Nondestructive Evaluation Program

Program Overview

Program Description

Nuclear plant components and materials can undergo substantial changes over time in a nuclear environment. Plant owners must remain attuned to these changes to ensure steps can be taken if necessary to avoid unsafe operations or minimize mitigation costs. Nondestructive evaluation (NDE) is an important tool in the nuclear industry's arsenal for assessing component condition, but depends on the availability of qualified technologies, personnel, and procedures.

The Nondestructive Evaluation Program develops technologies and procedures to quickly, accurately, and cost-effectively inspect and characterize nuclear component condition and guide strategic decisions on whether and when to replace, repair, or continue operation. Research results are used to inform regulatory actions related to pre-service and in-service inspections. The Program also supports industry efforts to expand and accelerate the supply of qualified NDE workers in the nuclear industry.

Research Value

Research results from the Nondestructive Evaluation Program enable the accurate deployment of advanced inspection technologies to the nuclear power industry. Program activities also support the use of performance-based and risk-informed methodologies to improve inspection reliability. Collectively, these activities increase the accuracy of information used to assess material condition, lower operating costs, lower radiation exposure to workers, and assist plant owners in meeting regulatory commitments. NDE Program participants gain access to the following:

- NDE technologies, training, and regulatory/code support that can shorten plant outages, leading to savings of $1 million or more per plant per day saved.
- Technical justification for the use of NDE diagnostic capabilities during extended plant operation, supporting regulatory approval of license renewal or extension.
- Implementation support for inspection and evaluation guidelines promulgated through the Electric Power Research Institute (EPRI) and industry materials analysis programs.
- Qualification process for NDE personnel, procedures, and equipment in accordance with American Society of Mechanical Engineers (ASME) Section XI, Appendix VIII.
- Technical guidance supporting code changes that can lead to improved pre-service and in-service inspections.
- Strengthened NDE workforce through industry-focused training and central qualification resources.

Approach

The Nondestructive Evaluation Program develops and demonstrates cost-effective and reliable inspection methods and analysis programs that can be integrated with structural and lifetime evaluations of power plant components and systems. NDE results contribute to more accurate characterization of nuclear component condition and help inform decisions on whether to replace, repair, or continue operation.

- Develop new and improved NDE hardware, software, databases, methods, and delivery of NDE products to support nuclear plant inspection programs.
- Provide NDE qualification programs addressing personnel, procedures, and equipment that enable nuclear plants to comply with regulatory and industry requirements.
- Integrate NDE research and development with risk-informed technology and human performance research.
- Provide technical basis to guide regulatory and code activities related to pre-service and in-service inspections.

Accomplishments

EPRI's Nondestructive Evaluation Program supports nuclear industry efforts to address emergent material- and inspection-related issues through innovative NDE technologies, technical guidance, and qualification support.

- Developed qualified phased array ultrasonic procedures for fast, high-coverage examinations of reactor pressure vessel welds, austenitic and ferritic piping welds, dissimilar metal welds, and weld overlays.
- Developed three-dimensional laser imaging and mathematical modeling tools for examination of reactor vessel nozzles.
- Published initial guidance for NDE detection and measurement of gas accumulation in piping.
- Developed guidance for utilities in planning and executing efficient and effective examinations of dissimilar metal welds.

Current Year Activities

Nondestructive Evaluation Program R&D for 2010 will address a number of nuclear component materials issues where effective NDE is essential. Specific efforts will include the following:

- Identify and characterize best practices for examining buried piping.
- Develop NDE technology for identifying and mitigating selective leaching.
- Develop qualification program for NDE of reactor pressure vessel head penetrations.
- Convert risk-informed programs to applicable engineering code standards.

Selected NDE program activities are conducted in whole or in part in accordance with Title 10, Code of Federal Regulations, Part 50, Domestic Licensing of Production and Utilization Facilities (10CFR50), Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, and may invoke Part 21, Reporting of Defects and Noncompliance (10CFR21). Additional NDE program activities may be conducted in accordance with 10CFR50 Appendix B and 10CFR21 at the discretion of the Nondestructive Evaluation Center, member utilities or EPRI, when such action is deemed appropriate.

