response Plans is provided in Section 3.3.4 and Attachment G.
9. DOE EM-20 reviews and edits the drafted Issue Response Plan before forwarding to DOE EM-3. The DOE EM-20 review should include review(s) by select ETR Team Members if needed to determine if the Issue Response Plan adequately addresses ETR recommendations.
10. DOE EM-3 reviews and edits the drafted Issue Response Plan before forwarding to the Field Office.
11. The Field Office approves the Issue Response Plan and forwards the approved plan to DOE-EM-20.
12. The Field Office provides periodic status of Issue Response Plan item(s) to DOE EM-20.
13. DOE EM-20 validates closure of Issue Response Plan item(s).
14. Upon completion of all Issue Response Plan items, the Field Office issues a closeout document to DOE EM-20 and EM-3.
15. Table 5 provides a listing of implementation tips for the reporting stage.

3.3.1 Report Preparation

The purpose of the report is to document the conduct and results of the review. The Team Leader is responsible for preparing the report with detailed input from Team Members. The report is divided into sections that are assigned to individual Team Members. The intention is to provide the DOE EM-20 and the Field Office, at a minimum, a list of technical issues before the Review Team leaves the site. If possible, the Team Leader will also provide an initial draft of the report. A designated editor should review the draft report to provide consistency without changing content. The draft report will then be provided to the Review Team for a final review. It will also go to the Field Office for a factual accuracy check as described in Section 3.3.3. To expedite the schedule, these two reviews are often accomplished in parallel. Comments will be resolved and incorporated by the editor and a final report generated. The Team Leader will issue the report to the Field Office and Headquarters. See Attachment F for the minimum suggested content for the report.

Lessons learned may be identified during the conduct of an ETR that benefit future ETRs and/or

projects. ETR Teams are encouraged to document these lessons learned. These lessons learned may be documented within the ETR Report or they may be documented in a separate document. In the case of a separate lessons learned document, the ETR report should be referenced within the document and the document should be filed with the ETR report.

3.3.2 General Report Guidance

Technical issues and recommendations identified in the report align with the subject matter expertise of the reviewers and the chartered scope of the ETR. During the conduct of the review, key information should have been gathered to support the identification of the technical issue/recommendation. Supporting information to be included in the report for each technical issue/recommendation is:

- A description of the condition encountered during the review.
- Acknowledgement of the requirement(s) that govern the condition.
- Applicable industry or EM benchmarks.
- The benefit derived from resolving the technical issue and/or implementing the recommendation.

3.3.3 Factual Accuracy

The Field Office is responsible for conducting a factual accuracy review of material presented in the draft report. The purpose of the factual accuracy review is to identify any items of fact that are inaccurate. Factual accuracy reviews are not applied to the technical issues identified by the Team Members. The Review Team will correct errors in fact that may result in a change in identified technical issues. However, if the information provided is factual, the technical issues will not be changed as a result of this review.

3.3.4 Issue Response Plan

The Field Office should complete an Issue Response Plan which should:

- List the “Recommendation” for each "Technical Issue" from the ETR report.
- Provide a discussion of the required action.
- Propose start and end dates for the corrective action.
- Identify the office to which the corrective action has been assigned.
- Determine an open or closed status remark.

An example of an Issue Response Plan is provided in Attachment G. The responses should be entered into the existing Field Office action tracking system. The Issue Response Plans are statused by the Field Office as issues are addressed. The Field Office sends status reports to DOE EM-20. DOE EM-20 monitors the status of action items, validates closure of action items and issues the closeout document for the Issue Response Plan.

3.3.5 Closeout Document

The Closeout Document is the final document issued in the ETR process. The purpose of the Closeout Document to certify that all actions identified in the Issue Response Plan(s) are complete. The Field Office is responsible for issuing the Closeout Document with a Field Office

signature. The signature indicates that the actions have been verified as complete and meet the intent of the Issue Response Plan. The signed Closeout Document is then issued to EM-20 and EM-3.

As a minimum, the Closeout Document contains:

- a statement attesting to the completion of all Issue Response Plan actions,
- the initiating ETR report document reference
- the associated Issue Response Plan(s) document reference(s),
- associated action closure document references

An example Closeout Document is provided in Attachment H.

