

Appendix G

U.S. Nuclear Waste Technical Review Board Strategic Plan: Fiscal Years 2004–2009 (Revised March 2004)

Statement of the Board

The Nuclear Waste Policy Amendments Act of 1987 directed the U.S. Department of Energy (DOE) to characterize one site, at Yucca Mountain in Nevada, to determine its suitability as the location of a permanent repository for disposing of spent nuclear fuel and high-level radioactive waste. The Act also established the U.S. Nuclear Waste Technical Review Board as an independent agency within the executive branch of the United States Government. The Act requires the Board to evaluate continually the technical and scientific validity of activities undertaken by the Secretary of Energy related to implementing the Act and to report its findings and recommendations to the Secretary and Congress at least twice yearly. The Board only can make recommendations; it cannot compel the DOE to comply.

Congress created the Board to perform ongoing independent and unbiased technical and scientific evaluation—crucial for public acceptance of decisions related to nuclear waste disposal. The Board strives to provide Congress and the Secretary of Energy with completely independent, credible, and timely technical and scientific program evaluations and recommendations achieved through peer review of the highest quality.

This strategic plan includes the Board's goals and objectives for fiscal years 2004 through 2009. During that period, the DOE plans to develop an application for authorization to construct a repository and to submit it to the U.S. Nuclear Regulatory Commission (NRC). During the next several years, important technical and scientific activities will be undertaken by the DOE aimed at (a) gaining a better understanding of the potential behavior of a Yucca Mountain repository, (b) developing a repository design, (c) reducing technical uncertainties, (d) confirming estimates of repository performance, and (e) developing and implementing plans for a waste management system that includes waste transportation, handling, and packaging and repository operations. In accordance with its statutory mandate, the Board will continue its evaluation of the technical and scientific validity of the DOE's work in these areas. In conducting its evaluation, the Board looks at how components of the repository and waste management systems interact with other elements of the systems. This "systems view" of repository and waste management activities will continue to be critically important because many crucial technical and scientific decisions will be made throughout this period.

Mission

The Board's mission, established in the Nuclear Waste Policy Amendments Act (NWPAA) of 1987 (Public Law 100-203), is to "...evaluate the technical and scientific validity of activities [for management of high-level radioactive waste] undertaken by the Secretary after the date of the enactment of the Nuclear Waste Policy Amendments Act of 1987..." By law, the Board will cease to exist not later than one year after the date on which the Secretary begins disposal of high-level radioactive waste or spent nuclear fuel in a repository.

Vision

By performing ongoing and independent technical and scientific peer review of the highest quality, the Board makes a unique and essential contribution to increasing the technical validity of DOE activities related to implementing the Nuclear Waste Policy Act (NWPA) of 1982. The Board also provides essential technical and scientific information to Congress and the public on issues related to the disposal, packaging, and transport of spent nuclear fuel and high-level radioactive waste. The Board performs technical and scientific evaluation of the DOE's work related to (a) gaining a better understanding of the potential behavior of a repository at Yucca Mountain, (b) developing a repository design for safe and efficient repository operations, (c) establishing a program for confirming estimates of repository performance, and (d) developing and implementing plans for a waste management system that includes waste transportation, handling, and packaging and repository operations.

Values

To achieve its goals, the Board conducts itself according to the following values:

- The Board strives to ensure that its members and staff have no real or perceived conflicts of interest related to the outcome of the Secretary's efforts to implement the NWPA.
- Board members arrive at their conclusions on the basis of objective evaluations of the technical and scientific validity of the Secretary's activities.
- The Board's practices and procedures are open and conducted so that the Board's integrity and objectivity are above reproach.
- The Board's findings, conclusions, and recommendations are technically and scientifically sound and are based on the best available technical analysis and information.
- The Board's findings, conclusions, and recommendations are communicated clearly and in time for them to be most useful to Congress, the Secretary, and the public.
- The Board encourages public comment and discussion of DOE activities and Board findings, conclusions, and recommendations.

Goals and Strategic Objectives

The nation's goals related to disposing of spent nuclear fuel and high-level radioactive waste were set forth by Congress in 1982 in the NWPA. The goals are to develop a repository or repositories for disposing of high-level radioactive waste and spent nuclear fuel at a suitable site or sites and to establish a program of research, development, and demonstration for disposing of such waste.

In 1987, the NWPAA limited repository development activities to a single site at Yucca Mountain in Nevada. The NWPAA also established the Board and charged it with evaluating the technical and scientific validity of the Secretary of Energy's activities associated with implementing the NWPA. The activities include characterizing the Yucca Mountain site and packaging and transporting spent nuclear fuel and high-level radioactive waste.

The Board's general goals have been established in accordance with its statutory mandate and with congressional action in 2002 authorizing the DOE to proceed with the submittal of an application to the NRC for authorization to construct a repository at Yucca Mountain. The goals reflect the continuity of the Board's technical and scientific evaluation and the Board's systems view of the repository and of waste management activities.