Estimated 2010 Program Funding

$10.3 million

Program Manager

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Summary of Projects

Project Number	Project Title	Description
P41.04.01.01	NDE Research and Development	Collaborative research and development of nondestructive evaluation (NDE) technology to address nuclear plant materials issues and characterize component degradation.
P41.04.01.02	NDE Applications and Technology	The Nondestructive Evaluation (NDE) Applications and Technology Transfer program products support the demonstration, qualification, and technology transfer of NDE technology development (R&D) program activities to field-usable products and services.
P41.04.01.03	NDE PDI Training and Qualification	General operation and maintenance of the Performance Demonstration Initiative (PDI) program

NDE Research and Development (068030)

Key Research Question

The existing nuclear fleet has a proven track record of operating safely and effectively. Extending this track record will depend on continued, reliable insight into the condition of materials to assess and address aging and degradation. Nondestructive evaluation (NDE) plays a vital role in managing material aging issues. In recognition of this increasing role, the NDE research and development (R&D) project will carry out aggressive research to develop NDE solutions to operate and maintain the existing nuclear assets of all Electric Power Research Institute (EPRI) members.

Approach

The Nondestructive Evaluation (NDE) Research & Development Program elements are focused on developing more efficient and more accurate NDE devices and techniques. The program addresses NDE of all major plant components, including piping, vessels, balance-of-plant, and reactor internals. For 2010, the scope of NDE R&D activities will expand its strategic plan to address emergent materials and infrastructure issues. Of particular merit will be innovative NDE technologies such as ultrasonic-guided wave techniques and low-frequency phased array ultrasonic that could address a variety of challenging materials inspection issues:

- NDE for selective leaching
- Inspection strategies for cast stainless steel
- Examination of reactor vessel internal components
- Buried pipe evaluation
- Assessment technologies for civil structures and materials

Impact

- Inspection strategies targeting existing and emerging degradation issues
- New inspection technologies for buried pipe, concrete, and cast stainless steel
- NDE approaches that facilitate life extension

How to Apply Results

The results of the NDE Research & Development Program are primarily delivered as Technical Reports or guideline documents that are used by utilities and their inspection vendors to develop inspection strategies. Additionally, the results of the NDE Research & Development Program are often used as the technical basis for generic inspection strategies and procedures.

2010 Products

Product Title & Description	Planned Completion Date	Product Type
Reactor Vessel Internals NDE: Reactor vessel internal components are examined during service primarily by visual techniques. Some components are susceptible to degradation by irradiation creep. For these components, the visual techniques may not be adequate to assess their integrity and may have to be supplemented. This project will research nondestructive evaluation (NDE) technologies that may be effective to detect and characterize degradation that is not identifiable by the traditional examination equipment and techniques used for the examination of reactor vessel internal components.	12/31/10	Technical Report

Product Title & Description	Planned Completion Date	Product Type
NDE to Address Groundwater Contamination Issues: Releases of tritium and other radioactive nuclides from existing power plants have resulted in significant negative public and regulatory pressure to correct this problem for both operating and future nuclear power plants. Effective nondestructive evaluation (NDE) is required urgently to identify degraded components that store or transport radioactive fluids and materials. This project will carry out the research and development (R&D) to produce feasible and effective NDE technologies to support prevention, remediation, and mitigation of materials degradation in tanks, transfer lines, fuel pool liners, and other components that store or transport radioactive fluids and materials that have the potential to leak into groundwater and off-site.	12/31/10	Technical Report
NDE for Extended Operations: Almost without exception all plants are in the process of extending the plant operating license. Nondestructive evaluation (NDE) plays a critical role in establishing condition and providing reliable data for the technical justification to extend operations of nuclear assets. This project will enable the research and development necessary to close inspection gaps for materials and components that during the normal operational period were of no concern.	12/31/10	Technical Report
Cast Stainless Steel NDE Technologies: The cast stainless steel (CSS) project will enable the research and development necessary to deliver reliable nondestructive evaluation (NDE) solutions for CSS. Major milestones include identifying critical CSS components and corresponding license renewal commitments, obtaining suitable CSS materials, developing and demonstrating NDE procedures, and establishing American Society of Mechanical Engineers (ASME) code criteria (Sec XI, App VIII, Supp 9). The project also will identify sources for both vintage and newly-manufactured cast material that can be used for the material characterization project and develop a CSS flaw-manufacturing process that is able to closely mimic service-induced base material flaws. This project will make it possible to evaluate a wide range of NDE techniques on CSS mockups. Among the first candidate NDE techniques will be ultrasonic, eddy current, radiographic, and guided wave technologies from both the inside and outside surfaces.	12/31/10	Technical Report
Condition Assessment of Buried Piping: This program addresses the research and development of nondestructive evaluation (NDE) technology for examination of buried piping for detection of inside diameter (ID), outside diameter (OD), and preferential weld corrosion damage. The project targets the development of technology for examination of large-diameter (36 inches to 12 feet) and intermediate-diameter piping (12 to 30 inches) under drained conditions.	12/31/10	Technical Report