Table 5 Implementation Tips - Reporting

Report Preparation

- Include a technical editor as a resource to the team to help in finalizing the report.
- Begin report preparation in the beginning of the review. Develop an outline for the report immediately and discuss with the team during an early planning conference call and/or during the onsite visit.
- Build the report as review progresses rather than waiting until the onsite activities are complete.
- Each team member should complete their section of the report, including observations and recommendations, before they leave the site. Edits can be made later.

Comment Resolution

- Reviewers are responsible for resolving comments within their assigned subject area.
- The Team Leader resolves comments that are not specific to a particular subject area.
- Project Team should develop responses as issues are communicated to them. This will help ensure the issue is understood prior to the Review Team leaving the site.
- Caution should be exercised in having the Review Team Members review responses to avoid any implication they are identifying scope they could be retained to resolve.
- Efforts should be made to resolve comments/issues to the satisfaction of all reviewers. However, an individual reviewer may document caveats/concerns regarding report conclusions/recommendations in “minority reports” that are included as appendices to the report.

Report Distribution / Approval / Closeout

- Early in the review, the Team Leader should establish the distribution list for the report with input of the site and DOE.

4.0 ATTACHMENTS

Attachment A, Charter
Attachment B, Suggested Lines of Inquiry
Attachment C, Example Review Schedule
Attachment D, Kick-Off Meeting Agenda
Attachment E, Close-Out Meeting Agenda
Attachment F, Report Format
Attachment G, Issue Response Plan
Attachment H, Closeout Document

Attachment A, ETR Charter
(Page 1 of 3)

OUTLINE:

- **Title**
- **Introduction/ Background**
- **Scope of Review**
- **Team Membership**
- **Period of Performance**
- **Lines of Inquiry**
- **Approvals**
- **Attachment: List of initial information needed**

TITLE: *<insert text>*

The title uniquely identifies the subject of the review. The subject may be the name of a project or technical issue. The title established in the Charter is retained for all other ETR deliverables. Further, attempts should be made to make the title unique and descriptive enough to facilitate ease of retrieval via key word search.

Example:
TITLE: External Technical Review – Demonstration Bulk Vitrification System

INTRODUCTION/BACKGROUND

The introduction/ background clearly and concisely state the following:

- ***the originator of the ETR request***
- ***the organization accepting responsibility for completing the ETR***
- ***a brief summary description of the project or technical issue being reviewed.***
- ***Any other background material***
- ***A statement on how the results of the ETR will be used***

Example
As directed by the US Department of Energy, the Washington Savannah River Company (WSRC) is preparing to engage a team of independent technical reviewers to assess SRS consideration of alternatives and selection of preferred methods for disposition of the tetraphenylborate (TPB) contamination and restoration of Tank 48H to service.

Attachment A, ETR Charter
(Page 2 of 3)

SCOPE OF REVIEW

The scope should describe the technical areas of the project or technical issues that will be reviewed. Additionally, provide explanation of any aspects of the project or technical issue that are notably excluded from the review.

Example
The review will focus on these five primary technical subject areas:

- Mission Integration – This subject area review is intended to focus on the overall integration of the DBVS project into the Hanford Site's mission supporting tank waste treatment. This part of the review scope is intended to focus on the flowdown of mission performance requirements that the DBVS project has been tasked to demonstrate.

- Flowsheet – This subject area review is intended to focus on the DBVS overall flowsheet. This review shall be limited to those systems that are specific to the internal boundaries of the DBVS project, and is not intended to include secondary support systems such as effluent treatment or utility supply. The need to extend the review to any of the secondary support systems will be evaluated on an individual basis as the need arises.

- Vitrification System – This subject area review is intended to focus on the design of the vitrification system, and shall include specific evaluations of the following areas:
  - o Testing and Scale-Up Program
  - o Waste Package and Glass Recipe Formulation
  - o Refractory and Container Design

- Primary Supporting Equipment – This subject area review is intended to focus on the design of the major supporting equipment needed to ensure functionality of the vitrification system, and shall include specific evaluation of the following areas:
  - o Feed Mixer and Dryer Equipment
  - o Off Gas Treatment Equipment

- Nuclear Safety and Operations – This subject area review is intended to focus on the ability of the system to meet nuclear safety and operational standards required for a RCRA permitted research and development pilot scale facility. This review shall include specific evaluation of the following areas:
  - o Nuclear Safety and Authorization Basis Requirements
  - o Operations and Maintenance Feasibility

Attachment A, ETR Charter
(Page 2 of 3)

MEMBERSHIP

The Membership section contains details regarding the review team and team member biographies. Specifically, list each team member's name, subject area expertise and employment affiliation. Further, the list must clearly identify the designated Team Lead and Subteam leads, as needed.