General Goals of the Board

To accomplish its congressional mandate, the Board has established four general goals.

1. Evaluate the technical and scientific validity of activities undertaken by the DOE related to understanding, testing, analyzing, and modeling geologic and other natural components of a proposed Yucca Mountain repository system. Review DOE activities related to estimating and confirming the performance of the natural components of the repository system.
2. Evaluate the technical and scientific validity of activities undertaken by the DOE related to understanding, testing, analyzing, and modeling the engineered components of a proposed Yucca Mountain repository system. Review DOE activities related to estimating and confirming the performance of the engineered components of the repository system.
3. Evaluate the technical and scientific validity of activities undertaken by the DOE related to understanding and modeling interactions among the components of the natural and engineered repository systems, estimating and confirming the performance of the proposed repository system, and integrating scientific and engineering activities.
4. Evaluate the technical and scientific validity of activities undertaken by the DOE related to planning, integrating, and implementing a waste management system, including the transportation, packaging, and handling of spent nuclear fuel and high-level radioactive waste and the operation of a repository.

Strategic Objectives of the Board

To achieve its general goals, the Board has established the following long-term objectives.

1. Objectives Related to the Natural System

- 1.1. Evaluate the technical and scientific validity of data and analyses related to the contributions of the natural barriers to waste isolation in a Yucca Mountain repository.
- 1.2. Evaluate DOE analyses and investigations related to hydrologic, geologic, geotechnical, seismic, volcanic, climactic, biological, and other natural features, events, and processes at the Yucca Mountain site and at related analogue sites.
- 1.3. Review DOE efforts to increase fundamental understanding of the potential behavior of the repository in a natural system.
- 1.4. Evaluate DOE and other studies and analyses related to repository tunnel environments.*
- 1.5. Review DOE integration of technical and scientific activities related to the natural system.
- 1.6. Review DOE efforts to confirm estimates of natural-system performance, including tests of models and assumptions and the pursuit of independent lines of evidence.

2. Objectives Related to the Engineered System

- 2.1. Evaluate the technical and scientific validity of DOE data and analyses related to the contribution of the engineered system to waste isolation in a Yucca Mountain repository.
- 2.2. Evaluate DOE studies and analyses related to the tunnel environments that will affect the performance of waste packages.*

*This is a shared objective under the natural system and engineered system.

- 2.3. Assess DOE efforts to increase understanding of fundamental corrosion processes in a proposed repository.
 - 2.4. Review waste package designs, including the performance attributes and technical bases for such designs, and assess the need to revise waste package designs on the basis of the results of ongoing technical and scientific studies.
 - 2.5. Evaluate the integration of science and engineering in the DOE program, especially the integration of new data into repository and waste package designs.
 - 2.6. Review DOE activities related to confirming the predicted performance of the engineered system.
3. *Objectives Related to Repository System Performance and Integration*
 - 3.1. Evaluate the technical and scientific validity of the DOE's technical basis for its estimates of repository system performance.
 - 3.2. Review the technical and scientific validity of DOE models used to predict repository system performance.
 - 3.3. Evaluate DOE efforts to increase confidence in its estimates of repository performance.
 - 3.4. Evaluate the technical and scientific validity of DOE efforts to gain a more realistic understanding of the interaction of the natural and engineered components of a repository system.
 - 3.5. Evaluate the integration of science and engineering with performance assessment.
 - 3.6. Evaluate the technical bases for the DOE's repository safety case, including efforts to integrate the safety case with multiple lines of evidence and performance confirmation.
- 3.7. Review the development of DOE plans and activities for performance confirmation.
4. *Objectives Related to the Waste Management System*
 - 4.1. Review DOE efforts related to the interaction of components of the waste management system from a life-cycle systems perspective, including at-reactor storage, waste acceptance, transportation, and repository design and operations.
 - 4.2. Review the technical and scientific validity of the DOE's plans for safely handling and packaging spent nuclear fuel and high-level radioactive waste for transport to a permanent repository and for disposal in a permanent repository.
 - 4.3. Review the technical and scientific aspects of the DOE's transportation plans.
 - 4.4. Review the technical and scientific validity of the DOE's plans for developing a transportation infrastructure.
 - 4.5. Evaluate design and engineering of the facility components or subsystems that involve innovative features, assumptions, and approaches.
 - 4.6. Review the process through which the DOE provides technical and scientific information to interested parties and includes interested members of the public in the development of waste management plans.

Achieving the Goals and Objectives

The NWPA grants significant investigatory powers to the Board. In accordance with the NWPA, the Board may hold such hearings, sit and act at such times and places, take such testimony, and receive such evidence as it considers appropriate.