Future Year Products

Product Title & Description	Planned Completion Date	Product Type
Civil Engineering Structures and Materials NDE: This project is targeted towards the research and development required to provide the nuclear industry with viable technologies for the nondestructive examination of large civil engineering structures and materials. Target areas include concrete containment and buried or inaccessible structural items such as rebar that are fundamental to building infrastructure.	12/31/12	Technical Report

NDE Applications and Technology (068025)

Key Research Question

Nondestructive evaluation (NDE) capabilities address a number of nuclear power industry needs, including pre-service and periodic in-service inspection of components to satisfy regulatory requirements, inspection to characterize component condition, and inspection to guide strategic decisions on whether and when to replace, repair, or continue operation of components.

In parallel, the nuclear power industry must remain cognizant and receptive to the introduction of new technology while ensuring confidence in the overall reliability of the NDE processes employed.

Approach

The NDE Applications and Technology program provides the nuclear power industry with a collaborative "ready now" NDE resource focused on today's operations and emerging issues. A team of more than 40 Electric Power Research Institute (EPRI) NDE technical staff target nuclear power applications and enable NDE technology transfer through the following activities:

- Inspection strategies and application plans using the results from the EPRI NDE research and development program
- Influencing regulatory and code requirements for pre-service and in-service inspections
- Evaluation of NDE technology to address aging plant and equipment reliability issues
- Resources to facilitate the supply of qualified NDE workers in the nuclear industry
- Supporting member utilities with independent assessments of NDE technology and results

Impact

NDE Applications and Technology Transfer program participants benefit from the development and application of NDE hardware, software, databases, and methods. These products include technical services support to participating nuclear units, as well as technical support to other EPRI Nuclear programs including the Performance Demonstration Initiative (PDI), materials programs (Materials Reliability Program [MRP], Boiling Water Reactor Vessel and Internals Program [BWRVIP], Steam Generator Management Program [SGMP]), Low-Level Waste, Balance of Plant Corrosion, Advanced Nuclear Technology, and Fuel Reliability.

How to Apply Results

The results of the NDE Applications and Technology Transfer program are provided through EPRI Technical Reports and guidelines that member utilities directly apply. In some cases, program participants may elect to apply the results via service organizations that provide in-service inspection and other related inspection services. Participants also apply the results of the program through collaborative resources such as NDE mock-ups and generic procedures. Indirect methods of application also are used, including technical changes to inspection codes, NDE training materials for participants and their suppliers, and the release of good practice documents targeted towards increasing public awareness and confidence in the reliability of NDE.