Example:

Position	Name	Subject Area Expertise	Company
Team Leader	Person 1 name	Vitrification technology	DOE Office XYZ
Team Member	Person 1 name	Chemistry	DOE Office XYZ
Team Member	Person 2 name	Nuclear fuel and waste management	DOE Office XYZ
Team Member	Person 3 name	Technology integration	XYZ Laboratory
Team Member	Person 4 name	Requirements management	ABC Consulting

PERIOD OF PERFORMANCE

The period of performance provides estimated start and finish dates for the review. The start date is the expected date that the Kick Off meeting will be held. The finish date is the expected date for delivery of the final report. Other key intermediate milestones should also be included.

Example
The ETR is expected to begin in May 2006 and be completed by the end of September 2006. The primary deliverable for this work will be a final report of ETR review activities and recommendations delivered no later than September 29, 2006.

LINES OF INQUIRY (LOIs)

The LOIs established by the Review Team to address the scope of the review.

APPROVALS

Attachment B, ETR Suggested Lines of Inquiry

The three key objectives of an ETR are:

1. To determine if the technology, process, system, or design under review will meet project objectives and requirements,
2. To identify any issues (showstoppers) preventing successful implementation of the technology, process, system, or design under review, and
3. To identify issues or data needed to support critical or other project or program decisions.

These objectives should become the key lines of inquiry of the ETR, tailored to meet the specific scope of the review.

Technical Scope Considerations
1. Have alternatives been identified and effectively evaluated?
▪ Major alternatives have been identified and analysis of these alternatives is in the work scope of the conceptual design.
▪ Alternative analysis includes comparisons of LCC, Feasibility (including technology development requirements), stakeholder values, safety, regulatory compliance, and other factors as appropriate.
▪ The preferred alternative is identified and justified.
2. Are technical objectives well known and defined?
▪ Functional and performance requirements for the project are documented, approved (by users, key stakeholders, and DOE program office as appropriate) and are under configuration control.
▪ Trade-off studies are performed as needed to reach a reasonable level of project risk consistent with project phase and overall project cost/schedule.
▪ The trade-off studies include alternative design and process control and optimization approaches with consideration of technical safety requirements.
3. Is technology development well planned and executed?
▪ The technology development requirements for each alternative are identified and documented.
▪ The maturity of new technology to be used on the project has been evaluated and factored into risk analysis.
▪ New technology has been tested and determined to meet project objectives (technical, cost and schedule).
▪ Simulation and/or mockup facilities are defined and established as necessary.
4. Are quality assurance and scientific investigation adequate?
▪ Equipment and material needs for processing and production, including availability and reliability, are defined.
5. Are technical bases substantial and documented?
▪ The design basis will be subject to peer review by appropriate technical experts.

Attachment C, Example Review Schedule

Dates	Week	XYZ Recovery System External Technical Review (ETR)
5/8 – 5/12		ETR Team Leader finalize and submit to Field Office complete ETR planning package, including review process, charter, proposed membership and tentative schedule
5/15 – 5/19		– Field Office review, approve and submit the planning package to Program Office for review and approval – Program Office concur with charter and personnel selection
5/22 – 5/26		– ETR Team Leader let contracts for approved Team Members – Project submit proposed review package, for Program Office approval
5/29 – 6/2 (Holiday week)		– Project distribute review packages to review Team Members – Conference call with review team to resolve any outstanding questions – Finalize and issue agenda for kickoff meeting – Release members to travel
6/5 – 6/8	1	**Review Team on site (T-F)** – Kickoff Meeting – Technical briefings and tours – Agreement on scope, level of detail, sub-assignments and rough outline of report – Identification of any additional specialty skills required
6/12 – 6/16	2	– External technical review – Conference call meeting(s)
6/19 – 6/23	3	**Team on site (M-F)** – Continued reviews, discussions, interviews – Establish completeness and validity of prior XYZ Recovery System assessments and responses – Mid-point review with Project and DOE management
6/26 – 6/30	4	– External technical review – Conference call meeting(s)
7/3 – 7/7 (Holiday week)	5	– External technical review – Conference call meeting(s)
7/10 – 7/14	6	**Team on site (T-F)** – Final discussions with Project, DOE, team interactions and determination of recommendations
7/17-21	7	– Conduct DOE EM-20 briefing
		– Close-Out Meeting
		Approve & Issue Final Report
7/24 – 7/28	8	– Submit report draft material, as assigned
7/31 – 8/3	9	– Issue draft report for team review
8/7-8/10 8/14 – 8/18 8/21 – 8/25	10 11 12	– Team comments on draft – Conference call meeting(s) to resolve open comments – Incorporate all comment resolutions and prepare final report
8/28 – 9/1	13	– EM Management Exit Briefing – Issue Final Report