At the request of the Board and subject to existing law, the NWPAA directs the DOE to provide all records, files, papers, data, and information requested by the Board, including drafts of work-products and documentation of work in progress. According to the legislative history, in-providing this access, Congress expected that the Board would review and comment on DOE decisions, plans, and actions as they occurred, not after the fact.

By law, no nominee to the Board may be an employee of the DOE, a National Laboratory, or DOE contractors performing activities involving high-level radioactive waste or spent nuclear fuel. The Board has the power, under current law, to achieve its goals and objectives.

In conducting its ongoing technical and scientific review, the Board takes a “systems view” of the repository and of waste management activities. That view considers how one element of the repository system affects another. Consistent with this approach, the Board has established four panels composed of three or four Board members. As described in the following paragraphs, the purviews of the panels correspond to the Board’s general goals.

1. *Panel on the Natural System*

Panel Goal. Evaluate the technical and scientific validity of activities undertaken by the DOE related to understanding, testing, analyzing, and modeling geologic and other natural components of a proposed Yucca Mountain repository system. Review DOE activities related to estimating and confirming the performance of the natural components of the repository system.

2. *Panel on the Engineered System*

Panel Goal. Evaluate the technical and scientific validity of activities undertaken by the DOE related to modeling, understanding, testing, and analyzing the engineered components of a proposed Yucca Mountain repository system. Review DOE activities related to estimating and

confirming the performance of the engineered components of the repository system.

3. *Panel on Repository System Performance and Integration*

Panel Goal. Evaluate the technical and scientific validity of activities undertaken by the DOE related to understanding and modeling the interactions of natural and engineered repository system components, estimating the performance of the proposed repository system, confirming the performance of the proposed repository system, and integrating scientific and engineering activities.

4. *Panel on the Waste Management System*

Panel Goal. Evaluate activities undertaken by the DOE related to planning, integrating, and implementing a waste management system, including the transportation, packaging, and handling of spent nuclear fuel and high-level radioactive waste and the operation of a repository.

Much of the Board’s information-gathering occurs at open public meetings arranged by the Board. At each meeting, the DOE, its contractors, and other program participants present technical information according to an agenda prepared by the Board. Board members and staff question presenters during the meetings. Time is provided at the meeting for comments from members of the public and interested parties. The full Board holds three or four meetings each year. The Board’s panels meet as needed to investigate specific issue areas. The majority of Board meetings are held somewhere in Nevada.

The Board also gathers information from trips to the Yucca Mountain site, visits to contractor laboratories and facilities, and meetings with individuals working on the project. Board members and staff attend national and international symposia and conferences related to the science and technology of nuclear waste disposal. From time to time, Board members and staff also visit programs in other countries to review best

practices, perform benchmarking, and assess potential analogues.

Although the Board's information-gathering activities are carried out primarily to further the Board's review, they often have the collateral benefit of promoting communication and integration of technical information within the DOE program and facilitating the dissemination of information among interested parties outside the program. Analyses are performed primarily by Board members and the Board's staff. When necessary, the Board hires special expert consultants to perform in-depth reviews of specific technical and scientific topics.

Crosscutting Functions

Several entities and agencies are involved in developing a system for safely packaging, transporting, and disposing of spent nuclear fuel and high-level radioactive waste in a geologic repository at a suitable site. As discussed in the following paragraphs, the Board's ongoing peer review is unique among the organizations involved in managing spent nuclear fuel and high-level radioactive waste.

- *Congress and the Administration, including the Secretary of Energy*, make decisions on national policy and goals and how they will be implemented. The Board's role in this process is to help ensure that policy-makers receive unbiased and credible technical and scientific analyses and information.
- *State and local governments* comment on and perform local oversight of DOE activities. The Board's oversight activities are different in that they are (1) unconstrained by any stake in the outcome of the endeavor besides the credibility of the scientific and technical activities, (2) confined to scientific and technical evaluations, and (3) conducted by individuals nominated by the National Academy of Sciences and expressly chosen by the President for their expertise in the various disciplines represented in the DOE program.

- *Other federal agencies* (in addition to the Board) with roles in the waste management program include the DOE, the NRC, the Environmental Protection Agency (EPA), the Department of Transportation (DOT), and the United States Geological Survey (USGS). The DOE and its contractors are responsible for developing and implementing waste management plans and for conducting analytical and research activities related to licensing, constructing, and operating a repository. The NRC is the regulatory body having responsibility for licensing the construction and operation of a proposed repository and for certifying transportation casks. The EPA is responsible for issuing radiation safety standards that the NRC uses to formulate its repository regulations. The DOT is responsible for regulating the transporters of the waste. The USGS participates in site-characterization activities at the Yucca Mountain site.