2010 Products

Product Title & Description	Planned Completion Date	Product Type
Remote Visual Examination Enhancements: Experimental work by EPRI to perform a capability study of the remote-visual controlled video camera systems currently used for inspection in reactor vessel internals applications has shown the need for additional work to be performed in order to improve the reliability of examinations. This subject continues to be of high interest to many regulatory authorities. This project will evaluate optimum system parameters for the visual examination system and work with camera manufacturers to improve current imaging capabilities. In addition, the project will explore alternative methods that could be used in lieu of visual examination.	12/31/10	Technical Report
Radiation Safety for Radiographic Operations: Volumetric examination with radiography is a viable and useful nondestructive evaluation (NDE) technique that would be the method of choice as a primary or alternative examination. However, radiation safety at radiographic worksites within nuclear facilities has emerged as a contentious issue since the inception of Institute of Nuclear Power Operations (INPO) document SEN-260. This document seeks to place control of radiographic operations with plant health physics personnel and not with radiographers, whose specific Nuclear Regulatory Commission (NRC) agreement or state licenses require that the security and control of isotopic radiography sources reside with the licensee. Utility radiographers and radiographic service vendors feel they may be in violation of their licenses if they allow unqualified and untrained health physics personnel to take responsibility for the storage and control of radiography sources. Many utilities are now also requiring radiography exclusion zones to be extended to the 0.25 mR/hr or 0.50 mR/hr line, instead of the usual 2mR/hr limit, and are using excessive numbers of untrained personnel to man exclusion zone barriers. The result of these actions has been to limit or exclude the use of radiography in plant areas by making it very difficult, time consuming, and costly. This project will assist utilities with the implementation of INPO SEN-260 and address radiation safety issues raised by this document. In addition, a Technical Update workshop with plant radiography and radiation protection personnel is planned.	12/31/10	Technical Update
Good Practices to Optimize Human Performance During ISI: Recent in-service inspection (ISI) operating experiences shed light on human errors when conducting automated and manual ultrasonic nondestructive examinations (NDE) of dissimilar metal (DM) welds. In one case, a data analyst was influenced by preconceived beliefs and undersized the through-wall height of the flaw (this is a typical human performance error precursor referred to as "mind-set"). Most nondestructive examiners do not err intentionally, yet most errors result from making decisions based on incomplete information or making assumptions. This project would tap into the numerous resources (Electric Power Research Institute [EPRI] reports, Institute of Nuclear Power Operations [INPO] documents, and other human performance tools) and relate these concepts directly to the NDE culture. This project produces a guideline that would provide good practices for the NDE technician when performing automated or manual examinations. Emphasis would be placed on the common traps of human nature in relation to NDE, as well as ways for the technician to recognize precursors to error-likely situations.	12/31/10	Technical Update

Product Title & Description	Planned Completion Date	Product Type
Ultrasonic DM Weld Appendix VIII, Supplement 10 and 12 Training: Since the inception of nondestructive evaluation (NDE) qualifications in the mid-1990s, the personnel pass rates have been substandard, especially for those qualifying for dissimilar metal welds (DMW) or qualifying for intergranular stress corrosion cracking (IGSCC). This is largely because most candidates are only exposed to conditions with cracks (IGSCC) during qualification examinations. This project will establish hands-on training and lab instruction in combination with computer-based training for those candidates attempting dissimilar metal welds (DMW) or IGSCC qualifications. This training will reinforce the fundamentals while putting emphasis on ultrasonic signal characteristics, associated with shear and longitudinal waves, that are essential when discriminating geometry from cracks.	12/31/10	Workshop, Training, or Conference
Inspection Techniques for Buried and Limited Access Components: Nondestructive (NDE) methodologies will be evaluated to investigate the condition of small bore above and buried piping to meet Institute of Nuclear Power Operations (INPO), federal, state, and Environmental Protection Agency (EPA) commitments to avoid groundwater contamination, radioactive discharge, and continued functionality of safety related pipes. This multi-facet project will engage global input with the following tasks: (i) survey existing and new technologies to assess pipe coating integrity, (ii) identify suitable NDE methodologies such as remote-field technology to inspect small diameter above and buried piping (4"to 20"), (iii) explore suitable cleaning methods for below-ground and limited-access components, (iv) evaluate the development of remote pipe crawler capable of delivering both internal visual and ultrasonic testing (UT)/remote field testing (RFT)/acoustic leak detection or other NDE for thickness measurements for small-diameter pipes (4" to20"), and (v) integrate laser profilometry for small-bore pipes (4" to 20").	12/31/10	Technical Update
Ultrasonic Instrument Equivalency through Technical Justification: This project will seek to establish a method of demonstrating ultrasonic instrument equivalency through technical justification as an alternative to complete re-qualification. Recently, the requirements for ultrasonic examinations of many nuclear power plant components have become more rigorous. Qualification programs have been developed that capture essential inspection parameters, which, once qualified, are difficult or impossible to change. One of these key parameters is the ultrasonic instrument that is responsible for driving the transducers. Once a given instrument has been qualified for a particular application using a specific set of ultrasonic probes, upgrading the same technique for use with a different, and sometimes better, instrument generally requires a complete procedure re-qualification. This complete procedure re-qualification process due to a change in the ultrasonic instrument is expensive and generally reaches the conclusion that both instruments provided equivalent results. A less time-consuming, cost-effective approach should be developed to establish this equivalency without the need for a full re-qualification.	12/31/10	Technical Report
NDE Work Force Enhancement - Fast Track: Current industry practice has created a gap between the point of nondestructive evaluation (NDE) education and achieving Level II certification. The Electric Power Research Institute (EPRI) will collaborate with post-high-school educational institutions to provide the necessary training, training materials, and instruction to the institutions' instructors in order to provide hands-on hours of experience on realistic pressurized water reactor (PWR) and boiling water reactor (BWR) nuclear power plant inspection locations. The curriculum and materials will enable training and qualification of Performance Demonstration Initiative (PDI) qualified, Level II NDE technicians within a time period of 1 year.	12/31/10	Workshop, Training, or Conference