Attachment D, ETR Kick-Off Meeting Agenda

Topic	Presenter
Review Team Introductions	Team Leader
Purpose of Review	Team Leader
Scope of Review	Team Leader
Review Process Overview	Team Leader
Field Office Introductions	Field Office Representative or Project Liaison
Technical Issue overview and status	Field Office Representative or Project Liaison
Site tour (as needed)	Field Office Representative or Project Liaison

Attachment E, ETR Close-Out Meeting Agenda

Topic	Presenter
Purpose of Meeting	Team Leader
Presentation of technical issues ▪ General Overview of Recommendations ▪ Area 1 ▪ Area 2 ▪ Conclusions	 Team Leader Responsible Team Member Responsible Team Member Team Leader
Discussion	All
Path Forward for report issuance	Team Leader

Attachment F, ETR Report Format

REPORT CONTENT:

ACRONYMS

EXECUTIVE SUMMARY

Briefly state who requested the review, what organization was responsible for conducting the review, what project/technical scope was reviewed. Provide a summary table of the technical issues/recommendations identified during the review.

INTRODUCTION/BACKGROUND

Review Process
Provide an overview of the approach used to conduct the review. Reference planning documents.

Technical Scope Reviewed
Provide a detailed description of the technical scope that was reviewed

Provide the following for each technical issue identified during the review:

- ***Subject Area***
  Identify the applicable subject area reviewed
- ***Condition at Review***
  State the contributing factors that were observed during the review that lead to the identification of the technical Issue
- ***Technical Issue***
  State the technical issue identified during the review.
- ***Recommendation***
  State the review team's recommendation for addressing the identified technical issue.
- ***Benefit of Action***
  State how the technical scope will be benefited by adequately addressing the identified technical issue.

RESULTS
Provide results and recommendations in summary narrative and in terms of the five observation categories listed in Table 4.

ATTACHMENTS
Include the following planning documents:
- *References*
- *Charter*
- *Definitions*
- *Review Team biographies*

Attachment G, ETR Issue Response Plan

ID	Recommendation	Response	Action Office	Target Complete Date
6-2	A program to investigate processes that will dissolve the material and could be processed through the Saltstone systems should be initiated to address the risk that the water and salt flushes are not sufficiently effective in achieving compliance with the TPD acceptance criterion established	Initiate pilot testing with surrogate material. (SST-GES-2006-00014)	Field Office	mm/dd/yy

ID
Provide a unique identifier for each recommendation to be addressed by the issue response plan. Use the same identifiers as established in the External Technical Review report.

Recommendation
Provide a descriptive statement for each recommendation to be addressed by the issue response plan. Recommendations listed in the issue response plan are those identified in the External Technical Review Report.

Response
Indicate the identified actions to be taken to address the recommendation. If the response to the recommendation is provided in a separate report, the report may be referenced here.

Action Office
Indicate which office (i.e., Field Office, EM-20, etc.) has responsibility for responding to the recommendation and ensuring actions are completed to address the recommendation.

Target Complete Date
Provide the expected data by which the identified response actions will be completed.

Attachment H, Closeout Document

<Document Number>

<Date>

TO: ***<EM-20 recipient>***
<EM-3 recipient>

FROM: ***<Enter Name of Field Office>***

This document certifies that the issues identified in ETR Report *<reference document #>* and addressed in Issue Response Plan(s) *<list applicable document # references>* have been verified to be complete.

REFERENCE

<Enter applicable document # references e.g., action closure documents>

Field Office Certification:

Signature	**Date**