The Board's role and its systems approach are unique among these organizations. The Board performs ongoing independent review and expert oversight of the technical and scientific validity of the Secretary of Energy's activities relating to civilian radioactive waste management and communicates its findings and recommendations to Congress, the Secretary, and the public. The Board's technical and scientific evaluations complement the work of other agencies involved in achieving the national goal.

Key External Factors

Some factors that are beyond the Board's control could affect its ability to achieve its goals and objectives. Among them are the following.

- *The Board has no implementing authority.* The Board is by statute a technical and scientific review body that only makes recommendations to the DOE. Congress expected that the DOE would accept the Board's recommendations or indicate why the recommendations could not or should not be implemented. However, the DOE is not legally obligated to

accept any of the Board's recommendations. If the DOE does not accept a Board recommendation, the Board's recourse is to advise Congress or reiterate its recommendation to the DOE, or both. The Board's recommendations and the DOE's responses are included in Board reports to Congress and the Secretary.

- *Legislation and budget considerations could affect nuclear waste policy.* The level of funding provided to the Board affects its ability to comprehensively review DOE activities. Funding levels for the program also may influence activities undertaken by the DOE in a given year or over time. In addition, it is not possible to predict if legislation related to nuclear waste disposal will be passed in the future or how the Board might be affected by such legislation, if enacted.

The Board will evaluate the status of these external factors, identify any new factors, and, if warranted, modify the "external factors" section of the strategic plan as part of the annual program evaluation described below.

Evaluating Board Performance

The Board believes that measuring its effectiveness by directly correlating Board recommendations with improvements in the technical and scientific validity of DOE activities would be ideal. However, the Board cannot compel the DOE to comply with its recommendations. Consequently, a judgment about whether a specific recommendation had a positive outcome as defined above may be (1) subjective or (2) an imprecise indicator of Board performance because implementation of Board recommendations is outside the Board's direct control. Therefore, to measure its performance in a given year, the Board has developed performance measures. For each annual performance goal, the Board considers the following.

1. Did the Board undertake the reviews, evaluations, and other activities needed to achieve the goal?

2. Were the results of the Board's reviews, evaluations, and other activities communicated in a timely, understandable, and appropriate way to Congress and the Secretary of Energy?

If both measures were met in relation to a specific goal, the Board's performance in meeting that goal will be judged effective. If only one measure was met, the performance of the Board in achieving that goal will be judged minimally effective. Failing to meet both performance measures without sufficient and compelling explanation will result in a judgment that the Board has been ineffective in achieving that performance goal. If the goals are deferred, that will be noted in the evaluation.

The Board will use its evaluation of its own performance from the current year, together with its assessment of current or potential key issues of concern related to the DOE program, to develop its annual performance objectives and performance-based budget request for subsequent years. The results of the Board's performance evaluation are included in its annual summary report.

Consultations

In developing its original strategic plan, the Board consulted with the Office of Management and Budget, the DOE, congressional staff, and members of the public and provided a copy of the plan to the NRC and to representatives of state and local governments. The Board solicited public comment and presented its strategic plan at a session held expressly for that purpose during a public Board meeting in Amargosa Valley, Nevada, on January 20, 1998. During 2003, the Board again solicited and received comment on its revised strategic plan and performance plan. Many of those comments are incorporated in this revision. Copies of the Board's strategic plan, annual performance plans, and performance-based budget for fiscal year 2005 are available in the Board's summary report for 2003 and on the Board's Web site: www.nwtrb.gov.

Appendix H

U.S. Nuclear Waste Technical Review Board

Fiscal Year (FY) 2007

Budget Request Submittal

Including Performance Evaluation for FY 2005 and Supplementary Information about the Board

Summary and Highlights

This is the U.S. Nuclear Waste Technical Review Board's performance-based budget request for fiscal year (FY) 2007. The request will support the Board efforts to achieve its performance goals for the year. The performance goals are listed in the budget document and have been established in accordance with the Board's congressional mandate: Conduct an independent evaluation of the technical and scientific validity of U.S. Department of Energy (DOE) activities related to disposing of commercial spent nuclear fuel and defense high-level radioactive waste. These activities include evaluating the proposed Yucca Mountain repository site in Nevada and packaging and transporting the waste. The Board's ongoing peer review is vital to the credibility of the DOE's technical and scientific activities.

In 2002, Congress approved the President's recommendation of Yucca Mountain and authorized the DOE to proceed with preparing an application that will be submitted to the U.S. Nuclear

Regulatory Commission (NRC) for a license to construct a repository at Yucca Mountain. Throughout this process, the Board has evaluated the technical and scientific validity of DOE work and has reported its findings to Congress and the Secretary of Energy.

The Board's performance goals for FY 2007 have been updated to reflect expected DOE activities during that period. For example, the Board will review DOE activities related to increasing understanding of the natural system, developing a radionuclide risk profile derived from Total System Performance Assessment (TSPA), analyzing the implications of DOE plans for a transportation, aging, and disposal canister system, and assessing issues relevant to thermal loading and waste-package lifetime. The Board also will review DOE activities related to planning and implementing a waste management system and designing, planning, and developing repository surface facilities. The Board is requesting \$3,670,000 to support these activities in FY 2007.