Product Title & Description	Planned Completion Date	Product Type
Integrated Guided Wave Project: Guided waves (GW) technology has the potential to be effectively used to examine a number of components very efficiently. Under ideal conditions, GWs are capable of traveling significant distances within components such as piping, tubing, plate, cable, or rod. The potential exists to use GWs to examine large volumes quickly and to examine inaccessible portions of a component. Despite these benefits, GW technology has not been widely applied in the nuclear industry, largely because of the complexity involved in applying the technology and interpreting subsequent data. This project will evaluate GW technology and through targeted applications provide the industry with inspection strategies where the technology can be most effectively applied.	12/31/10	Technical Report
Phased Array Ultrasonic's for Piping, RPV and other Applications: The Electric Power Research Institute (EPRI) will develop and then qualify through the Performance Demonstration Initiative (PDI) program a set of standard manual techniques using the common features of currently available portable ultrasonic phased array instruments. These techniques will be applied to piping components including dissimilar metal welds (DMW) and weld overlays. Technical updates that include the qualified procedures for field use will be issued.	12/31/10	Technical Update
Surface Examination of Nickel Alloy Welds: This project addresses the surface examination of nickel alloy welds with complex geometry by developing alternate eddy current array probe designs. The project identified additional opportunities to further improve the probe design for control rod drive mechanism / bottom-mounted instrumentation (CRDM/BMI) in cases where the flaw structure is mostly subsurface with a minimal surface-connected ligament. The project plans to support the requirements of Code Case N729-1 for reactor pressure vessel (RPV) penetration J-groove weld exam by further addressing eddy current technique reliability. The project will continue development of ET techniques for examination of dissimilar metal piping welds by improving the signal-to-noise ratio in the presence of material noise (for example, cast stainless steel) and plans to qualify the technology under the pending Code Case BC 05-1173. Further, the project proposes to assess the feasibility of measuring vessel wastage with pulsed eddy current technology as an alternative to the leak-path method.	12/31/10	Technical Report
Guideline for the Examination of Dissimilar Metal Welds : The project is implemented to the industry through 1) publishing nondestructive evaluation (NDE) guidelines that provide recommendations on planning, preparing, and implementing NDE examinations; 2) providing procedures and protocol to administer the guidelines; and 3) providing training to customers and their vendors, on an as-needed basis, on NDEP guideline requirements.	12/31/10	Technical Resource
RI-ISI Applications and Technical Support: This project provides for the coordination and participation of risk technology to various industry groups. For example, the Materials Reliability Program, or MRP (for example, fatigue and Alloy 600/182/82 task groups), boiling Water Reactor Vessel and Internals Project (BWRVIP), Equipment Reliability, Nuclear Energy Institute (NEI) Risk-Informed In-Service Inspection Working Group, American Society of Mechanical Engineers (ASME), Advisory Committee on Reactor Safeguards (ACRS), Nuclear Regulatory Commission (NRC), owners groups, and ENIQ and Nuclear Regulators' Working Group (NRWG) interactions. This project also identifies and extends the use of risk technology to other components and programs. The products of this project include minimizing the impact of emerging issues on plant staff, incorporating industry experience into the risk-informed in-service inspection (RI-ISI) methodologies, and interacting with industry and regulatory bodies. Additionally, the project products include fulfilling an industry commitment to	12/31/10	Technical Resource

Product Title & Description	Planned Completion Date	Product Type
the NRC to review and disseminate industry operating experience as it pertains to piping reliability and risk-informed in-service inspection (RI-ISI) living program requirements. Examples of past activities include developing the technical basis and a methodology for code and regulatory acceptance of partial examination coverage for piping (for example, <90%), new screening criteria for thermal sleeves, technology transfer, and extension of the risk technology to other plant programs/components.		