U.S. Nuclear Waste Technical Review Board

Salaries and Expenses (Including Transfer of Funds)

For necessary expenses of the Nuclear Waste Technical Review Board, as authorized by Public Law 100-203, section 5051, \$3,670,000 to be transferred from the Nuclear Waste Fund and to remain available until expended.

(2006 Energy and Water Development Appropriations Act, P.L. 109-103)

Board Budget Request for FY 2007

Background

Approximately 2,000 metric tons of spent nuclear fuel are produced each year by nuclear reactors and are stored at more than 70 sites nationwide. By the time the presently operating reactors reach the end of their scheduled 40-year lifetimes (at some time in the 2030s), approximately 87,000 metric tons of spent fuel will have been produced. (This estimate does not include spent nuclear fuel from plants that may be granted license renewals by the NRC.) In addition, high-level radioactive waste (HLW) from defense activities has been stored at numerous federal facilities throughout the country. Disposal of the spent nuclear fuel and HLW in a deep geologic repository is the primary approach being pursued by the United States and other countries.

In early 2002, the Secretary of Energy recommended approval of the Yucca Mountain site to the President. The President then recommended the site to Congress. The State of Nevada later disapproved the recommendation. Both the U.S. House of Representatives and the U.S. Senate went on to approve the site recommendation. Since that time, the DOE has focused on preparing an application to be submitted to the NRC for authorization to construct a repository at the Yucca Mountain site. Throughout this process, the Board has evaluated the technical basis of the DOE's work and communicated Board views to Congress and the Secretary of Energy in letters, reports, and congressional testimony.

The Board's Continuing Role

The Board was established by Congress in the Nuclear Waste Policy Amendments Act of 1987 (NWPAA). The Board is charged with evaluating the technical and scientific validity of activities undertaken by the Secretary of Energy, including site-characterization activities and activities related to the packaging and transportation of HLW and spent nuclear fuel.* Board technical and scientific findings and recommendations are included in reports that are submitted at least twice each year to Congress and the Secretary. In creating the Board, Congress realized that an ongoing independent and expert evaluation of the technical and scientific validity of the DOE's site-evaluation and other waste-management activities would be crucial to acceptance by the public and the scientific community of any approach for disposing of spent nuclear fuel and HLW.

The Board's Funding Requirement for FY 2007: \$3,670,000

The Board's budget request of \$3,670,000 for FY 2007 represents the funding needed to accomplish the Board's performance goals for the year. During FY 2007, the Board intends to continue its evaluation of the technical and scientific validity of DOE activities, including those related to increasing understanding of the natural system, developing a radionuclide risk profile derived from TSPA, analyzing tradeoffs between pre-closure and postclosure risks, assessing issues

*42 U.S.C. 10263

relevant to thermal loading and waste-package lifetime, and evaluating the implications of plans for a transportation, aging, and disposal canister system. The Board also will review DOE activities related to planning and implementing a waste management system and designing, planning, and developing repository surface facilities. The amount requested will support the work of the Board members who will conduct the comprehensive review described above, enable the Board to comply with extensive federal security requirements related to the Board's information systems, and allow the Board to undertake a financial audit in accordance with the Accountability of Tax Dollars Act (ATDA).

Performance-Based Budget for FY 2007

The nation's goals related to the disposal of spent nuclear fuel and HLW were set forth by Congress in the NWPA. The goals are to develop a deep geologic repository or repositories for disposing of HLW and spent nuclear fuel at a suitable site or sites and to establish a program of research, development, and demonstration for the disposal of such waste.

The NWPA limited repository-development activities to a single site at Yucca Mountain in Nevada. The NWPA also established the Board and charged it with evaluating the technical and scientific validity of the Secretary of Energy's activities associated with implementing the NWPA. Such activities include characterizing the Yucca Mountain site and packaging and transporting spent nuclear fuel and HLW.

The Board's general goals and strategic objectives are set forth in its strategic plan for FY 2004-2009. They have been established in accordance with the Board's statutory mandate and with congressional action in 2002 authorizing the DOE to pro-

ceed with developing an application to the NRC for authorization to construct a repository at Yucca Mountain. The Board's performance goals for FY 2007 have been established in accordance with its general goals and objectives. The Board's performance-based budget for FY 2007 has been developed to enable the Board to meet its performance goals for the year.

The Board will accomplish its goals by doing the following:

- Holding up to three public meetings with the DOE and DOE contractor personnel involving the full Board and holding meetings of the Board panels, as needed.
- When appropriate, holding fact-finding sessions involving small groups of Board members who will focus in depth on specific technical topics.
- Reviewing critical documents provided by the DOE and its contractors, including TSPA, preclosure safety analyses (PCSA), contractor reports, analysis and modeling reports (AMR), and design drawings and specifications.
- When appropriate, visiting and observing ongoing investigations, including those conducted at the national laboratories or potential analog sites.
- Visiting programs in other countries and attending national and international symposia and conferences.

The Board's performance goals for FY 2007, which are described below, are divided into four topical areas that correlate with the purviews of the Board's panels. The numbering system has been simplified, and performance goals have been updated from previous years to reflect current activities. Amounts have been allocated preliminarily to each set of performance goals for FY 2007.

Performance Goals for FY 2007

1. Performance Goals Related to the Natural System

(Dollars in Thousands)

FY 05	FY 06	FY 07
839	893	917

- 1.1. Review DOE activities related to natural-system performance, including tests of models and assumptions, and pursuit of independent lines of evidence.
- 1.2. Monitor the results of flow-and-transport studies to obtain information on the potential performance of the saturated zone as a natural barrier in the repository system.
- 1.3. Review DOE efforts in addressing questions related to possible seismic and igneous events and consequences.
- 1.4. Evaluate data and test results obtained from testing in the enhanced characterization of the repository block (ECRB) and other facilities.
- 1.5. Evaluate DOE efforts to analyze the source term and to estimate what radionuclides will be mobilized and transported through the natural system at what time periods.
- 1.6. Review plans and work carried out on possible analogs for the natural components of the repository system.
- 1.7. Recommend additional work needed to address uncertainties related to estimates of the rate and distribution of water seepage into repository tunnels, given anticipated infiltration rates.
- 1.8. Review DOE efforts in integrating results of scientific studies related to the behavior of the natural system into repository designs.
- 1.9. Review plans and studies undertaken by the Office of Science & Technology and International (OSTI) related to the natural system.

2. Performance Goals Related to the Engineered System

(Dollars in Thousands)

FY 05	FY 06	FY 07
1,006	1,071	1,101

- 2.1. Review DOE activities related to the engineered system in response to changes in the regulatory compliance period.
- 2.2. Review thermal-mechanical and rock-stability testing on potential conditions in repository tunnels.
- 2.3. Evaluate data from studies of the effects of corrosion and the waste package environment on the predicted performance of materials being proposed for engineered barriers.
- 2.4. Review the progress and results of materials testing being conducted to address uncertainties about waste package performance.
- 2.5. Review DOE analyses of facilities, systems, and component designs, including the transportation, aging, and disposal canister.
- 2.6. Evaluate the accuracy and completeness of the technical bases for repository and waste package designs.
- 2.7. Evaluate the integration of subsurface and repository designs, layout, and operational plans into an overall thermal management strategy.
- 2.8. Assess the integration of scientific studies into engineering designs for the repository and the waste package.
- 2.9. Evaluate the plans and activities of the OSTI related to the engineered system.

3. Performance Goals Related to Repository System Performance and Integration.

(Dollars in Thousands)

FY 05	FY 06	FY 07
671	714	735

- 3.1. Identify technical and scientific activities that are on the critical path to reconciling uncertainties related to DOE performance estimates in light of changes in the regulatory compliance period.
- 3.2. Evaluate strengths and weaknesses of TSPA.
- 3.3. Review new data and updates of TSPA models, and identify models and data that should be updated.
- 3.4. Evaluate activities undertaken by the DOE to develop a risk profile for specific radionuclides.
- 3.5. Evaluate DOE efforts to develop a realistic analysis of repository performance.
- 3.6. Evaluate DOE efforts to analyze the contribution of the different engineered and natural barriers to waste isolation.
- 3.7. Recommend additional measures for strengthening the DOE's repository safety case.
- 3.8. Evaluate DOE efforts to develop a feedback loop among performance-confirmation activities and TSPA models and data.
- 3.9. Monitor the DOE's proposed performance-confirmation plans to help ensure that uncertainties are addressed.
- 3.10. Review plans and studies undertaken by the OSTI related to overall performance of the repository.

4. Performance Goals Related to the Waste Management System

(Dollars in Thousands)

FY 05	FY 06	FY 07
839	894	917

- 4.1. Evaluate the integration of the repository facility, including the surface and subsurface components.
- 4.2. Evaluate the design of surface facilities, including the fuel handling and aging facilities, and how the design affects and is affected by the thermal management of the repository.
- 4.3. Review DOE procedures for ensuring that waste accepted for disposal has been suitably characterized.
- 4.4. Monitor DOE efforts to implement Section 180 (c) of the NWPA.
- 4.5. Monitor the DOE's progress in developing and implementing a transportation plan for shipping spent nuclear fuel and HLW to a Yucca Mountain repository.
- 4.6. Review DOE efforts to develop criteria for routing decisions.
- 4.7. Evaluate logistics capabilities of the transportation system.
- 4.8. Monitor progress in implementing new technologies for improving transportation safety for spent nuclear fuel, including transportation, aging, and disposal canisters and casks.
- 4.9. Evaluate DOE plans for enhancing safety capabilities along transportation corridors, and review DOE planning and coordination activities, accident prevention activities, and emergency response activities.
- 4.10. Review the potential and limits of the total system model.