Future Year Products

Product Title & Description	Planned Completion Date	Product Type
Alloy 600 Weld Support: This project continues to provide the industry with technical support required for Alloy 600 weld inspection programs. Utilities and vendors will benefit from the development of new implementation tools that will aid them in planning and implementing qualified examinations. The use of existing qualification data can be used to help identify our limitations and help with providing a strong technical basis for those examinations. The project includes an annual report on relevant field experience and lessons learned.	12/31/12	Technical Update
Optimization of UT Inspections for Piping Applications: In an effort to reduce the number of unnecessary component replacements and repairs due to misinterpretation of ultrasonic data, this project will fund the manufacturing of piping samples containing both pre-service and in-service defects. Techniques will be developed to assist ultrasonic examiners with discriminating between service induced flaws and fabrication defects.	12/31/12	Technical Report
Single-Sided Ultrasonic Examinations for Stainless Steel: In an effort to validate single-sided ultrasonic examinations of similar metal austenitic welds, this project will fund a study to determine the capabilities of currently qualified ultrasonic techniques and procedures for detecting far-sided flaws. In addition, this project will evaluate the necessary volume of material within the weld material and on the far side of the weld required to be examined based on risk-informed methodology. The required flaw size that can be reliably detected for thermal/mechanical fatigue type flaws also will be evaluated. Based upon the information learned, recommendations for technique and examination parameters modifications in order to effectively examine the far side of the weld will be provided. The use of encoded data and/or advanced ultrasonic techniques for similar metal austenitic welds applied from only one side of the weld will be evaluated for the examination of existing components as well as for new construction.	12/31/12	Technical Report

NDE PDI Training and Qualification (061738)

Key Research Question

Revisions to 10CFR50.55(a), initially published September 22, 1999, mandate the implementation of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Division 1, Appendix VIII, Performance Demonstration for Ultrasonic Examination Systems. Appendix VIII requires qualification of the procedures, personnel, and equipment used to detect and size flaws in certain piping, bolting, and reactor pressure vessel components.

Approach

This program includes the general operation and maintenance of the Performance Demonstration Initiative (PDI) program.

Impact

The PDI program is administered by the Electric Power Research Institute (EPRI) to address the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Division 1, Appendix VIII, in a collaborative, efficient, cost-effective, and technically sound manner.

How to Apply Results

Results of the PDI program may be applied by member utilities and organizations that provide in-service inspection services as defined in the PDI use agreement. Additional information on the application of the results is available at WWW.epriq.com

2010 Products

Product Title & Description	Planned Completion Date	Product Type
PDI Program 2010: The Performance Demonstration Initiative (PDI) Program includes the management, oversight, and implementation per the PDI quality program. This includes quality a (QA) activities, document control, and database maintenance. Through the PDI Program, utilities and their service providers, NDE personnel, NDE procedures, and equipment are qualified in accordance with American Society of Mechanical Engineers (ASME) Section XI, Appendix VIII. The PDI Technical Advisory Committee provides oversight of PDI program operations and via the NDE Program Integration Committee recommends policy and procedures to the NDE Action Plan Committee. The costs associated with conducting performance demonstrations are not included in this project; these are recovered from user fees.	12/31/10	Technical Resource

Future Year Products

Product Title & Description	Planned Completion Date	Product Type
PDI Program 2011: For 2011 and the foreseeable future, maintaining the Performance Demonstration Initiative (PDI) Program as a collaborative program is expected to be the most efficient method for utilities to comply with the mandatory Performance Demonstration requirements within American Society of Mechanical Engineers (ASME) Section XI, Appendix VIII. The PDI Program includes the management, oversight, and implementation per the PDI quality program. This includes quality assurance (QA) activities, document control, and database maintenance. Through the PDI Program, utilities and their service providers, NDE personnel, NDE procedures, and equipment are qualified in accordance with ASME Section XI, Appendix VIII. The PDI Technical Advisory Committee provides oversight of PDI program operations and via the NDE Program integration Committee recommends policy and procedures to the NDE Action Plan Committee. The costs associated with conducting performance demonstrations are not included in this project; these are recovered from user fees.	12/31/11	Technical Resource