Budget Request by Object Class

Object Class 11.1, Full-Time Staff: \$1,724,000

The amount requested for full-time permanent staff is based on the requirement to fund a total of 15 positions. Because the Board's technical and scientific evaluations are conducted by Board members supported by professional staff, the Board's enabling legislation authorizes the Board chairman to appoint and fix the compensation of not more than 10 senior professional staff members. This request assumes the use of all 10 positions under this authority. In addition, the chairman is authorized to appoint such clerical and administrative staff as may be necessary to discharge the responsibilities of the Board. The other 5 positions funded under this object class are support staff engaged in clerical, secretarial, and administrative activities; development and dissemination of Board publications; information technology, including maintenance of the Board's Web site; public affairs; and meeting logistics for the Board. The small administrative staff supports the very active part-time Board members and full-time professional staff.

The estimate assumes a 1.022 percent combined cost-of-living adjustment and locality raise in January 2007 for both General Schedule and Executive Schedule employees.

Object Class 11.3, Other than Full-Time Permanent Staff: \$376,000

The amount requested for this category includes compensation for Board members. Each Board member will be compensated at the rate of pay for Level III of the Executive Schedule for each day that the member is engaged in work for the Board. The 11 Board members serve on a part-time basis equaling 2 full-time equivalent positions. The budget assumes that each member will attend 3 full Board meetings, 2 panel meetings, and an average of 2 additional meetings or field trips during the year. This estimate represents an average of 57 workdays per member in FY 2007. This estimate also assumes a 1.022 per-

cent increase in Executive Schedule compensation for employees in this category for FY 2007 (effective January 2007).

Object Class 11.5, Other Personnel Compensation: \$47,000

The amount requested for this category covers approximately 80 hours of staff overtime and performance awards under the Performance Management System approved by the Office of Personnel Management (OPM). Most Board and panel meetings require considerable overtime for on-site meeting logistics and other preparations.

Object Class 12.1, Civilian Personnel Benefits: \$441,000

The estimate for this category represents the government's contribution for employee benefits at the rate of 25.75 percent for staff and 7.65 percent for members.

Object Class 21.0, Travel: \$298,000

The amount requested for this object class includes travel costs for Board members, staff, and consultants traveling to Board and panel meetings, to other meetings (including professional meetings, conferences, and orientation activities) and sites to acquire technical and scientific data, and to Yucca Mountain in Nevada to review site activities within the scope of the Board's mission. The request is based on 11 Board members attending 3 Board and 2 panel meetings and making an average of 2 other trips during the year at an average length of 3 days each, including travel time. In addition, the 10 professional staff members will travel on similar activities an average of 8 trips during the year at an average of 3 days per trip. In FY 2007, the expectation is that the DOE may increase its activities related to planning for transportation and packaging of the waste and designing the repository surface and subsurface facilities. The Board's meetings will increase commensurately and will be held in parts of the country affected by the DOE action.

Object Class 23.1, Rental Payments to the General Services Administration (GSA): \$197,000

The estimate for this object class represents the amount that the Board will pay to the GSA for rental of office space totaling 6,288 sq. ft. at an annual rate of \$31.34 per sq. ft.

Object Class 23.3, Communications, Utilities, Miscellaneous: \$24,000

The requested amount represents estimates for telephone service, postage, local courier services, video teleconferencing, FTS long-distance telephone service, the Internet, and mailing services related to management and use of the Board's mailing list.

Object Class 24.0, Printing and Reproduction: \$22,000

The major items in this object class are the publication of reports to the U.S. Congress and the Secretary of Energy, publication of meeting notices in the *Federal Register*, production of press releases announcing meetings and report publication, and production of other informational materials for Board members and the public. All Board meetings are open to the public, and copies of meeting materials are provided. Members of the public who live in rural areas and who do not have Web access may be interested in obtaining printed copies of Board documents.

Object Class 25.1, Consulting Services: \$103,000

Consultants will be hired when necessary to support and supplement Board and staff analysis of specific technical and scientific issues. This will enable the Board to conduct the kind of comprehensive technical and scientific review mandated by Congress.

Object Class 25.2, Other Services: \$177,000

This category includes court-reporting services for an estimated five Board or panel meetings, meeting-room rental and related services, maintenance agreements for equipment, professional development, and services from commercial sources. In addition, the Board will contract with part-time technical consultants to supplement and support in-house operations in systems management, Web site management, report production, and editing. Costs of a financial audit to comply with the Accountability of Tax Dollars Act also are included in this category.

Object Class 25.3, Services from Other Government Agencies: \$108,000

This category includes GSA administrative support services (payroll, accounting, personnel, etc.), legal advice from GSA, security clearances through OPM, and other miscellaneous inter-agency agreements.

Object Class 26.0, Supplies and Materials: \$62,000

Anticipated expenses include routine office supplies, subscriptions and library materials, and off-the-shelf technical reports and studies.

Object Class 31.0, Equipment: \$91,000

This estimate is for miscellaneous equipment costs, including audiovisual equipment and computer hardware, and computer-network software maintenance. In addition, funds are included to support the Federal Information Security Act, which requires federal agencies to periodically test and evaluate the effectiveness of their information security policies, procedures, and practices. The category also includes continued upgrades to IT security and continuity of operations (COOP) availability, support to e-gov telecommuting efforts, and technical support of the management of electronic records and e-mails.

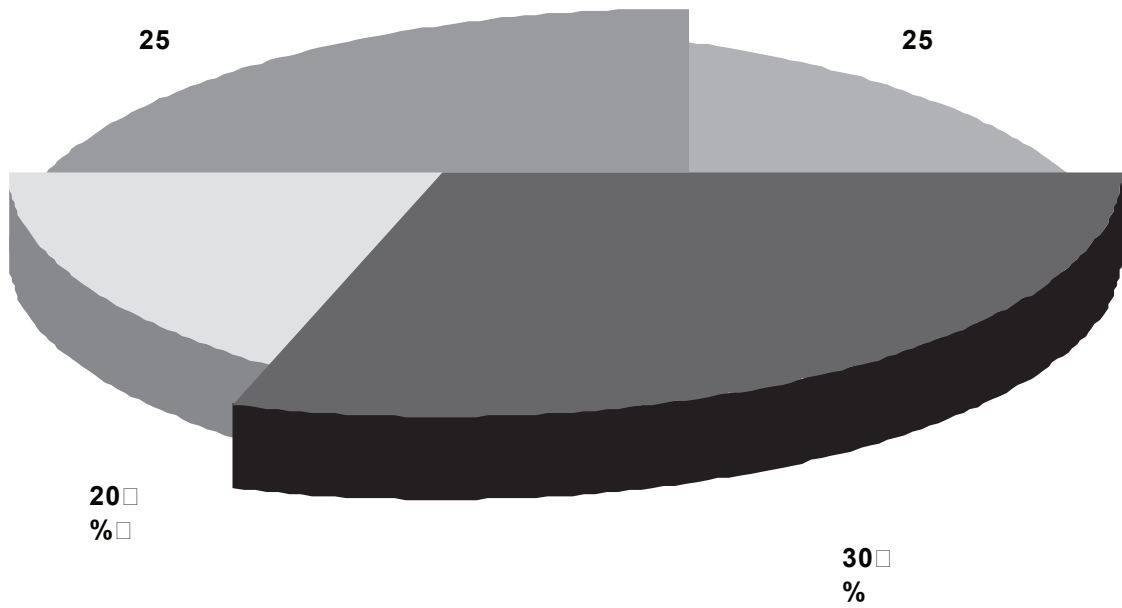
**Nuclear Waste Technical Review Board
 Projected 2007 Expenditures
 Object Classification (in thousands of dollars)**

Identification code 48-0500-0-1-271	FY 05 ACT	FY 06 EST	FY 07 REQ
Expenditures			
11.1 Full-time permanent	\$1,605	\$1,686	\$1,724
11.3 Other than Full-Time Permanent	364	366	376
11.5 Other Personnel Compensation	30	47	47
12.1 Civilian Personnel Benefits	401	430	441
21.0 Travel and Transportation	328	312	298
23.1 Rental Payments to GSA	185	184	197
23.3 Communication, Utilities, Miscellaneous	24	26	24
24.0 Printing and Reproduction	16	20	22
25.1 Consulting Services	101	103	103
25.2 Other Services	169	148	177
25.3 Services from Government Accounts	59	69	108
26.0 Supplies and Materials	42	61	62
31.0 Equipment	31	120	91
99.9 Total Obligations	\$3,355	\$3,572	\$3,670

**Nuclear Waste Technical Review Board
 Salaries and Expenses
 Personnel Summary**

Identification Code 48-0500-0-1-271	04 ACT	05 EST	06 REQ
Total Number of Full-Time Permanent Positions	17	17	17
Total Compensable Work-Years: Full-Time Equivalents	17	17	17

FY 2007 Budget Request Resources Allocation



■ Natural System (natural barriers at Yucca Mt.)	25%
■ Engineered System (engineered barriers at Yucca Mt.)	30%
■ Repository System Performance And Integration	20%
■ Waste Management System (Including transportation)	25%

